Exhibit No. 1

Commission – Exhibit 1
Legal Services of Eastern Missouri's Letter of Opposition
File No. WR-2022-0303

Daniel K. Glazier
Executive Director and
General Counsel

Legal Services of Eastern Missouri
Action.Justice.Hope.

Senior Law Program

1/26/2023

Missouri Public Service Commission
P.O. Box 360
Jefferson City, Missouri 65102

Office of Public Counsel
P.O. Box 2230
Jefferson City, Missouri 65102

Style of Case: In the Matter of Missouri-American Water Company's Request for Authority to Implement General Rate Increase for Water and Sewer Service Provided in Missouri Service Areas
Case No. WR-2022-0303

To the Honorable Commission and Office of Public Counsel:

Legal Services of Eastern Missouri ("LSEM") is a non-profit legal aid organization that has offered free legal services to low-income Missourians for over 60 years. LSEM advances justice through legal representation, education, and supportive services. We partner with the community to improve lives, promote fairness, and create opportunities for those in need. Our core values are Action, Justice, and Hope.

Through our work, LSEM advocates with and for clients that are most often underrepresented by many of the infrastructure systems that are in place to benefit us all. Historically, urban, rural, and low-income communities, as well as communities of color, have been excluded from improvements to water and sewer infrastructure, while affluent, suburban homogenous communities have nearly exclusively benefitted from such improvements. Because of such disparities, any utility rate increase will result in environmental, social, and economic harm to the Missourians LSEM serves.

Water is essential to life: it is used for drinking, cooking, cleaning ourselves and our homes, and more. Despite these facts, access to water and sanitation services are treated as a privilege, rather than a right, and costs to access these resources have steadily risen within the past 10 years, by an average of 80 percent. Maintenance, environmental and health threats, climate disasters, and other costs have grown while federal aid to public water utilities has plummeted. Additionally, the gap between income and the cost of basic living expenses continues to widen. Inability to pay for water leads to shutoffs, endangering health and basic hygiene for impacted communities, and often snowballs into chronic health problems, housing crises, and family and community disruption.

In fall of 2021, the Low-Income Household Water Assistance Program (LIHWAP) was introduced to support households who are unable to meet the financial burden of water and sewer costs. LIHWAP is highly utilized at LSEM to assist clients in paying for high water and sewer costs, before any rate increases. Created as a temporary assistance plan, rather than a long-term affordability program, the program is unsustainable. It is set to expire on December 30, 2023, or when funds run out, whichever comes first. Without the added safety net of a dedicated water assistance program, low-income Missourians (and many of our clients) will be unable to afford or maintain basic water services. Tacking on rate increases for this utility, which is necessary for basic survival, will only make the problem inescapable.

Here at LSEM, we emphasize the *necessity* of access to water as a fundamental human right. Denying the water rate increase request will sustain the health, livelihoods, and futures of low-income Missourians and communities of color. LSEM urges the Commission to reject the request for a water rate increase, thereby encouraging increased access to a resource such as water.

We have attached client statements below that speak directly how these rate increases would be detrimental to their families, communities, and livelihoods. We also suggest the creation of a sustainable water affordability program that is adjusted for income and includes protections for vulnerable populations and the creation of a Consumer Bill of Rights.

Sincerely,

Abigail Leonard, MSW
Housing Advocate/Social Worker

Latasha Barnes
Attorney at Law

Enclosures:

January 24, 2023

To Whom It May Concern:

My name is Willa Matlock. I live at with my husband Minister Frank Matlock on Pheasant Drive in Florissant Missouri. My husband is a retired veteran and I retired from the Veteran's Administration. We do not think the water rates should increase.

We are in our 70s and we live on a very fixed income. My husband has early onset dementia and renal kidney failure. After we pay our monthly bills and medical expenses, we barely have enough money left to buy food.

If the water bills increase, I do not know how we will be able to continue to live in our home down the street from our church where we volunteer and the food pantry we visit regularly. We love living in our community, but we do not have a lot of extra money to spend. We need water service to take care of ourselves and stay in good health.

These types of price increases hurt seniors and folks like us the most. Please do not increase the water rates.

Thank you for listening.

Sincerely,

Willa Matlock and Frank Matlock

January 25, 2023

Dear Public Service Commission,

I humbly ask that you vote against the pending rate increase.

People are drowning in expenses as the costs of living and inflation continues to increase. Food prices are increasing. Medical expenses and medication prices are increasing. Costs are steadily increasing but earnings have not.

I am a single mother of one. I work two jobs: one full-time and another part-time. In addition to taking care of my family, I have very high medical expenses. I can personally say that increasing the cost of water service will add additional financial strain on families like mine.

I hope you will consider our plight when deciding whether to approve the requested rate increase.

Thank you for your time and consideration.

Sincerely,

CG /s/

Candace Graves

Florissant, Missouri

January 25, 2023

To Whom It May Concern,

My name is Nikeyia Ingram and I am a single mother of one son.

I ask that you vote against the water rate increase.

I am disabled and receive disability and to make ends meet I had to get a part time job. It is stressful taking care of my son and my household. Everything has gone up, including rent, food and the cost of transportation. An increased rate for the water bill would be even more stressful as I struggle to pay the bills already.

Please consider my plea to not increase the rate. I'm asking as humbly as I can.

Thank you in advance for taking this into consideration.

Signed,

Ms. Nikeyia Ingram

THE INVISIBLE CRISIS:
WATER UNAFFORDABILITY IN THE UNITED STATES

BY PATRICIA A. JONES AND AMBER MOULTON
UNITARIAN UNIVERSALIST SERVICE COMMITTEE

May 2016

UUSC

ACKNOWLEDGMENTS

UUSC expresses our great appreciation to the Park Foundation and Veatch Foundation of the Congregation at Shelter Rock for their support and commitment to the human rights to safe, affordable drinking water and sanitation.

Great thanks to our elected officials who have shown leadership in the face of the crisis: U.S. Representative Dean John Conyers; Michigan Representative Stephanie Chang and colleagues in the Michigan legislature; California Assembly members Bill Dodd, Mike Eng, and colleagues.

Special acknowledgment and thanks to the U.N. mandate of the special rapporteurs on the human right to safe drinking water and sanitation, Catarina de Albuquerque and Léo Heller and staff Madoka Saji; and to Dr. Inga Winkler, author and fellow at the Center for Human Rights and Global Justice, New York University School of Law.

We want to acknowledge and express gratitude to UUSC's members and supporters who contribute in uncountable ways to the effort to ensure that the human rights to safe, affordable drinking water and sanitation become a reality for every person. We also acknowledge the Rev. Dr. William F. Schulz, in whose capable hands UUSC has grown and strengthened our ability to respond to human rights violations around the world and in the United States.

Thank you in particular to the following leaders for contributing their work and expertise to our collective understanding and guiding UUSC's work:

Catherine Coleman Flowers of the Alabama Center for Rural Enterprise; Dr. Anita Hill, Brandeis University; Sushma Raman of the Carr Center for Human Rights, Kennedy School of Government, Harvard University; Jennifer Clary (CA) and Becky Smith (MA) of Clean Water Action; Omar Carrillo, Laurel Firestone, Rose Francis, and Maria Herrera of Community Water Center (CA); Rob Robinson, ESCR Network; Colin Bailey of the Environmental Justice Coalition for Water (CA); Rachel Lopez of Drexel University School of Law and Community Lawyering Clinic; Vern Goehring of Food and Water Watch (CA); Roger Colton of Fisher, Colton & Sheehan; Bernice Johnson, Georgia Women's Action for New Directions (Georgia WAND); Marion Kramer of the Highland Park Human Rights Coalition; Amanda Klasing, Human Rights Watch; Alice Jennings and the Lyda Pro Bono Lawyers Committee, founder of NCLAWater, and Michigan Human Right to Water Bill Committee; Nicole Hill, petitioner, *Lyda* class action suit; Kim Folz, Sandra Harris, Dorotea Manuela, and Suren Moodliar of Massachusetts Global Action; Lorray Brown of Michigan Foreclosure Project, Michigan Poverty Law Program; Veronica Joice and Marilyn Mullane of Michigan Legal Services; Randy Block of the Michigan Unitarian Universalist Social Justice Network; Sylvia Orduno and Maureen Taylor of the Michigan Welfare Rights Organization; Monique Lin-Luse of the NAACP LDF; Jacqui Patterson of the NAACP; Eric Tars of the National Law Center on Homelessness and Poverty; Eric Janzt of the New Mexico Environmental Law Center; Juliet Christian-Smith and MaiLan Ha of The Pacific Institute; Martha Davis and Kevin Murray of the Program for Human Rights in the Global Economy at Northeastern University School of Law; Chili Yazzie and Terecita Kayanna of the Red Water Pond Community, Navajo Nation, New Mexico; Angelita Baeyens and Wade McMullen of the Robert F. Kennedy Human Rights Center; Horacio Amezquita of the San Jerardo Community (CA); Britton Schwartz of Santa Clara School of Law International Human Rights Clinic; Rev. Lindi Ramsden of Star King School for Ministry (Berkeley); Sharmila Murthy of Suffolk Law; Susan Leslie of the Unitarian Universalist Association; Irene and Bob Kiem of the Unitarian Universalist Ministry for Earth; Daniel Gogal of the US EPA Office of Environmental Justice's Tribal and Indigenous Peoples Program; Ejim Dike and Rebecca Landy of the US Human Rights Network; Paul Schwartz and Valerie Nelson of the Water Alliance.

The research, analysis, and opinions are our own. They do not reflect the opinion of the above-mentioned foundations, individuals, members, or supporters.

DEFINITIONS AND TERMS

Affordability Program

More than just an affordability rate structure; a thorough program at all levels of government to secure access to adequate levels of safe water and sanitation at affordable costs for a household.

Affordability Standard

An enforceable guideline for water affordability. We argue that this should be measured at the household level and should not exceed 2.5% of household income for all water and sewer services.

Assistance Programs

Discounts, often one-time or limited to a maximum amount, that consumers can request to offset high bills. These are often funded through voluntary programs and do not reach all consumers in need.

Conservation Measures

Leak repairs, low-flow toilets, and consumer practices that can limit unnecessary or wasteful water or sewer usage, and can reduce costs.

Environmental Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Fixed Fees

User fees and other charges on a water or sewer bill that do not change based on the amount of water used.

Human Rights to Water and Sanitation

In 2010, the United Nations General Assembly and Human Rights Council explicitly recognized the human rights to access water and sanitation; and that safe, sufficient, adequate, accessible, affordable water and sanitation are essential to the realization of all human rights.

Increasing Block Rate

A rate structure in which consumers are charged more per unit for water, the more water they use. This can make water costs more affordable and promotes conservation.

Levelized Bills

Estimated costs billed in equal installments. This helps consumers budget for water and sewer costs.

Lifeline Rate

A low cost for a basic amount of water. If the amount is adequate for household use, it can result in more affordable prices for low-income consumers.

Mass Shutoff

A utility's termination of water or sewer services to large numbers of consumers at a given time, usually in an attempt to collect unpaid bills.

Quintile

One fifth; used in this report to discuss populations divided into fifths based on (median) income.

Rate Structure

The way a utility bills consumers. This can include peak and off-peak rates, tiered rates, affordability rates, and other charges.

Shutoff

A utility's termination of water or sewer services to a consumer, including physically disconnecting a home from public water and sewer lines.

Universal Access

All people have equal ability to access a public good (like education or water).

Water and Sewer Costs

All costs associated with adequate water and sanitation, including billed water and sewer charges, fees, and costs to rural dwellers, including well and septic installation and upkeep.

Water Services Bill

The billed cost of water and sewer services, including fees and other charges.

CODA

I had the privilege of meeting Ms. Nicole Hill at a hearing in Federal Bankruptcy Court in Detroit in 2014. Nicole Hill is a courageous community leader, one of the petitioners in a class action suit that should make the country stop and take a serious look at itself. I know it did for me. This is Ms. Hill's lived experience of water injustice in the United States. She gave me permission to share this story. --Dr. Patricia Jones

One night, an eight-year-old girl who was staying at her aunt's house woke up, found the keys to the front door, let herself out, and began walking home alone through the streets of Detroit. It was 1:30 am. She was walking to find her mother because she had heard a social worker say she would be taken away to foster care because the family's water bill hadn't been paid. She didn't care that the Detroit Water and Sewer Department had turned off their water; she was afraid that she would never see her mother again.

That girl was Nicole Hill's daughter. The family's water was first shutoff in May and restored in late June, but it was at risk of another shutoff. Ms. Hill had paid $2,800 toward her water bill — a near impossible amount for a family of five — but still owed another $5,000, which was obviously a clerical error. The utility refused to acknowledge that her bill had been partly paid or that the amount she owed was wrong.

Ms. Hill had gone to the water department to try to resolve the bill, taking her daughter with her, as school was out for the summer. She also brought along a social worker for support and documents proving she had made past payments. In an unguarded moment, the social worker told Ms. Hill in front of her daughter that if the water was shutoff, her children would be taken into foster care.

Of course, when the water was shutoff for the first time, Ms. Hill had made arrangements for the children to take baths, clothes to be washed, drinking water purchased, and the neighbor's toilets available until the water was turned back on. But this time, afraid that the social worker would do her legally mandated duty and begin proceedings to take the children away, Ms. Hill immediately made arrangements to have her children stay with relatives.

That night as the girl was walking home in the dark, a man saw her and convinced her to wait while he called the police. The responding police officer, rather than taking her into custody and then into foster care, brought her back to her aunt's house. Her aunt called her mother, and that same morning, the girl was brought safely back to her mother.

Through the kindness and understanding of strangers, this family survived the damaging impacts of a water shutoff that never should have happened. They should not have had to rely on the kindness of strangers.

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INTRODUCTION

Water is essential to life: we use it to drink, cook food, and clean our bodies and homes, among other basic needs. But when it comes from a tap or well, drinkable water is not free. It requires major investments at the home or in a town or city. This has left a sizable portion of the population without continuous access to safe sources of water, affecting their dignity, health, living standards, and even family rights.

The United States does not include the affordability of water, sanitation, and other basic services for the lowest-income consumers in its laws or regulations.[1] Even for elders and children in the United States today, accessing publicly supported water and sanitation services is considered a privilege, not a legal right.

In some major U.S. cities, the cost of household water services has risen over 40% from 2010-2015. Because water costs are rising much faster than inflation and incomes in the United States, this problem will only worsen. Water affordability has reached a crisis level in many U.S. communities, including Flint and Detroit, Michigan, where mass shutoffs have left thousands without water in their homes.

Plainly, universal access to safe drinking water and adequate sanitation has not been achieved in the United States. This failure is at least in part due to discrimination on the basis of race, gender, age, ability, and income — another chapter in our long national history of discrimination against these populations. Making clean, affordable water available to all U.S. residents is a civil rights challenge for this century and a moral challenge requiring immediate action.

The challenge of paying for needed investments in water and sanitation infrastructure and the impending impacts of climate change will require a global effort to promote, protect, and fulfill the human rights to water and sanitation. UUSC and its partners are working on the forefront of these efforts, in the United States and beyond.

This report seeks to describe the real human impacts caused by the lack of universal access to safe, affordable water and sanitation in the United States and documents the responses to this challenge by activists from affected communities, civil society, governments, and service providers. It argues for a concerted effort at the national, state, local, and municipal level to study and remedy the crisis of unaffordable water in the United States.

Service providers and governments at the local, state, and national levels must take immediate, significant steps to address our country's drinking water and sanitation affordability crisis. At all levels, affordability standards and measures must be put in place, first through executive action, followed by legislative mandate.

Recommendations to Service Providers and Governments

- Require data collection at the household level on water and sanitation costs, lack of access, and the impacts of water shutoffs. Reporting must be transparent, publicly accessible, and free of jargon.
- Ensure universal, nondiscriminatory access to safe, affordable drinking water and sanitation for urban and rural consumers and all people experiencing homelessness.
    - Establish affordability standards and programs for safe drinking water and sanitation for urban and rural communities. Costs should not exceed 2.5% of monthly household income for all services. All levels of government must act to adopt affordability programs.
    - Ban water shutoffs for nonpayment when customers do not have the ability to pay. At a minimum, mandate immediate protections against water shutoffs for low-income children (under age 18), elders over 65, people with disabilities, pregnant and lactating women, and those with chronic and catastrophic illnesses.
    - Require regulatory agencies to study and remedy the impact of regulated and unregulated pollution on the cost of water and sanitation services for consumers and households.
    - Prioritize and target all water and sanitation funding to protect the rights of those without access and other vulnerable populations first, followed by other investments in water infrastructure as needed.
- Adopt the human right to water and sanitation in domestic law, with clear enforcement mechanisms and remedies.

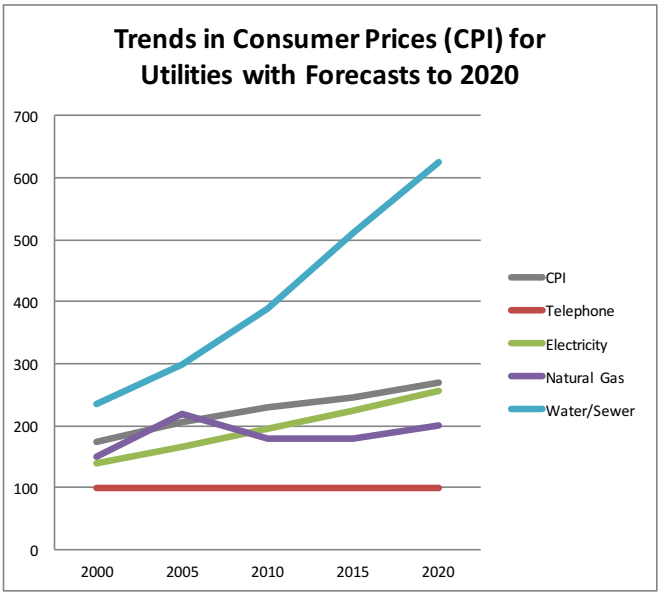
1 WATER AND SANITATION COSTS KEEP RISING

- Water and sanitation costs to households are unaffordable for millions of low-income Americans, threatening their family security, homes, and access to the basic necessities of life. Lack of access to safe, affordable drinking water and sanitation is a public health and economic crisis in the United States.
- Water and wastewater services have risen 41% over the last five years, outstripping inflation and making water unaffordable for low-income families. Rates are scheduled to rise dramatically to keep pace with needed infrastructure investments.

Millions of people across the country are facing water costs that are unaffordable, putting at risk their access to safe drinking water. It is estimated that 15% of U.S. water consumers may suffer financial hardship that could make paying water bills difficult.[2] This percentage could be much higher in some communities.[3] Research by the Water Research Foundation and the Environmental Protection Agency (EPA) shows that a third of households in the lowest-income quintile reported periods when they could not pay their water bill on time and that service disconnection for low-income households are three times the average.[4]

Water is not cheap. Water bills have outpaced inflation in the United States for many years. Data from the Consumer Expenditure Survey shows that water expenses have grown much more sharply than other household utilities, such as gas and electricity, over the last 30 years.[5] The National Consumer Law Center notes that from 1990–2006, water and wastewater bills increased by 105.7% in the United States, while household income increased by only 61%.[6]

Circle of Blue found in 2014 that in five U.S. cities (Austin, Charlotte, Chicago, San Francisco, and Tucson), water prices increased more than 50% over five years. And average water bills in 2015 varied widely. In Seattle, the average family of four paid $310 per month for water, wastewater, and storm water fees; in Salt Lake City, that same family would pay just $59. Circle of Blue's data suggests that for residents with lower incomes, many cities' water costs are unmanageable. Rising prices for water and sanitation have left low-income people in the United States without the services they need to maintain their health and dignity.



Source: For detailed data, see Trends in Consumer Prices Index for Utilities with Forecasts in Janice A. Beecher, IPU Research Note: Trends in Consumer Prices (CPI) for Utilities through 2014 (Institute of Public Utilities, Michigan State University, February 2015)

Unlike with other utilities, there are fewer, if any, protections against water shutoffs for periods of hardship or vulnerable populations in the United States. Protections against disconnections in electricity during extreme weather are required in many jurisdictions, and assistance programs for electricity are in place. Basic telecommunications services in many jurisdictions are required to ensure that all people can call emergency services, such as the fire and police departments, when needed. Yet, many utilities routinely shutoff water service to families who have not been able to pay their bills.

During Detroit's mass water shutoffs beginning in 2014, the utility made no provisions for the most vulnerable populations to keep their water services. It shut off water to pregnant and nursing mothers, households with small children and the elderly, children who needed water to cleanse nebulizers for their asthma treatment, and disabled residents with breathing machines that require water to use them.[8]

Low-income people in rural areas also face serious water affordability challenges. While there is even less data on rural water costs than urban costs, what does exist is striking. The Bureau of Labor Statistics reported that in 2011, rural residents paid on average almost twice the annual cost for "water and other utilities" as urban residents.[9] Studies show that rural communities tend to have both lower average incomes than cities and higher costs per person for water infrastructure, in addition to facing more acute threats of water contamination from unregulated agriculture run off that can make water services unaffordable and water undrinkable.

This contradicts U.S. regulations that affirm the value of *environmental justice*. The EPA defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."[10] Indeed, existing law and regulation does not ensure that water, which is necessary for life, is affordable for all consumers without discrimination. If the nation is to live up to this value, it must take steps to make water affordable for all people, no matter their income.

WATER BILL

$185.00

DID YOU KNOW YOU MAY BE PAYING FOR:

PEAK/NON-PEAK RATES
SEASONAL USAGE
DROUGHT CHARGES
RUNOFF
FLOOD CONTROL
CONNECTION FEES
SOFTWARE UPGRADES
OPERATING EXPENSES
DISTRIBUTION
FIXED FEES
FIRE PIPES
SUBCONTRACTORS
LEGAL FEES

ECOSYSTEM RESTORATION
MITIGATION
REMEDIATION
POLLUTION CLEAN UP
CAPITAL INVESTMENTS
SEWAGE TREATMENT
WATER STORAGE
REVENUE RAISING
DEBT
WASTE WATER CHARGES
STORM WATER FEES
WASTEWATER COLLECTION
FEDERAL FINES + FEES
INSPECTION

WATER SHORTAGES
LEAKS
CONSERVATION MEASURES
UPKEEP + REPAIRS
PUMPING
TAXES
FILTERS + TREATMENT
GOVERNMENT SUBSIDIES
INDUSTRIAL SUBSIDIES
UTILITY PROGRAMMING
TESTING
WATER TREATMENT
INFRASTRUCTURE UPGRADES

YOU'RE ALSO PAYING TO CLEAN UP POLLUTION BY OTHERS TO KEEP YOUR WATER SAFE

MINING POLLUTION


AGRICULTURAL POLLUTION

SEWERAGE POLLUTION


OTHERS

2 AFFORDABILITY STANDARDS ARE INADEQUATE AND DISCRIMINATORY

- There is no enforceable water affordability standard in the United States. Existing guidelines, including the use of a municipality's median income, to determine water affordability are inadequate and discriminatory; they are only considered in enforcement actions, not in making water affordable for everyone.
- Water costs can consume up to 4–19% of monthly household income for low-income families.
- Water and sanitation assistance programs are inadequate. Low-income people in the United States need real affordability programs to maintain needed water and sanitation services, not sporadic assistance.

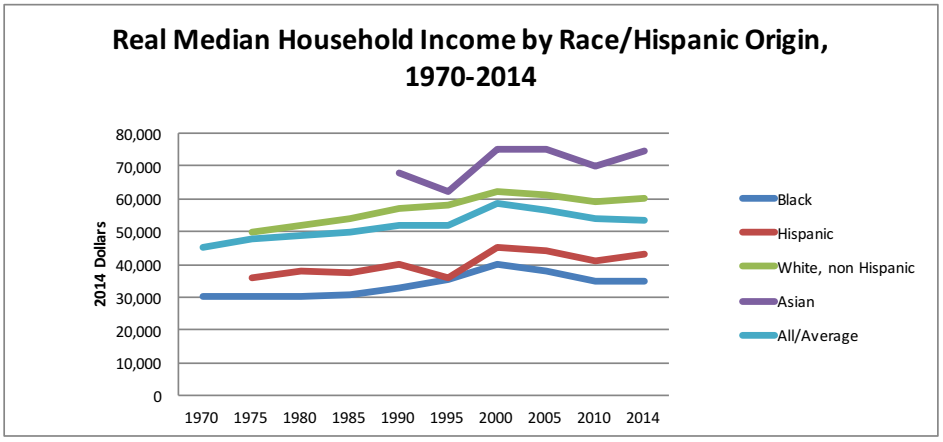
According to international human rights standards, water must be ***affordable***. This means that when a family cannot afford to pay for water, they should not be denied access to it based on their income or inability to pay. Further, affordability is balanced with the ability to meet *all* basic necessities for an adequate standard of living, which means that water is not affordable if a household must give up another basic necessity in order to acquire it (for example, medicine, housing, food, education, transportation to work).

Currently, there is no national, enforceable affordability standard for water in the United States. The EPA uses "median income" to determine affordability when evaluating compliance measures, not whether the cost of services is actually affordable to low-income households.[14] (This calculation is used to determine when the Clean Water Act and the Safe Drinking Water Act mandates may cause economic distress for municipalities.[15]) Often the threshold used to measure water affordability in a given municipality is 2.5% of median household income, with 4.5% used as the threshold for water and sanitation services.[16]

However, median income is the wrong measure of water affordability for lower-income households.[17] This is particularly true in cities where the lowest and highest quintile have incomes that skew farther from the median than in the nation as a whole.[18] General median income calculations also mask significant differences in real income across race, ethnicity, and gender that have their roots in historical discrimination and persist to this day.

Multiple studies document that for the lowest 20% income earners, some communities' water and sanitation services command from 4–19% of monthly household income, well beyond what could be considered affordable.[19] The international community recognizes that total expenditure for water and sewer service combined should not exceed 2–5% of household income.[20] Still, in the United States, people in this vulnerable group struggle to pay their bills and risk losing access to water as a result.

The U.S. federal poverty line for a family of four is $24,250.[21] That is widely understood to be a vast underestimation of real poverty,[22] but the U.S. Census Bureau routinely



Source: For detailed data, see Carmen DeNavas-Walt and Bernadette D. Proctor, U.S. Census Bureau, Current Population Reports, P60-252, Income and Poverty in the United States: 2014 (U.S. Government Printing Office, Washington, DC, 2015).

documents the percentage of the population that falls below this line. In 2014, the Census Bureau reported that 46.7 million people were living in poverty, an average of 14.8% of people in the country.

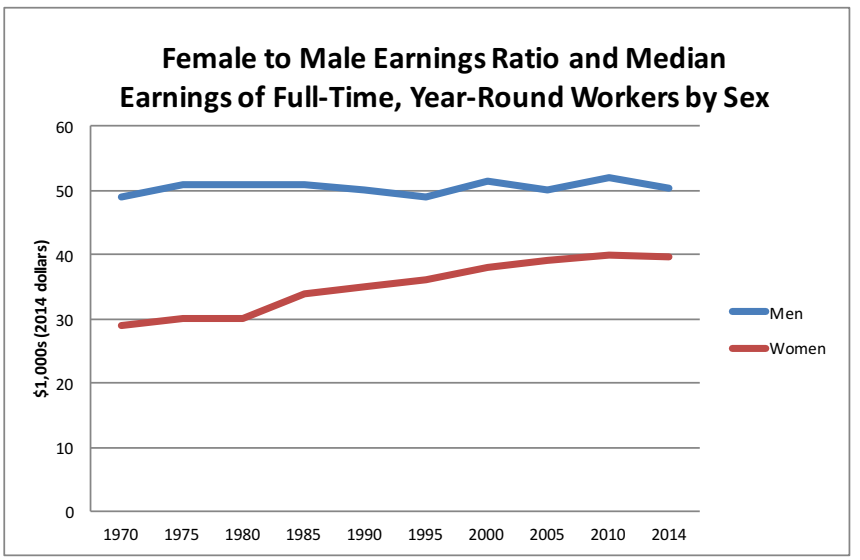
Using Circle of Blue's calculations for the average water bill for a family of four, it is clear that parents and children who live in poverty in U.S. cities face unaffordable water bills as a matter of course. In Seattle, where 14% of residents (or 94,000 people) live below the federal poverty line, the average annual water services bill for a family of four was $3,720 in 2014. That calculates to at least 15% of household income for a family of four living at the poverty line. In Atlanta, 25% of people (or 114,000 people) live in poverty and an annual water services bill of $3,912 consumes at least 16% of a similar family's income.

Average water services bills appear to be troublingly unaffordable even in cities where the ratio of household expenses to monthly income is not as high. In Baltimore, 24% of the population lives in poverty and the average water bill of $1,896 would consume 8% of the income of a family of four living at the poverty line. In Detroit, a full 40% of residents live in poverty (272,000 people) and families of four living at the poverty line would have to pay at least 7% of their income to pay their average annual $1,668 water bill.

The affordability crisis in the United States resulted in the U.N. Special Rapporteur on the human rights to safe drinking water and sanitation recommending that the United States "adopt a mandatory federal standard on affordability for water and sanitation" after her visit to the United States in 2011, where she heard from communities across the country about their lack of basic access to these services.[23] To date, there has been no effort to adopt such a standard at the national level.

Rather than working to ensure affordability for low-income customers, most existing assistance programs are aimed at shrinking overdue bills and arrears.[24] In a 2016 study, the EPA reported that of 795 utilities surveyed, less than 30% offered one or more "Customer Assistance Programs" (CAP).[25] And even those programs that do provide a needed discount for low-income consumers tend to have burdensome enrollment requirements. Most rely on donated rather than guaranteed funds, or provide assistance for a limited period. These programs are, by definition, assistance plans, not affordability programs that address the persistent needs of low-income families.

Yet, affordability and utilities expert Roger Colton argues convincingly that it is not charity but "enlightened self-interest" for cities to create affordability programs that present lower-income customers with bills they can actually pay.[26] Colton shows how a low-income affordability program increases bill payment; increases "net back" through increased revenue and decreased collection costs; increases efficiency of collection efforts, which in turn increases long-term sustainability of bill payment and collection issues; increases 0% balances; improves effectiveness of "price signals"; and provides other social improvements, such as stability for students in school, decreased housing abandonment, public safety, and bringing in business.[27]



Source: For detailed data, see Carmen DeNavas-Walt and Bernadette D. Proctor, U.S. Census Bureau, Current Population Reports, P60-252, Income and Poverty in the United States: 2014 (U.S. Government Printing Office, Washington, DC, 2015).

CONSUMER BILLS STILL HIGH DESPITE CAPs

In 2002, Washington D.C.'s water service prices were high enough to prompt a caution from the EPA.[28] But costs have continued to rise. Under the city's 2015 operating budget, the burden on approximately 15% of households was 5% or more of median household income. DC Water's combined water and sewer retail rate is projected to be $13.95 per Ccf by 2023, a 61% increase over 2015 rates.[29] An additional 7% of DC Water customers pay 3–5% of their income for water services.[30]

New rate structures effective October 2015 will moderate these increases in the short term.[31] DC Water has three assistance programs for low-income customers:

· **The CAP program** "provid[es] a discount of 4 Ccf per month of water service for single family residential homeowners that meet income eligibility guidelines" as well as a discount of 4Ccf per month for sewer services to eligible consumers.[32] In FY 2014, CAP assisted over 4,500 consumers and provided $1.1 million in discounts. CAP only reaches about half of eligible consumers.[33]

· **Serving People by Lending a Supporting Hand (SPLASH)** provides short-term assistance funded by private contributions to maintain critical water and sewer services during periods of economic distress. The program is administered by the Greater Washington Urban League.[34] SPLASH is very limited in scope: in FY 2014, it assisted 309 households and provided $115,984 in contributions to low-income customers.[35]

· **A lifeline rate** provides a deeply discounted rate for the first 4Ccf (3,000 gallons) of household water use.[36] Charges for additional water use rise steeply thereafter and may exceed average costs for those not in the program. Lifeline rates can be helpful, but some customers – with older, leaky pipes, for example – have not always benefited.[37]

Unfortunately, a charge for the treatment of storm-water run off will keep Washington D.C.'s bills high. For the average Tier-2 consumer, with 700–2,000 square feet of impervious area, this rate is projected to rise from $16.75 per month in 2015 to $36.69 per month in 2023.[38] With storm-water fees, the average CAP consumer's total monthly bill in 2016 will still be $53.59 per month.[39]

Credit: Martha F Davis, Northeastern University School of Law

For many utility managers and lawmakers, the notion of charging some people less than others for the water they use is considered bad public policy. But as a Water Research Foundation study points out:

> While cost-of-service ratemaking, avoidance of cross-subsidies between ratepayers, and equivalent treatment of ratepayers are time-honored principles in public utility theory, they are theoretical constructs that are intentionally blind to practical considerations that lie outside of ratemaking theory such as the real-word business problems posed to a utility by poverty.[40]

Creating rate plans that make water affordable for lower-income ratepayers is in the interests of both consumers and utilities; but water utilities have been slow to remedy this problem.[41] The National Consumer Law Center recommends a number of aid programs for lower-income consumers:

- Total and partial bill discounts
- Lifeline rates that provide a lower cost for minimum water usage
- More frequent billing schedules
- Levelized bills
- Payment plans
- Waivers of miscellaneous charges
- Conservation measures and leak repair
- Connection loans
- System-wide pricing assessments[42]

When people do not pay their bills, it is a sign that bills are too high. The NCLC produced a study of existing affordability programs and best practices in the United States in 2014 and found that high levels of overdue bills are a clear indication of water unaffordability. Studies ranging from the 1970s to the 2000s found that the vast majority (as much as 97%) of consumers pay their bills in good faith and that when surveyed, disconnected customers indicate that they were willing to pay their bills if they had the funds.[43]

Other studies have shown that when expenses exceed a consumer's income, paying the rent and utility bills is prioritized over other essentials, such as food, clothing, and medical bills.[44] Because a lack of water renders a home uninhabitable, water bills tend to "trump" other necessities such as doctor visits and groceries.[45]

People pay their bills when they can

Water unaffordability in California

In 2012, California became the first state in the United States to pass a law establishing the human right to water. To support that mandate, a number of studies have examined water affordability in the state, finding troublingly high costs for lower-income households. The Public Policy Institute of California carried out a county-by-county study that estimated nearly 13% of Californians have water bills that exceed 2% of their income.[46] They also note that even families with a household income up to $50,000 could struggle to meet bills in counties like Santa Barbara, where water prices are particularly high.

When affordability is measured using median income instead of household income, 40% (or more) of Californians face unaffordable water bills.[51]

A recent Pacific Institute study notes that in some areas, large portions of the population fall below the medium income, the threshold that the EPA uses to gauge affordability.[47] They found that the disparity between those above and below the median was stark. In the Sacramento metropolitan area, over 100,000 households were paying water bills that consumed over 2% of their household income.[48] In some cases, households that earned less than the median paid 19% of their income for water.[49]

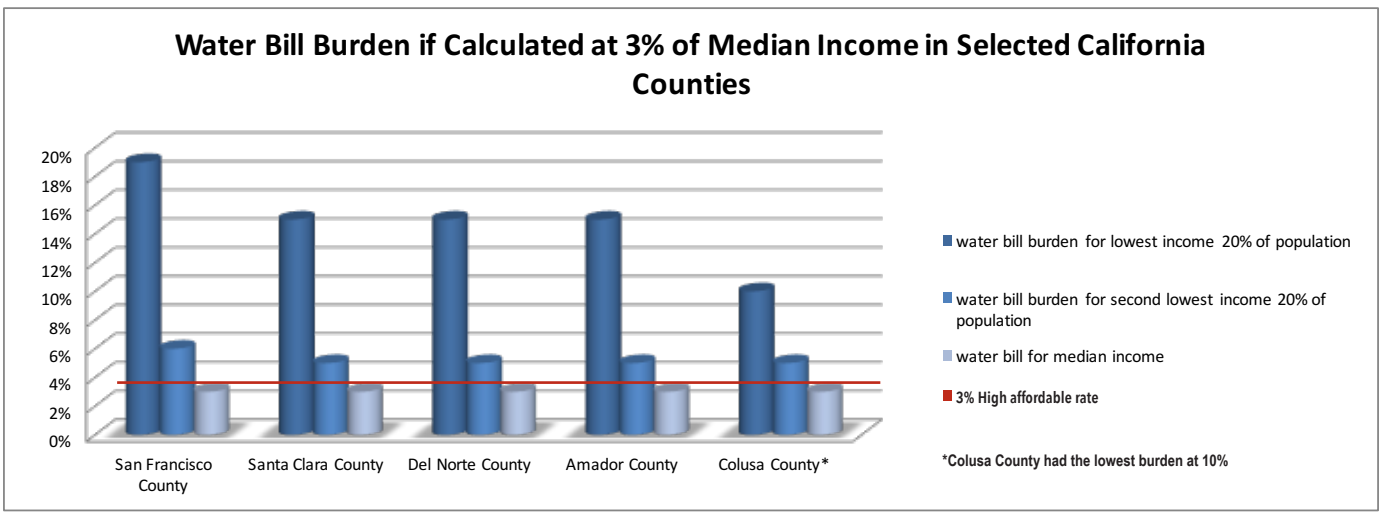
UUSC commissioned Roger Colton to provide recommendations to advocates, communities, and California state agencies on ways California could meet the standard of affordable water for all people in the state. Colton examined incomes in California counties and found that median-income measures mask vast disparities for those in lower-income quintiles. He underscored that it is imperative to calculate affordability at the individual household level, not by using median income: "By definition, median income for a geographic area is divorced from the divergence of income for those households with income below the median."[50]

Colton calculated the percentage of household income that the lower two quintiles of customers would pay if rates were set using 3% of median income (a high measure of affordability). The results were staggering. For the second quintile (those just below the median), water rates ranged from 5–6% of median income. For those in the lowest quintile (still a fifth of the population), water rates were wholly unaffordable, ranging from 10–19% of household income.

As an alternative to the median-income measure, the U.S. Conference of Mayors recommends taking into account:

- Household income across five quintiles
- Household types (elderly, renters)
- Neighborhoods or census tracts
- Indicators of economic stress, such as unemployment, the use of public assistance, households needing home-energy assistance, and disproportionately high housing costs
- Nondiscretionary spending for lower-quintile households[52]

Additional data collection is critical to establishing real affordability standards. Ultimately, the few detailed studies that do exist show that affordability needs to be taken seriously and tied to a water customer's real household income. Water affordability programs should be indexed to 2.5% of monthly household income for all services. Eligibility for these programs must be based on actual income indexes for the local area, or 250% of the federal poverty level, to ensure that water bills do not end up stripping low-income families of their food, medicine, or other basic necessities.



3 THE REAL COSTS AND CONSEQUENCES OF UNAFFORDABLE WATER

- If you cannot pay your water bill in the United States, you are at risk of losing your health, your home, your children, your family, and your freedom.
- Water shutoffs are one of the most serious consequences of the high cost of household water in the United States. Water utilities routinely shutoff running water to homes where families have not paid their bills.

Water and sanitation are vital for human health and dignity

Water is vital to maintaining hygiene and health, and the lack of water has particular negative impacts on children, the elderly, women, and persons suffering from an illness or chronic health concern. Dehydration can create threatening chemical imbalances for elderly people. Women who are menstruating need water to properly cleanse themselves, and mothers who are nursing need water to maintain their milk supply and their health. Some people with chronic illness need clean water in order to run and wash personal medical equipment.

During Detroit's mass water shutoffs, families with children who needed water to run their asthma nebulizers and elders with CPAP machines had their water disconnected.[53] There was no plan in place to ensure that those families had access to water. A lack of sanitation infrastructure puts children at risk for simply playing outside in their yards, where sewage can seep up through the soil. In Lowndes County, Ala., researchers have found that children carry the hookworm parasite because of a lack of functioning sanitation infrastructure.[54]

After a water shutoff, children can be removed from the home

In 21 states, a parent's inability to provide running water in the home can be considered "child neglect."[55] Thus, not having running water can contribute to child protective services removing children from the home and placing them in foster care.

In Detroit, Michigan, where over 33,000 accounts were cut off in 2014 alone, parental rights and family unity were threatened.[56] Under the law in that state and elsewhere, if a home lacks running water it can be deemed "uninhabitable," which means that "children . . . can be immediately taken from their parents or family and placed under protective services."[57] An investigation in Michigan found that "utility shutoffs" were a factor in at least 24 instances of child removal. In over half of these cases there was no allegation of child abuse and the lack of utility services in the home was one of the major factors contributing to the removal of children.[58] Parents facing recent mass water shutoffs in Detroit and Baltimore voiced fears that their children would be taken away because of their inability to pay their water bills.[59]

Adding insult to injury, if children are taken into foster care, the foster family's bills are subsidized by the state. Yet, there are no programs for low-income water consumers sufficient to keep their water running and thus prevent state actions like child removal in the first place.

When the U.N. Special Rapporteur on the Human Right to Water and Sanitation visited the United States in 2011, she learned of threats that parents would lose custody of their children if they could not pay for costly water systems. A 27-year-old mother living on $12,000 per year was told that she would lose her child if she did not install a septic system, which would have cost her half of her yearly income.[60]

You can lose your home because of unpaid water bills

Unpaid water bills can lead to home eviction and foreclosure, a problem that is gaining needed attention. In Baltimore, Md., where water bills can be included as part of rent, a tenant's inability to pay a water bill can lead to eviction.[61] In Detroit and elsewhere, unpaid water bills can be placed as a lien on a consumer's property tax. Unpaid taxes can lead to foreclosure and the loss of one's home. In Baltimore, if a title holder owes more than $750 in unpaid water bills, the home can be put up for tax sale, which can lead to foreclosure.[62] The National Consumer Law Center has reported that such tax lien sales have a disproportionate impact on homeowners in predominantly African-American and Latino neighborhoods.[63]

There is evidence that in Detroit the inability to keep up with property taxes contributed to many families' decisions to move out of the city.[64] A massive wave of foreclosures — nearly 140,000 — has gutted Detroit from 2005 to 2015, emptying nearly one in three homes in the city.[65]

Foreclosures are both an early warning sign and a tragic consequence of water unaffordability.

People are criminalized for lacking access to water and sanitation

People can face legal action, arrest, and fines when they cannot pay for water and sanitation services. In 1999, the Alabama Department of Public Health began citing people without functioning septic systems for failing to uphold state environmental and public health standards.[66] People who could not afford to install septic systems were arrested. They now live with an arrest on their permanent criminal record, simply because they could not afford water and sewer infrastructure.

After mass water shutoffs in Detroit, residents performed self-help, accessing needed water by reconnecting their homes to the water infrastructure. In Michigan, they could now face felony criminal charges for reconnecting their water without the permission of the utility.[67]

Homeless people are denied basic access to water and sanitation

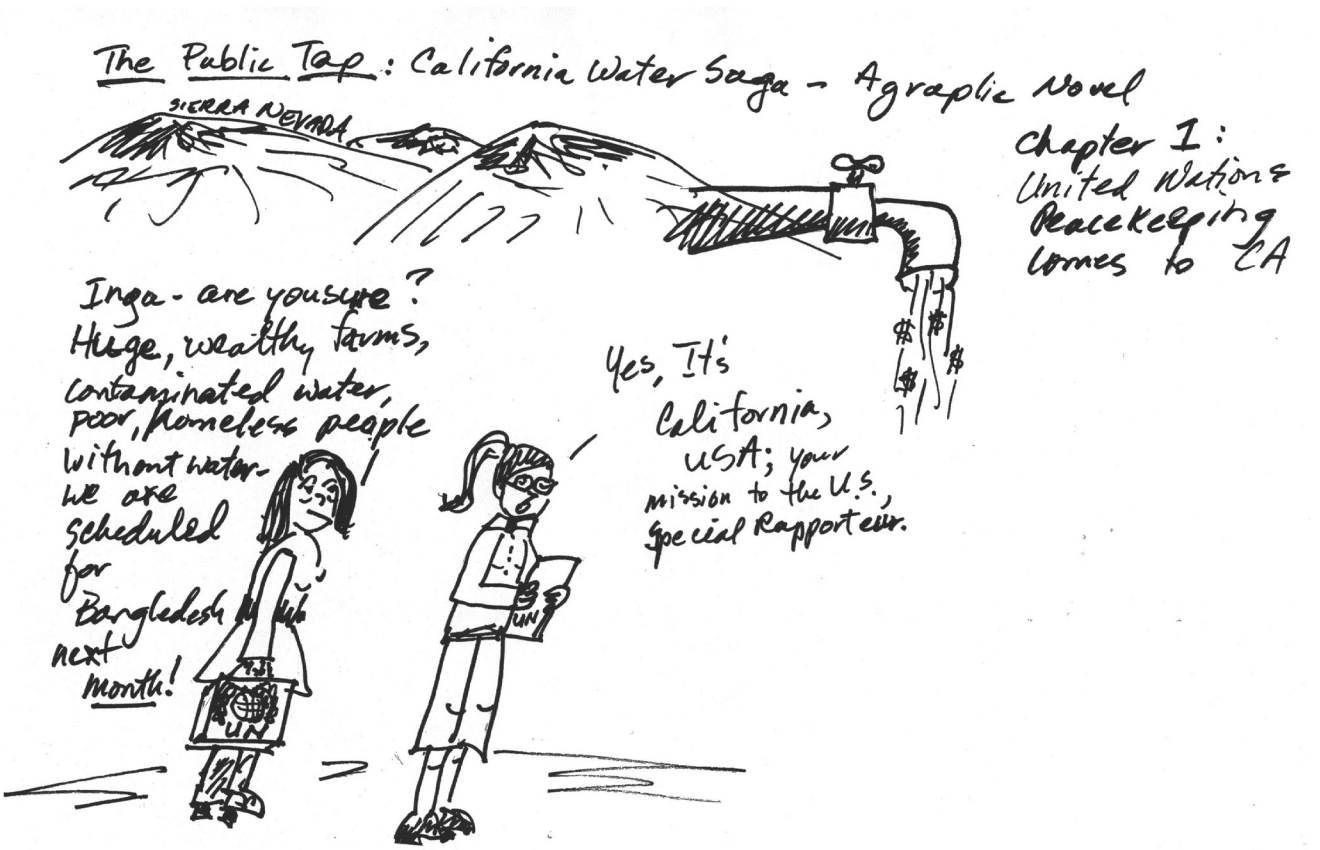
In the United States, there are over 500,000 people who are homeless on any given night.[68] Homeless people are nearly universally denied access to water services and basic sanitation in this country.[69] The National Law Center on Homelessness and Poverty (NLCHP) has documented the disturbing trend that local governments are criminalizing a lack of access to water and sanitation. In their report "No Safe Place," NLCHP details the double burden faced by homeless persons — first, lack of access to safe drinking water and sanitation; and second, criminalization of urination and defecation in public.[70] In St. Petersburg, Fla., in 2009, advocates filed a class action suit on behalf of the city's homeless, who were routinely penalized for using public space to perform basic bodily functions when they had nowhere else to go.[71]

During her 2011 U.S. visit, the U.N. Special Rapporteur learned from the NLCHP of a large camp of homeless people along the American River Parkway in Sacramento, Calif. She met with Tim Buckley, a man living there who had become the "Sanitation Technician" for the community.[72] Three times a day, he carried away garbage bags full of human waste many miles on his bicycle to the nearest public park facility for safe disposal. Colin Bailey, of the Environmental Justice Coalition for Water (EJCW), recalled that the Special Rapporteur later commented that "this is exactly what we see among the poorest of the poor," including among those she had recently visited in Bangladesh and India. Bailey reflected, "Right here in the capital of the wealthiest state in the wealthiest nation on earth, we have that level of poverty."[73]

Governments at all levels and utilities must work to ensure that low-income and homeless people in the United States have and maintain access to water, which is essential to sustain life. A national standard is needed across all jurisdictions to prohibit shutoffs to vulnerable households under any circumstances. At a minimum, disconnections to low-income households with children (under age 18), elders over 65, pregnant and lactating women, persons with disabilities, and persons with chronic and catastrophic illnesses must be prohibited.

States such as Connecticut, Massachusetts, and Rhode Island have instituted protections for vulnerable populations against drinking water disconnections. That is one important first step. But it is notable that at the international level, countries and courts have gone so far as to ban water disconnections as violations of human rights. Water shutoffs, if they are ever justified, can only be justified if people are able to afford to pay their bill but willfully refuse to do so. A water shutoff should never completely stop access to water essential to sustain life.[74]

United Nations Visit to the United States, 2011



By Patricia Jones

4 INSUFFICIENT INVESTMENT AND FUNDING FOR DRINKING WATER AND SANITATION TO LOW-INCOME AND MINORITY HOMES AND COMMUNITIES

- Low-income and minority communities in urban and rural areas historically have been excluded from infrastructure improvements for water and sewer systems.
- There is still too little funding for studies of and solutions for insufficient water and sewer systems in historically underserved communities.
- Low-income families, children, women, the elderly, disabled people, and communities of color are disproportionally affected by polluted drinking water resources.
- Lack of investment can lead to health and hygiene concerns, including outbreaks of tropical diseases like hookworm in affected communities. These health issues can also contribute to the cycle of debt and poverty.

U.S. water and sewer infrastructure, much of which is over 80 years old, has often excluded low-income and minority neighborhoods and towns, Native-American communities, and low-income rural areas. Even today, the U.S. Census Bureau's American Community Survey reports that nearly two million Americans live without complete plumbing facilities. Initial research shows that this number is by no means equally distributed across the country, but rather is concentrated in areas with high populations of Native Americans and Alaskan Natives and in communities along the southern border.[75]

Even the crumbling water infrastructure to which the American Society of Civil Engineers gave a grade of "D" in 2013 does not reach Americans who have been historically and systemically excluded from services. The American Water Works Association estimates that the cost of expanding and replacing service lines across the country could be more than $1 trillion over the next 25 years.[76]

Living Without Working Sewerage in Alabama

In Lowndes County, Ala., a history of plantation agriculture, racial disenfranchisement and government neglect have left residents without functioning sewerage systems for years. The county is 73% African American and 27% of the population lives below the poverty line, with a median household income of $26,000.

Catherine Coleman Flowers, executive director of the Alabama Center for Rural Enterprise (ACRE), reports that because most residents rely on septic tanks due to the lack of available sanitation services to their homes, over 80% of county residents must try to finance their own on-site wastewater systems. Public health officials maintain that it is each resident's responsibility to install a working septic system, despite the fact that a system could cost $6,000–30,000.

The soil is a major part of the problem. The area is named the "Black Belt" in reference to the soil's richness, through which sewage will not percolate. A recent unpublished study shows that a significant number of children there carry DNA evidence of hookworm and other tropical intestinal parasites not generally found in the United States; these diseases are found in tropical developing countries where people come in contact with raw sewage.[77] Public health officials have warned residents not to allow children to play in the yard because the soil is contaminated with waste from septic tanks.[78]

The city of Hayneville, Ala., has a lagoon sewerage system. When it rains, raw sewage overflows and backs up into the lawns and bathtubs of residents who live nearby. Uniontown, Ala., invested in

spray fields to dispose of sewage, but because it does not absorb well, the waste runs into rivers and farmers' fields, where meat cattle develop sores on their hooves from wading in raw sewage.

In Lowndes County, the Alabama Department of Public Health brought environmental criminal action against residents who were unable to pay for newer septic systems. More recently a pastor in another county was arrested for having a failing septic system.[79] The local sewerage authority would not allow his church to connect to city sewer because the owner of the adjacent property would not allow access to the sewer main on his property. This is an example of how local residents are ignored by engineers and government officials who discount the knowledge they could bring to the problem.

Flowers has been working with local and national governments to address these major public health issues for many years, testifying before the U.S. Congress and the United Nations. Flowers and ACRE received a grant from the EPA in 2010 to quantify the problem and propose solutions that would enable residents, including in the Black Belt, to install sanitation systems that would keep their families safe; however, there is yet to be action by policymakers to provide resources. Foundations that fund solutions to address such problems in other parts of the world do not acknowledge that this problem also exists in the United States, according to Flowers. She termed the raw sewage problem "America's dirty secret." ACRE is currently working to bring together designers and manufacturers to create affordable, sustainable technology that will solve the sewage problem in the Black Belt.

The real costs of failed infrastructure investment in the United States are wide ranging. There is the obvious cost to public and individual health, but there is also the cost in lower property values and increased debt that contribute to cycles of poverty, the unmet costs of installing sanitation systems, the cost of defending prosecutions and possible job loss due to criminal records, and the unquantifiable cost of trying to raise families with dignity when a community's health needs are ignored.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An environmental justice failure

The lead contamination water crisis in Flint, Mich., is a microcosm of the real impacts of the failure to ensure environmental justice that plagues the U.S. water sector. In Flint, an unelected "emergency manager" switched the city's clean water supply to the Flint River, at least in part to save $5 million. But the river water corroded the city's lead pipes, releasing toxic metals into the drinking water. That switch, combined with Flint's failure to properly treat the river water, resulted in contaminated and lead-laden municipal drinking water being piped into Flint homes, poisoning city residents. The EPA found that the water in Flint "poses an imminent and substantial endangerment" to city residents.[80]

From July 2014 to June 2015, water testing showed rapidly rising lead levels in Flint's drinking water; yet, there was no move to bring the city into compliance with federal and state drinking water standards on lead and copper. People in Flint were drinking water laced with lead for months, even after initial reports raised an alarm. Infants were visiting doctors' offices with extremely high levels of lead in their blood, a condition known to cause long-term health effects and mental impairment. Local medical providers documented rising lead levels in children's blood samples as part of routine medical visits, raising concerns in October 2015.[81]

On January 14, 2016, President Obama declared a state of emergency in Flint, directing the U.S. Department of Health and Human Services to spend $80 million to coordinate a response to the water crisis. On January 29, 2016, Michigan Governor Rick Snyder approved $28 million in immediate aid to Flint. The American Red Cross and other civil society organizations mobilized to provide bottled water, filters, and other aid.

As one of the poorest cities in the nation, it is no coincidence that Flint fell victim to Michigan's cost-cutting austerity measures.[82] A task force commissioned by Snyder recently found that what happened in Flint was an incident of environmental injustice, noting that state and federal agencies apparently discounted the health and well-being of Flint residents at least in part because of their poverty and race.[83]

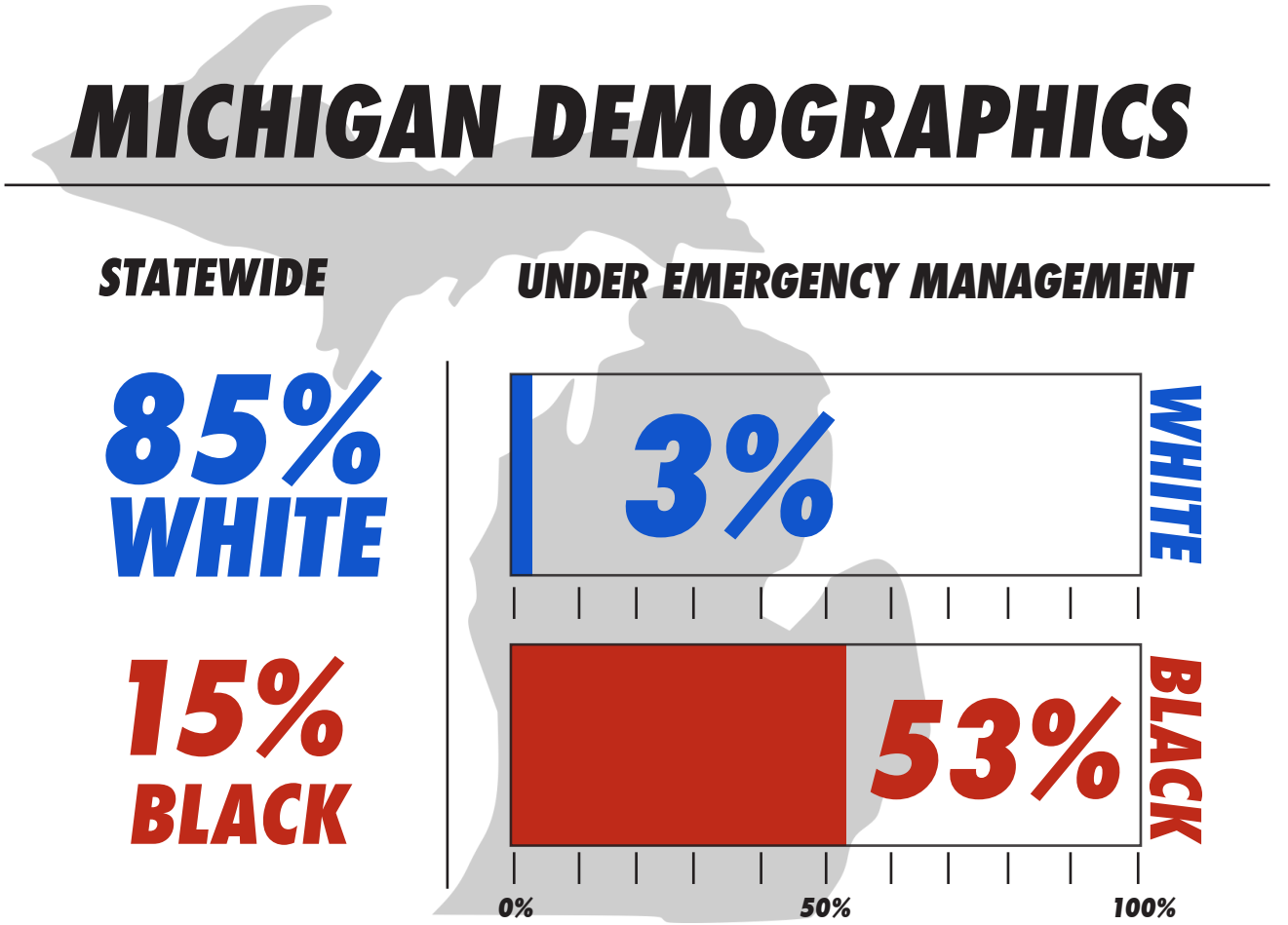
Citizens and the local medical community had raised concerns about lead in blood levels as early as 2014. The Virginia Technical Institute assisted citizens and civil society advocates in testing 252 water samples and warned of serious lead levels in early September 2015. Lead levels exceeded all requirements, and in some cases were over 1,000 parts per billion (ppb); the EPA recommends that steps be taken if a test comes back with lead levels higher than 15 ppb.[84] Researchers state there is no 100% "safe" level of lead in drinking water.

The task force reported that the city and utility showed "intransigent disregard" for the compelling evidence community members presented proving that their water was a danger to their health.[85] Since then, the city's population has been cut in half; only 100,000 people remain, 42% of whom live below the federal poverty level.[86]

What happened in Flint is an example of why we need better law and policy, better data, and full transparency to ensure environmental justice for low-income communities and communities of color.

Nine cities in Michigan are or have recently been placed under receivership by the state. Calculating those cities' populations, we find that a full 53% of African Americans in Michigan live in areas that are under the governor's emergency management, while only 3% of whites do. Today, one in every two African-American Michiganers live in cities that violate their human rights to water and sanitation; and 750,000 African Americans live under Snyder Administration emergency management.

The politicization of poverty and race in Michigan, and the undemocratic nature of Snyder's austerity program, is of grave concern for the state's protection of civil and political rights, nondiscrimination, and economic social and cultural rights. Pamela L. Pugh, Health Chair of the Michigan State Conference of the NAACP, argues, "The appointment of emergency managers, primarily in communities of color, continues to extend an oppressive and unjust form of governance that takes away local control and power from Michigan's most vulnerable residents."[87]



Source: US Census Quickfacts for Michigan Cities; Michigan Department of Treasury Emergency Manager Information

5 PASSING THE BURDEN OF TREATING CONTAMINATED DRINKING WATER ONTO CONSUMERS

- **Legally permitted and unregulated pollution passes the burden of treating drinking water and the resulting rising water prices from the polluter onto consumers without adequate remedy.**

Existing law and regulation allows industrial, commercial, and agricultural interests to pollute drinking water resources without paying for the costs of mitigation. A recent Stanford University study revealed that fracking near Pavilion, Wyo., has contaminated drinking water sources. The Agency for Toxic Substances and Disease Registry advised area residents not to drink, bathe in, or cook with local tap water; the researchers note that "there are no rules that would stop a company from doing this anywhere else."[88]

Environmental justice studies show that such pollution often has a disproportionate impact on low-income communities of color. In a recent statement, an oil and gas industry executive revealed how their siting policies favor wealthy communities over poorer ones, leading to environmental justice failures. The executive, from a company fracking the Marcellus Shale in Pennsylvania, acknowledged that they avoid drilling near the homes of wealthy people who might have the resources to litigate. Repeatedly, studies have shown that fracking wells are disproportionately located in areas where lower-income people of color live.[89]

Mossville, La., an African-American unincorporated town founded by freed people in the eighteenth century, is surrounded by industrial and chemical plants connected to the oil industry that have federal permits to pollute the water, soil, and air.[90] The EPA granted 13 of 14 permits in this area allowing these plants to discharge industrial waste into the predominantly black parish's environment. Studies have documented high levels of toxins, including dioxin, in residents' blood.

Mossville residents brought a case in domestic court and won a multi-million dollar settlement to help pay for the pollution's health impacts; yet, residents have not found a sufficient remedy under U.S. law to prevent such contamination from happening again in their community or others.

In 2005, Mossville residents and advocates petitioned the Inter-American Commission on Human Rights to remedy this discrimination because the U.S. government failed to protect their rights to health and a healthy environment. The United States challenged the jurisdiction of the commission, and the case is pending before the commission.[91]

A recent study revealed that environmental justice complaints, even those that are filed formally for remediation, are routinely ignored or dismissed by government agencies. The EPA has its own Office of Civil Rights, which is tasked with ensuring that agencies receiving federal funding do not discriminate. Yet affected communities have revealed that nine out of ten times a community files a complaint with the office, it has been dismissed or rejected, sometimes due to the office's own inaction.[92]

In July 2015, EarthJustice, an environmental justice law firm, sued the EPA on behalf of five affected communities, charging that the EPA had failed to finish investigations that had been pending for more than a decade.[93]

The EPA and Congress acknowledge that there are common sources of water pollution that do not require standard permitting or regulation. For instance, Congress has created a provision that requires permitting for storm water that the EPA Administrator and State Director believe "contributes to a violation of a water quality standard or is a significant contributor of pollutants."[94] Civil society groups like the American Rivers and Blue Water Baltimore have filed petitions with the EPA to require permitting of industrial, commercial, and storm water that pollutes Baltimore's water source under a "residual designation authority."[95] Permitting could raise money for mitigation, if needed, but could also contribute to better treatment of pollution or storm water at the source, before polluting drinking water sources. Similar petitions filed in recent years were denied by the EPA.

Concerned with the impact on low-income households and water rates, Des Moines, Iowa, is suing neighboring counties over farm runoff that has polluted its water supply, costing the city (and city residents) millions.[96] Des Moines gets its water from the Raccoon and Des Moines Rivers, which are being polluted with fertilizer and agricultural waste runoff from farms along the watersheds.[97]

To date, this agricultural pollution, which has been largely unregulated by state and national government, is a primary source of nitrates, compounds that are harmful to human health in excessive quantities. There are significant agricultural exemptions in Iowa that allow drinking water to be tainted, increasing the cost burden on water consumers.

Des Moines Water Works' nitrate testing shows that the nitrate level near agricultural drainage districts on the rivers routinely reaches two to three times the 10-milligrams-per-liter threshold recommended by the EPA.[98] As a result, Des Moines, a city of only 208,000 people, has been operating one of the largest denitrification plants in the country. Operating this plant cost $1.5 million in 2015; future capital investment will require up to $183 million.[99] The city's water rate increased 7% in 2015 alone. Nearly one-third of that increase was used to pay for denitrification alone. If the city were to try to tackle these rising costs and build a needed new nitrification plant, it would have to raise water rates 10% per year over 30 years.

Des Moines cannot afford these rising costs, which pose threats to lower-income families' access to water. Of Des Moines residents, 18%, or over 37,000 people, live with incomes below the federal poverty line.[100] For families of four living at the poverty level, an average water bill is already 4% of their average annual income.[101] Des Moines currently has a charitable-giving program, called Project H20, through which customers can donate to a pool of funds that can then be accessed by families in need.[102]

The Iowa Supreme Court will consider some of the questions in the Des Moines case, and discovery is slated to continue in 2016 in federal court.[103]

Contamination in Small, Rural, and Household Water Systems

The Public Policy Institute of California reports that small water systems in rural areas face unique challenges because many rural communities have lower incomes and higher costs for infrastructure per household. These same communities also require outside financing from revolving-loan funds, rural-water assistance grants, and other investment to upgrade their failing water systems.[104] The National Rural Water Association has also shown that non-metropolitan areas tend to have higher-than-average rates of people in poverty and lower-than-average median incomes.[105]

Existing water system funding, which still relies primarily on local consumers to pay for it, cannot meet the needs of low-income communities. Nationally, the Congressional Budget Office estimates that state and local governments cover approximately 75% of infrastructure spending for transportation and water, without disaggregating water alone, while the federal government accounts for the other 25%.[106] Of state and local funding, the majority comes from consumers' payments for on-site or piped supplies.

Costs of onsite water and sanitation systems

Approximately 15% of American households use private wells as their primary source of water and must themselves fund drinking water and sanitation systems, which cost thousands of dollars.[107]

A new well-based water system for a single home can cost $3,500–$50,000 or more, and reconditioning well equipment can range from $1,500–$3,500.[108] For low-income families, quality testing for regular well water is cost prohibitive, and many are unwilling to have a government agency test the well and possibly shut it down due to contamination.

The EPA also estimates that one in five households, or 60 million people, have on-site, decentralized sanitation treatment systems.[109]

The cost of installing a new septic system for a family of four is approximately $7,000–$15,000; replacing an aged system is $3,000–7,000.[110]

The Struggle in San Jerardo Continues, This Time for Clean Water

The San Jerardo community in California's Salinas Valley has a vibrant history born of struggle. Before being revitalized in the 1970s by a farmworkers' cooperative, San Jerardo was used as a government internment camp during WWII and then as sub-standard housing for Mexican migrant farmworkers as part of the Bracero Program. Horacio Amezquita and his family were part of the cooperative that emerged and contributed 1,600 hours of community service on weekends to build a housing project for 60 farm workers and their families.

The same features that make California's valleys rich for growing food also make them good at holding and concentrating pollutants. Nitrates, fungicides, herbicides, and pesticides from nearby industrial farms have contaminated local wells, causing a range of ailments from skin rashes to cancer.[111] Many agricultural communities now struggle to access safe, clean, affordable water. A University of California, Davis study from 2012 reported alarmingly high levels of nitrate contamination in the Tulare Lake Basin and the Salinas Valley, where San Jerardo sits. According to the study, 10% of residents may be drinking nitrate-contaminated water. Without a major change, by 2050 that number could reach 80%.[112]

This is no surprise to San Jerardo residents. Tests since the early 1990s have shown nitrate and toxic chemical contamination in the community's drinking water. The levels have been so high that residents cannot drink the water that comes from their taps. A recent report by the Safe Water Alliance and other civil society groups in California argues that disadvantaged communities of color like San Jerardo bear a disproportionate burden of inadequate access to safe water.[113]

The Public Policy Institute of California estimates that as many as 160,000 Californians live in communities where their water source is contaminated to such an extent that it is costly to access safe drinking water. They estimate that providing safe drinking water to these homes would cost $30–$160 million per year.[114]

Instead of rectifying the wrongs done to the San Jerardo community, the government attempted to evict them in 2006. California Rural Legal Assistance lawyers represented San Jerardo in the eviction case and won and in 2006 the community won relief when the county installed a water-filtration system, after advocates fought to get funding. In 2010 the county used the funding to construct a new well two miles away from the community, but then raised water rates 500%. Many of the San Jerardo residents are paying over 15% of their income for water. The county now wants to sell the water system to a private company, which could raise rates even higher.

Residents of San Jerardo are asking the country to transfer control of the system to them. Amezquita believes that the community can cut costs and make water more affordable for residents. San Jerardo has identified affordable waste-water treatment technologies that will reduce costs, reduce drinking water use, and reduce the contamination of drinking water sources, among other innovative solutions.

6 DETROIT: DISPROPORTIONATE IMPACT ON LOW-INCOME HOUSEHOLDS

- Governments and service providers' policies and procedures disproportionately affect vulnerable and marginalized Detroit populations, putting the lives of low-income families, children, and others with health concerns at serious risk.
- Due process violations, and lack of adequate procedures and remedies to contest billing errors, shutoffs, or denial of access to payment plans, are endemic across most jurisdictions. There is no national standard for procedures to protect consumers.
- Commercial consumers receive beneficial rates, procedures, and subsidies.

Until 2014, Detroit was home to the country's third-largest water and sanitation public utility, along with above-average water rates. In 2014, the utility began mass water shutoffs, cutting water to an *estimated* 33,000 accounts in 2014 and nearly 24,000 residential households in 2015.[115] There is no provision in Detroit, or nationally, for maintaining access to water for people with disabilities, persons suffering chronic or catastrophic illnesses, children, the elderly, or pregnant women.

In response, the Michigan Welfare Rights Organization, the Detroit People's Water Board, and over 20 lawyers formed a pro bono lawyers and litigants committee and filed suit to stop the mass water shutoffs. Although water shutoffs were temporarily stopped for 15 days in 2014 due to the litigation and media attention, they resumed in spring 2015, despite the known impacts on families, including the disproportionate health impact on low-income households.[116] In the spring of 2016, water shutoffs are scheduled to begin again, despite major public controversy and the known impacts on families.[117]

Recent mass shutoffs and investigations in Detroit and Baltimore show that while commercial customers often make up a large, or the largest, portion of missing revenue due to unpaid bills, utilities do not target them for shutoffs. Instead, in both cities, tens of thousands of residential customers, mostly low-income people of color, were shut off.[118]

The Michigan Welfare Rights Organization and the plaintiffs in the *Lyda v. City of Detroit* federal case sued the City of Detroit for the mass water shutoffs carried out by the Detroit Water and Sewerage Department (DWSD), charging that the shutoffs violated due process and equal protection guarantees, and violated the plaintiffs' human right to water.[119] The federal bankruptcy court decided that the plaintiffs had proved serious harm; however, it rejected their claim on jurisdictional grounds because the emergency manager (appointed by the Snyder administration) had declared Detroit in bankruptcy and the bankruptcy court was the only forum allowed by law. The case is on appeal in federal court.

The bankruptcy proceedings concluded, with no remedies for the thousands who were shutoff from services, but broke up DWSD and leased the assets to the Great Lakes Water Authority (to be discussed below).

The Michigan Welfare Rights Organization (MWRO) and advocates in Detroit, faced with continued mass water shutoffs, pressured the City to remedy the suffering. Mayor Mike Duggan appointed a panel to study the issue, instead of adopting an affordability program.

Detroit's Blue Ribbon Panel on Affordability report (discussed below) highlights a key part of the problem: Detroit ranks as the poorest major metropolitan area in the United States.[120] U.S. census data shows Detroit's 2009–2013 poverty rate is 39.3%, over 2.5 times higher than the U.S. poverty rate and over 2.3 times higher than Michigan's poverty rate.

At the same time, Detroit's water and sewer (including storm-water) charges are among the highest in the country. Detroit residential customers using 500 cubic feet of water per month are charged $824.34 annually, which represents approximately 3.16% of Detroit's 2010–2014 *median* household income of $26,095.[121] (By comparison, the national median household income is $53,482, twice Detroit's median income.[122] It is worth noting that Detroit's median income is nearly equivalent to the federal poverty line of $24,300 for a family of four.[123])

For the lowest-income families or households, earning less than $10,000 per year, DWSD costs for just 500 cubic feet of water per month accounted for at least 8.2% of their monthly household income — just for water, not including sanitation or storm-water fees.[124]

Income, and water as percentage of monthly income

Income (inflation adjusted 2014 dollars for the year)	Households	% of population	% of monthly household income required to pay $824 water bill
Less than $10,000	54,334	21%	Over 8% for $10,000
$10,000-14,999	25,962	10.2%	Over 5.5% for $15,000
$15,000-24,999	42,888	16.9%	Over 3% for $24,999
Income (inflation adjusted 2014 dollars for the year)	**Families**	**% of population**	**% of monthly household income required to pay $824 water/sewer costs**
Less than $10,000	24,561	16.9%	Over 8.2% for $10,000
$10,000-14,999	12,257	8.6%	Over 5.5% for $15,000
$15,000-24,999	22,926	15.8%	Over 3% for $24,999

Source: US Census

It is clear the mass water shutoffs created undue harm and suffering for Detroit residents who already faced severe economic hardship. Many of the plaintiffs in *Lyda v. City of Detroit* who contacted DWSD when their water was disconnected were advised that they could have their water restored only if they entered into impossible payment plans — even when it was clear that there were children and people who needed water for health in the home.

Maurikia Lyda, the lead plaintiff in the case, supports four children with Social Security income and federal assistance for food. When she contacted DWSD, she was told that she had an outstanding balance of $1,200 on her water bill and must pay $438 just to be entered into a payment plan. Nicole Hill, another plaintiff who is raising three children, two of whom suffer from medical conditions, was told she must pay $1,700 of her $5,700 bill just to enter into a payment plan and that she must pay her current bill in full each month to maintain service, despite the fact that her bill was in formal dispute proceedings. She documented that her past bill is in error and includes charges for both her landlord's previous tenants and other properties and leaks the landlord refuses to repair, but there are no remedies to correct or address this issue.

Janice Ward, another plaintiff who lives with two children who require water for nebulizer treatments for asthma and her disabled mother who requires water for her C-Pack therapy, reports that her water bill takes up over 20% of her household income. In 2013 the city placed her water bill onto her property taxes as a lien against her home. In order to lift the lien, she was forced to enroll in a payment plan that she cannot afford; there were no other options.

Due process and equal protection violations are a major issue in the *Lyda* mass-water-shut-off class action suit in Detroit. There are no standards across all levels of government that require basic procedures and remedies for water and sanitation problems, leaving the most vulnerable households without recourse. There is no consistent practice across all jurisdictions for adequate notice of disconnections (language, time to resolve notice, method of delivery of notice), contesting errors in billing, representation, appeals, or payment plans to avoid disconnection. This is a violation of basic due process rights and international human rights.

The mass water shutoffs in Detroit and water affordability crises throughout the country illustrate that a meaningful affordability program must include:

- Adequate notice of decisions on rate increases, changes in policies, disconnections, drinking water quality, and permitting the discharge of pollutants into local drinking water sources, in appropriate language and with adequate time for consultation and appealing decisions, and remedies against negative impacts.
- Consumers, both urban and rural, must have a right to a hearing, representation, appeal, remedy, and payment plans; they must also have access to financial assistance for piped service and well contamination.
- All levels of government and service providers must adopt policies prohibiting discrimination and discriminatory impacts, and promote universal access on a nondiscriminatory basis.
- All law and policy criminalizing lack of access to water services of any person, including the homeless, must be repealed, and sentences, fines, and criminal records must be repaid, forgiven, and expunged.

7 WHERE'S THE DATA? NOBODY KNOWS THE REAL SCOPE OF THE PROBLEM

- Current data-collection practices on water affordability and water shutoffs are nonexistent, hiding the full extent of the crisis.
- New requirements for data collection and reporting must be established, including collecting and reporting on water arrears and shutoffs, demographics, vulnerable populations, infrastructure and access, and impacts of contamination on affordability.
- Data must be made public and be adequate for the public to make reasonable decisions about their rights; it must be presented clearly, in a timely manner, without jargon.

Complete data on U.S. household water services does not exist, because it is not being collected by any government agency.[125] There are no reporting requirements on affordability or the impacts of rising rates on low-income and vulnerable populations. There is little if any comprehensive data on who is not served, to inform decision making on rate increases, operations, infrastructure investments, or pollution permitting. No service provider is obligated to report to any regulator, elected officials, decision makers, or consumers on disconnections, rate increases, and the impacts on affordability for low-income households, nor is there any type of demographic data.

As a result, there is little to no reliable data on water affordability; it is a crisis that is hidden from public view. While cases like the mass water shutoffs in Baltimore and Detroit and Flint's lead-contaminated water shock us, other man-made environmental justice disasters continue unnoticed. Water shutoffs for nonpayment are standard operating practice. In spite of the solutions proposed by advocates, early indicators for hardship, like mass foreclosures in Detroit, are ignored, and no action is taken to assist vulnerable populations to maintain their water supply. Philadelphia shutoff water services to 31,000 households in 2015.[126] Lead pipes still carry water to 15–22 million people across the country, carrying the risk of poisoning.[127] In Cleveland, 14.2% of children have elevated blood lead levels; in Atlantic City, New Jersey, and Philadelphia and Allentown, Pennsylvania, over 23% of children have elevated blood lead levels. Yet help from the U.S. Congress, the Centers for Disease Control, state governments, and municipalities is underfunded and ineffectual.[128]

To conform with basic international human rights standards and provide equality and affordability in water services, utilities and municipalities must begin tracking a wide range of data.

In a 2007 memo to the National Association of Regulatory Utility Commissioners' Committee on Water and Consumer Affairs, Melissa J. Stanford of the National Regulatory Research Institute, noted that this lack of data represents a major shortfall in existing studies about the need for affordability programs.[129] The National Consumer Law Center likewise notes that at least "tracking customer complaints regarding water affordability would be helpful."[130] During the mass water shutoffs, Detroit officials revealed that they did not collect any data on "how many people have been and are living without tap water, let alone information on age, disabilities, chronic illness, race, or income level of the affected population."[131] As of the writing of this report, Detroit still has not collected this necessary data.[132] However, this could change. A Blue Ribbon Panel on water affordability convened by Mayor Duggan and the City Council provided a substantive proposed research plan meant to begin collecting data, in order to help policy makers better understand "the vexing problems faced by those living in poverty, and the compounding impacts of water affordability challenges."[133]

The Color of Water

The Color of Water project, created by Massachusetts Global Action (MGA), has revealed the complex relationship between income, race, and water access in the city of Boston, Mass. MGA has collected and reported on data on water shutoff notices (notices threatening that water will be disconnected from a household) since 2007. They have analyzed the data alongside information about demographics and land use from the 2010 U.S. Census and Geographic Information System files to map their findings geographically. MGA ran statistical regressions on a number of important interrelated variables: average income, percentage of people of color, vacancy rates, median property value, percentage of multifamily parcels, shutoffs per 100 residential parcels, and shutoffs per 1,000 residential parcels.

The most striking results of MGA's multivariate regressions show that, not surprisingly, there are significant relationships between percentage of people of color in an area and average income, as well as between average income and median property value.[136] But importantly, when looking at shutoffs per 1,000 residents in particular, the strongest determinants were median property value, percentage of multifamily parcels, and percentage of people of color.[137] Perhaps the most alarming finding is that while average income alone was not a strong determinate for water shutoffs, the percentage of people of color in a given area was – in fact, it was the strongest variable.[138]

MGA's analysis found that for every 1% increase in people of color by city ward, there was a corresponding 2–3% increase in the likelihood of a water shutoff notice being issued. This finding was consistent with their preliminary comparison of predominantly white neighborhoods to predominantly African-American, Latino, and immigrant neighborhoods. MGA found the latter nearly10 times more likely to receive shutoff notices than the former.[139]

Colton recommends that all utilities be required to report data on billings, overdue payments, credit and collection practices, and disconnections. This would provide state agencies with the information they need to implement effective affordability programs, monitor disproportionate impacts, and ensure water affordability. It would also allow consumers to compare their water rates with others in the industry.[134] In addition, utilities should develop reporting metrics to show how successfully they have achieved the goal of universal water access.[135]

Water services utilities should track data about the demographics of the consumers they serve. This would help them to assess when vulnerable populations, such as children, the elderly, and the disabled, may be affected by rate or policy changes and when their practices may have a disproportionate impact on historically marginalized populations. The types of demographic data related to the impacts of these changes must include data on race and ethnicity, gender, age, ability, household size, and household income.

Utilities that disconnect water service for nonpayment must collect data and report on shutoffs correlated to the demographics of households, the demographics of surrounding census tracts, and the duration of shutoffs. They should also collect data on the impacts of shutoffs; in particular, whether or not any children were taken into custody by the state due to shutoffs, the public health impacts of shutoffs, prosecutions related to shutoffs and unauthorized reconnections, liens against ratepayers' homes due to shutoffs or unpaid water bills, and foreclosures and evictions related to unpaid water bills.

Utilities should track additional data to determine whether water rates are affordable for the populations they serve, including investment in infrastructural upgrades correlated to demographics, rate data correlated to demographics, and rate and income data down to the household level. The U.S. Census Bureau and American Community Survey should track water costs at the household level, along with water shutoff notices and disconnections and lack of access to drinking water services.

Utilities and governments must not simply collect this data; they have a duty to report their findings to the public, authorities, and consumers. They should report in clear, jargon-free terms and carry out public consultations to assess the impacts of water policies on water and sanitation consumers. Such policies include operating procedures such as shutoffs, rate setting, rate increases, and water-quality monitoring.

At a minimum, government and service providers should report annually to the public, regulatory bodies, and decision makers on their performance with regard to water affordability for low-income consumers and populations who are not being served by public investments, such as the homeless, peri-urban, and rural communities. This should include annual reporting on disconnections; reports on lack of infrastructure development at all levels; specific, time-bound targets to improve access and reports on progress; impacts of contamination on affordability, including well closures for contamination; and resources for low-income people to access replacement water. Governments must also investigate and report on criminalization of the lack of access to water services, self-help, and homelessness, including reporting on any laws or policies criminalizing lack of water access, prosecutions, and penalties.

Service providers and governments at all levels must conduct affordability impact assessments when there are significant changes and new investments, to ensure that new rates, investments, or consent decrees will not adversely affect vulnerable populations and low-income households. Reporting should track geographic and demographic data by age, gender, race, ability, homelessness, veteran status, persons with chronic or catastrophic illnesses, and by income quintiles. Data should be specific, disaggregated, and not averaged.

Further, the U.S. Census Bureau and American Community Survey should include reporting on affordability and low-income and homeless people's access to water and sanitation services as a means of verifying reporting, and to set targets for revolving-loan and grant fund eligibility, preferential tax rates on bond issuances, investments, and other public interventions in water services. Reports should be made to the public, civil rights bodies, and governments at all levels (local, state, federal).

Increases on the horizon: How will YOU pay for climate change?

Climate change adaptation measures for drinking water, sewerage, and storm-water services will cost the United States more than $36 billion by 2050. Current climate change measures are not targeted to protect access to affordable water services for low-income communities.

The Center for American Progress estimates that making the improvements and changes necessary to bring U.S. water service infrastructure in line with the needs of climate change will be very costly. Maintaining, replacing, and improving waste-water facilities to deal with storm waters from weather events could cost $5–10 billion through 2050 alone.[140] Drinking-water supplies, conservation, flood protection, and necessary changes to water management practices could cost another $14–26 billion. The center warns that the "unfunded mandate" that climate change investments will require could reach hundreds of billions of dollars annually.[141]

Unless adaptation plans and funding are specifically targeted to protect vulnerable populations, the impacts of climate change in the United States will disproportionately affect low-income U.S. households. Current local adaptation plans, which are targeted to the sustainability of the service, will not meet the needs of the poor and will leave many behind.

Without attention to affordability, climate change and conservation measures can have disastrous and unequal effects. As California faced its fifth year of severe drought, the state has mandated that water districts reduce consumption by 36%.[142] But the resulting policies adopted by local governments applied the goal unequally. In Apple Valley (east of Los Angeles), for instance, the utility levies a drought surcharge on households that exceed maximum water usage (about 30% of households face fines), sometimes adding hundreds of dollars to water bills. Low-income households who live on $22,000 a year, like Debbie Alberts and her family, have seen monthly water bills increase to over $300. Meanwhile, wealthy neighborhoods, like Bel Air, continue to allow residents to fill huge swimming pools and water ample lawns without any fines.

These types of unjust disparities must be eliminated in any program to adapt to climate change. Full human rights impact assessments must be required to evaluate all climate change adaptation plans, polices, and programs, including funding of adaptation initiatives.

8 INTERNATIONAL, FEDERAL, AND STATE STANDARDS

At the international level, water is a human right

In 2010, the UN Human Rights Council and the UN General Assembly recognized that all people have a right to safe, sufficient, adequate, accessible, and affordable drinking water and sanitation.[143] *In addition to having access to a sufficient amount of water, people must be able to access water that is safe, acceptable, and affordable. Inga Winkler explains that states are expected to spend approximately 1% of gross domestic product on water services, and individual costs for water and sanitation, measured at the individual household level, must be affordable.*[144] *The UN Development Programme defines water service as affordable at approximately 3% of household income, with the combined cost of water and sanitation not exceeding 5%.*[145]

Governments have the obligation to respect, protect, and fulfill the human rights to water and sanitation, including ensuring that private actions do not interfere with these rights. Governments at all levels must respect the enjoyment of these rights; prevent third parties from impeding the enjoyment of these rights; and fulfill (progressively over time, within maximum available resources) conditions by which every person enjoys these rights. Governments have obligations to ensure that companies based in their jurisdiction but functioning in another do not violate the human rights to water and sanitation.[146]

The United States is well behind the curve when it comes to recognizing, protecting, and fulfilling the human rights to safe drinking water and sanitation. Dozens of countries — from Ecuador to Bolivia, Tanzania to South Africa, India to Kazakhstan, and beyond — have enshrined the human right to water in their national constitutions, framed it within national legislation, or judicially recognized these rights.[147] *Many countries have banned disconnection of water and sanitation services because of an inability to pay as a violation of human rights. Belgium, France, Russia, Scotland, and The Netherlands have banned water shutoffs.*

The United States has thus far failed to provide protections for the rights to water and sanitation in domestic law and policy. However, U.S. advocates have begun an effort to adopt national legislation that will set a standard for affordability.

Federal Laws are Insufficient

- **Neither the Clean Water Act nor the Safe Drinking Water Act establish affordability standards designed to ensure that low-income consumers can afford water services.**
- **There is no national funding to support affordability or assistance programs for water and sanitation services for the poor in urban, peri-urban, or rural areas. Quite the contrary, utilities and states allow for disconnection of services for unpaid bills, and there is no regulation of this practice at the national level.**

Current federal law, regulations, policy, and guidelines do not require states to ensure that water service providers or local governments establish affordability standards or programs to serve low-income people. Nor do they require reporting on low-income water access for the tax dollars they receive, or infrastructure investments to unserved, low-income communities. In practice, *investment of public funds in water and sanitation infrastructure and enforcement support those who* ***can already afford to pay for service***.

Clean Water State Revolving-Loan Funds

Clean Water State Revolving-Loan Funds (CWSRFs) help lift the economic burden of treating water off states, but they are not aimed at assisting low-income households. The EPA's proposed 2017 budget allocated 45.3% of agency resources to "protecting America's waters" (Goal No. 2). This includes $2 billion for SDWA and CWA CWSRFs, but reduces budgets for these programs by $257 million from the 2016 level.[153] Estimates suggest that over $300 billion in investments are needed for wastewater treatment alone.

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Two main laws at the federal level set a minimum floor for states to ensure they, and the utilities they regulate, protect the quality of drinking water and the source waters within their jurisdiction. These are:

1) Clean Water Act (Federal Water Pollution Control Act), or CSW, passed in 1972[148]

2) Safe Drinking Water Act (Title XIV of the Public Health Service Act, Safety of Public Water Systems) or SDWA, passed in 1974[149]

Clean Water Act

The Clean Water Act (CWA) is the primary source of regulation on water pollution in the United States. The law, regulation, policy, and enforcement related to it set out the process and limits for polluting the waters of the United States. The act was primarily designed to outlaw the discharge of sewage and storm waters into the environment (unless permitted) and provides for permitting and treatment measures to remove pollutants from direct "point sources" of pollution (end-of-pipe effluents).[150]

The CWA is also the vehicle that "regulates" other pollution sources, including agricultural runoff and extractive industries, such as uranium mining, oil refining, and hydraulic fracturing. The CWA establishes only the "minimum floor" of regulations; states are expected to adopt equal or higher standards.

The CWA's current regulation of pollutants is inadequate and enforcement is underfunded. This means that polluters can pass the burden of treating polluted drinking water onto the consumer through water rates or health impacts. This amounts to hidden subsidies to polluters, since because they are not required by law to reduce or treat some pollutants and most non-point source pollution, they do not pay their share of the costs of treating polluted drinking water.

The CWA is related to affordability in two important ways. First, it costs money for utilities to comply with CWA standards by treating wastewater and storm water runoff before returning these waters to the environment. Second, CWA uses an affordability measure to assess how financially burdensome compliance with pollution standards will be for a community.

The EPA evaluates a compliance measure using economic indicators: the "residential indicator" and the "financial capacity" of the utility. The *residential indicator* weighs the average-per-household cost of wastewater bills relative to median household income and the financial capacity of the utility. (The calculation uses median household income, bond rating, debt, unemployment rate, and tax collection rates to predict the economic burden bills would pose.) If the residential indicator is 2% of median household income or greater, or the financial capacity is low — meaning the utility is unable to absorb the costs of compliance without significant burden on the community — the EPA considers enforcement to have widespread economic impact. It is important to note here that, as detailed above, there is widespread criticism that using median income as the measure masks real unaffordability.[151]

The CWA does not set affordability standards for states or utilities to ensure that low-income consumers can pay their bills. There is no regulation or policy requiring states or utilities to ensure access to water for those who cannot pay for services in times of economic hardship, regardless of whether a child, an

SDWA and Affordability for Small Systems

The Congressional Research Service reports that the SDWA regulates approximately 152,700 privately and publicly owned water systems in the country, with 51,350 community water systems providing drinking water year-round to 299 million people.[157] Most community water systems are small, serving 3,300 or fewer people – approximately 42,100 systems (82% of all community water systems) provide water to 9% of the total population. These systems, located in areas where the source water is very contaminated, are especially challenged to comply with drinking-water standards. Community water systems that provide drinking water to over 10,000 persons make up only 8% of the total number of systems (approximately 4,000 systems), but provide 82% of the population, or 246 million individuals, with water. The SDWA regulates 18,178 non-community water systems (factories, schools, etc.) and 83,200 transient non-community systems (campgrounds, gas stations, etc.).

elder, a person living with disability, or a person with a chronic illness is part of the household. There is no national funding to support public assistance programs for sanitation and storm-water services for the poor.

Recognizing that there is no corresponding federal assistance program for sanitation as there is for energy, in February 2016, U.S. Congresswoman Marcia L. Fudge of Ohio's 11th District, joined other representatives from Ohio and Michigan to introduce the Low-Income Sewer and Water Assistance Act of 2016.[152] Despite its title, the support to low-income customers is for sewer services alone. The bill would amend the CWA and fund 10 pilot grants to municipal service providers that establish assistance programs for low-income sewer customers, to help consumers maintain sanitation services during periods of economic hardship. Customers' eligibility would be determined by enrollment in federal and state assistance programs, and 150% of federal poverty, or state, poverty levels. The act is currently in subcommittee.

Safe Drinking Water Act

The SDWA was designed to address several issues, including widespread water quality problems and health risks resulting from poor operating procedures, inadequate facilities, and uneven management of public water supplies in communities of all sizes.[154]

Under the SDWA, the EPA has discretionary authority to regulate contaminants like lead in drinking water that pose a risk to public health, while most states have "primacy" (authority and responsibility) and must ensure implementation and enforcement. The water crisis in Flint, Mich., is an example of where state primacy, in part, has broken down with disastrous consequences.

The SDWA includes affordability in its framework for regulating contaminants in drinking water in very limited ways:

- It allows states to set affordability criteria for giving variances or exemptions from compliance for small systems serving communities of 10,000 people or fewer.
- It requires states to set affordability criteria for eligibility for federal revolving-loan funds to finance drinking-water infrastructure projects related to drinking-water quality.

The EPA uses a guideline of 2.5% of the national average median household income for communities with fewer than 10,000 persons to evaluate a proposed technology or new measure. In practice, the Congressional Research Service reports that the EPA has determined compliance of all available technologies for small systems to be "affordable."[155] According to the American Water Works Association and the Water Environment Foundation, states do not approve of exemptions because of the burdensome procedure needed to document when an exemption is based on "un-affordability."[156]

Like the CWA, the SDWA does not set affordability standards for any state or utility. There is no regulation or policy requiring states or utilities to ensure access to those who cannot afford to pay for services in times of economic hardship, regardless of whether a child, an elder, a person living with disabilities, or a person with a chronic illness is part of the household.

National Affordability Legislation Proposed

NCLAWater

Attorney Alice Jennings took what she had learned as lead attorney of the Lyda Pro Bono Lawyers Committee and developed the Michigan human right to water bill package with Representative Stephanie Chang and colleagues. Michigan lawyers Marilyn Mullane and Lorray Brown had worked since 2005 on affordability in Detroit, with Michigan Welfare Rights Organization's Maureen Taylor and Highland Park Human Rights Coalition's Marian Kramer. Taylor and Jennings called the country to Detroit to stop the mass water shutoffs in that city in 2015. The idea to develop national affordability legislation came out of that gathering of social movements in Detroit.

Jennings and other human-right-to-water leaders from Detroit and around the country have launched the National Coalition for Legislation on Water Affordability (NCLAWater). UUSC and our partners the Environmental Justice Coalition on Water and the NAACP Legal Education Defense Fund worked with Jennings and the Detroit leadership to found NCLAWater. Its goal is to develop national legislation that sets minimum standards for water affordability for the nation.

NCLAWater Statement of Principles

The National Coalition for Legislation on Affordable Water (NCLAWater) was created to adopt federal and state legislation that establishes affordable water and sanitation services, ensuring that every person has access to safe, affordable water and sanitation. No person shall be denied access to basic water and sanitation services based on ability to pay, race, age, or gender. All state and local criminal law provisions that criminalize a lack of access to safe affordable water and sanitation are a violation of constitutional due-process and equal-access guarantees.

- Accessible water – drinking water and sanitation services and facilities must be accessible at home, in schools, at clinics, in low-income and elderly housing, and to homeless persons.
- Safe water – safe drinking water must be free from microbes, parasites, chemical substances, heavy metals, and radiological hazards that constitute a threat to human health. Sanitation facilities must ensure the health and physical security of the person.
- Affordable water – means that every person can pay for drinking water and sanitation without sacrificing another basic human need, such as food, health care, housing, transportation, education, or emergency communications. No person can be denied access based on an inability to pay. Drinking water and sanitation must not comprise more than 2.5–4% of monthly income for low-income persons.

State and local legislation

> "*We are introducing these bills because we all believe that accessible, safe, and affordable water is a human right, and we need to ensure the residents of Detroit, Highland Park, and Flint each have access to water here in the Great Lakes State . . . Our bills will not only protect our residents, but also all Michiganders, because what has happened in our cities could happen anywhere in Michigan.*"
>
> – Rep. Stephanie Chang (D-Detroit)

- **State-elected officials in California and Michigan are stepping in to fill the gap in national legislation and moving to protect low-income consumers' human rights to safe, affordable drinking water and sanitation.**
- **California's AB 685 (Eng), the human right to water act of 2012, and AB 401 (Dodd), the Low-Income Water Assistance Act of 2015, are the first laws in the country to protect the human right to water of Californians; more must be done at all levels of government.**
- **Local governments in Boston, Detroit, and Philadelphia have adopted legislation and policies to protect access for some low-income consumers. More must be done.**
- **Philadelphia's Low-Income Water Assistance Program is the "best in class" of the municipal affordability measure to date, establishing its protections based on income to ensure consumers' access to drinking water *and* sanitation.**

State and local governments, in response to advocacy by local affected communities, in partnership with civil rights, human rights, environmental, and faith groups, are stepping in to fill the gaps in the federal regulation of access to safe, affordable drinking water and sanitation for low-income people. These actions hold much promise and are steps in the right direction. Still, they are inadequate to alleviate the suffering of low-income persons who lack access to these basic services.

California

CA AB 685: The Human Right to Water Act of 2012

In 2008, affected communities and environmental, faith-based, and human rights organizations mobilized to pass a statewide human right to water act in California, AB 1242. The bill was passed by the state legislature, but vetoed by then Governor Arnold Schwarzenegger. Undaunted, the groups remobilized following the election of Governor Jerry Brown. By 2012, their efforts bore fruit with the passage of California AB 685, the first state-level recognition of the human right to water in the United States.

AB 685 establishes a state policy recognizing that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." It requires that all state agencies have a duty to consider the human right to water whenever implementing new regulations, policies, or funding criteria.[158]

The movement to pass AB 685 has had a substantial impact in California and beyond. Under the law, small communities and unrecognized tribes in the state of California may access state funds for drinking water and sewerage systems, local authorities must create plans to address discrimination in their service areas, and water agencies must give notice of water quality violations and disconnections in languages that meet the needs of their consumers.

Bailey, of the Environmental Justice Coalition for Water (EJCW), notes that his organization works with policy makers who now embrace the human right to water as a "value set" and view its implementation in California as part of their professional legacy.[159]

EJCW continues to work to establish new regulation based on AB 685 and to urge policymakers to apply the values of human rights to the long-standing structural inequalities that continue to leave low-income and minority populations vulnerable to climate change, water scarcity, pollution of water resources, and exclusion from services, information, and financing.

CA AB 401 (Dodd): The Low-Income Water Rate Assistance Act

While the human right to water law in California is a major step toward justice, it is notable that an accompanying bill that would have advanced specific guidelines for water affordability did not pass. That legislation, AB 2334, would have moved the state toward defining affordability thresholds, and would also have required the California Department of Water Resources to take steps to bring water bills within 2% of household income.[160]

While the California legislature did not pass the 2012 proposed water affordability law, it did begin to address affordability explicitly in 2015. AB 401, the Low-Income Water Rate Assistance Act, was passed and signed by the governor on October 9, 2015.[161] This law stipulates that by January 1, 2018, the State Water Resources Control Board must "develop a plan for the funding and implementation of a low-income water rate assistance program." For the purposes of this act, *low-income* includes anyone whose income falls below 200% of the federal poverty line. In addition to an assistance program, the act also notes that the plan could include water-conservation measures and recommendations for other methods of ensuring access to water, like billing alternatives.

Massachusetts

Article 10 of the Constitution of the Commonwealth of Massachusetts, as amended by Article 97, contains important provisions on water access for state residents. It acknowledges a "right to water" and public responsibility for the "maintenance and distribution of *at reasonable rates*, during time of war, public exigency, emergency or distress, of a sufficient supply of food and other *common necessaries of life*."[162] Article 97 has been judicially interpreted to allow conservation easements to protect water resources; however, the question of the plain-text "right to water" in Massachusetts has not been asserted to date.[163]

Massachusetts allows water services to be shutoff to residential consumers for nonpayment of services provided by private utilities;[164] however, a private provider may not shutoff or refuse to restore water services to consumers who are seriously ill or experiencing financial hardship, to homes with an infant, or during winter months,[165] with the consumer obligated to "certify" to the company the conditions for such protection. Generally, public utilities follow the restrictions on private providers.

User Fees

> "Our city's utility considers its monitoring of water systems to be the state of the art, noting, for example, that it can inform residents if their pipes are leaking at home. Unfortunately, this capacity is not extended to informing our city's residents about the impact of price increases or demographic inequalities in water shutoff rates.
>
> We need a broad public conversation about water infrastructure spending and the current system of financing it out of user fees. Low-income communities in Boston pay the same rates as their better-off counterparts; however the spending also creates jobs and dividends for higher-income communities which are often outside the city."
>
> – Suren Moodlier, Massachusetts Global Action

Boston

As a response to advocacy by civil society groups led by Massachusetts Global Action, the Boston Water and Sewer Commission (BWSC) took steps to provide some protections for low-income residential customers who are over the age of 65 or suffering an illness in its "right of service" policy:

> Provided there are no violations of BWSC regulations, BWSC will not terminate water service to an owner-occupied property when the property owner or a direct family member is seriously ill and certifies that a financial hardship exists. Similarly, water service to homes occupied entirely by individuals over the age of 65 will not be terminated if a documented financial hardship exists.[166]

In 2015, Boston Mayor Marty Walsh announced a discount program for low-income seniors and persons with disabilities. BWSC implemented the discount in 2015, and low-income home owners who are 65 years and older or fully disabled are eligible for a 30% discount on their water bill only (not the sewer or storm-water portion of their bill). Only homeowners are eligible for the program, however, leaving renters at risk. [167]

Sewer and storm-water fees and other charges in Boston have rapidly increased as a result of litigation by environmental groups working to clean up Boston Harbor and a subsequent federal mandate under the CWA. While BWSC customers were not the only ones to pollute the harbor, they are paying the price for its cleanup and the legal fees of litigators, through their rates.[168]

BWSC is the largest customer of the Massachusetts Water Resources Agency (MWRA), which sells both bulk water and sewerage services to the greater metropolitan area. BWSC sets its rates annually for all services based on the rates charged by MWRA. Consent decrees from lawsuits dating back to the early 1980s have required MWRA investments of $900 million in sewerage services alone. The consent decrees negotiated by MWRA, BWSC, the EPA, and the litigators did not include protections for water access for vulnerable populations, nor did they include guarantees of affordable rates.[169]

Renegotiated in 2012 to include storm waters, the agreements still do not include protections against water shutoffs even after all parties were aware of MGA's findings that water shutoffs disproportionately affect communities of color in Boston.

Michigan Human Right to Water Bill Package

Advocates in Michigan, including Jennings and MWRO, with Rep. Stephanie Chang, convened a bipartisan working group of legislators in Michigan that has begun working with civil-society advocates and low-income consumers on a package of bills to address the Flint water crisis, the Detroit mass water shutoffs, and the inadequacy of existing state laws to protect low-income water consumers in Michigan.[170]

The bills, introduced in 2015, include provisions for affordability, protections against water shutoffs, testing for water quality, and the human right to water. The legislative package addresses affordability in the following bills:

- **H.B. 5101 (Plawecki) / S. B. 643 (Young): Michigan Human Right to Water Act**. Establishes that each individual in Michigan has the right to safe, clean, affordable, and accessible water for human consumption, cooking, and sanitation purposes.[171]

- **H.B. 5097 (Chang) / S. B. 678 (Young): Affordability**. Addresses the water rate structure that unduly burdens low-income residents by amending the Social Welfare Act to create a residential water affordability program within the Department of Health and Human Services (DHHS) ensuring that water bills are based on household income.[172]

- **H.B. 5122 (Chang) / S.B. 655 (Ananich): Shutoff Protections**. Institutes water shutoff protections for low-income seniors, families with young children, pregnant women, and people with a disability, and provides for clearer notices about potential shutoffs.[173]

- **H.B. 5095 and 5096 (Chang/Garrett): Decriminalization**. Decriminalizes the act of reconnecting water service (because of a shutoff due to inability to pay) from a five-year felony to a civil infraction for a first or second offense and a misdemeanor for the third offense. HB 5095 changes the sentencing guidelines; HB 5096 changes the statute.[174]

- **H.B. 5110 (Garrett): Timely Billing Required**. Allows some consumers who have not received a water bill within 10 days of the end of the billing cycle to no longer be responsible for paying that bill if she or he contacted the department in writing twice to confute the bill and the department did not respond within 30 days.[175]

- **H.B. 5178 (Canfield): Continuous Billing**. Requires that each consumer's account for water or sewage services be billed on a regular basis, as determined by the city, regardless of whether the account is considered current or delinquent.[176]

- **H.B. 5093 (Plawecki): Transparency**. Increases transparency by requiring water providers to submit an annual report to DHHS regarding water rates and how they are determined, along with information about shutoffs from the previous year.[177]

- **H.B. 5177 (Canfield): Drinking Water Access**. Requires access points for safe drinking water to be available in places where residents are not supplied with municipal water hookups.[178]

- **H.B. 5404-6 (Phelps/Neeley/Chang): MDEQ Citizen Oversight Commissions.** This bill package restores two gubernatorial-appointed citizen oversight commissions for air pollution and water quality.[179]

- **H.B. 5462 (Neeley): Water Ombudsman.** Establishes a water ombudsman to advocate for residents throughout the state concerning water-related issues.[180]

The Michigan Human Right to Water bill package is the most comprehensive state legislation on water affordability thus far in the United States. The bills are being held in committee.

Detroit Blue Ribbon Panel on Affordability Proposal

> "*The people have a right to expect city government to provide for its residents . . . safe drinking water and a sanitary, environmentally sound city.*"
> – Charter of the City of Detroit, Declaration of Rights[181]

In 2005, MWRO and Michigan Legal Services commissioned utility-rate expert Roger Colton to develop one of the first water affordability program proposals in the country. The plan was not implemented by Detroit; however, it was reconsidered in 2014–2015 during the *Lyda* litigation and the recent mass water shutoff crisis. The plan proposed setting the affordable rate at 2% of income to ease the water burden on low-income households. It also included measures to help with water conservation and a plan for forgiveness and payment of delinquent bills.

In response to anti-water-shutoff advocacy campaigns, litigation, and international media attention, in 2014–2015 Detroit Mayor Duggan and the Detroit City Council convened a Blue Ribbon Panel on Water Affordability (BRPA), as mentioned above. The panel presented a modest compromise draft plan in February 2016, acknowledging that "no single rate design or assistance program can adequately address the diverse, multi-dimensional poverty and water affordability challenges that persist in Detroit, or elsewhere."[182]

Detroit's BRPA evaluated three approaches to making water, sewer, and storm-water bills affordable for low-income residents: rate structure options, customer-assistance options, and billing and collection options.[183]

Rate Structures

The BRPA evaluated four basic options to change the rate structure for low-income persons:

1. The 2005 proposed affordability plan's income-indexed option, which is a customized rate based on the customer's ability to pay as a percentage of their income
2. A minimum-quantity allowance, which sets a rate for a minimum quantity of water that is affordable for all DWSD customers
3. Increasing "block" rates, which charge a basic "affordable" rate from 4–8% of monthly household income for the first block of water, with higher rates for higher consumption
4. Property-value-based fire protection charges, which charges a fixed rate for fire protection based on the value of the property

BPRA Recommendations

The BRPA's recommended consumer assistance plans included expanding the Great Lakes Water Authority's Water Residential Assistance Program, an amnesty program forgiving a percentage of arrearages and providing assistance with water conservation measures (fixing leaking pipes).

These options included variations on customer billing that incorporated payment plan schemes, DWSD current billing schemes, and others.

The BRPA ended up favoring the increasing block-rate design combined with budget-based billing. In the short term the BRPA recommended continuing and enhancing DWSD's current practices to "enable disconnection avoidance through payment plan enrollment." The plans recommended

were a combined bill payment and water conservation assistance program if funding can be found through nonrate sources.[184] The plan dismisses an "income-indexed rate component," because it may be "more susceptible to legal challenge, more difficult to implement and administer, and less broadly based due to the income-qualification provision of this rate design."[185]

While the expansion of Detroit's bill-payment and water-conservation assistance programs is certainly a positive step toward making water more affordable, it does not do nearly enough to ensure that all Detroit water services consumers have equitable access to water. Funding for the assistance programs is unpredictable in a city where nearly 40% of the population a live in poverty.[186]

The panel urged DWSD to explore "non-rate funding sources" to support additional funding and suggests that the city of Detroit endorse new state and federal laws that would create low-income water and sewer assistance programs, like the Low-Income Home Energy Assistance Program (LIHEAP).

> In Detroit and in the United States, we need true water affordability plans – not just assistance plans. An affordability plan recognizes that customers in chronic low-income communities require more than an assistance program, as is recommended in Detroit. Instead, chronic low-income folks need water plans based on their household income, between 2% and 4%. What is needed is an upfront review of the household's finances to prevent a shutoff of water and sewage services. Once the water is shut off, there are immediate traumatic events to the households. In many cases, families are placed on long waiting lists and/or wait for weeks for a financial review only to be told that they do not meet the guidelines or the money is depleted. In most states, not having water in a home makes the home uninhabitable, and children can be removed from their parents or guardians. There is a role for assistance programs when someone has an acute financial loss, a death of a wage earner, or a new roof, furnace or other household emergency. Assistance programs for household emergencies for some customers will work for a temporary financial crisis, but not day-to-day for those with low income. The problem with affordability, accessibility, and safe water is national and widespread. National legislation is mandated to address this critical human crisis.
>
> –Alice Jennings, Lyda, et. al. Pro Bono Lawyers Committee, Member of the Working Group on the "Michigan Water Is a Human Right" package of bills, and co-founder of the National Coalition for Legislation on Affordable Water (NCLAWATER)

Legal Challenges to Affordability Programs

Some municipalities claim they cannot create affordability plans that take the consumer's "ability to pay" into account because their state laws forbid giving "unreasonable preferences" to some consumers. In California, Proposition 218 (1996), which requires that fees be specifically linked to the services provided to a specific property, has been interpreted to limit the water utility's ability to implement lifeline rates or discounts for low-income households.[187] In Detroit, opponents of an income-based rate structure have argued that the 1978 Headlee Amendment to the state's constitution disallows this sort of new rate structure.[188] In Boston, the city has argued that the 1977 Enabling Act, which states that "it is essential that fees, rates and charges for water and sewerage service within the city be established on just and equitable standards and that all consumers . . . pay their fair share of the costs of such services based on their actual use," limits its ability to create income-based rates.[189]

The bottom line, according to Jennings, is that Detroit's new proposed plan is an assistance plan, not an affordability program. It does not offer solutions to families who are simply not able to pay for water services due to extreme poverty, and it allows shutoffs with no protections for vulnerable populations.

Affordability expert Roger Colton argues that states should enact legislation that explicitly authorizes affordable rates.[190] The National Consumer Law Center notes that there are already federal, state, and municipal laws that help support fundamental needs like low-income housing. But widespread relief for low-income water consumers remains insufficient. The Water Research Foundation and the EPA have identified examples of state statutes in California, Massachusetts, New Mexico, Texas, and Washington that specifically authorize utilities to provide alternative rates through lifelines, discounts, or other assistance for low-income customers.[191]

Some legal experts maintain that new laws are not even necessary. The National Council of Black Lawyers recently argued that Detroit Water and Sewer Department could create an income-based rate structure, just as it has altered rates for infrastructure improvements or to make up declining revenues.[192] The council argues that the concern over the Headlee Amendment is irrelevant because a water fee is not a tax, so the *Bolt v. City of Lansing* decision is not applicable and the Headlee Amendment is not retroactive. Cities provided water services for decades before Headlee, so it should have no impact on water rate structures now.

Pennsylvania

The constitution of the Commonwealth of Pennsylvania contains text stating that residents have an environmental "right to water":

> The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment . . . .[193]

Pennsylvania is one of two states that recognizes a "right to pure water" in its constitution. Yet Drexel University's Community Lawyering Clinic has shown that there are Philadelphians who have lacked access to running water, in some cases for many years, without finding relief from the utility and that harsh shutoff practices resulted in 31,000 shutoffs in 2015.[194]

In response to the work of affected communities, Community Legal Services of Philadelphia, the Community Lawyering Clinic, and the Philadelphia City Council moved to address the crisis facing low-income customers in 2015.

Philadelphia Income-Based Water Rate Assistance Program[195]

Philadelphia's new income-based water-rate assistance program offers a promising next wave of meaningful affordability legislation at the municipal level. It focuses on developing a water rate structure indexed to income, in order to ensure that all households in the city have access to affordable water services.[196] This new approach represents an important policy shift away from assistance, which is "charitable support," to affordability, which is about fairness.[197] The program has the potential to bring Philadelphia into greater compliance with the human rights to water and sanitation and could potentially be a model for other jurisdictions.[198]

In Philadelphia, the city council in 2015 adopted the Income-Based Water Rate Assistance Program (IWRAP), which subsidizes water rates for low-income people, making water more affordable. The new program, as outlined in the city council's 2015 Ordinance,[199] takes a number of steps that are necessary to overcome structural inequality and weaknesses in earlier discount programs.

Like many other assistance-based water-access programs, Philadelphia's earlier program did not work. For instance, it had unnecessarily onerous requirements and a denial rate of 40%.[200] Drexel University's Community Lawyering Clinic reported hundreds of tax lien sales tied to unpaid utility bills. Most of the families involved, the clinic notes, should have been able to enroll in the assistance program but had been denied.[201] The clinic had even documented cases of Philadelphians who were without running water in their homes, in one case for 20 years.[202]

The purpose of Philadelphia's new IWRAP program, which applies to drinking water, usage, and storm-water charges, is to limit enforcement actions for nonpayment of bills and provide rate assistance to low-income consumers. It defines a *low-income consumer* as someone earning 150% of the federal poverty level and creates rate tiers based on monthly *household* income, the income earned by all adults residing in a household. IWRAP also requires rates to be affordable for households at 50%, 100%, and 150% of monthly household income, providing a discount to persons in these income tiers. The utility can devise custom rates for households that have "special hardship," a new dependent, or a person with a serious illness, or if payment would threaten the household's ability to secure "the necessities of life." The program eliminates any debts that are outstanding for more than 15 years.

Further, consumers can request the utility to meet with them and look at their specific circumstances to determine if they have a special hardship and, on that basis, devise a custom rate. If this program is not affordable enough for the individual's income, the department can devise a "more affordable alternative" for the consumer. Delinquincies prior to enrollment in IWARP can be forgiven under a program to be adopted in the future, but in all cases payment plans must be affordable. All decisions of the department are to be done in writing and can be appealed, including the right to an administrative hearing.

Philadelphia's IWARP offers people a way out of the constant cycle of debt that many low-income households face when they fall behind on water bills. It helps to ensure water access by mandating that agencies postpone shutoffs long enough for people to apply for IWRAP. Still, the consumer must apply and can be denied service; and IWRAP does still allow shutoffs.

The most difficult cases for IWRAP will be the "border income areas," where income is just above eligibility, which are always challenging, as we have seen with the Affordable Care Act. It is hoped that the chance for consumers to request a hardship determination will help to resolve these cases.

What Must An Affordability Program Include?

Income-indexed rates for piped water services

- Water rates must be indexed to 2.5% of monthly household income for all water services (drinking, sewerage, storm water).
- Eligibility for rate programs must be based on actual income indexes for the local area or 250% of the federal poverty level.

Low-income consumers must not be made to choose between paying their water bills and buying food, medicine, or other basic necessities.

Mandated protections against disconnections for the most vulnerable populations

- A national affordability standard across all jurisdictions to prohibit disconnections to vulnerable households under any circumstances must be studied, defined, funded, and adopted.
- At a minimum, disconnections to low-income households with children (under age 18), the elderly (over 65), pregnant and lactating women, persons with disabilities, and persons suffering chronic and catastrophic illnessness must be prohibited.

The tragic consequences of disconnections of services to households with children, families, persons with disabilities, the elderly, or persons with chronic or catastrophic illnesses are undeniable. Protections against disconnections in electricity during extreme weather are required in many jurisdictions, and assistance programs for electricity are in place. But not for water.

Some states have instituted protections for vulnerable populations against drinking water disconnections and some countries and courts have banned disconnections as violations of human rights. Colton notes that consumer protections for water customers are a key element of an affordability program that will limit water shutoffs and help lower-income customers maintain water access.[203]

Consumer Bill of Rights

- Consumers must receive Adequate notice of rate increases, changes in policies, disconnections, drinking water quality of piped and local ground water sources, and permitting the dischrage of pollutants into local drinking water sources. These must be in appropriate language and provide adequate time for accessing assistance, consultation, and appealing decisions.
- Consumers, both urban and rural, must have a protected right to be consulted on decisions affecting their access, right to a hearing, representation, appeal, and remedies (payment plans and access to financial assistance for piped service and well contamination).
- All levels of government and service providers must adopt policies prohibiting discrimination and discriminatory impacts, and promote universal access on a nondiscriminatory basis.
- All law and policies criminalizing lack of access to water of any person, including the homeless, must be repealed, and sentences, fines, and criminal records must be repaid, forgiven, and expunged.

One of the basic tenets of democracy in the United States and international human rights is the equality before the law of all persons and prohibition of all forms of discrimination. Discriminatory impacts of lack of access to water services on the basis of race, gender, age, ability, income, and health status are documented above, despite these basic principles. The *Lyda* class action suit is in part a result of violations of residents' due process and equal protection rights. Due process and equal protections are essential to protecting access to water services. There has not been a survey of due process protections nor any data collected across the country on the water and sanitation sector.

Reporting Requirements

At a minimum:

- Government and service providers must report annually to the public, regulatory bodies, and decision makers on their performance regarding water affordability for low-income consumers and those populations who are not being served by public investments, like the homeless.
- When there are significant changes and new investments, service providers and decision makers must conduct affordability impact assessments to ensure that the new rates, investments, or consent decrees will not adversely affect vulnerable populations and low-income households.
- Reporting must include geographic and demographic data by age, gender, race, ability, homelessness, veteran status, persons with chronic or catastrophic illnesses, and income quintiles. Data should be specific, disaggregated, and not averaged.
- The U.S. Census Bureau and American Community Survey should include reporting on affordability as a means of verifying other government reporting, and to set targets for revolving-loan and grant-fund eligibility, preferential tax rates on bond issuances, investments, and other public interventions in water and sanitation services.
- Reports should be made to the public, civil rights bodies, and governments at all levels (local, state, federal).

Annual water quality reports to consumers and regulators are required by all service providers but are inadequate, as Flint has taught us. However, there are no reporting requirements on affordability or the impacts of rising rates on low-income and vulnerable populations, nor is there data reporting who is not served, which could inform decision making on access to water services, rate increases, operations, investments, or pollution permitting. No service provider is obligated to report to any regulator, elected officials, or decision makers on disconnections, rate increases, and the impacts on affordability for low-income households, nor any type of demographic data. As a consequence, there is little to no data on water affordability.

Investigation and reporting should include demographic and geographic data

Governments and providers should also:

- Investigate and report the lack of infrastructure investment and lack of access to water services at every level in every jurisdiction by 2018
- Investigate and report on criminalization of the lack of access and self-help remedies for homeless, urban, and rural residents, including reporting any new laws or policies criminalizing lack of water access, prosecutions, and penalties, by 2018
- Investigate and report service provider operating finances, disaggregated and including all subsidies and preferential rates to all commercial and nonprofit consumers, and the impacts of these preferential rate subsidies on affordability for low income consumers, by 2018
- Annually report on disconnections
- Give specific time-bound targets to improve access and report progress annually, including de-criminalization measures
- Require affordability impact assessments for all changes in services or source waters
- Report on impacts of contamination on affordability, well closures for contamination, and measures taken to ensure low-income persons have access to resources to replace drinking water sources and installation of sanitation systems
- Incorporate reporting on low-income access to basic water services, in both rural and urban areas, including homeless persons
- Make plans and investments, including adaptation and mitigation measures for climate change that prioritize and target low-income and vulnerable populations first

Universal Access

In an analysis of the legal avenues that residents of Washington, D.C., might take to remedy mass water shutoffs, Martha Davis notes that existing law fails to stipulate that there is a fundamental right to a basic level of drinking water and sanitation in the United States. She writes, "Even though water is among the most important of human needs, the Constitution does not obligate the government to affirmatively assure that it is available to all, but simply to avoid actively discriminating in its administration."[204]

The need for universal access to water and sanitation services is emerging as one of the critical challenges facing our nation. State support for universal access is not unprecedented in this country. States have the primary role in regulating and funding universal access to primary and secondary education, with minimum standards set at the national level and additional funding where and when needed. As Davis points out, "There are limits to government denial of important benefits that are otherwise made generally available. For example, though there is no fundamental right to education, the Court in *Plyler v. Doe* ruled that the state of Texas could not deny primary and secondary education to undocumented children."[205] Using this model for universal access to water could easily translate to better protection of the right to clean water across the country.

Federal Affordability Legislation

- The federal government must adopt a national affordability standard that incorporates affordable rate programs and a consumer bill of rights. It must be tied to federal funding for infrastructure investments, water-quality law, policy and regulations, and permitted pollution.
- It must establish remedies for violations of due process, equal protection, and instances of lack of access to water services.

In the face of climate change and degraded drinking water sources, the federal role in setting a minimum affordability standard for water and sanitation services, and setting aside funding for the program, is now more critical than ever. It is scalable and there are models on which to base these programs, both internationally and in local U.S. jurisdictions. Similar programs for universal access, like education, have been achieved to a relative degree. Access to safe, affordable water services must be made universal in the United States.

RECOMMENDATIONS

> There is still no coherent national commitment to recognize or address the lack of access to safe, affordable water and adequate sanitation for all people in the United States. We are many Flints, many Detroits, many San Jerardos, many Lowdnes Counties in this country, with unseen and untold suffering. As people of conscience, we have a moral challenge: will everyone have equal access to safe, affordable drinking water and sanitation in this country, or will we allow our two-tiered system of haves and have nots to continue, especially in the face of climate change? It is a basic civil rights failing of our country – the new Selma, just add water. That is the challenge. – Dr. Patricia Jones

Service providers and government at the local, state, and national levels must take significant steps to immediately address the drinking water and sanitation affordability crisis in the United States. At the local, state, and federal levels, affordability standards and measures must be put in place immediately through executive action, followed by legislative mandate.

- **Mandate data collection to the household level on water and sanitation costs, lack of access, and the impacts of water shutoffs. Reporting must be transparent, publicly accessible, and free of jargon.**
- **Ensure universal, nondiscriminatory access to safe, affordable drinking water and sanitation for urban *and* rural consumers and all people experiencing homelessness.**
    - **Establish affordability standards and programs for safe drinking water and sanitation for urban and rural communities. Costs should not exceed 2.5% of monthly *household* income for all services. All levels of government must act to adopt affordability programs.**
    - **Ban water shutoffs for nonpayment when consumers do not have the ability to pay. At a minimum, mandate immediate protections against water shutoffs for low-income children (under age 18), the elderly (over 65), persons with disabilities, pregnant and lactating women, and persons with chronic and catastrophic illnesses.**
    - **Require regulatory agencies to study and remedy the impact of regulated and unregulated pollution on the cost of water and sanitation for consumers and households.**
    - **Prioritize and target all water and sanitation funding to those who do not currently have it and vulnerable populations first, followed by other investments as needed.**
- **Adopt the human right to water and sanitation in domestic law with clear enforcement mechanisms and remedies.**

NOTES

1. For programs supported by public tax dollars at the federal and state level (such as revolving-loan funds) the law does not even require minimum reporting on water shutoffs, rates, and who is served and who is left out of infrastructure, much less require affordability standards for the poor. Protections against disconnections in electricity during extreme weather are required in many jurisdictions, and assistance programs for electricity are in place. Basic telecommunications service in many jurisdictions are required to ensure that all people with a telephone line can reach emergency services, such as the fire and police departments, are well established.
2. Using 1–2 times the federal poverty level (which was calculated to cover the cost of food, not other expenses, and is thus an underestimation) to estimate hardship.
3. Water Research Foundation, John E. Cromwell et. al., "Best Practices in Customer Payment Assistance Programs," 2010, 34.
4. Ibid.
5. See graphic in Oriol Mirosa, "Water Affordability in the United States: An Initial Exploration and an Agenda for Research," *Sociological Imagination* 51(2), 48.
6. National Consumer Law Center, "Review and Recommendations for Implementing Water and Wastewater Affordability Programs in the United States," March 2014, 3.
7. Carmen Denavas-Walt and Bernadette D. Proctor, "Income and Poverty in the United States," 5, Figure 1: Real Median Household Income by Race and Hispanic Origin: 1967–2014.
8. Alice B. Jennings, "Congressional Briefing: Trouble on Tap: Challenges to Affordable Water in the U.S., The View from Detroit," February 26, 2015; *Lyda et al.v. City of Detroit*, Adversary Complaint for Declarative & Injunctive Relief, United States Bankruptcy Court Eastern District of Michigan, Southern Division, July 30, 2014, www.aclumich.org/sites/default/files/DetroitWater-Lawsuit.pdf
9. Bureau of Labor Statistics, "Expenditures of Urban and Rural Households in 2011," www.bls.gov/opub/btn/volume-2/expenditures-of-urban-and-rural-households-in-2011.htm; Ellen Hanak, "Water, Drought, and Social Justice in Urban and Rural California." Paper presented at Northern California Grantmakers, May 27, 2015, 4, www.ppic.org/content/other/slideshanakdroughtandequity_0615.pdf; Scott J. Rubin, "Update on Affordability Database for National Rural Water Association," January 2003, http://nrwadev.org/benefits/whitepapers/afford/afford02/afford02.doc
10. Environmental Protection Agency, "Environmental Justice," www3.epa.gov/environmentaljustice/
11. Public Policy Institute of California, Ellen Hanak et al., "Paying for Water in California" March 2014, 15, www.ppic.org/content/pubs/report/R_314EHR.pdf
12. Ibid., 44.
13. Jennifer Lai et al., "Dry Counties: Who Lacks Access to Basic Water Services in the United States," paper presented at the American Sociological Association Annual Conference, Chicago, Illinois, August 2015.
14. National Consumer Law Center, "Review and Recommendations for Implementing Water and Wastewater Affordability Programs in the United States," March 2014, 7; EPA, "Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development," February 1997, www3.epa.gov/npdes/pubs/csofc.pdf
15. U.S. Conference of Mayors, "Affordability Assessment Tool for Federal Water Mandates," 2013, 3.
16. Margot Freeman Saunders, *Water Affordability Programs* (American Water Works Association, 1998), 51.
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Millions of Americans Can't Afford Water, as Bills Rise 80% in a Decade

Analysis of U.S. cities shows emergency on affordability of running water amid COVID-19 pandemic

By Nina Lakhani, of the Guardian. Graphics by Juweek Adolphe.

Updated July 10, 2020

Erre Galvez - TheGuardian

This story was produced by the Guardian US and co-published by Consumer Reports as part of our collective ongoing investigation into America's Water Crisis.

Millions of ordinary Americans are facing rising and unaffordable bills for running water, and risk being disconnected or losing their homes if they cannot pay, a landmark Guardian investigation has found.

Exclusive analysis of 12 diverse cities shows the combined price of water and sewage increased by an average of 80 percent between 2010 and 2018, with more than two-fifths of residents in some cities living in neighborhoods with unaffordable bills.

In the first nationwide research of its kind, the Guardian's findings reveal the painful impact of America's expanding water poverty crisis as aging infrastructure, environmental cleanups, changing demographics and the climate emergency fuel exponential price hikes in almost every corner of the country.

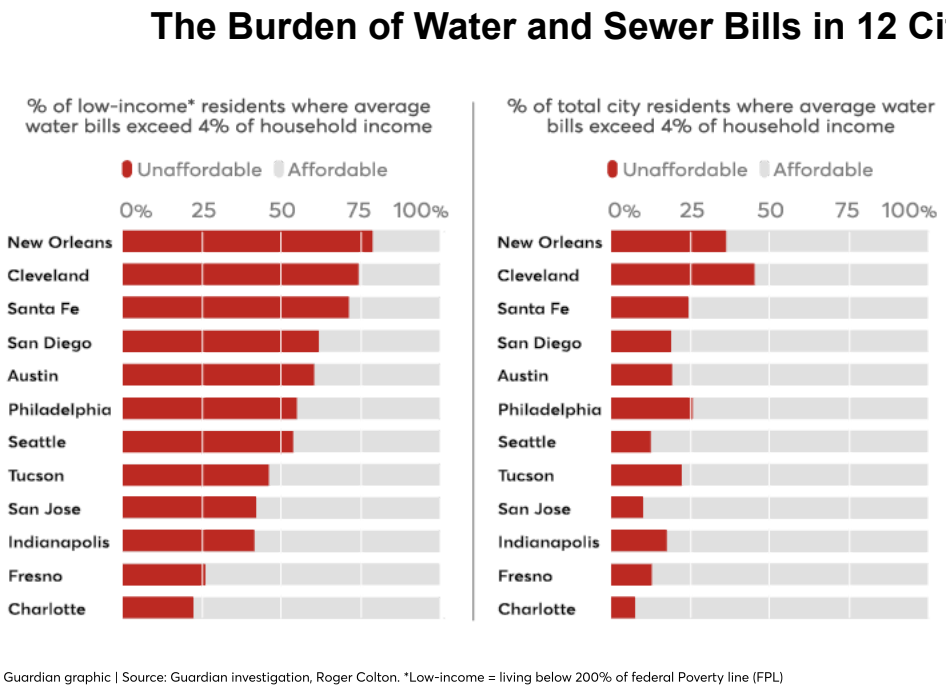
How did the Guardian do its water poverty investigation? SHOW

America's growing water affordability crisis comes as the Covid-19 pandemic underlines the importance of access to clean water. The research shows that rising bills are not just hurting the poorest but also, increasingly, working Americans.

"More people are in trouble, and the poorest of the poor are in big trouble," said Roger Colton, a leading utilities analyst, who was commissioned by the Guardian to analyze water poverty. "The data shows that we've got an affordability problem in an overwhelming number of cities nationwide that didn't exist a decade ago, or even two or three years ago in some cities."

Water bills that exceed 4 percent of household income are considered unaffordable.

Colton's 88-page report is published today as the Guardian and Consumer Reports launch a major project on America's water emergency.



Guardian graphic | Source: Guardian investigation, Roger Colton. *Low-income = living below 200% of federal Poverty line (FPL)

The Guardian's research found that between 2010 and 2018 water bills rose by at least 27 percent, while the highest increase was a staggering 154 percent in Austin, Texas, where the average annual bill rose from $566 in 2010 to $1,435 in 2018, despite drought mitigation efforts leading to reduced water usage.

Meanwhile, federal aid to public water utilities, which serve around 87 percent of people, has plummeted while maintenance, environmental and health threats, climate shocks, and other expenditures have skyrocketed.

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Should We Break Our Bottled Water Habit?

CR's Water Safety & Quality Guide

"A water emergency threatens every corner of our country. The scale of this crisis demands nothing short of a fundamental transformation of our water systems. Water should never be treated as a commodity or a luxury for the benefit of the wealthy," said water justice advocate Mary Grant from Food and Water Watch, reacting to the Guardian's research.

In Washington, 90 lawmakers from across the country—all Democrats—are pushing for major reforms to the way water is funded in order to guarantee access to clean, affordable running water for every American.

The Guardian's investigation shows that the water poverty crisis is likely to get much worse, with bills in many cities becoming unaffordable for the majority of America's poor over the next decade.

In Austin, Texas, if prices in the city continue to go up at the current rate, more than four-fifths of low-income residents—defined as people living under 200 percent of the federal poverty line (FPL)—could face unaffordable bills by 2030.

Why is there a crisis with America's water? SHOW

In Tucson, Ariz., another drought-affected city, the number of low-income residents facing unaffordable bills doubled to 46 percent between 2010 and 2018—as the average bill increased by 119 percent to $869.

Rising costs are disproportionately impacting poor Americans. In Cleveland, New Orleans, and Santa Fe, N.M., about three-quarters of low-income residents live in neighborhoods where average water and sewage bills are unaffordable.

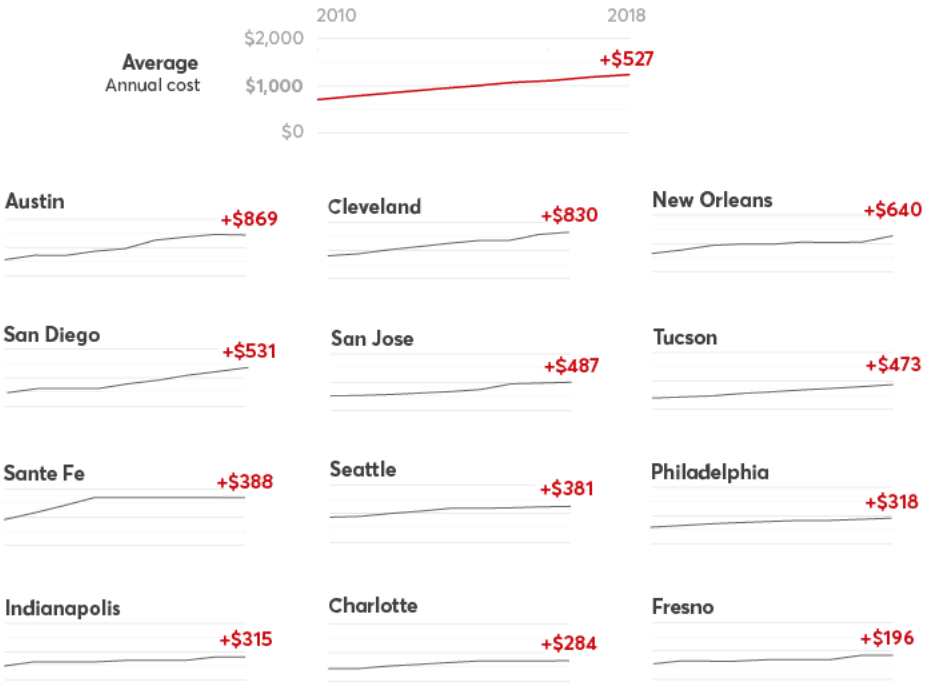
Amid rising costs and diminishing federal dollars, the use of punitive measures—shutoffs and liens (a legal claim on the house linked to a debt which can lead to foreclosure)—is widespread. Just like mortgage foreclosures, water shutoffs and liens can force affected households to abandon their homes.

Jarome Montgomery, 48, a truck driver from Warrensville Heights in Cleveland has borrowed from his partner, mother, grandmother, and sisters to repay more than $30,000 to the water department since 2013, and avoid his home being auctioned off at a tax sale. Despite this, he still owes over $5,000 in water and sewer charges including penalties and interest.

"I've done two payment plans, but I'm still in foreclosure, it's like they're trying to make me homeless," Montgomery said. "There is no way I'm using the amount of water they're charging me for but I'm in a no-win situation, I don't want to lose my home so I have to keep finding the money."

In San Diego, the average bill was $1,416 in 2018: 62 percent of low-income people live in neighborhoods where the average bill was unaffordable, representing almost one in five of the city's total population. Among the poor, one in seven faced average water bills upward of 12 percent of the total household income in 2018.

Between 2010 and 2018 Water Bills in 12 Diverse U.S. Cities Rose by Between 27% (Santa Fe) and 154% (Austin)



Guardian graphic | Source: Roger Colton; Circle of Blue; Ohio Environmental Protection Agency; US Census data; American Water Works Association.

Currently, tech hub Seattle has the lowest poverty rate of the cities analyzed, and only 13 percent of Seattleites struggling to afford water—even as the bills rose to $1,254 in 2018 to help fund earthquake and climate change resilience improvements. By 2030, three out of every four low-income residents could be living in neighborhoods with unaffordable bills.

Nationwide, water bills were almost universally unaffordable for the poorest poor in 2018. In 11 of the 12 cities, 100 percent of the population with incomes below 50 percent of the FPL lived in neighborhoods with unaffordable water bills, with the twelfth city, Fresno, Calif., reaching 99.9 percent.

Federal Neglect

Federal funding for water systems has fallen by 77 percent in real terms since its peak in 1977–leaving local utilities to raise the money that is needed to upgrade infrastructure, comply with standards for toxic contaminants like PFAS, lead, and algae blooms, and to adapt to extreme weather conditions like drought and floods linked to global heating.

Who provides America's water? SHOW

For years, maintenance and cleanup projects were deferred by utilities, which has contributed to the current infrastructure and toxic water crisis. This helps explain why more than $6 billion worth of water is lost annually to leaks, according to industry analysts Bluefield Research.

"High-cost low-quality water is a national issue . . . . the federal government is clearly not playing the role it needs to play," said Howard Neukrug, director of the water center at the University of Pennsylvania and former head of Philadelphia's water department.

"The bottom line is that assuming there's no federal helicopter with $1 trillion, rates are going to go up dramatically to pay for infrastructure and quality issues," he added.

At least $35 billion every year for 20 years–that's how much investment the Environmental Protection Agency (EPA) says is needed just to comply with federal safety regulations for water, sewage, and storm water.

Part of the problem is that maintenance and cleanup projects were deferred by utilities, without squirreling away money or planning for the climate crisis. It's led to a massive backlog; for instance, more than $6 billion worth of water is lost annually to leaks, according to industry analysts Bluefield Research.

Putting off improvements is no longer an option, so cities must now borrow the money to invest in infrastructure programs and/or hike prices in order to deliver safe, clean water.

Nationwide, the rising cost of water has significantly outstripped the consumer price index over the past decade.

The U.S. is the only country in the industrialized world without a regulatory system, responsible for monitoring rates and performance, according to Stephen Gasteyer, professor of sociology at Michigan State University.

He said: "Water rates have gone up dramatically–mostly in places where people are also struggling with food, housing and other basic services. It's a symptom of the inequalities and segregation problems we have in the US, where poor people are agglomerated in particular places and local governments are shouldered with the responsibility for raising revenue for services."

There are federal programs to help low-income households afford energy and telecom bills, but nothing for water. There is however, legislation proposed to fund the infrastructure shortfall and create a water affordability fund.

The Water Act was first introduced in 2016, and has gained momentum since it was reintroduced last year in the House by Brenda Lawrence (D., Mich.) and cosponsored in the Senate by Bernie Sanders (I., Vt.).

"Access to water has never been a priority in the country, because it's been a poor person's issue. We need to transform that mindset and make sure every American has clean running water," Lawrence said.

Punitive Measures

As many as one in 20 homes are disconnected for unpaid bills annually, according to the only national study, but no one knows how many eventually catch up on payments or have to learn to survive without water to flush the toilet, shower, and cook. There's no regulator, and most census questions about water access and poverty have been eliminated since the 1980s.

The COVID-19 pandemic exposed the plight of people like Deborah O'Barr, 62, from Goodspring, Tenn., and husband Bobby, 63, who've lived without running water since 2016 as they don't have the money or correct paperwork to get a new meter.

"It feels like nobody cares. We must be the lowest of the low as far as the water company is concerned. We just don't matter, not even during a pandemic," said O'Barr, who relies on a local spring, rainwater, and her son to fill containers.

As the virus spread, leaving tens of thousand dead and millions jobless, Detroit became the first city to suspend shutoffs and pledge to reconnect households disconnected in the previous year. In 2014, shortly after filing the largest municipal bankruptcy in U.S. history, the city launched a massive shutoff program and has since disconnected at least 141,000 households, according to records obtained by news website Bridge.

The U.N. said the debt collection scheme violated human rights and condemned the disproportionate impact on African Americans, who account for about 80 percent of the city's population.

Eventually, hundreds of localities and 13 states issued moratoriums though only a fraction agreed to reconnect those without running water because of unpaid bills.

This included New Orleans, where the water department has one of the country's harshest shutoff programs, disconnecting almost one in five households in 2016.

In New Orleans, the Guardian's research found a 79 percent of low-income residents living in neighborhoods with an unaffordable water burden–which could rise to 93 percent by 2030 if rates keep climbing. Bills have already doubled over the past decade to $1,268 in 2018, in a city where many rely on bottled water due to concerns about toxins, which means the poorest simply cannot afford to pay.

In 2018, almost three out of every 10 poor residents lived in areas where the average bill cost more than 12 percent of household income.

In total, almost a third of all water customers in New Orleans are considered "delinquent" and together owe well over $50 million.

"It is difficult to argue with a conclusion that New Orleans is in the worst shape of the twelve cities studied," according to Colton, when considering the depth and breadth of the water affordability crisis residents face.

Close behind are Cleveland and Santa Fe, N.M.

Santa Fe saw the smallest increase but the highest bill in 2018 at $1,845. By 2030, 99 percent of low-income residents will live in neighborhoods with unaffordable bills.

Nationwide, nobody knows how many Americans were without water at the start of the pandemic—nor how many were disconnected. What is known is that financial aid to help families and utilities keep taps running was excluded from federal rescue packages.

#waterincrisis

AMERICA'S WATER CRISIS

Partner With Consumer Reports and the Guardian on Water Safety

Help us gather tap water samples from homes across the U.S.

Is Affordable Water Possible?

In Philadelphia, advocates working in a predominantly low-income Black and brown neighborhood in 2014, came across people who'd been without running water for decades—forced to use plastic bags for the toilet and bottled water to wash their hands. "It was widespread, and clearly a human rights issue," said Rachel Lopez, director of the West Philadelphia legal clinic. "A man-made drought disproportionately affecting low-income people of color."

Some people were denied a water account because their names weren't on the deeds or lease—so-called tangled titles which are fairly common among low-income communities. Others were shutoff after accumulating large debts, sometimes inherited, often exacerbated by fines, and some simply couldn't afford to pay for a replacement pipe or meter.

The Guardian's research shows that between 2010 and 2018, the number of poor Philadelphians living in neighborhoods where water is unaffordable doubled to 54 percent as bills topped $900. During the first three months of the pandemic, the city reconnected almost 9,000 homes.

Colton worked with the city to create the tiered assistance program (TAP) after it emerged that in 2017 around 40 percent of water customers were behind on their bills—amounting to $242 million in uncollected revenue.

The premise is pretty simple: The most effective way to improve compliance—and maximize revenue—is to make bills affordable, in other words based on a person's ability to pay, like the energy sector has been doing for years.

The program has made an impact: About 15,000 people are currently enrolled, though this is still far short of the 60,000 households estimated to be eligible even before the current economic disaster.

But, the city continued to convert water debt into tax liens, and once a month, properties are auctioned off at a sheriff's tax sale.

"Water debts are clustered in communities of color which disproportionately devalue their homes and neighborhoods," said attorney Robert Ballenger from Community Legal Services.

In a move welcomed by advocates, city officials recently agreed to introduce debt forgiveness, which should mean that TAP enrollees will see their water debts wiped–no matter how big–after two years of compliance.

This could be a game changer as currently, water debt is a burden passed down through generations.

Earlier this year, Cheryl Gregg, 50, returned from the hospital after being admitted with high blood pressure and respiratory problems, to find that the water had been disconnected–this time because of a leaking pipe. "I had to take an Uber to my daughter's house to wash and buy bottled water, it's expensive. I have no income," Gregg said from her hospital bed, after being readmitted a few days later.

This was not the first time, according to daughter Amber, 28, who recalls months camped out at relatives' houses because they couldn't afford the water bill. "My mom and grandma had a lot of health problems and couldn't work, we got cut off so many times. We never knew what we'd find after school every day, no lights or no water, it was so stressful," she said.

The water debt, which includes interest and penalties, is over $26,000.

Gregg is now on TAP and the family hopes the debt will be forgiven. Amber, who works two jobs at a parking company and burger joint, said: "I make sure my mom pays every month so we don't lose the house."

Water Industry Responses

Water providers are aware of the rising burden on people from bills due to the costs of aging infrastructure and "want to find ways to assist them while being responsible stewards of the water system," according to spokesman Greg Kail, of the American Water Works Association, whose members include water utilities.

Responding to the Guardian's research, Kail said there was no "silver bullet" to solve affordability but said "significant progress" had been made, citing the AWWA's research last year that more than 80 percent of large water utilities have a capital assistance program, up from 60 percent a year earlier.

Cleveland Water did not comment on Jarome Montgomery's case but said it was committed to building a "more equitable water future."

Editor's Note: This article was supported by the 11th Hour Project.

AMERICA'S WATER CRISIS

Consumer Reports has a long history of investigating America's water. In 1974, we published a landmark three-part series (PDF) revealing that water purification systems in many communities had not kept pace with increasing levels of pollution and that many community water supplies might be contaminated. Our work helped lead to Congress enacting the Safe Drinking Water Act in December 1974.

More than 45 years later, America is still struggling with a dangerous divide between those who have access to safe and affordable drinking water and those who don't. Communities of color often are affected disproportionately by this inequity. Consumer Reports remains committed to exposing the weaknesses in our country's water system, including raising questions about Americans' reliance on bottled water as an alternative—and the safety and sustainability implications of this dependence.

In addition to our ongoing investigations into bottled water, we are proud to be partnering with our readers and those of the Guardian US, another institution dedicated to journalism in the public interest, to test for dangerous contaminants in tap water samples from more than 100 communities around the country.

America's Water Crisis is the name we are jointly giving to this project and the series of articles we co-publish on the major challenges many in the U.S. face getting access to safe, clean, and affordable water. We will share the results of our upcoming test findings with you. In the meantime, you can join our social media conversation around water under the hashtag #waterincrisis.

Gwendolyn Bounds
Chief Content Officer, Consumer Reports

Nina Lakhani

Nina Lakhani is an environmental justice reporter with Guardian US, where she's reporting for the Our Unequal Earth project. Before that, she was a freelancer covering Mexico and Central America for almost seven years, and a staff reporter, based in London, at the Independent newspapers. Before journalism, she was a mental health nurse.

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New report: Growing water affordability crisis touches all Michiganders, urban and rural

December 2, 2021Jim Erickson Alexandra Haddad

Water and sewer service affordability, at both the household and community levels, is a widespread and growing problem across Michigan. Left unchecked, it is likely to increase in the future, according to a new statewide assessment.

“Our purpose was to understand the extent of affordability issues across the state and to provide Michigan policymakers with a resource they can use in developing sustainable solutions to what appears to be a growing water and sewer service affordability crisis in our state,” said study lead author Jennifer Read, director of the University of Michigan Water Center, a program of the Graham Sustainability Institute.

“And because the gap between income and the cost of basic services continues to widen, we can anticipate harms to more Michigan residents will occur into the future if left unaddressed,” Read said.

On Thursday, Read and colleagues from Michigan State University Extension and Safe Water Engineering released a detailed analysis that contains more than 20 findings and six recommendations.

The assessment, funded by the C.S. Mott Foundation, complements decades of work on water service affordability by community groups in Michigan. It examines the issue across the state and considers the

financial and infrastructure challenges that both households and utilities face in accessing or providing safe and affordable water.

Over the last four decades, water and sewer bills across the United States, including in Michigan, have increased at a higher rate than any other basic need except health care. This has resulted in a dramatic increase in the proportion of household income dedicated to water and wastewater services for Michigan residents.

The most important impact is on the economically vulnerable Michigan households who find themselves behind in their bills, sometimes resulting in utilities shutting off their water service. This limits their ability to maintain basic hygiene and thus endangers both the residents and their communities. The challenges can snowball, leading to increased stress, more and exacerbated physical health problems, housing crises, and family and community disruption, according to the study.

“These issues are not just experienced in vulnerable households in Flint, Detroit or Benton Harbor, they are also experienced in economically challenged parts of rural Michigan and the Upper Peninsula, including households on private wells, septic systems and those in mobile homes. It is important to recognize the similarities in these economic challenges and how they impact communities across the state,” said study co-author Ritchie Harrison, extension specialist at MSU Extension’s Community, Food and Environment Institute.

The challenges do not stop at the household level. “To provide safe water, our water utilities need consistent investment and renewal, and unfortunately many water utilities have fallen behind due to a number of factors,” said Elin Betanzo of Safe Water Engineering, a co-author of the assessment.

“This report demonstrates the need for household support and utility investment from all levels of government,” Betanzo said. “Raising water rates, without supporting those least able to pay, will not ensure safe water for the residents who need it most.”

Among the assessment’s findings about water affordability:

- In the Midwest, water bills for households in the lowest 20th percentile of income have risen 433% on average since 1986, while household income for these residents has only risen 241%.
- Between 6.59% and 10.75% of households on community water supplies across Michigan have high-burden water bills. It would take between $78.3 million and $145.99 million annually to support these households.
- Rural Michigan residents on private wells and septic systems face economic challenges similar to their urban and suburban neighbors. Roughly 20% percent of wells and 27% of septic systems are in need of repair or replacement.
- The 21st Century Infrastructure Commission (2016) estimated an annual cost of $20 million to support those unable to afford septic replacement costs alone.
- At the water-utility level, the cost of providing water and sewer services has been rising for decades nationally, while federal spending on water infrastructure has decreased, creating a widening investment gap in water infrastructure. In Michigan, the study found a gap in the 20-year estimated water infrastructure funding needs of $19.8 billion.

- Water utilities are stretched thin, having also been subject to increasing state and federal requirements to address known and emerging risks, such as combined sewer overflows, lead service lines, and PFAS contamination. In addition, climate change has added pressure to strained wastewater systems and can affect source-water quality.

The assessment is based on data compiled from federal sources, as well as directly from utilities themselves. This enabled the team to analyze the potential magnitude of water affordability challenges in Michigan. However, the team did face data access challenges.

“Answering any questions about the infrastructure and financial status of water utilities is incredibly difficult given the lack of comparable and accessible financial and infrastructure data at the utility level across the state,” said study technical lead Noah Attal of the U-M Water Center. “Basic information such as how many households are unable to pay is not regularly reported anywhere. This also makes policy solutions difficult to formulate.”

Local and statewide data were supplemented by interviews with employees of large and small water utilities, state regulatory agencies, and community groups to gain insight about the challenges they face in confronting water affordability in their communities.

While the researchers recognize that there is not a single solution for water affordability, they identify the following elements, all of which must be addressed in a solutions package:

- Address household capacity to pay for water and sewer services under a variety of hardship scenarios (water service arrearages, long-term poverty, short-term economic hardship, private well and septic systems, economically vulnerable communities).
- Prohibit water shutoffs for economically vulnerable households.
- Address gaps in utility capacity statewide and prioritize assistance for the utilities and communities with the least financial stability.
- Address the lack of comparable utility-level financial data statewide.
- Require water utilities to implement meaningful and significant community engagement in water and sewer system planning and decision-making.
- Embrace a state role with adequate authority and resources for oversight that ensures public health protection, water quality regulation, and appropriate water rates; and provides technical, managerial, and financial support for water utilities.

The researchers stress that Michigan cannot allow the variety of challenges to delay or avoid a policy response to the current and emerging crises in water services across the state. The assessment’s findings and recommendations are designed to support the policy community in co-developing a solution package to ensure safe, accessible and affordable water for all.

More information:

- Report: Water Service Affordability in Michigan: A Statewide Assessment

WATER AFFORDABILITY & EQUITY:
RE-IMAGINING WATER SERVICES

A REPORT FROM THE 2020
ASPEN-NICHOLAS WATER FORUM

Lauren Patterson, Rapporteur

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WATER AFFORDABILITY AND EQUITY: RE-IMAGINING WATER SERVICES – A REPORT FROM THE 2020 VIRTUAL ASPEN-NICHOLAS WATER FORUM. 2020. Lauren Patterson, Senior Policy Associate, the Nicholas Institute for Environmental Policy Solutions at Duke University; Martin Doyle, Director of the Water Policy Program, the Nicholas Institute for Environmental Policy Solutions at Duke University; Emily Simonson, Director of Strategy, the US Water Alliance; Radhika Fox, Chief Executive Officer, the US Water Alliance; Kate Jaffee, Assistant Director, Energy & Environment Program, the Aspen Institute, Kitty Pollack, Program Associate, Energy & Environment Program, the Aspen Institute, and Greg Gershuny, Executive Director, Energy & Environment Program, the Aspen Institute.

WATER AFFORDABILITY & EQUITY:
RE-IMAGINING WATER SERVICES

A REPORT FROM THE 2020
ASPEN-NICHOLAS WATER FORUM

The **Aspen Institute** is a global nonprofit organization committed to realizing a free, just, and equitable society. Since its founding in 1949, the Institute has been driving change through dialogue, leadership, and action to help solve the most critical challenges facing communities in the United States and around the world. Headquartered in Washington, DC, the Institute has a campus in Aspen, Colorado, and an international network of partners.

The **Aspen Institute Energy and Environment Program** challenges thought leaders to test and shape energy, conservation, and environmental policies, governance systems, and institutions that support the wellbeing of both nature and society. The program addresses critical energy, environmental, and climate change issues through non-partisan, non-ideological convening, with the specific intent of bringing together diverse stakeholders to improve the process and progress of policy-level dialogue. The program's core strategy focuses on mitigating the effects of climate change, adapting to the inevitable impacts of climate change, and building relationships needed to achieve these goals.

The Nicholas Institute for Environmental Policy Solutions at Duke University improves environmental policymaking worldwide through objective, fact-based research to confront the climate crisis, clarify the economics of limiting carbon pollution, harness emerging environmental markets, put the value of nature's benefits on the balance sheet, develop adaptive water management approaches, and identify other strategies to attain community resilience. The Nicholas Institute is part of Duke University and its wider community of world-class scholars. This unique resource allows the Nicholas Institute's team of economists, scientists, lawyers, and policy experts not only to deliver timely, credible analyses to a wide variety of decision makers, but also to convene these decision makers to reach a shared understanding regarding this century's most pressing environmental problems.
https://nicholasinstitute.duke.edu/

The US Water Alliance advances policies and programs to secure a sustainable water future for all. Our membership includes water providers, public officials, business leaders, environmental organizations, community leaders, policy organizations, and more. A nationally recognized nonprofit organization, the US Water Alliance brings together diverse interests to identify and advance common ground, achievable solutions to our nation's most pressing water challenges.
http://uswateralliance.org/

The 2020 Virtual Aspen-Nicholas Water Forums represent the ninth water forum in the Aspen Institute and Nicholas Institute partnership. The first, in 2005, on water, sanitation, and hygiene in the developing world, produced *A Silent Tsunami*, which made a material contribution in advancing priorities in U.S. foreign assistance for basic water services. The report ultimately helped spur passage of the Paul Simon Water for the Poor Act. The third forum, in 2015, on water and big data, catalyzed a dialogue series that led to the 2017 report: Internet of Water: Sharing and Integrating Water Data for Sustainability whose recommendations are being implemented by the Internet of Water project at the Nicholas Institute. This year we partnered with the US Water Alliance to explore issues of affordability and equity. This topic is incredibly timely with a global pandemic that has amplified inequities and brought greater challenges of affordability for our water systems. The COVID-19 pandemic resulted in a series of virtual forums rather than a single in-person forum. This report is a compilation of those conversations. The success of these endeavors provided the impetus for additional forums focused on water concerns in the United States.
https://www.aspeninstitute.org/programs/energy-and-environment-program/aspennicholaswaterforum

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PREFACE

The 2020 Aspen-Nicholas Water Forum explored what constitutes good water governance through the lenses of affordability and equity, a topic that was made ever more prescient given the circumstances of the year. 2020 has been a year overwhelmed by a global public health crisis, political and social unrest, and natural disasters. In March of this year, the World Health Organization identified the global outbreak of COVID-19 as a pandemic, a declaration, and escalation which underscored the critical importance of water and sanitation for public health. Amidst immense economic disruption and skyrocketing unemployment in the U.S., many states passed shut-off moratoria, so those who lost their jobs could still access water. States and local governments diverted Coronavirus Aid, Relief, and Economic Security (CARES) Act funds to utilities to aid in revenue losses from nonpayment and decreased water use from closed businesses. For the first time, the nation began to grapple in a significant way with how many people lack access to water and how many more cannot afford their water. In May, a national conversation around race erupted after the police killing of George Floyd created socio-political reverberations around the globe, further shining a light on water system inequities. The marks of systemic racism are embedded in water systems that were constructed during the era of redlining and unfair housing policies and have left a legacy of unequal water access and unfair shut-off practices in communities of color. Finally, in the fall, the western U.S. struggled to control immense fires, with 4% of California burning, while the Gulf Coast repeatedly braced themselves against tropical storms. The intersecting public health, unemployment, racial justice, and climate crises have revealed deep, systemic fault lines in our society, and exacerbated health and financial disparities across racial, gender, and geographic lines, making the topic of this year's forum critically relevant.

The Aspen-Nicholas Water forum convenes thought leaders in different sectors of the water industry to consider and imagine what good water governance means for a particular topic. Participants come from the private sector, government, academia, and non-governmental organizations—representing expertise in industry, finance, philanthropy, government, academia, agriculture, food and technology companies, investors, and entrepreneurs. Topics discussed include big data, innovative financing, groundwater, reaching scale to address geographically expansive challenges, water quality, and now equity and affordability.

This vision and leadership are needed now more than ever to explore the challenges and opportunities that are emerging amid so much disruption. The pandemic also reorganized our traditional in-person Water Forum from a single event in May to a series of virtual meetings that allowed us to engage in conversation to envision a better future as events took place. Our last virtual session focused on how the water sector could position itself within a new administration's priorities around (1) the pandemic, (2) the economic recession, (3) racial inequality, and (4) climate change. All four priorities have incredible relevance to water, and we have an opportunity to advance policies and change to ensure good governance for water equity and affordability.

The 2020 Aspen-Nicholas Water Virtual Forums explored water equity and affordability prior to the pandemic, the response of urban and rural utilities to the pandemic and their financial resiliency, as well as the roles and responsibilities for federal, state, and local governments to ensure the affordability of water services. The central question was that given that water is essential for public health, **what must be done to ensure**

that these life-sustaining services are affordable and accessible to all households and the utilities providing those services are financially resilient?

Each year, the Nicholas Institute and Aspen Institute coauthor a summary of the forum. Not all views were unanimous nor were unanimity and consensus sought. Forum participants and sponsors are not responsible for this summary's content. Given the virtual format, which broke the forum into distinct meetings, the final summaries for each meeting can be found here:

- Long-term water affordability & financial resilience
- Equity and affordability in rural communities and tribal nations
- Building a federal water assistance program: What we can learn from federal programs that protect low-income families
- Local insights on renewing a cross-government for water affordability
- State insights on renewing a cross-government for water affordability
- Reflections on the past year and looking forward to the next administration

We thank the following sponsors for their generous support of the forum: Esri, Mott Foundation, Schlumberger, S.D. Bechtel, Jr. Foundation, Spring Point Partners, Van Ness Feldman, Xylem Inc. This gratitude is especially important this year as the circumstances required agility and flexibility from our sponsors and participants in moving to a digital forum that allowed us to continue to engage in conversations around race, equity, and affordability as a community. We were awed at the dedication and response of local utilities to continue providing reliable services in the pandemic and the dedication of elected officials to engage with and advocate on behalf of, their communities. We were humbled by the immensity and complexity of challenges that governments must address and how carefully they must hold different concerns in balance. We were inspired by new ideas and insights brought forth by participants. Finally, we were grateful for the candid conversations that continually push us to reimagine how we could "do water" today with greater equity.

VISION

The fundamental question at each Aspen-Nicholas Water Forums is "what constitutes good governance for water?" What does water governance look like in terms of balancing equity and liberty with efficiency and community (**Figure 1**)? What is the legacy of these broad ideas on water governance, and what do we want our future to be? For instance, the provision of drinking water in the United States historically prioritized liberty and efficiency, resulting in a multitude of independent water systems with wide variation in the safety of the water provided. In response, the federal government established the Safe Drinking Water Act to apply uniform drinking standards across all water systems. In essence, the federal government shifted governance towards community and equity and initially provided funding to help address affordability and equity challenges.

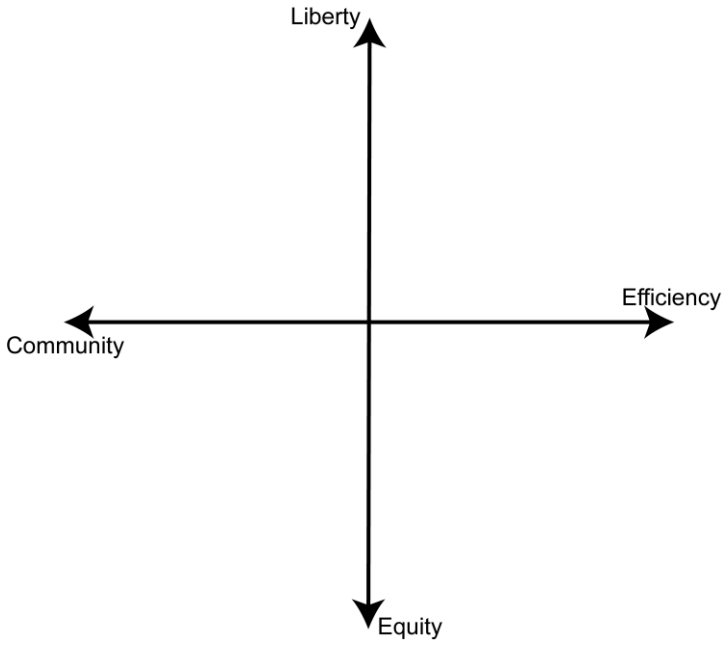

Figure 1. Adopted from *The Executive's Compass: Business and the Good Society*, James O'Toole, 1993.

The 2020 Aspen-Nicholas Water Forum focused on the equity portion of the diagram. Inequities in water systems are rooted in a legacy of social and policy movements in the U.S. that shaped the construction of water and wastewater systems during the 19th and early 20th centuries. Now, *most* people have access to water, *most* tap water is drinkable, *most* dams are secure, *most* farms can grow more with less water, and *most* rivers are cleaner than they were 50 years ago. Most does not mean *all*. Does equity in water mean *all*? Before the pandemic, an increasing number of Americans were losing access to safe drinking water and sanitation—and others never had it. While equity challenges exist beyond utilities, the immediacy of the pandemic and its impacts on public health have focused our attention on utilities, particularly on issues of affordability and financial resilience.

UTILITY SHORT-TERM RESPONSE TO THE PANDEMIC

The COVID-19 pandemic created significant disruptions to everyday life, and yet the nation's water and wastewater utilities continued to operate and provide critical public health services to keep communities safe. The importance of water for public health grew while the ability to pay for those services shrunk. Businesses closed, unemployment skyrocketed, and the nation entered an economic recession. Households and businesses lost sources of income and financial stability.

In response, utilities dipped into reserves and spent resources to adapt operations and support their customers. First, utilities prioritized the safety of their employees by implementing new protocols, such as limiting workers on sites, providing personal protective equipment, and developing measures to adapt to decentralized operations. Second, many state and local utilities enacted shut-off moratoria for the first few months of the pandemic to ensure households unable to pay for water services continued to have access. Many more restored connections from previous shutoffs. Third, utilities developed effective public messaging, particularly about clogged drains during the toilet paper shortage ("keep the wipes out of the pipes") and reassurance that water remained safe to drink. While some utilities had already adopted digital technologies, others had to modify paper-based workflows. There has been a tremendous effort by utilities to adapt while continuing to provide reliable water and wastewater services.

Utilities are taking on the financial shortfalls of their customers so they can meet critical public health needs. As statewide shut-off moratoria expire, utilities must choose between doing what is best for public health and their struggling customers and the long-term health and financial resiliency of themselves and their paying customers. (Box: Benefits and Challenges of Shut-offs).

Benefits and Challenges of Shut-offs

Shut-offs, or the threat of shut-offs, are a well relied on tool for utilities to ensure payment for services. This enforcement mechanism provides a level of assurance to investors and rating agencies that a utility can collect the revenue needed to pay its debts. If shut-offs become politicized and outlawed, investors and rating agencies may lose confidence that utilities can pay their debts, which may lead to higher interest rates and a greater financial burden for utilities and their customers. At the same time, inequitable shut-off practices have disproportionately affected African American neighborhoods across many cities in the U.S., raising questions and concerns about how these practices might exacerbate poverty and reinforce systemic societal and economic inequities. Utilities are searching for new ways to incentivize payments while assuring equitable and affordable water provision for all its consumers.

The COVID-19 pandemic is creating an acute financial crisis for some water utilities. Proposed COVID-19 stimulus packages only covered infrastructure projects and have not addressed revenue losses that jeopardize utility operations today. The water community needs to help policymakers understand the importance of utilities receiving revenue now so that they can take care of their systems properly and continue to provide safe, reliable water and sanitation services. In rural America, cooperatives may give voice to these concerns and advocate on behalf of their communities and members. A voice also needs to be given to those communities that have been left behind, without infrastructure or revenue, and who are experiencing

incredible hardship from lack of access to water and sanitation. This hardship has been amplified during the COVID-19 pandemic, as water and sanitation have been critical to public health. New policies and programs will be more successful in dismantling the systems in place that keep these communities from accessing water and wastewater services if they first acknowledge these inequities. While a quick response is necessary to address the current crisis, greater restructuring continues to be necessary to address underlying racial disparities and environmental justice.

EXECUTIVE SUMMARY

The first section addressed utility response to the pandemic. The remaining report describes the chronic underlying affordability and equity challenges plaguing water systems. Below we synthesize key takeaways in the following report chapters. To learn more, read the full chapter.

Water equity - an aspiration and a legacy:

- Intersecting forces of structural racism and poverty have embedded inequity in our water infrastructure, shaping who has access to water and grants and influencing the costs of water. There are social and environmental justice issues as communities of color are more likely to have their water shut-off for nonpayment and reside in poor quality housing, which is more likely to have issues such as leaking pipes that result in higher bills. Communities of color are also more likely to live in areas prone to flooding or frequently exposed to other hazards.
- To protect public health, the federal government created water quality regulations that were reliant on specific, centralized treatment technologies and initially provided the grants necessary for local governments to subsidize the costs of building this infrastructure. In the mid-1980s and 1990s, grants transitioned to loans with funding steadily decreasing since. The burden falls on local utilities to finance expensive treatment technologies and replace aging infrastructure.
- The primary sources of funding for local utilities are their customers (residents and businesses). As the federal government has decreased funding, the financial health of utilities has become increasingly dependent on the number of customers and their financial health.
- Water can be a public good, a commodity, and a right. With financial costs falling increasingly on the shoulders of households and businesses, water services have predominantly been financed as a commodity.

Water affordability for utilities and households:

- There are two types of affordability: (1) household affordability – the ability for households to afford water services, and (2) utility affordability – the ability for a community to afford their utility.
- Financially strained utilities must make trade-offs between their three primary financial goals: (1) ensuring water is affordable for households (household affordability), (2) ensuring their fiscal health to continue operating reliably (utility affordability), and (3) investing in infrastructure to ensure they meet regulatory requirements and provide safe water.
- Unfunded regulatory requirements contribute to trade-offs, and trade-offs can result in public health crises that erode trust and further undermine affordability.

How can local, state, and federal governments work together to ensure affordability:

- Federal governments set regulatory standards for water treatment nationwide. They traditionally provided funds to subsidize building infrastructure and consequently ensure utility affordability. While regulatory requirements have remained, financial support has diminished. Households and businesses do not have enough money to finance existing infrastructure, let alone rebuild it. The federal government should provide the necessary financial resources and/or offer increased flexibility

so utilities can meet regulatory requirements apart from specific treatment technologies. There is also growing support for a federal water assistance program to support household affordability.

- State governments shape equity and affordability with how they implement federal regulations, set policies for, and engage with local utilities. To ensure household affordability, states could update policies and legislations that are barriers to local governments setting rates or financing customer assistance programs. To ensure utility affordability, states could adjust State Revolving Fund allocations to be more equitable and so that they might be used for human and technological purposes. States could provide financial incentives to regionalize physical or human capital and work with utilities to holistically address water quality problems.
- Local governments are the gateway for household affordability. The most direct ways that utilities can address affordability challenges are by (1) implementing income-based or variable rate structures and/or (2) creating customer assistance programs. Customer assistance programs often have limited success because utilities often do not have direct access to low-income households (e.g., multi-family housing units typically have a single meter), state policies make it difficult to finance, or the system lacks the resources to develop a program. Utilities with customer assistance programs often partner with local organizations that are already working with families struggling with poverty. Local utilities would be the ideal administrators of a federal water assistance program.

A future federal water assistance program:

- The federal government has a long history of providing subsidies that offset the costs of essential services such as food, heating, health insurance, and housing so that families in need can save resources to further their own economic growth.
- Federal programs for energy, food, and taxes were explored to identify the strengths and weaknesses of these programs and create a blueprint for a federal water assistance program. A federal water assistance program should:
    - Develop an entitlement program that allows program funding to grow and shrink with need, rather than seeking annual allocations from Congress.
    - Streamline eligibility to reduce application costs for families to apply for water assistance by making households automatically eligible if they are already participating in another low-income federal assistance program. This streamlining and coordination will be incredibly important for water since many water providers do not have individual meters for multi-family homes and struggle to reach those eligible for customer assistance programs.
    - Ensure the benefits from the program exceed application costs.
    - Design and implement the program to address inequities, such as the disproportionate number of shut-offs impacting households and communities of color.
    - Develop partnerships with local nonprofit organizations that help families struggling with poverty. There is an immense opportunity for a federal water assistance program to collaborate with already existing federal programs and partners.
    - Allow flexibility spending so funds can be used to better address the inability to pay bills, meet community needs, and prevent high bills, which are often a comorbidity with old homes and leaking toilets or pipes.
    - Provide clear, consistent communication to create buy-in and reduce stigma.

Rethinking water services

- Compounding problems and challenges, ranging from acute crises (such as infrastructure failures, floods, and water contamination) to long-term sustained pressure (such as climate change, emerging contaminants, and aging infrastructure) are outpacing advancements in technologies, policies, and partnerships for water.
- The water community must rethink its provision of services so that it can get ahead of these challenges. The electricity grid went through a data revolution that transformed how they manage energy. The water sector needs a similar transformation. One idea is for a new water grid to allow utilities to use decentralized treatment technology. Decentralized treatment would be more affordable for small utilities but would present data and administrative challenges to ensure water remains safe.

Advancing water priorities with a new administration:

- The Biden-Harris administration will start in 2021 with a focus on four priority areas: the COVID-19 pandemic, economic recovery, racial equity, and climate change. The water community must consider how to position water within the new administration's priorities.
- **COVID-19 pandemic:** Many utilities established shut-off moratoria in the pandemic despite increased delinquencies, both of which have a negative impact on utility revenues and financing. Future COVID-19 relief packages must include grants earmarked directly for water and wastewater utilities, and not just for local governments. Any relief package must provide guidance on how to distribute money to ensure it reaches the utilities that need it most. Many under-resourced and marginalized communities will need assistance to apply for stimulus money. The federal government could establish water as a human right, which would create common grounds for prioritizing water accessibility and affordability among state and local governments. If there is a human right to water, then water becomes a high priority. If water is considered a public good, like roads, for example, then it might be paid for as part of the tax base, rather than as a commodity, like a bottle of water).
- **Economic Recovery:** The pandemic has elevated national awareness of water's importance to public health. Widespread unemployment, stagnating income, and rising rates have made it impossible for some homes to afford water services. Shut-offs from nonpayment have cascading consequences with children removed from families, large fines, and loss of homes. This elevated awareness may present a window of opportunity to generate bipartisan support for a federal water assistance program. The federal government also needs to help modernize the water grid. Ratepayers do not have the funds necessary to cover projected infrastructure costs. The costs of a modern water grid could be less expensive if it was rebuilt differently. Envisioning a new water grid requires identifying what does and does not work with the current system. This will need to include revisiting plumbing codes, fire suppression systems, and centralized treatment technologies. The water sector must take this opportunity to shift the water paradigm before spending trillions of dollars to rebuild a water grid that struggles to meet the needs of the 21st century.
- **Racial Equity:** In many instances, systemic racism has been a driving force for water insecurity in communities of color. Any proposed infrastructure packages should be earmarked for utilities and consist primarily of grants that will improve infrastructure in historically underserved areas. These packages should include guidelines that ensure underserved areas can access and use funds. New policies must also address the legacy impact of communities historically excluded from receiving

support. Special attention needs to be given to Tribes that are prohibited from financing utilities through fees and yet do not receive adequate financial support to build and maintain water infrastructure. Tribes and minorities must have a seat at the table to help craft solutions. Ensuring that the people living with the problem day-to-day are included and find value in the solution will ensure that the problem is well-defined, affordable, and can be sustained in the long-term.

- **Climate Change:** The intersection of climate change, water shortages, and water contamination have resulted in numerous conflicts and high-profile lawsuits between states sharing river basins and aquifers. There is growing bipartisan support for federal involvement to ensure domestic water security through infrastructure investments, technology development, conservation management, inter-agency collaborations, and policy changes. Support has only grown as the pandemic has further revealed the implications of limited to no water access and the critical importance of proper sanitation for communities, especially tribes and communities of color.

WATER EQUITY: AN ASPIRATION AND A LEGACY

Water equity, as defined by the U.S. Water Alliance, is present when *all* communities:

(1) have access to safe, clean, affordable drinking water and wastewater services;
(2) are resilient in the face of floods, drought, and other climate risks;
(3) have a role in decision-making processes related to water management in their communities;
(4) share in the economic, social, and environmental benefits of water systems.[1]

Water equity is difficult to achieve for many reasons. First, the costs to access and treat water depend on the availability, distance, and quality of water. Two communities with identical demographic and economic characteristics may have very different costs to access and treat water to safe standards. Similarly, the risks to floods, droughts, and sea-level rise are geographically dependent. Those that can least afford to be resilient to, and recover from, disasters are often placed in high-risk areas. The warming climate is changing the patterns of water in certain landscapes and creating higher risks in new areas.

A second challenge is righting the legacy of policies and decisions made by the majority in power that have kept communities of color in the margins. These policies, or at least their implementation, have limited some individuals, neighborhoods, and communities from having a voice in water management or from benefiting from their water systems. Some communities were denied connections to nearby water systems while other communities were located others in areas vulnerable to climate risks. Let us trace a legacy of policy choices that have embedded inequities within water infrastructure.

Tracing water inequity through our water infrastructure[2]

Housing policies have contributed to racial inequity in water systems

Market incentives and local entrepreneurs characterized the Industrial Era, encouraging a focus on maximizing economic development, often at the expense of entire social and ethnic groups and environmental health.[3] Cities were born as industrialization demanded infrastructure increases to house laborers, create energy, and supply water and sanitation. Private companies could afford to build water infrastructure when cities could not, even though the health of a city was "*intimately connected"* to water services and *"municipal authorities should rank this among the most important of their public duties*…".[4] Once local governments could take on funded debt through municipal bonds, there was a trend towards public ownership of waterworks with most systems publicly owned by 1910. At this point, the major cities had established water and sewer systems serving their entire cities. Housing was not as segregated in 1910, and the risk of epidemics spread by water-borne diseases, such as cholera, was so great that a city had to provide services to *all*

[1] US Water Alliance. 2017. An Equitable Water Future: A national briefing paper.
[2] Patterson & Doyle. 2020. Water Affordability and Equity Briefing Document.
[3] Collin & Collin. 1994. Where did all the blue skies go? Sustainability and Equity: The New Paradigm. *J. Env. Law and Litigation. 9*: 399 – 460.
[4] Montag. 2019. Water/Color: A study of Race and the Water Affordability Crisis in America's Cities.

customers, regardless of race.[5] Early water and sanitation systems nearly eradicated these diseases, improving the public health and economic outcomes of cities.

Segregation in water systems occurred after federal housing policies promoted physical segregation. Rapid population growth in the 1920s led to a National Mortgage Crisis in the 1930s. In 1934, the Federal Housing Administration (FHA) was created to respond to the crisis. From 1934 to 1968, FHA policies and practices created segregated communities. For example, the FHA guaranteed the loans of white Americans, making homeownership possible, while explicitly refusing to guarantee loans to African Americans or areas with high African American populations.[6] The systematic denial of various services to residents of specific, often racially determined, communities is "redlining" (Figure 2). Local policies and practices promoted the use of racially restrictive covenants in deeds to prevent the sale of homes to African American families, while private real estate agents used "blockbusting" to convince white families to flee communities with growing African American populations at a premium and then resold those homes to African American families at inflated prices.[7]

"White flight" to suburbs occurred as the African American populations concentrated in cities became poorer due to redlining policies that kept wealth outside their boundaries.[8] The ensuing disparity continues today. Incomes within African American communities are on average 61% of their white counterparts and their wealth is only 5% of their counterpart white wealth.[9] Most middle-class families gained their wealth from home equity, homes they were able to purchase through FHA policies decades earlier. African American families had no way to accrue this same wealth because they were prohibited from buying homes, buying homes with good interest rates, or buying homes in desirable locations. While the 1968 FHA technically allowed African Americans to buy homes anywhere, many homes remained unaffordable to those who lacked wealth (even if they had comparable incomes to their white peers).

Racial segregation at the scale of neighborhoods and census tracts had implications for the development of water and wastewater utilities after World War II. As residential segregation increased, municipalities could more easily exclude communities of color from water and sewer services through a practice known as "under-bounding," whereby municipalities selectively annexed white neighborhoods into the town's official boundaries while ignoring African American neighborhoods.[10] For instance, Zanesville, OH did not construct municipal water lines in African American neighbors in the 1950s; Roanoke, VA did not extend water and sanitation lines to the nearby predominantly African American town of Hollins; and in Central Valley, CA rural Latinx communities were discouraged from incorporating and did not receive infrastructure funds available to neighboring towns.[11] A 2018 study examined the relationships between race, access to water, and sewer services in areas bordering 75 municipalities in North Carolina. They found the two most unserved groups were: (1) low-income African American populations excluded from municipal services and (2) higher-income white populations who could afford well and septic systems.[12] Cities could choose where to provide services since areas affected by water-borne diseases from poor sanitation would be concentrated within

[5] Troesken, W. 2004. Water, Race, and Disease. MIT Press. 288 pp.
[6] Madrigal, A.C. 2014. The racist housing policy that made your neighborhood. *The Atlantic*.
[7] Montag. 2019. Water/Color: A study of Race and the Water Affordability Crisis in America's Cities.
[8] Ibid.
[9] Economic Policy Institute. 2010. State of Working American: African Americans.
[10] Montag. 2019. Water/Color: A study of race & the water affordability crisis in America's cities.
[11] DigDeep & U.S. Water Alliance. 2019. Closing the water access gap in the United States.
[12] Leker, H. & J. Gibson. 2018. Relationship between race and community water and sewer service in North Carolina.

certain communities. Additionally, rich suburbs could afford to build their own water systems, removing wealth from the nearby city-system. Many of these smaller, suburban systems were built quickly and require rebuilding when consolidated.[13]

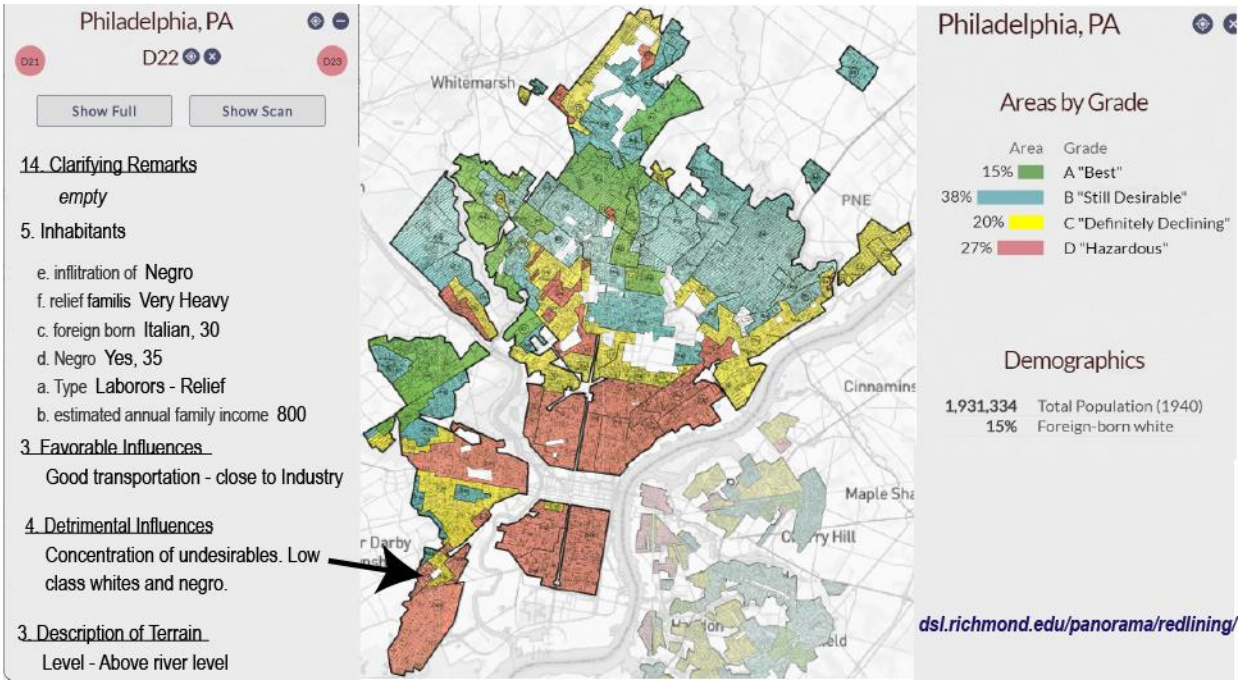

Figure 2. Home Owner's Loan Corporation assigned grades to communities that reflected their mortgage security. Residents in red (redlining) zones were ineligible for government-insured loans. Comments often reflect racial reasons as shown for D22 above.[14]

Federal regulations protect public health and make water infrastructure prohibitively expensive

Federal and state governments have continuously negotiated roles and responsibilities in overseeing water resources. While states took early responsibility for water rights, many did not take the lead on ensuring water quality. Public health and environmental consequences from poor water quality led to federal oversight with the passing of the Clean Water Act (CWA; 1972) and the Safe Drinking Water Act (SDWA; 1974).[15] The CWA protects the quality of surface waters by regulating pollutant discharges and the SDWA protects public health by setting and enforcing standards for drinking water quality. Both acts required utilities to use specific, expensive centralized technologies to ensure adequate treatment. As such, both acts included significant

[13] AWWA. 2001. Dawn of the Replacement Era: Reinvesting in Drinking Water Infrastructure.
[14] Interactive maps are available here: http://dsl.richmond.edu/panorama/#maps
[15] Aspen-Nicholas Forum Report. 2019. Ensuring Water Quality.

federal funding through grants to finance the infrastructure needed for local governments to meet these new regulations.

In the 1980s and 1990s, the federal government shifted from grants to loan programs administered by states. Since the 1990s, federal funding has declined, and state governments have not been able to fill the funding gap. Local governments, and by extension, their customers are increasingly shouldering the financial burden to pay for operations and maintenance, as well as replace or build new infrastructure that complies with regulations. Additionally, federal and state allocation policies can inhibit those dollars from reaching the communities most in need. For example, The American Recovery and Reinvestment Act of 2009 earmarked money for "high priority" projects that were "shovel ready", criteria that are out of reach for most under-served communities.[16] While the federal government allows states to use up to 30% of capitalization grants to provide loan subsidies for low-income communities, only a fraction do so.[17] Tribal communities, rural regions, and low-income areas—especially if they are communities of color—have the added burden of not having their initial infrastructure subsidized, have more difficultly accessing low-interest capital, and have a reduced capacity to recover costs.

Chronic discriminatory practices have brought us to a place of unequal access and unaffordable services

There are communities across the U.S. that still do not have access to drinking water or wastewater services because of the intersecting forces of structural racism, poverty, and inequitable access to subsidies. For example, an estimated 30-40% of the Navajo Nation does not have access to drinking water within their homes. The lack of access to running water, a necessity during a pandemic to disinfect and clean surfaces, contributed to the high infection rates per capita in the Navajo nation compared to other states.

Historically, policies designed to provide funding and support to water and wastewater utilities either did not have inclusive language for rural communities or the designed solutions were unaffordable to those communities (Box: Wastewater in Lowndes County, AL). While the federal government has subsidized capital infrastructure in many communities, long-term operation and maintenance rely on fees paid by customers. The cost of maintaining specific treatment technologies is greater than a small community can afford because they cannot attain economies of scale to cover the fixed price of accepted, centralized technologies (Figure 3). Disparities between utilities grow as local governments become increasingly responsible for financing water systems because the financial health of these systems is more and more reliant on the financial health of mobile populations and businesses.

[16] Balazs, C. and I. Ray. 2014. The Drinking Water Disparities Framework: On the Origins and Persistence of Inequities in Exposure. *American Journal of Public Health* 2014: 603-611.
[17] Vanderwarker. A. 2012. Chapter 3: Water and Environmental Justice in A Twenty-First Century Water Policy.

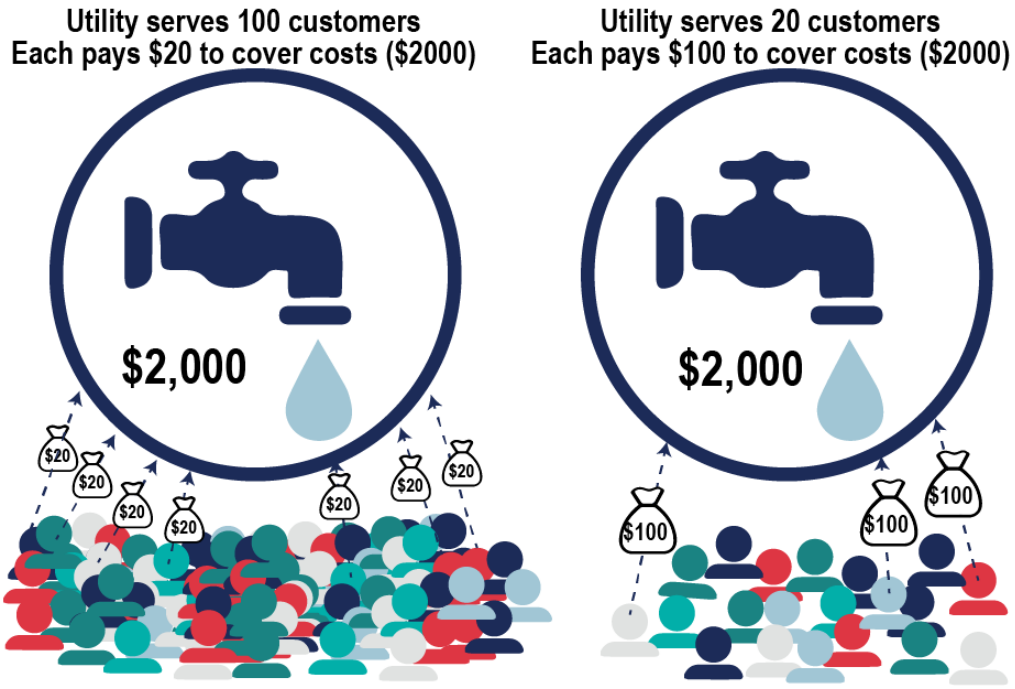

Figure 3. It is easier for large communities (left) to afford their utility (e.g. 100 people paying $20 each) than it is for small communities (right) to afford their utility (e.g. 20 people paying $100).

Wastewater in Lowndes County, AL

Many African American communities in Lowndes County, AL do not have access to centralized wastewater services and must instead rely on individual septic systems. The soil and high water tables in many parts of the county make it expensive, or impossible, to use septic systems. Septic systems cost ~$28,000, which is more than the median annual household income in the county. Individual septic systems are not a financially viable solution. Widespread poverty in a community has big implications for access to water and sanitation and may preclude their ability to operate and maintain a centralized wastewater system.

The unspoken shift to financing water as a commodity

There is a long-standing debate around whether water is a public good or a commodity, and consequently whether all people in a community should be guaranteed access to water or if they must buy access. Water behaves as both a public good and a commodity. Water is a public good because it is essential for life and economic prosperity. Water is a commodity because it can be finite, excludable, and dispersed geographically. Large-scale water infrastructure (e.g., dams and levees) provide public goods such as navigation, flood protection, water supply, and recreation. The benefits from large-scale infrastructure are non-excludable, meaning the population writ large benefits (e.g. everyone downstream of a dam benefits from flood protection). Because of these broadly distributed benefits, the federal government often subsidizes this infrastructure.

In contrast, the beneficiaries of drinking water and sanitation infrastructure are constrained at the scale of a city, county, or community. Only houses connected to the system receive benefits and as such, others can be excluded from these benefits. The beneficiaries (customers) fund drinking water and wastewater infrastructure based on the services provided. Since benefits and funding are localized, the geographic, demographic, and economic differences create disparities in cost and affordability. Here, water services are a "local public good" because they are provided to the community often by public utilities (public good) but are funded through direct payment from customers (commodity). Households or individuals without access to public systems rely on bottled water (solely a commodity), private wells, and septic systems (Figure 4). Water as a commodity is very expensive. As customers move towards paying the full cost of water services through their utility, water is financed more like a commodity.

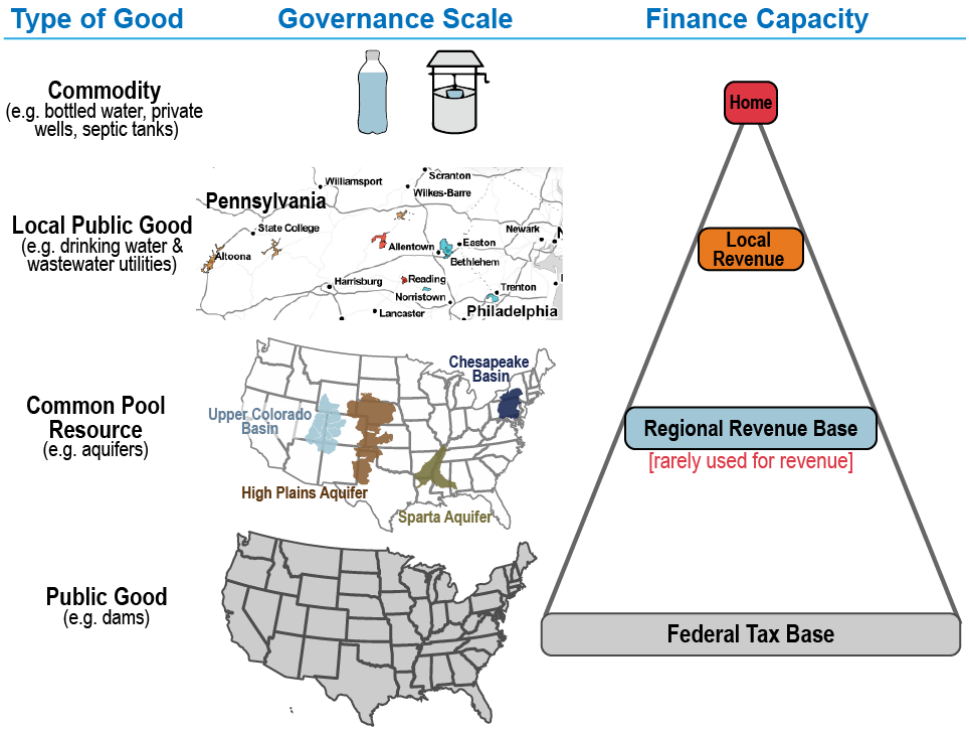

Figure 4. The scale of governance and financial capacity influences where water falls on the spectrum between public good and commodity.

The "right" to access water also has financial implications. Water as a right is familiar to those in the western U.S. where water is akin to a property right through the doctrine of prior appropriation. Water as a human right is becoming a popular perspective, particularly in the pandemic. In 2010, the United Nations formally recognized that access to safe and clean drinking water and sanitation is a human right essential for the full enjoyment of life and all human rights.[18] In the U.S., water is a "constitutive commitment", which describes

[18] UN. 2010. The human right to water and sanitation. https://undocs.org/A/RES/64/292

statutory rights that are held as constitutional rights.[19] To date, California (a western state) is the only state that has formalized the human right to water (AB 685).[20]

WATER AFFORDABILITY FOR UTILITIES AND HOUSEHOLDS

In 1977, the federal government funding 63% of capital expenditures. Today local governments fund more than 90% of water infrastructure. In the future, the estimated costs to replace water infrastructure range from $655 billion in the next 20 years to $1 trillion in the next 25 years. For local utilities to cover future costs, household bills would need to triple in some communities, while a 2018 AWWA survey found only 21% of utilities believed they could cover the full cost of services from their customers. Many utilities cannot raise enough money to invest in the infrastructure needed to meet regulatory mandates while maintaining affordable rates for their citizens. Citizen incomes have largely stagnated in the past few decades, making it hard for households to afford services as rates rise.

Water rates have increased faster than inflation in many areas for reasons beyond infrastructure. For some utilities, politicians deferred rate increases for years because they are unpopular with voters. Then, when the need becomes so great that politicians have no choice but to raise rates, rates often increase by a significant amount. For example, one utility increased volumetric rates by 286% from a low $1.52 per 100 CCF in 2006 (rate increases had been deferred for many years) to $5.86 in 2020. Utilities that communicate rate increases and raise rates by incremental amounts each year often receive less backlash from the community. Utilities may increase rates in response to new expenses arising from climate change impacts, such as sea-level rise and increased flooding. Other utilities may increase rates due to consent decrees or increased regulations due to water quality challenges, such as meeting the Chesapeake Total Maximum Daily Loads.

The financial health of utilities is tied to the number of customers and their financial health. As such, there are two types of affordability that must be considered: (1) **household affordability**, or the ability for households to afford water services, and (2) **utility affordability**, or the ability for the community to collectively afford their utility.

Balancing utility affordability with household affordability

Utilities have three primary financial goals: (1) ensure water is affordable for households (household affordability), (2) ensure their fiscal health to continue operating reliably (utility affordability), and (3) invest in infrastructure to ensure they meet regulatory requirements and provide safe water. Financially strained systems must make trade-offs between these three goals (Figure 5) because they cannot afford to meet all three goals.

[19] Murthy, S. 2016. A new constitutive commitment to water. *Boston College Journal of Law and Social Justice* 36 (2): 159-233.
[20] AB 685. 2012. The Human Right to Water.

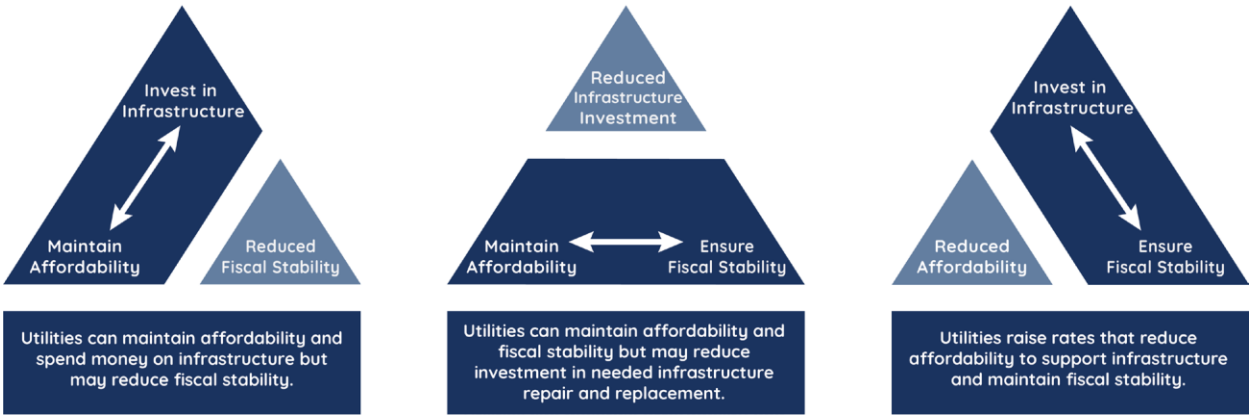

Figure 5. Economic trilemma for water service providers.[21]

Tradeoffs and deferred investments save money now but cost more later. The tradeoffs that Flint, MI made when they transitioned to a new water source because the current source was no longer affordable serves as a pertinent example. Numerous tradeoffs were made to lower transition costs that contributed to the Flint lead crisis. The crisis further eroded household affordability as customers no longer trusted the Flint utility and now pay for both water services and bottled water. Utility affordability suffered for the Flint utility, and utilities across Michigan, as the State implemented new monitoring and reporting requirements, perhaps in part, as a means of regaining trust. New testing revealed the extent of lead contamination in utilities across the state due to lead service lines, resulting in new regulations to replace all lead service lines over the next 20 years. Michigan is attempting to create funding opportunities to help cover additional expenses because when regulations exist without funding, tradeoffs are inevitable which could result in negative public health impacts. If treatment infrastructure is the most expensive component for utilities, then it may be time to rethink water infrastructure and create regulations that encourage more flexible, low-cost solutions. The science and technology exist today to allow systems to safely treat water without relying on the traditional, centralized infrastructure. Smaller, decentralized treatment technologies could dramatically improve the ability of communities to afford their utility.

Utilities are in a difficult position as they balance their financial health with the financial well-being of their customers. When utilities raise their rates, low-income households have less money available to pay for food, shelter, energy, health, and so on. Low-income customers are forced to make tradeoffs on which bill to pay based on their most pressing needs. Once a customer cannot pay their water bill, not only is water shut-off, but the customer is charged with extra fees. This compounding debt creates a deepening hole for people struggling with poverty. Yet, many utilities believe shut-offs and fines are needed to recover costs because it would be inequitable to pass those costs onto paying customers.

[21] Doyle et al. 2020. Growing options for shrinking cities. AWWA.

HOW CAN LOCAL, STATE, AND FEDERAL GOVERNMENTS WORK TOGETHER TO REACH AFFORDABILITY?

Federalism is a continual conversation between federal and state governments around roles and responsibilities in governing society. Similarly, state and local governments are continuously negotiating roles and responsibilities. Over the past 30 years the financing, roles, and responsibilities have increasingly been deferred from federal to state to local governments.

Below, we explore the historic role of federal, state, and local governments to finance water systems, as well as their potential role to address affordability and equity today. The ideal role for local governments is to attend to household affordability through rate structures and customer assistance programs. The ideal role for states is to incentivize and enable practices that help with local utility affordability. This means altering policies that inhibit income-based rates or recovering costs in customer assistance programs. It also means streamlining the application process to State Revolving Funds from the federal government and ensuring funds are allocated equitably. The federal government is the only agency with sufficient funds to cover the replacement costs of water infrastructure.

Additionally, the pandemic has highlighted the need for a federal safety net for household water affordability. Local organizations are best equipped to implement a federal water assistance program because they know their individual customers and their needs. Utilities may partner with local organizations addressing poverty issues by collectively ensuring households have access to education, electricity, food, and water through federal programs. A unified approach is logical given a household struggling with poverty would benefit from all federally subsidized programs. A federal household water affordability program would also help with utility affordability. Utilities lose money when there are non-payments, which is of particular concern in the ongoing pandemic resulting in widespread unemployment and increased non-payments; in such cases, utilities cannot afford to subsidize household bills. A federal household affordability program would need to address different types of water use, geographies, and the limited data local utilities and states have regarding their customers (Box: A Steep Learning Curve).

A Steep Learning Curve

Many states are on a steep learning curve about their utilities. Michigan, like many states, issued executive orders to end shut-offs and reconnect residents to water services at the start of the pandemic. The state required utilities to submit monthly reports documenting progress. Other states have required similar data collection, such as arrearages in North Carolina. This is the first time many of these data have been collected. States are learning how little they know about their utilities and utilities are learning how little they know about their customers as they attempt to provide financial relief. Many states were surprised by how many of their residents live without access to water. In Michigan, state officials learned about different strategies utilities implement to deal with nonpayment, such as shut-offs or adding nonpayment to property taxes. When Michigan applied $20 million of its CARES Act funds to forgive arrearages of water customers, an immense effort was undertaken to merge state and local databases to find customers. Similar data challenges will need to be addressed to implement a federally subsidized household water affordability program.

Federal government

The federal government has been responsible for setting regulations and subsidizing infrastructure. The Environmental Protection Agency (EPA) is responsible for ensuring local water systems are in regulatory compliance. EPA is also responsible for administering the State Revolving Funds (SRF) established in the CWA and SDWA. SRFs are the key mechanism by which the federal government has subsidized primarily urban water and wastewater infrastructure over the past 30 years. The US Department of Agriculture (USDA) Rural Utilities Service Water and Environmental Programs is the primary federal program meeting the financial and technical needs of rural communities (10,000 people or less) to develop water and wastewater services. The USDA works hard to cultivate relationships with local governments and communities through hundreds of field offices. These long-term relationships are essential to ensure local, state, and federal governments are developing solutions that will meet community needs. Building and maintaining those relationships is essential to ensure tailored solutions have long-term sustainability and benefits.

The federal government continues to provide funds, although the amount provided has decreased over time and converted from grants to loans. The eligibility and ability to access those funds remain inequitable. The needs of some communities are not eligible for funding, or the community cannot afford the time and resources for the application, or it takes months or years for funds to reach a community in crisis. There needs to be a fundamental restructuring to move from legacy procedural approaches to a more agile outcomes-based future. The federal government must take a leading role. Currently, even motivated federal agencies with strong support can take months to coordinate funding sources and resources and collaborate on a problem. Often state and local officials do not have the luxury to wait. While coordination is critical to good governance, it is often the least utilized. In this administration, the federal government has made a greater effort to create sustained interagency collaboration to streamline regulations and funding procedures.

State governments

States play a key role as intermediaries between federal and local governments. How they implement federal regulations, administer financial programs, and work with local utilities can result in very different equity and affordability outcomes.

The state role in household affordability

State policies can prohibit or enable the ability of local governments to subsidize low rates for basic water usage. For example, some states have policy requirements that do not allow utilities to charge differential rates, such as Proposition 218 in California, or for high-income customers to subsidize low-income customer bills. State policies can also help local utilities address household affordability by earmarking money explicitly for affordability. For example, Michigan is in the process of launching a grant program for communities that are seeking to do water affordability planning or explore innovative rate structures. Perhaps the most significant role for states in household affordability is to (1) update policies and legislations that are barriers to local governments setting rates or financing CAPs, and (2) provide financial incentives for communities to implement policies that would help ensure household affordability, such as increasing block rates or consolidating systems.

The state role in utility affordability

States have primarily addressed utility affordability through SRFs. States have the authority to create regulations and policies to support and incentivize actions that can lead to better financial sustainability. Some states integrate regional planning with financial incentives. For example, the Texas Water Development Board (TWDB) is responsible for securing the state's future water supply and manages the SRF's as a mechanism for integrating financing and planning. Now, most of the money available for economically distressed systems are tailored to projects that consolidate small, struggling systems into nearby larger systems.

Regionalization is an approach some states have taken when a community can no longer afford its water system. For example, California manages over 3,000 systems, of which 300 systems lack the capacity to meet water quality standards, resulting in more than 1 million citizens without access to safe drinking water. California recently passed new legislation aimed at incentivizing small systems to consolidate to reach affordable economies of scale. Their legislation followed Kentucky's SB 409 passed in 2000, which used structural incentives and regional planning to successfully consolidate small systems throughout the state. Even though regionalization can help small systems become affordable, many do not want to consolidate because of distinctive cultures, politics, and so on. It is important to recognize those dynamics and acknowledge incentives. For example, Texas provides financial incentives through low-cost financing that is available for regionalization projects through their State Water Implementation Fund (SWIFT). California encourages large systems to consolidate with failing systems by providing funding to address the inherited problems of the failing system. States can mandate consolidation, and while an unpopular practice, the occasional use of mandatory consolidation can lead to more voluntary consolidations.

States may decide to use SRF money to meet the human capital needs of low-income systems. For example, the TWDB used SRF money to seed a CFO-to-go program that contracts a Chief Financial Officer (CFO) to work with struggling systems on accounting and financial management strategies. They also have launched an asset management program to contract engineers to assess systems, set best management practices, and develop capital improvement plans. Texas is subsidizing human capital to help local utilities plan and implement strategies at lower costs. The ability to provide or consolidate human capital can be particularly important to lower costs for remote systems that cannot physically consolidate.[22]

States may need to revisit policies to allow SRFs to allocated to provide human capital to utilities. States may also rethink how they approach regulatory compliance. For example, New Mexico is working with communities to diagnose water quality problems and design affordable solutions. This is different from the traditional approach of referring communities to engineering firms that profit from designing complicated and expensive solutions that are beyond the communities' capacity to afford. This new approach will ideally create long-term sustainable and affordable solutions for its communities.

[22] Aspen-Nicholas Forum. 2018. Reaching Watershed Scale Through Cooperation and Integration

Local governments

Local water managers are effectively the mayors of our nation's water system. They are most attuned to, and responsible for addressing, emerging issues and external shocks on their community. Local water managers face extraordinary challenges as they simultaneously balance providing affordable and equitable water services with their budgets while navigating political and legal restraints.

Utilities must recover costs, but rate increases harm low-income customers. Customers that cannot pay their bills are in crisis or struggling with poverty and face multiple financial challenges. The most direct way for utilities to address affordability is by (1) implementing income-based or variable rate structures and (2) creating customer assistance programs (CAPs). Many utilities, however, find it challenging to implement income-based rate structures, raise funds for a customer assistance program, proactively locate low-income customers, and get widespread participation in customer assistance programs. Only 30% of local drinking water systems provide some type of CAP, and many of these CAPS **struggle to raise money for the program and reach their target customers**.

Implementing income-based rate structures and raising money for customer assistance programs

Local governments are constrained in their ability to develop income-based rate structures or raise funds for customer assistance programs by local and state policies (Figure 6). These policies were designed to protect customers by prohibiting different rates within a similar customer class; unfortunately, the unintended consequence has prevented utilities from subsidizing low-income customers. Many states have ambiguous legislation (Figure 6), but few utilities are pushing the interpretation of these laws by implementing income-based rate structures. For those systems without additional legislative prohibitions, the political will to pass income-based rates is lacking because it may bring litigation and the risk of losing the next election.

Utilities with boards appointed by state governors or privately-owned utilities may find it easier to try income-based rates. A federal safety net program may be necessary for those utilities who are legally unable to set variable rates or income-based rates. Small utilities are also less likely to be able to implement a CAP program (See Great Lakes Water Authority CAP).

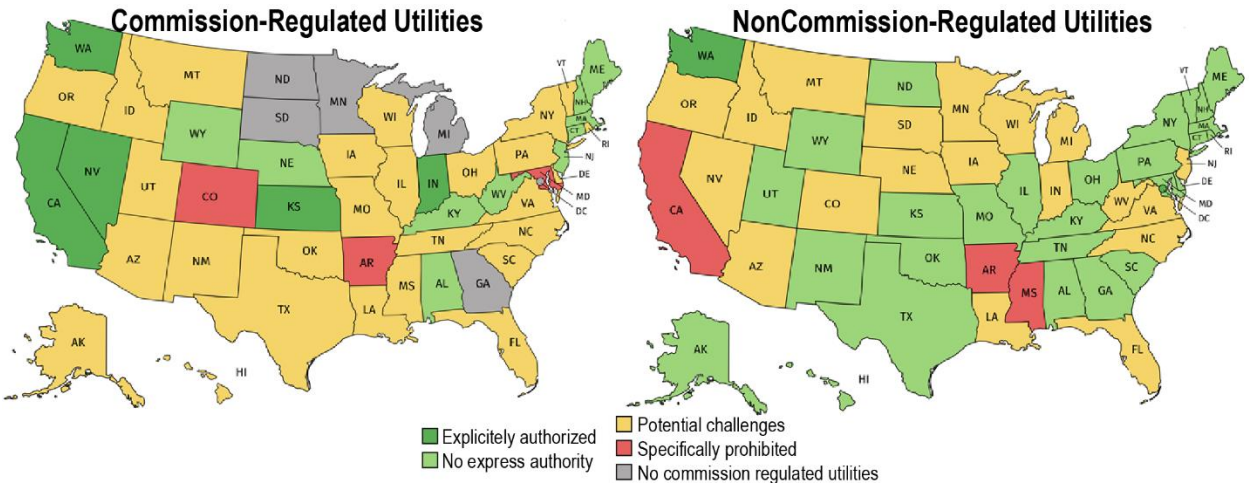

Figure 6. State regulations around creating rate-funded customer assistance programs. Source: Environmental Finance Center at Chapel Hill, NC (https://efc.sog.unc.edu/project/navigating-legal-pathways-rate-funded-customer-assistance-programs).

Great Lakes Water Authority CAP

The Great Lakes Water Authority (GLWA) serves nearly 4 million residents across eight counties. The GLWA created a sustainable funding source dedicated to providing water assistance to households by committing 0.5% of their annual revenues to a CAP. GLWA allows for universal qualification and streamlined eligibility requirements. One of the challenges has been that agencies working to address poverty are city or county-based and since GLWA serves over eight counties, it required partnerships with multiple agencies of varying capacities. GLWA made it optional for their utilities to participate in the CAP and found that smaller utilities did not have the capacity to administer the program. Another challenge is that GWLA cannot repair rental properties with leaky toilets, which often create the highest bills. A single integrated federal program to address basic needs could help streamline bureaucracy and allow a more direct service model.

It is difficult to find low-income customers and get high participation in CAPs

CAP's can target low-income individuals, senior citizens, or those with disabilities. Utilities have difficulty finding target communities because they do not have data about individual households. Most water utilities only relate to households through billing and have data on the name, address, amount of water used, and maybe a credit card for payment. Most low-income households rent properties or reside in multi-family homes that do not receive individual bills. The utility does not know who lives there and cannot communicate directly. Nor are utilities in the business of income qualification or poverty alleviation. Utilities often partner with organizations that work directly with low-income communities. For example, DC Water partnered with the federal Low Income Home Energy Assistance Program (LIHEAP) to automatically enroll households supported by LIHEAP into the DC Water CAP. LIHEAP can target customers because many multi-family buildings are sub-metered for energy (but not water).

In 2018, DC Water attempted to expand its affordability program to include another 14,000 households. DC Water used social media, marketed in low-income areas, and promoted the program through churches, non-profits, and other organizations. As of 2020, there are only 575 participating households. It is unclear if they overestimated the number of eligible households, if the message failed to reach households, or if the discount was not high enough to compensate for the costs of applying. While DC Water wants to provide financial assistance to low-income customers, they do not have the data to offer targeted assistance. This experience is true of most water utilities.

Even when a utility can target customers, participation in CAPs remains eerily low. For example, the Hampton Roads Sanitary District (HRSD) worked with United Way to create multiple services to assist customers that were close to experiencing a second shut-off in a 12-month period. The customer had three options: (1) do nothing and have water shut-off, (2) connect with United Way, or (3) pay their bill. HRSD believed the target audience would be motivated to participate in the program but found that less than 10% of 3,000 households participated and only 40 households completed the program to receive the full benefits, including forgiveness of past dues. HRSD spent over $120,000 with United Way, dismissed $40,000 in customer debt, and only helped 40 households. HRSD, like DC Water, is committed to understanding why participation in their CAP is low and find ways to assist low-income customers.

What can local governments do to improve household affordability?

Local governments know their communities. There are many facets to community health, as local leaders must work to ensure affordable housing, transportation, childcare, and other services on top of providing water/wastewater. Healthy households make healthy communities. However, the needs facing local governments simply cannot be met without support from partners, including federal and state governments, NGOs, and businesses. Good public policy happens when all partners are involved to create requirements and contribute funding.

Partnerships with NGOs and businesses can help local governments advocate for their needs and address poverty holistically in the community. These partners can advocate state and federal representatives on behalf of water utilities. Partnerships are key to bringing new ideas and resources to the table. Communication between utilities about what has or has not worked with their CAP programs is another way to learn and iterate towards more robust CAPs. Local governments need to become creative and "think outside the bill." CAPs can only be part of the solution, such as diversifying investments, optimizing operations, and so on. Partnerships also bring diversity. There is a lack of racial and economic diversity in the water community. Diversifying the workforces and communities participating in utility departments, engineering firms, and water associations is needed to truly address the problems of inequity and create the political will for true change, rather than addressing the symptoms.

A FUTURE FEDERAL WATER ASSISTANCE PROGRAM?

The federal government has a long history of providing subsidies that help offset the costs of essential services such as food, heating, health insurance, and housing to help those struggling with poverty. While

water and wastewater services are essential to the public health and well-being of people and communities, there is no federal assistance program for water. The responsibility for providing household assistance rests on local water and wastewater utilities, who must design and implement their own customer assistance programs within the constraints of local and state policies. A well-designed program created by one utility may not be directly transferable to another utility, creating immense upfront costs in designing, testing, and implementing such programs. Additionally, local utilities may not have the capacity to provide customer assistance.

The pandemic has created a window of opportunity to create a federal water assistance program for low-income households. Shut-off moratorium and reconnections have brought to public attention the large number of households that live without basic water services. We have seen the disproportionate impacts of lack of access to safe and affordable water services by communities of color. Diverse stakeholders—from equity advocates to water utilities—are calling for the creation of a water affordability program as part of any future federal COVID-19 relief and recovery packages.

What do current federal assistance programs look like for energy, food, and taxes?

We explored the federal assistance programs for energy, food, and taxes. Each year these programs provide billions to millions of households across the U.S., averaging ~$680 for energy to $3,100 for food per household in 2019 (Figure 7).

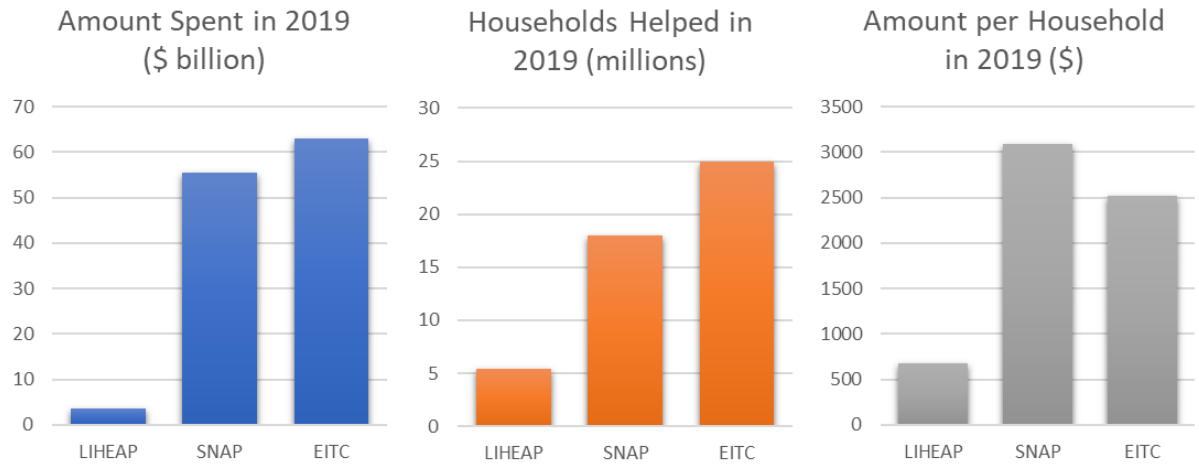

Figure 7. The amount spent (left), households helped (middle), and per household expenditure (right) of all three federal programs in 2019.

Low Income Home Energy Assistance Program

The Low Income Home Energy Assistance Program (LIHEAP) was created in 1981 to address concerns about the rising energy prices of the 1970s. The Department of Health and Human Services administers LIHEAP with funds appropriated annually by Congress. The appropriation of annual funds has made partnerships with non-profit organizations incredibly important as these organizations bring data and

personal stories to Congress to advocate for funding. Non-profits also play critical roles in advocating for additional funding from other sources, advocating for policy changes at state and federal levels, and implementing LIHEAP within communities.

LIHEAP is a block grant that the federal government provides to states and tribes, who have the flexibility to design programs that best meet the home energy needs of their communities. Funding could be used to weatherize homes to make them more energy-efficient, provide direct bill assistance, and/or provide home repairs. States often partner with local organizations to identify customers and administer the program within their communities.

Supplemental Nutrition Assistance Program

The USDA administers the Supplemental Nutrition Assistance Program (SNAP), formerly known as the Food Stamp Program. The first food stamp program started during World War II to meet the immense need created by widespread unemployment during the war. In the 1960s, different parts of the country piloted food stamp programs, culminating in the federal Food Stamp Program in 1974. SNAP is an entitlement program, meaning the money available grows and shrinks with need. While SNAP is the bedrock of our nation's federal nutrition safety net, there are additional federal programs that support target groups such as senior citizens, children, schools, and emergency food banks.

Earned Income Tax Credit

The Earned Income Tax Credit (EITC) started in 1975 to provide tax credits for low-income working Americans. Eligible low-income workers receive refunds when they file for taxes, averaging $2,476 per household in 2019, which represents a significant amount of money for families with an annual income of $10,000 to $24,000. The benefit of tax refunds has shrunk in recent years as incomes have stagnated while costs continue to rise. However, EITC kept an estimated 5.6 million people above the poverty line in 2018. The program has a high usage rate, with 4 out of 5 people eligible for the program claiming their tax credit. Additionally, states can create their own tax credits to further assist families, as is true for 29 states, plus DC and Puerto Rico. EITC is similar to SNAP in that the program contracts and expands with need. However, in a recession, as during COVID-19, the EITC tax has reduced or no benefits to households that have lost their jobs because the size of the refund is based on earned income.

What are some of the most successful elements of these programs?

LIHEAP has done a tremendous job identifying low-income houses that have elderly members, disabilities, or illness (particularly if they require life-saving equipment reliant on energy), and children under six years old. These populations are the most vulnerable to energy disruptions or temperature extremes. Black households experience energy disconnections twice as much as other households and there is a significant need for LIHEAP to improve awareness around and access to its services for Black families. LIHEAP has also been successful in giving states the flexibility to administer programs tailored to their community and climate, allowing multiple approaches to lower energy usage and address the affordability of energy bills.

SNAP benefits from being a federally entitled program; meaning the program is nimble and has the funding to meet the current needs. One of the most important successes of SNAP is its ability to leverage and build a support network to holistically help families in poverty, as seen through the development of programs that

feed, protect, and help children before, during, and after school (Box: SNAP for School). Food is essential for life and is often a key component in building relationships, allowing SNAP to create unusual partnerships for the broader health and well-being of communities.

EITC has had tremendous success in reaching most eligible households and has done particularly well in reaching families of color. Research indicates families receiving tax credits are associated with better school performance, health, retirement security, and so on. There are significant benefits to keeping families above the poverty line.

SNAP for School

There has been a tremendous cultural shift around the provision of meals for children before and after school. Schools initially resisted providing extra meals outside school hours. Advocacy groups collected data that showed children who had breakfast performed better in school. As a result, schools piloted programs to offer breakfast before school started, but participation was low because of the stigma of poverty. Schools then offered breakfast after school started or provided breakfast to all students. These changes led to greater participation, improvements in grades, and fewer absences. The success of these programs resulted in additional after school snacks and supper programs that not only feed children, but also provide a safe, supervised environment, tutoring, SAT preparation, and so on. If you feed them, they will come.

What are some of the biggest failures of these programs?

LIHEAP was born out of public outrage to media coverage that revealed people dying in their homes from heat exposure and it is a failure of the system that people had to die before the government acted. Currently, the biggest failure are the immense costs inhibiting families from enrolling. A household in poverty is in crisis. Yet, families are required to provide a stack of paperwork to prove income, identity, number of people in their household, and so on. They must pay for copies of their birth certificates, pay a bus fare, or bring their sick kids with them. The cost of applying may exceed the benefit. LIHEAP is trying to reduce the cost and streamline the process by making households automatically eligible for LIHEAP (states must agree to this eligibility clause) if that household is part of SNAP. Many federal poverty programs want automatic eligibility to reduce administrative costs and lessen the burden on families.

SNAP offers a sub-therapeutic dosage to ease the symptoms of hunger without addressing the disease of food scarcity. The SNAP allotment is based on the food habits of the 1960s where families cooked from scratch, which is not the norm today. SNAP benefits must increase for households to purchase a nutritional diet, especially as grocery costs rise. Another challenge is that each federal nutritional program for children operates individually. A child fed before, during, and after school belongs to three separate programs, each with different rules and eligibility requirements. This bears a cost to the family as well as to the schools and communities offering these programs. Ideally, SNAP would provide seamless meal service and maximize dollars going to feeding kids rather than administrative fees.

EITC eligibility excludes immigrants, individuals without a social security number, or those who file taxes with individual tax numbers. This exclusion increases hardship for immigrants and disproportionately affects

communities of color. Currently, two state EITC programs have ended this exclusion for state credits and there is a desire for the federal program to follow suit.

What are the implications for a federal water assistance program?

Some components to consider in developing a federal water assistance program include:

Develop an entitlement program that allows the amount of money to grow and shrink with need, rather than seeking annual allocations from Congress.

Streamline eligibility to reduce the cost for families to apply for water assistance and include automatic eligibility if a household is already part of federal assistance programs. This feature may be incredibly important for water, given many water providers struggle to reach low-income households.

Ensure the benefits exceed the application costs in the short- and long-term.

Design and implement the program to address inequities. Similar to energy, water disconnections disproportionately affect households and communities of color. The program could prioritize those populations most vulnerable to disruptions in water services, particularly households with children.

Develop partnerships with local nonprofit organizations that help families struggling with poverty to implement the program. Water utilities do not need to implement assistance programs. For LIHEAP, nonprofits implement the assistance program on behalf of energy utilities. There is an immense opportunity for a federal water assistance program to work with already existing programs and partners. Indeed, unlikely partnerships that expand goals can lead to creative and holistic outcomes (Box: SNAP for school). Forming unusual alliances will draw support from city, state, and federal governments. One opportunity may be to partner with SNAP, which has an effort to include a glass of water on the MyPlate brochure alongside the glass of milk. Adding a glass of water to every child's placemat would be a great way to elevate the importance of water for children's health. This could be an especially powerful message in schools where students cannot drink from the fountains because the water is unsafe.

Give local governments flexibility in how funds are allocated. A federal water assistance program would benefit from having flexibility in deciding how funds are spent to best meet the needs of their communities to prevent high bills (often a comorbidity with old homes and leaking toilets or pipes) and address the inability to pay bills. States could pilot several implementations of a federal water assistance program to see which strategies are most effective. Simultaneous pilots could allow for rapid learning across the sector. There is also much to be learned from local CAPs.

Provide clear, consistent communication to create buy-in and reduce stigma. Advocacy for a federal water assistance program should be tailored towards both parties to develop bi-partisan support. The communication strategy should involve (1) a data story and (2) a personal story. For example, in one community outside of Pittsburgh, more than 80% of people in a town had their water shut-off and schools used mobile shower units so children could shower. Stories are powerful and can create passion in the public and Congress for change.

RETHINKING WATER SERVICES

Most of the legislature and discussion around affordability has centered on helping low-income urban households or small, struggling rural utilities. The big picture is that water infrastructure needs to be rebuilt and modernized and ratepayers do not have enough money to fund replacement costs. The shifting of the financial burden from federal to local governments was not sustainable before the pandemic and is certainly not sustainable post-pandemic as households and utilities recover from the recession.

The federal government is the obvious source of funding, especially since some costs are imposed by federal legislation that requires and incentivizes centralized tertiary water systems that are not affordable for smaller communities. The water sector needs to look to the energy sector and the revolution that changed how energy is distributed across the grid using real-time data on supply and demand. Energy, like water, traditionally relied on centralized power plants. Now, the energy system includes decentralized sources such as solar panels from households, wind farms, and so on.

The new water grid could lower infrastructure costs by introducing decentralized treatment technology deployed throughout the developing world. Small-scale, low-tech systems would be far more affordable for more remote, smaller areas. Federal and state regulations would need to change to allow utilities to implement technologically appropriate, sustainable, and affordable treatment systems. Data would need to be collected more frequently and robustly to ensure public safety and grow public trust in their water systems. Data infrastructure is much cheaper than gray infrastructure.

Systems may explore adopting point of use and point of entry technologies as more tenable solutions. A decentralized treatment approach does present challenges. First, there is not a robust market for water treatment technology to drive down costs, regardless of whether the treatment is centralized or decentralized. Technology companies cannot reach scale when few systems are willing to adopt new technologies at the risk of jeopardizing public health and regulatory fines. Second, it is difficult to maintain and ensure point of use products are working correctly without continual testing and assurance (e.g., difficulty in ensuring residents change their air filters in homes or water filters in refrigerators). It is a significant challenge to adopt a new technology, ensure it works, and reach scale. Third, many states will struggle with how to permit these systems. It is much easier to permit a small set of technologies known to work than it is to allow a market to develop that may result in hundreds of treatment options.

ADVANCING WATER PRIORITIES WITH A NEW ADMINISTRATION

The past decade has brought several diverse, large crises to various parts of the country, bringing awareness to Congress as many of their own communities are affected. There is a growing national conversation naming these challenges, making them personal, and bringing them to greater public awareness. Future conversations must have state governments, local utilities, and non-profit organizations representing their communities. Creating space for conversations across communities and sectors can lead to better solutions for all, regardless of whether the solutions are embedded in legislation or financial incentive structures.

In addition to the myriad disruptions that have occurred in 2020, it was an election year. The Biden-Harris administration will start in 2021 with a focus on four priority areas: the COVID-19 pandemic, economic recovery, racial equity, and climate change. Water equity and affordability have a place in all four key areas and the water community must consider how to position water within the new administration's priorities.

Priority: COVID-19 Pandemic

The rising number of COVID-19 cases are spurring conversations around more extensive measures to limit exposure, many of which will slow the economy. Large-scale unemployment from COVID-19 has brought increased delinquencies, which have a negative impact on utility revenues and financing. This deficit cannot be erased through rate increases or loans that must be repaid by ratepayers. Future COVID-19 relief packages must include grants earmarked directly for water and wastewater utilities, and not just for local governments. Many local governments have an immense need for funding, and it is unclear how much of funding would be delivered to water utilities unless clearly specified. The federal government could also provide flexibility for SRF loans and grants to forgive debts and/or incentivize collaborations. Any relief package must provide guidance on how to distribute money to ensure it is reaching communities that need it most. Many under-resourced and marginalized communities will need assistance to apply for and access stimulus money.

The COVID-19 pandemic has highlighted the immense importance of water for public health, as well as the staggering consequences to communities and households that lack access to water services (or cannot afford water services). The federal government could establish water as a human right, which would create common grounds for prioritizing water accessibility and affordability among state and local governments. The federal government may also revisit how costs are distributed across customers. If water is a public good, then water might be paid for as part of the tax base (like roads or fire protection), rather than as a commodity (like buying a bottle of water).

Priority: Economic Recovery

Water is essential to life. Airports are a luxury. Yet, the Atlanta airport alone received $300 million in stimulus funding while water utilities received $0. Water remains a low priority in federal spending *even* when it has an essential role in fighting a pandemic. Local governments are absorbing the costs of restructuring operations during the pandemic while continuing to provide services when customers are not able to pay their bills. The time is right to pursue a federal water assistance program to provide a safety net for households and ensure utilities receive payments for services.

The future price tag for rebuilding water infrastructure back to current conditions is a big number that far exceeds the financing ability of ratepayers, local governments, and state governments combined. We have an opportunity to rethink how we rebuild our water infrastructure and create a modern water grid that could be less expensive if rebuilt differently. Envisioning a new water grid requires identifying what works and does not work with the current system. This includes revisiting plumbing codes, fire suppression systems, and centralized treatment technologies. The water sector must take this opportunity to shift our water paradigm before spending trillions to rebuild a water grid that struggles to meet the needs of the 21st century.

A modern water grid must be equitable, sustainable, and affordable. A utility that is affordable for the community will be more affordable for their customers, including individual households. It remains a red herring that federal assistance programs exist to subsidize electricity, housing, food, and even cell phones for low-income households, but there is no such program for water. If the essential purpose of government is to provide for the collective welfare and well-being of communities, then there has been a substantial and systemic failure in political will around water.

Priority: Racial Equity

Systemic racism has been a driving force for water insecurity and shut-offs have been used disproportionately against communities of color; undermining trust in utilities (Box: Cultivating Trust). There is a legacy of decisions and policies that were implemented to make some neighborhoods prosperous while concentrating inequity and poverty in other neighborhoods, many of which are predominantly residents of color. Current infrastructure reflects and reinforces those inequities. For this reason, any proposed infrastructure packages should be earmarked for utilities and should consist of grants that will improve infrastructure in historically underserved areas. These packages should also include guidelines that ensure underserved areas can access and use the allocated funds.

New policies must also address the legacy impact of communities who have historically been excluded from receiving funds and support. For example, many Native Tribes do not have access to water because of a lack of federal support, a federal law that prohibits tax collection, their location in areas without water (making it expensive to access), and contentious relationships with states over water rights (which often takes years to settle). This has resulted in huge gaps in water access and compounding other problems for these communities. While the federal government has increased its capital investments in infrastructure, for example by including the construction of drinking water systems as part of Indian water rights settlements, they do not provide resources to fund ongoing operation and maintenance costs. Yet, they also do not allow Tribes to raise sufficient revenues from their citizens to operate and maintain these systems. The federal government has ongoing legal obligations to the tribes. As claims are settled, some Tribes have succeeded in bringing economic development to their communities through water resources. Their newfound power has given them a voice at the table. These communities should not have to fight for a right to be at the table. They should be invited.

Cultivating Trust

Firefighters are a trusted institution in many communities. They are visible, provide an important service, and regularly engage with the community outside of fire protection. Water utilities provide safe, reliable water services, including the water to fight fires, but they are rarely seen as trusted anchors. Utility infrastructure is often hidden and most customer interaction is through customer bills. The days of operating successfully unnoticed, however, are coming to an end as managing water – whether due to fire, flooding, algal blooms, or aging infrastructure – is becoming more challenging and expensive. Since most utility-customer interactions are through bills, the relationship has become increasingly adversarial as rates increase.

The reality is that water utility workers are essential and should be viewed as anchors for the community. Many utilities are learning to cultivate relationships and trust with customers outside of billing interactions through new communication avenues. For example, some newly created stormwater utilities have mascots that go to schools to educate children about stormwater, some are creating stakeholder groups, and some are holding public meetings that allow the community to ask questions. Utilities can build trust by consistently communicating and showing their (1) performance: what you do and how well; (2) values: what they are and how they align with the community; (3) integrity: do you stick to your values when it is hard; and (4) reliability: are you consistent even when circumstances change. Outside organizations can help with communicating to the public. Clear communication is important to begin and maintain a dialogue with the community.

There has been increasing momentum driving leaders to examine affordability and equity challenges through an environmental justice lens. This is critical to avoid perpetuating solutions that continue to exclude communities from funding and technology solutions that might be best suited to address their challenges. Part of the solution is to ensure residents, members of a community, have a voice at the table to help define and solve the problem. When federal, state, and even local representatives bring a "solution" for a problem, sometimes the wrong problem, it often does not address the actual needs of the community or is not sustainable.

Priority: Climate Change

Much of America is rural land used primarily for agricultural production and these communities are some of the first to have experienced increased stress from climate change on water resources. Long-term and severe droughts in Colorado and California highlight the significant impact a warming climate has on crops, junior water right holders, and rural communities whose wells went dry (and/or were contaminated) as groundwater levels dropped. The last two years have seen an increase in wildfires that have burned large areas of forest, agricultural, and urban environments. In 2020, more than 4% of California burned. At the other extreme, flooding has placed a massive strain on the levee and dam systems built over a half-century ago in the Mississippi and Missouri River basins. The intersection of climate change, water shortages, and water contamination have resulted in numerous conflicts and high-profile lawsuits between states sharing river basins and aquifers.

There is growing bipartisan support for federal involvement to ensure the nation's water security through infrastructure investments, technology development, conservation management, inter-agency collaborations, and policy changes. Support has only grown as the pandemic has further revealed the implications of limited to no water access and proper sanitation for communities, especially tribal and communities of color. The new administration should consider policy changes that redirect the flow of money following natural disasters. For example, the Federal Emergency Management Agency currently requires utilities and households to rebuild to conditions prior to a flood event, even if that structure floods every year. Policy changes might mitigate these climate risks by allowing communities to use the money to rebuild elsewhere and rebuild to be more resilient to future flood events.

Preparing the new administration

Water is vital for life, for ensuring public health in a global pandemic, for economic recovery, for improving racial equity, and for ensuring water security in a warming climate. Something as vital as water should have a high priority and the water community must be prepared to actively engage with the new administration to help bring equity and affordability to water services. During the first 100 days, a new administration strives to set a strong precedent for accomplishing its priorities. The ideas from our past six months of convening must now be distilled into action items that can be taken to Congress and the Senate for their consideration. The water community has an opportunity to draft language to advance actionable policies.

APPENDICES

Appendix I: Acronyms

AWWA	American Water Works Association
CAPS	Customer Assistance Program
CARES	Coronavirus Aid, Relief, and Economic Security Act
CWA	Clean Water Act
FHA	Federal Housing Administration
EITC	Earned Income Tax Credit
EPA	Environmental Protection Agency
HRSD	Hampton Roads Sanitation District
LIHEAP	Low Income Home Energy Assistance Program
NGO	Non-governmental Organization
SDWA	Safe Drinking Water Act
SNAP	Supplemental Nutrition Assistance Program (previously Food Stamps)
SRF	State Revolving Fund
SWIFT	State Water Implementation Fund
TWDB	Texas Water Development Board
USDA	United States Department of Agriculture

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WATER RATES:
WATER AFFORDABILITY

Water affordability is a central element to water access. When water costs make water unaffordable, it can pose a health and safety issue and a myriad of administrative and political problems. Water affordability is typically measured by the annual cost of water bills as a percentage of median household income. Households paying an amount for water that exceeds an affordability threshold are considered to be paying a cost that is unaffordable and a "high burden." Table 1 shows the measures of affordability developed by different organizations. While these thresholds are developed based on median household incomes, many agencies in the U.S. also base affordability on poverty levels.

Table 1. Measures of affordability as a percentage of median household income

Affordability Threshold	Organization
1.5%	California Department of Public Health
2%-2.5%	US Environmental Protection Agency (USEPA)*
3%	United Nations Development Program (UNDP)

Note: * The EPA's affordability threshold is for water and wastewater bills combined, and would therefore be lower for water alone.

A commitment to water affordability is rooted in both human rights and public welfare. While recognition of the Human Right to Water goes back to the 1970s, the legal basis of this right was strengthened in 2012 when the California Legislature passed AB 685, which established a human right to water in California and directed "all relevant state agencies, including the department [of water resources], the state board, and the State Department of Public Health, [to] consider this state policy when revising, adopting, or establishing policies, regulations, and grant criteria."

There is also an increasingly recognized consequence of unaffordable water bills on water service providers through "increased collection costs, rising levels of arrearages [non-payment] and numbers of accounts with arrearages, an increased number of terminations of water service, and swelling criticism from various sectors of the community."[i]

WATER AFFORDABILITY PROGRAMS IN CALIFORNIA

Water affordability programs offer a means to support customers who cannot afford their water rates. A number of water service providers in California currently provide some type of assistance to low-income customers. However, programs vary greatly between providers in both their structure and the amount of assistance they provide. See Table 2 for a description of some water affordability programs offered in Northern California.

Concerns around the stipulations of Proposition 218 (California's Right to Vote on Taxes) have led some water service providers to conclude that water affordability programs may lead to legal challenges if they are deemed a subsidy from one customer class to another and, therefore, are too risky. However, there are several ways to set up and fund affordability programs that can reduce risks, including finding alternatives to rate-based revenue sources, providing services specific to low-income customers, and improving the management of the water system. These approaches are described in more detail below.

Table 2. Examples of Water Affordability Programs for Low-income Households in California

Water Supplier	Program	Benefit	Amount of Discount (assuming an average monthly bill)	Eligibility	Funding Source
CalWater	Low Income Rate Assistance (LIRA) Program	50% Discount up to $12 on monthly service charge	$7.02/month	Same as California Alternative Rates for Energy (CARE) program	CPUC-approved flat rate surcharge on residential customers. This ranges from $0.24 - $0.41/month depending on the district.
San Jose Water Company	Water Rate Assistance Program (WRAP)	15% Discount on total water bill	$8.27/month	Same as CARE program	CPUC-approved surcharge on residential customers of $0.20/month.
City of Napa	RateShare Discount	$4.75/bimonthly Discount	$2.38/month	Same as CARE program	Funds come specifically from leasing cell phone tower space on the City's water tank property sites.
City of Sacramento	Salvation Army Family Services	Up to $100	(one-time assistance)	Income requirements	Salvation Army is an independent charity organization that has its own budget.
East Bay MUD	Customer Assistance Program (CAP)	50% Discount on service and commodity charges	$27.73/month	Same as CARE program	This discount is not financed; it is a Board-approved lower rate.
San Francisco Water, Power, and Sewer	Community Assistance Program (CAP)	15% Discount on water bill	$10.90/month	Same as CARE program	Funded through: Tax-deductible donations and unused credits from customers who overpay on their water bill.

STRATEGIES FOR SUCCESS

While water service providers face distinct obstacles, that do not apply to other utilities, affordability programs offered by the energy and telecommunications sectors can provide some lessons to improve water affordability programs. Affordability programs in the energy and telecommunications sectors can be characterized by their consistency: they often use the same or similar standards for eligibility, have stable sources of funding, and routinely release data about participation in the program in order to track progress. The similar eligibility guidelines mean that each individual service provider does not need to invent its own affordability program, and they also create a standard set of practices throughout the State, contributing to relatively high participation rates.

Rate affordability must necessarily consider the multiple challenges that customers face in accessing basic water services. For example, in the Central Valley, residents often purchase bottled water for drinking because their drinking water is not safe to drink (Moore et al. 2011). This creates a conundrum of how to make rates more affordable, while ensuring that residents receive safe water and that source water is adequately protected in the long run. Below are some key strategies for the development of successful affordability programs.

Use existing eligibility requirements from other sectors to automatically enroll customers.

There are many well-established programs to ensure that low-income households have affordable access to utility services for electricity, natural gas, and telecommunications, including California Alternate Rates for Energy (CARE); the Family Electric Rate Assistance Program (FERA); the Federal Low Income Home Energy Assistance Program (LIHEAP); the Low Income Energy Efficiency Program (LIEE); and the California LifeLine Program (see Table 3). A number of water suppliers use the same program-enrollment eligibility as CARE or another public assistance program such as Medicaid/Medi-Cal; Women, Infants, and Children Program; Supplemental Security Income; Temporary Assistance for Needy Families (TANF); or Tribal TANF.

Energy affordability programs have been in existence for many years and routinely collect information about who is eligible. In some cases, utilities or public welfare agencies may be able and willing to share this information with water service providers. In such cases, it can minimize administration costs to automatically enroll customers who are participating in programs with matching eligibility requirements, sending a letter to the household announcing that they will receive benefits unless they request otherwise.[ii] However, even if this information is not made available, a water service provider can allow customers to enroll themselves with proof of participation in a program with matching eligibility requirements.

For example, the Golden State Water Company has a low-income rate assistance program based on the same eligibility requirements as CARE. Thus, the Company allows customers to enroll in their water affordability program by simply "submitting a copy of a current utility bill showing eligibility for CARE."[iii] This method of enrollment is straightforward in terms of customer enrollment and administration. However, the process should be clearly communicated to all water customers to ensure a high level of participation.

Table 3. Eligibility Requirements for Affordability Programs for Electricity, Natural Gas, and Telecommunications

Program	Utility	Benefit	Eligibility (assuming a family of 4)	Funding Source	Participation Rate
CARE	Electricity	20% Discount	Total annual household income below $46,100	Public Goods Charge	60.55%[1]
CARE	Gas	20% Discount	Total annual household income below $46,100	Public Goods Charge	35.4%[2]
FERA	Electricity	Tier 3 energy usage billed at Tier 2 rate (for consumers slightly exceeding the eligibility threshold of CARE)	Total annual household income below $46,101-$57,625 (250% of federal poverty guidelines)	Public Goods Charge	14.6%[3]
LIHEAP	Energy	~$200 credit used for utility bill payment	Total annual household income less than $47,200 (60% of state median income)	U.S. Department of Health and Human Services Community Services Block Grant	17%[4]
ESAP (LIEE)	Energy Efficiency	Free weatherization services	Total annual household income below $46,100	Public Goods Charge	42.1%[5]
LifeLine	Telecommunication	Several services available to lower telephone bills	Total annual household income below $34,800	Public Goods Charge	20-50%[6]

[1] This figure does not include the Sierra Pacific Power Company as it was derived from only the annual reports made available through the Low-Income Oversight Board – an advisory board to the California Public Utilities Commission.
[2] This figure does not include Alpine Natural Gas or West Coast Gas Company for the same reason.
[3] This figure does not include Southern California Edison for the same reason.
[4] This figure represents LIHEAP participation nationally.
[5] This figure comes from the 2011 update of CPUC's CA Energy Efficiency Strategic Plan.
[6] This percentage range comes from a study by the Universal Service Administrative Company.

Pursue alternatives to rate-based revenue sources.

Revenue can be collected from a variety of sources to fund affordability programs besides the rate-base, including federal grants, private charities, and rental/usage fees. One example of a federal assistance program is the Low Income Home Energy Assistance Program (LIHEAP), a block grant funded by the Federal Department of Health and Human Services.[iv] Through LIHEAP, eligible residents receive a credit to help pay utility bills, including water bills. The share of LIHEAP that the State of California receives is approximately $150 million annually, and the California Department of Community Services and Development acts as the intermediary that distributes this share of LIHEAP to community organizations that operate programs for each county.[v] This is not an automatic entitlement program and less than 20% of those eligible for the funding are currently participating. Water service providers could send information to eligible customers about this program or help them enroll.

Beyond federal assistance programs, there are also a number of private charities that may provide water affordability assistance. For example, the City of Sacramento Department of Utilities developed a partnership with Salvation Army to provide a "Customer Assistance Program" for elderly, low-income, or disabled customers to help pay utility bills, financed through donations to Salvation Army. In addition, there are many examples of innovative approaches to fund affordability programs from accepting tax-deductible donations (in some cases allowing customers to round-up to the nearest dollar on water bills), to creating a fund from unused credits for overpayment, to property leases. For example, several water service providers in California use the funds collected from leasing cell phone tower space on their properties to fund affordability programs or non-rate revenues such as rental income; property taxes (in the case of special districts); and general fund revenues (in the case of some cities).

Provide services to low income customers.

While reducing the bill for low-income customers is the most direct method to address affordability, there are a variety of services that can be provided to reduce financial hardships for low-income customers (see Table 4). For example, budget billing removes uncertainty by averaging the bill over the year, reducing seasonal fluctuations and summer peaks. While budget billing does not reduce the total cost of water over the course of the year, it can improve affordability in summer months when water use typically increases.

Consider the conservation signal.

Finally, when designing an affordability program, water utilities can consider encouraging water conservation and efficiency. For example, rather than offering a percentage discount on the total water bill, which increases as more water is used, consider capping the percentage discount based on the average water use for the particular household size. In addition, consider applying discounts to, or waiving completely, the fixed portion of the water bill, which does not vary by customer usage, rather than the variable portion, which reflects customer usage and can be reduced through water conservation and efficiency efforts.

Table 4. Services to improve water affordability (adapted from Saunders et al. 1998)

Service	Description
Bill timing	Change the timing of bills to more closely coincide with the income stream of the household. For example, time bills to coincide with customer's receipt of Social Security or pension income.
Budget billing	Allow methods of bill payment to avoid unaffordable peaks (typically during summer months).
Pre-termination protections	Provide full due process protections before terminating water service – for example, required notice of customer's opportunity to enter a budget billing program or deferred payment arrangement.
Appropriate charges	Ensure that all charges for late payments, disconnection and reconnection, and deposits are imposed after clear notification and do not exceed the true costs of the services provided. For example, a water service provider may choose to waive late payment fees for low-income customers.
Conservation programs	Provide assistance to help reduce usage by curtailing leaks and installing conservation devices – for example, target low-income houses for audit, retrofit, and rebate programs.
Debt management plans	Establish incentive programs that reward customers for timely payments with partial forgiveness of old debt and provide installment plans to re-pay old debt.

Improve technical, managerial, and financial capacity.

Many water systems, particularly in rural and disadvantaged communities, suffer from poor technical, managerial, and financial (TMF) capacity. For instance, water systems may have no full-time staff and have water rates that don't adequately cover long-run costs of running a system. In many places, even where current rates do not cover system costs, they are still unaffordable for many residents.

Regional solutions and water system consolidation offer one promising approach to improve TMF. As more small water systems consider how to share water services or consolidate physically, there may be opportunities to improve TMF capacity and benefit from economies of scale. In the process of developing regional solutions or joint collaborations, particular attention must be paid to ensure that rates ensure system sustainability *and* affordability. In essence, opportunities to consolidate physically or share services across utilities can help incorporate affordability considerations from the beginning, even if affordability programs are also necessary.

Other approaches besides regionalization include: completing asset management plans and energy plans and attending Board trainings. An asset management plan helps determine critical system improvements and the associated costs per connection. An energy audit helps identify energy and associated cost savings. Board trainings help educate boards about water rates and system finances (see Water Rates: Communication and Education). In assessing TMF capacity, some states, like Arizona, offer additional technical resources to low-TMF systems.[iv] Providing resources to these systems is critical in order to support improved planning and training efforts.

ENDNOTES

[i] Saunders, M., P. Kimmel, M. Spade, and N. Brockway. 1998. Water Affordability Programs. American Water Works Association (AWWA). Denver, CO: AWWA.

[ii] *Ibid.*

[iii] Golden State Water Company. Not dated. Golden State Water Company Notice and Application for California Alternate Rates for Water (CARW) Program. Accessed online at: http://www.gswater.com/wp-content/uploads/2012/10/CARWBillInsert2012-2013English.pdf

[iv] "Low Income Home Energy Assistance Program (LIHEAP)." California Department of Community Services and Development. Accessed online at: http://www.csd.ca.gov/Programs/Low%20Income%20Home%20Energy%20Assistance%20Program%20(LIHEAP).aspx.

[v] *Ibid.*

[vi] Arizona Department of Environmental Quality. 2011. Capacity Development Program, Governor's Report: FY 2009 – 2011. EQR 11-04.

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