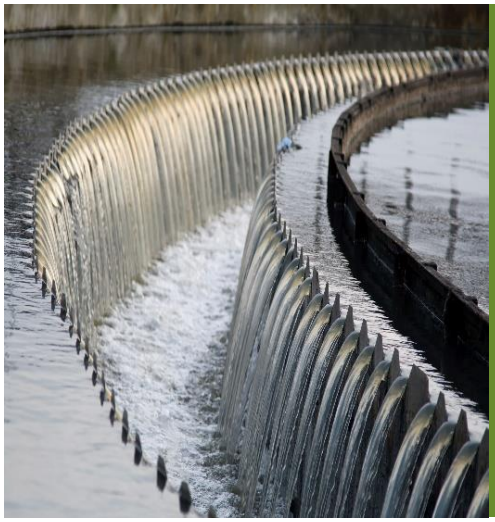

WATER JUSTICE

Water quality impacts us all on a regular basis, through the water we drink and use for food preparation and the water in which we shower and recreate. Water justice means clean and safe water for everyone, regardless of location, type of water system, or income level. Access to clean, safe, drinking water is a basic human right, and we need clean water upstream to help communities stay healthy downstream. However, many low-income households face the danger of water shut-offs due to their inability to pay utility bills. This document will discuss water justice and health equity as it relates to source water protection in urban waters, unregulated drinking water and private wells, nutrient pollution, and water affordability.

Partnerships Are Key to Achieving Water Justice

Waters in urban areas can be contaminated from a variety of sources, including industrial discharges, automobiles, residential and commercial wastewater, and polluted stormwater runoff. Urban populations often share centralized water sources, and polluted water can cause environmental health hazards such as poor drinking water quality and unsafe waters for recreation.[1]

In more rural areas, waters are more likely to be contaminated by agricultural runoff and nutrient pollution. Water utilities play a key role in keeping consumers' water safe by removing contaminants through drinking water and wastewater treatment, but this is often the last line of defense for maintaining safe water. Sustaining good water quality involves participation from diverse members in the community. Federal, state, and local governments, community groups, utilities, watershed coalitions, and individual residents can and have partnered to address current water quality and quantity issues and develop action plans to protect our source water and improve public health, especially for vulnerable populations that might be disproportionately impacted by contaminated water. Across the country, a number of collaboratives have formed to improve health equity and environmental justice by prioritizing safe water projects in low-income areas. Because of the increased attention that these collaboratives bring to these issues, states have implemented programs and policies to improve water quality. Some of these projects are funded specifically through grant programs administered by federal agencies such as EPA and CDC, but many others are partnerships formed merely by identifying common goals. They embody the same strategies used to achieve health in all policies (HiAP), and bring together various stakeholders, from youth residents to city council members.

Partnering to Mitigate Flooding in Southbridge, Delaware

Much of South Wilmington, Delaware lies within a 100-year floodplain that experiences chronic flooding issues. The City of Wilmington partnered with some other local agencies to develop the South Wilmington Special Area Management Plan (SAMP) to revitalize this area by improving long-standing environmental and flooding issues, providing new economic opportunities for community members, ensuring waterfront access, and creating new partnerships.[2] This planning process convened community members, business leaders, nonprofit organizations, and government officials to work together to comprehensively plan the area's renewal.

The collaborative completed the formal SAMP planning process in 2008, but core organizations continue to implement recommendations from SAMP.[3] In addition, stakeholders formed the South Wilmington

Planning Network (SWPN) to host information for the communities and leverage resources for collaborative projects to improve quality of life in the area. SWPN includes city and state government officials, community health centers, city council members, schools, and local and state nonprofit organizations, such as the YMCA, civic association, and a children's museum.

One SWPN member, the Clean Air Council, received an EPA Urban Water Small Grant for 2013-2014 to develop and implement a green infrastructure plan to address chronic flooding in the economically disadvantaged Southbridge neighborhood of South Wilmington. This historic, predominately black, low-income neighborhood was built on former marshland and is surrounded on three sides by a river that is said to flood any time it rains at high tide. As part of the grant project, community members identified and determined the green policies and infrastructure improvements that they wanted to incorporate into the neighborhood plan in order to reduce stormwater runoff and damage.[4,5,6]

These improvement projects raised environmental justice issues for the community and, through multi-organization collaboration, helped prioritize runoff issues that could cause health and daily living concerns for the residents. They embodied the HiAP approach by starting with relationship building through networking and bringing together diverse stakeholders to achieve a common goal of reducing flooding and stormwater runoff in a chronically flooded area.

Green-Duwamish Watershed Urban Waters Federal Partnership

The Green-Duwamish Watershed in King County, Washington is one of the nation's Urban Waters Federal Partnership (UWFP) program sites. [7] The watershed houses very economically and ethnically diverse neighborhoods, combining a mix of rural, urban, and industrial areas.[8] Over the years, American Indian tribes, government agencies, stewardship groups, and other organizations have increasingly collaborated to help restore the watershed, but UWFP brings in additional coordination between federal partners at EPA, the U.S. Geological Survey, the National Oceanic and Atmospheric Administration, and USDA. The federal partners work closely with established entities in the region to build on their groundwork, engaging with and strengthening relationships between tribes, local businesses, environmental justice advocacy groups, and private landowners to identify proposed conservation projects that answer social equity and community revitalization needs.[9]

The Green-Duwamish UWFP also established ties with the Duwamish River Cleanup Coalition, a nonprofit community advisory group dedicated to restoring the river so that its benefits are universally accessible.[10,11] Through its focus on healthy urban waters, UWFP is helping assess how natural resource planning can help restore the watersheds that sustain and enhance quality of life, particularly in communities that have historically had a high burden of environmental issues. The coalition has also been successful in engaging and impacting the community in unique ways, including hosting more than 50 community events, such as a World Dance Party celebrating local culture and heritage, community-based workshops, and unconventional public meetings. As a result of their efforts, the group reached more than 3,000 community members, and generated more than 2,300 written comments and testimonials submitted to EPA in 10 different languages regarding their proposed cleanup plan for the Duwamish River.[12] These actions outline the magnitude of the problem and highlight the power of outreach, collaboration, and coordination to address the water quality issues and restore health to the watershed.

Healthy Vinton Health Impact Assessment

The University of Texas at El Paso conducted a health impact assessment (HIA) in 2013-2014 to look at the potential health impacts of proposed infrastructure improvements in Vinton, Texas. Vinton has a predominantly Latino population, a high incidence of unemployment and poverty, and limited infrastructure.[13] In addition, about a third of the population is under 18, and are especially

susceptible to poor water quality and sanitation.[14] The HIA helped local decision-makers understand the full picture of health risks and benefits of the water treatment plans, and determine whether or not to move forward with projects to connect Vinton residents to the El Paso Water Utilities (EPWU) for both their public water supply and wastewater management. Collaborators on the project included the Border Environment Cooperation Commission, the Pan American Health Organization, and the Village of Vinton. Other advisors included city and county staff, the local health department, foundations, and village residents. At the time of the HIA, Vinton lacked a sufficient water supply, and residents relied on several water systems, including private wells for water and domestic septic tanks for sanitation, which are not regulated in the same way as public water supplies.[15]

The HIA team collected tap water samples of households representing each major water source, and surveyed Vinton residents about health and their views of and practices regarding water and sanitation (using a neighboring community already connected to EPWU as a reference population). The team also interviewed key individuals and organized focus groups with citizens, business people, and local leaders.[16]

At the conclusion of the HIA, team members visited decisionmakers to share the results and discuss their potential interest in assisting Vinton. This included the the recommendation to update Vinton's waster infrastructure and connect to the EPWU for water and sanitation, pursue opportunities for financial assistance to minimize cost to Vinton residents, and develop a strategic plan aimed at economic and community development.

The HIA was part of a larger HIAP approach, where new collaborations resulted in increased interest in tools to help consider health in decisionmaking. As a result of the HIA, the residents of Vinton became much more aware of their water quality and sanitation issues, and their common health impacts. Decision-makers, funders, and other stakeholders have increased awareness of the complexities in water, sanitation, public health, costs and financial tradeoffs, and community and economic development. Public participation through surveys, focus groups, and public meetings became an invaluable opportunity to bring community and other stakeholder perspectives and concerns to the discussion.

Unregulated Drinking Water and Private Wells

Coordination in Yakima Valley, Washington

As part of federal environmental justice efforts, EPA Region 10 has been addressing multiple environmental home health stressors in the Latino and tribal communities in the Yakima Valley, Washington. A coordinated effort between federal, state, local, university, and nonprofit partners has helped address the wide range of exposures found in the community, with a primary focus on reducing exposure through contaminated private well drinking water. The collaboration accomplished this by assessing homes with contaminated wells, providing "treatment at the tap" mitigation (e.g., water filters at the faucets), and reducing pollution sources through available regulatory tools and best management practices.[17] The partners successfully tested 600 private wells for nitrate contamination, installed well water filters in 166 homes, provided field sampling for crops and sewage treatment units to link nitrate contamination to sources, and developed a comprehensive geographic information system tool for the Yakima Valley to guide nitrate investigations and track other environmental health concerns in the community.[18]

The multi-stakeholder effort also helped to highlight air quality issues through a stakeholder meeting and supported a situation assessment of more than 23 groups and 65 stakeholders to identify areas of common ground on divisive issues pertaining to groundwater contamination cleanup. The assessment, conducted in summer 2010 by the Yakima-Kittitas Dispute Resolution Center, provided seven recommendations on how the various agencies and organizations could move forward on a common goal to reduce nutrient pollution via nitrate contamination.[19] These

efforts have all fed into a HiAP approach where multi-stakeholder collaborations formed to help identify needs and undertake mutually-beneficial activities in order to improve water quality.

Nutrient Pollution

Inter-Jurisdictional Partnerships to Protect and Sustain Drinking Water Supplies in the Salmon Falls Watershed Collaborative

The Salmon Falls River Watershed is shared by the states of Maine and New Hampshire. Approximately 28,000 people in both states currently rely on public water systems in this watershed, in addition to an unknown number who rely on private wells.[20] Although the watershed is a critical drinking water source for many people, it is also threatened by increases in polluted runoff resulting from population growth and the associated conversion of forested land to developed areas. The state drinking water source protection programs in Maine and New Hampshire formed the Salmon Falls Watershed Collaborative in 2010 to foster interstate cooperation to improve water quality in the Salmon Falls River.[21]

As with most HiAP examples that begin with relationship building, the collaborative began with monthly calls and a face to face stakeholder meeting. More than 80 stakeholders from the two states collaborated to identify five priority action areas for the Salmon Falls Watershed Collaborative. The collaborative aims to protect water supply sources in the Salmon Falls River watershed through coordinated land and water conservation, planning, and management, and develop and sustain mutually beneficial partnerships to accomplish shared goals for clean water.[22] Two of their guiding principles align with a HiAP approach: (1) To serve as a model for local, state, and federal collaboration to accomplish shared goals for watershed protection and restoration, and (2) To use transparent and inclusive processes for citizen engagement and public participation in the development of actions to balance use with protection to sustain high quality drinking water sources in the watershed.

The collaborative coordinates long-term source water protection efforts among its members, including the Maine Center for Disease Control and Prevention Drinking Water Program, the New Hampshire Department of Environmental Services, the Maine Rural Water association, regional planning commissions, city and municipal governments, water districts, nonprofits, and federal partners from EPA, USDA Natural Resources Conservation Service, and the U.S. Forest Service. The collaborative's action plan includes five main strategies to implement a comprehensive drinking water source protection strategy and achieve their goals. In 2012, the collaborative was awarded the U.S. Water Prize by the Clean Water America Alliance.[23] The selection of the collaborative for this award highlights the importance of inter-jurisdictional partnerships to protect and sustain drinking water supplies.

Protecting Public Water Supply Wells in Remsen, Iowa

In 2013, Remsen, Iowa was seeing high nitrate levels in its municipal wells that sometimes reached approximately three times the federal drinking water standard, which posed a risk of serious health effects, especially to infants.[24] Since the city could not afford the cost of treatment necessary to remove the nitrate, it requested support from the Iowa Department of Natural Resources (IDNR) to help design a solution to the water supply's nitrate problem. The agency's Source Water Protection (SWP) for Targeted Communities Water Supply Program helped set up a collaborative team of local landowners, IDNR, city officials, USDA, the Plymouth County Soil and Water Conservation District, the Iowa Department of Agriculture, the local Iowa State University Extension, the county sanitarian, the area resource conservation and development district, and the Plymouth County Pheasants Forever Chapter.[25]

In order to determine the source of nitrates in the municipal wells, the collaborative gathered data from well logs, as well as soil types, contaminant information, and current land use data prior to conducting the groundwater site investigation. Through this investigation, the collaborative found that its biggest challenge

was over-application of manure and commercial fertilizer on a small farm near the public wells. Local stakeholders on the Remsen SWP planning team used the site investigation report to direct their recommendations for land use practices that could reduce nitrate contribution in the identified priority area, and then they applied for grants and low interest loans to implement their new SWP plan and leverage current local, state and federal programs.[26]

Various stakeholders played a role in plan implementation, from providing technical support via geographic information system mapping of the critical lands near the wells to contacting local groups to enroll eligible lands in the improvement plan. Since the implementation of the SWP plan and adoption of new land use practices, monitoring results have showed a 40 percent reduction in nitrate levels in the highest production water supply over a five year period.[27] This example of source water protection has been a win-win for the community, as it has improved water quality, is economically feasible, and supported a healthier environment.

Water Affordability

Water Payment Plans

Access to clean, safe, drinking water is a basic human right. However, many low-income households face the danger of water shut-offs due to their inability to pay utility bills. For this reason, states have implemented water affordability plans to keep water flowing to these residences. Water affordability plans can offer pricing structures for at-risks households and the opportunity to pay a percentage of the total bill if they meet the income requirements for the assistance programs or a one-time credit for an existing bill.

In 2014, water affordability became a large issue in Detroit after approximately 30,000 residents were shut off after not paying their bills. [28,29] Groups such as the Michigan Welfare Rights Organization, the Detroit Water Brigade**,** Wayne Metro Community Action Agency**,** and the Water Access Volunteer Effort partnered with residents, local organizations, and other stakeholders to urge Detroit's water utility to implement new affordability plans and, in some cases, even help customers pay off part of their bills. The City of Detroit also partnered with the United Way for Southeastern Michigan to set up and support a Detroit Water Fund to help low-income residents handle their bills through a modified payment plan.[30] The relationships formed through grassroots and environmental justice groups working with the communities, coupled with effective resource leveraging emphasized the magnitude of the situation and helped stakeholders work together to advocate for policies and programs that could mitigate the risk of shut-offs and associated health impacts.

Many programs and tools currently exist to help communities finance their water infrastructure investments. These include EPA's Clean Water and Drinking Water State Revolving Funds, USDA's water and environmental programs, and the U.S. Department of Housing and Urban Development's Community Development Block Grant Programs.[31] Some programs were created specifically to fix water infrastructure problems and provide technical assistance to operators in rural areas. In addition to these federal resources, however, communities still need partnerships between utilities, city and county governments, local community groups, community-based development organizations, and residents to address these issues and allow for all community members to access clean, safe drinking water and wastewater systems.

Rural Community Assistance Program

The Rural Community Assistance Program (RCAP) is a national network of nonprofit organizations dedicated to empowering and helping rural low income people improve their quality of life. This model was designed to work in partnership with local governments, community action agencies, and community based organizations. One such program is the Southeast Rural Community Assistance Project, Inc. (SERCAP), which helps small rural towns and communities upgrade their water and wastewater systems and provides training and technical assistance to rural residents to operate and maintain those systems.[32] It makes grants and loans available to low-income individuals and communities to build water and

wastewater infrastructure, rehabilitate housing, and fund other development needs.

SERCAP utilizes volunteers in a variety of programs to conduct these projects, train community leaders, and train and recruit additional local volunteers. It serves seven states, and has brought clean water and wastewater facilities to more than 450,000 residents.[33] SERCAP has partnered with federal offices at EPA, HHS, the U.S. Department of Housing and Urban Development, USDA, the Economic Development Administration, the Appalachian Regional Commission, and the global health advocacy group ACTION.[34] Together, these partners help create success stories throughout the region and reduce health inequities caused by lack of clean, safe drinking water, embodying many qualities of successful HiAP initiative.

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