NATIONAL WATER REUSE ACTION PLAN

Celebrating Five Years of Progress

EPA United States Environmental Protection Agency

March 2025

When the EPA released the National Water Reuse Action Plan (WRAP) in February 2020, it marked the beginning of a transformative and collaborative initiative designed to address critical state and water sector needs. Since then, the effort has grown from 37 actions to an impressive 73 action commitments.

One fundamental goal continues to guide the effort: leveraging the convening power and scientific expertise of the EPA, alongside the water sector, to empower states and communities to solve local water challenges. We thank all WRAP collaborators for their considerable contributions and dedication to identifying opportunities for reuse, promoting the latest science to protect public health and creating technical resources that support new projects and initiatives.

> ***Thank you to our action plan partners across the country for your continued commitment and dedication to advancing water reuse. Our work will help ensure a secure and reliable water supply for the American people.***
>
> *— Sharon Nappier, EPA National Program Leader for Water Reuse*

WRAP FIVE-YEAR HIGHLIGHTS

A selection of WRAP accomplishments since 2020:

- ✓ **Summarized state and international reuse regulatory approaches in the REUSExplorer.**
- ✓ **Highlighted federal funding resources that support resilient local water infrastructure.**
- ✓ **Connected communities to technical assistance providers.**
- ✓ **Supported the workforce with training resources for water reuse operators and other water professionals.**
- ✓ **Provided states and utilities with clear and adaptable communications resources in an online library.**
- ✓ **Supported local governments' onsite reuse initiatives by incorporating the latest science into codes and standards.**

See previous annual updates for more accomplishments.

WRAP YEAR 5 IMPACTS

The following are example activities from the past year that have helped advance water reuse across five key impact areas.

Impact Area 1: Improved State Regulatory and Policy Clarity

- **Convened cross-sector participants to identify ways to accelerate onsite reuse at the Onsite Water Reuse Summit.** *(Action 2.18, led by NBRC for OWS and EPA; Action 3.4, led by NBRC for OWS)*
- **Reported on key actions that permitting authorities and utilities can take to support innovative permitting approaches, including for water reuse.** *(Action 2.19, led by Stanford University, EPA and UC Berkeley)*
- **Published the quarterly "Potable Reuse Report," which covered critical topics such as regulations and pathogen reduction crediting frameworks.** *(Action 7.10, led by USACE and the Water Reuse Consortium)*
- ★ **New action: Identify Opportunities to Support the Mississippi River Basin States in Advancing Water Reuse** *(Action 2.20, led by the WEF Reuse Committee Mississippi River Basin Focus Group)*

73 WRAP action commitments

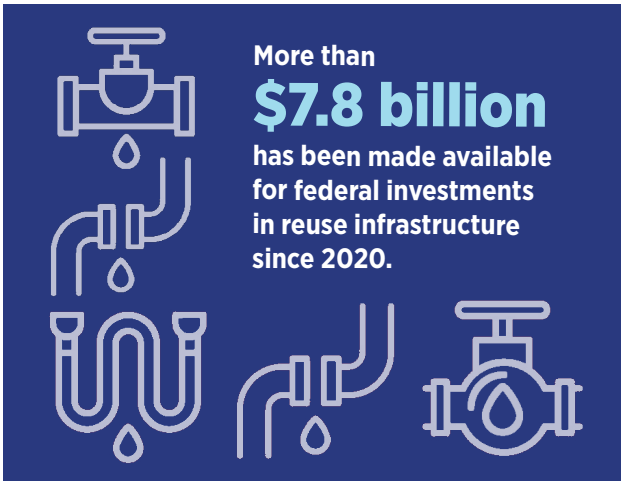
190+ resources developed

178 organizations involved

Presenters at the 2024 Onsite Water Reuse Summit. *Photo courtesy of ERG.*

Impact Area 2: Highlighted Infrastructure Investments

- **Bolstered the reliability of water supplies for about 9.5 million Americans through 20 WIFIA loans for water reuse projects since 2020.** *(Action 6.2B, led by EPA)*
- **Supported water recycling projects in California and Utah by providing $304 million to 10 recipients under the Bureau of Reclamation's Large-Scale Water Recycling Program.** *(Action 6.5, led by Reclamation)*
- **Highlighted funding and financing opportunities for state and local water reuse projects in a webinar hosted by the federal Water Reuse Interagency Working Group.** *(Action 6.1, led by EPA)*
- **Continued to fund water reuse projects through the Clean Water State Revolving Fund program.** *(Action 6.2A, led by EPA)*



Impact Area 3: Advance Scientific and Technological Research

- **Provided $75 million for the second phase of the National Alliance for Water Innovation to accelerate desalination and water reuse technologies.** *(Action 4.6, led by NAWI and DOE)*
- **Advanced research on stormwater capture and use by completing an assessment of urban stormwater runoff potential in the United States and publishing a report that provides guidance for quantifying stormwater volumes and characterizing its benefits.** *(Action 5.5, led by Pacific Institute, EPA and WateReuse; Action 5.8, led by Pacific Institute)*
- **Explored water reuse in the beverage manufacturing industry by publishing a white paper that identifies solutions to regulatory, treatment and technology challenges.** *(Action 5.7, led by GHD in collaboration with nine partners)*

FRAMEWORK FOR DEVELOPING MICROBIAL TREATMENT TARGETS FOR WATER REUSE

This 2025 document provides detailed scientific information state regulators can use to develop risk assessments and set microbial treatment targets for potable and non-potable water reuse. *(Action 3.1, led by EPA)*

- **Analyzed different viruses in a research article to assess their potential as treatment monitoring surrogates in onsite non-potable water reuse systems.** *(Action 5.2, led by WRF)*
- **Funded research on antimicrobial resistance (AMR) to improve understanding of and approaches for managing AMR risks in water reuse.** *(Action 7.9, led by EPA)*
- ★ **New action: Research De Facto Water Reuse: Grant Award** *(Action 7.12, led by EPA)*

More than
$225 million
in federal research awards for water reuse since 2020

EPA
$45.6 million
SBIR, STAR and National Priority awards

DOE
$145.5 million
National Alliance for Water Innovation awards for desalination and reuse

DOD
$34.3 million
Water Reuse Consortium and cooperative agreements

Impact Area 4: Improved Public Perception

- **Provided clear and concise information on water reuse via the CDC's Recycled Water webpage.** *(Action 8.6, led by CDC and EPA)*
- **Bolstered industrial water recycling through the Global Industrial Water Reuse Champion Award.** *(Action 8.4, led by U.S. Chamber of Commerce, Veolia, WateReuse, UPenn Water Center and IDRA)*
- **Explored water reuse as a solution to water scarcity in Los Angeles, California, in a new water ethics docuseries.** *(Action 7.10, led by USACE and the Water Reuse Consortium)*

NEWSFLASH! WATER REUSE CAN SUPPORT AI AND SUPERCOMPUTING

Water reuse is critical to helping industry leaders like Amazon, Google and Microsoft keep up with their data center cooling needs while helping preserve local water supplies.

PRIVATE INVESTMENT IN WATER REUSE

The EPA Environmental Financial Advisory Board's Water Reuse Workgroup completed a congressionally directed study on the development of an investment tax credit focused on both onsite reuse and centralized reuse using treated municipal wastewater. *(Action 6.6, led by EFAB)*

Impact Area 5: Provided Technical Support and Information

- **Crafted an action plan that outlines 10 goals to advance the implementation of onsite water reuse systems.** *(Action 3.4, led by NBRC for OWS)*
- **Answered common questions about potable water reuse and the treatment of per- and polyfluoroalkyl (PFAS) substances.** *(Action 3.7, led by EPA and FDA)*
- **Launched a website that promotes proper management of unused or expired pharmaceuticals and developed a technology brief on treatment options for pharmaceuticals and personal care products in wastewater.** *(Action 2.9, led by Sanitation Districts of Los Angeles County; Action 4.9, led by EPA)*
- ★ **New action: Identify Opportunities and Address Barriers to Nonresidential Onsite Rainwater and Stormwater Catchment Systems** *(Action 5.9, led by ARCSA)*
- ★ **New action: Identify In-Field Water Reuse Opportunities for Water Produced in Colorado During Oil and Gas Operations** *(Action 5.10, led by Colorado Produced Water Consortium)*

ONSITE WATER REUSE CAN REDUCE FLOOD EVENTS

The revitalized Domino Sugar Refinery in Brooklyn, New York, has a non-potable reuse system that collects building wastewater and treats it for toilet flushing, cooling and irrigation. This system diverts wastewater that could otherwise contribute to combined sewer overflow events. Learn more here.

STATE REGULATOR SUMMITS ON WATER REUSE

The annual forum provides a critical opportunity for attendees to learn about and share state-specific water reuse issues, priorities and progress. These collaborative summits have garnered participation from 23 states since 2019. *(Action 2.2, led by EPA, ACWA and ASDWA in collaboration with GWPC, ASTHO, ECOS and WateReuse)*

Attendees of the 2024 State Summit on Water Reuse in Denver, Colorado. *Photo courtesy of the EPA.*

RECENTLY COMPLETED WRAP ACTIONS

Completed actions are celebrated for meeting their goals and laying the groundwork for future efforts.

- ✓ **Address Barriers to Water Reuse in Agriculture Through Improved Communication and Partnerships** *(Action 1.6, led by USDA, EPA, FDA, University of Arizona and Volcani Institute)*
- ✓ **Incorporate Water Quality and Onsite Reuse Research into Codes and Standards for Premise Plumbing** *(Action 2.18, led by NBRC for OWS and EPA)*
- ✓ **Identify Water Quality Monitoring Practices for Reuse Applications** *(Action 5.2, led by WRF)*
- ✓ **Identify Opportunities to Implement Water Reuse within the Beverage Industry** *(Action 5.7, led by GHD in collaboration with nine partners)*
- ✓ **Compile and Develop Water Reuse Program Outreach and Communication Materials** *(Action 8.1, led by WateReuse)*

KEY RESOURCES

- WRAP Online Platform with action information: https://www.epa.gov/waterreuse/wraponline
- REUSExplorer tool with summaries of state guidelines and regulations: https://www.epa.gov/reusexplorer
- Water Reuse Resource Hub with materials organized by end use: https://www.epa.gov/waterreuse/water-reuse-resource-hub-end-use-application
- Case studies that demonstrate the benefits of water reuse: https://www.epa.gov/waterreuse/case-studies-demonstrate-benefits-water-reuse
- Recent and upcoming activities: https://www.epa.gov/waterreuse/recent-and-upcoming-water-reuse-activities

The growing WRAP collaborative is helping to expand water reuse expertise and address implementation challenges. Action leaders and partners that have joined since February 2024 are noted in bold italics.

Reclamation | ***MN DPH*** | ASTHO | NPS | Valley Water | Purdue | WSWC | IDEQ | NADB | DOS | HCPU | ASDWA | OSU | Tyson | GSA ***Village of Pingree Grove*** | Stantec | CILA | GHD | WTA | ACWA | Denver Water | Groundwork USA | GCE | Pacific Institute | NWRI Rice University | 2nd Nature | NTWC | SCCMA | HUD | EDF | ***EMWD*** | Greenbiz Group | El Paso Water | WFX | SCCWRP | RCAC | MoH EFAB | Parker Groundwater | NREL | GCCI | ARCSA | Jacobs | MOEI | UNR | The World Bank | Conagua | Wright Water Engineers NMSU | Veolia | NTC | DOT | ***WI DNR*** | ***AWWA Total Water Committee*** | ***Fox River WRD*** | Columbia Water Center | AWWA | CDPHE SRE | IWA | AHA and ASHE | DOI | RN | LADWP | ISPE | Northwest Biosolids | RTOCs | USAID | CA SWRCB | NRWA | NACWA | USWP WaterEdge.IL | NBRC for OWS | ***WEF Reuse Committee MI River Basin Focus Group*** | SWAN | CASE Team | ECOS | USDA | NMSA SBIR Programs | ***City of Boise*** | NYC DEP | ***Consor Engineering*** | ***Katz and Associates*** | University of California | ***SWFWMD*** | IU | ICC Commerce | ***LVMWD*** | UPenn Water Center | WateReuse | ***RMS*** | NSF | RCAP | ORNL | SAWS | FEMA | JCI | CDC | USGBC | NSAC Israel Export Institute | ***City of Columbus*** | PepsiCo, Inc | MWD | IWMI | Wahaso | BIER | WRF | CIFA | ***Athens-Clark County*** | AMWA UWFP | ***UA*** | Water Innovation Services | AVF | WW | JFW | FDA | UNC | USC | Cambrian Innovation | IDRA | EPRI IBWC | One Water Econ | LACSD | DOE | ***OH EPA*** | CSO | WEF | CESPM | WaTr | SEPROA | Xylem | NMED | ***CWPC*** ***Fox Metro WRD*** | GWPC | NGWA | DCPH-A | Volcani | ASHRAE | CWCB | Austin Water Utilities | ***Yorkville*** USACE | ***WSP Consultants*** | MoAG | NDRP | CESPT | IAPMO | CDM Smith | ***MWD of Southern California*** | PHASC UIC | ReNUWIt | TTU | DOD | NSU | Embassy of Israel | US Water Alliance | Design Aire | EPA | USGS | ***LiUNA*** NeoTech Aqua | NAWI | NM-PWRC | MoEP | IRWA | Penn State | Trussel Technologies | University of Arizona

EPA-820-F-25-001