

# NATIONAL WATER REUSE ACTION PLAN

## Update on Collaborative Progress | March 2024

The [WRAP collaborative](#) helps to foster potable and non-potable water reuse across the United States. It consists of coordinated actions and [publicly available](#) products that expand water reuse expertise and address implementation challenges. Since 2020, the effort has grown to include 157 organizations and 69 actions. The ongoing commitment of WRAP collaborators and the federal [interagency working group](#) advances reuse to create a resilient water future for all.



**69** WRAP action commitments

**170+** resources developed

**157** organizations involved



### WRAP YEAR 4 IMPACTS

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




#### Impact Area 1: Improve State Regulatory and Policy Clarity

- **Advancing strategies for innovation and permitting.** The EPA organized an expert workshop to identify how National Pollutant Discharge Elimination System permitting can support innovative solutions while maintaining robust environmental protections. A summary report will follow. ([Action 2.19](#), led by EPA; University of California, Berkeley; and Stanford University)
- **Compiling state regulations to support reuse adoption.** The [REUSExplorer tool](#) summarizes state water reuse laws and policies across different sources of water and end-use applications. The EPA added state summaries for industrial water reuse applications and included rainwater collected onsite as a new source of water. ([Action 3.1](#), led by EPA and supported by ACWA, AMWA, ASDWA, ASTHO, CDPHE, FDA, WRF and WaterReuse)
- **Supporting state regulators through collaborative exchanges.** Regulators across 17 states participated in the fourth State Summit on Water Reuse in March 2023 to discuss a range of potable and non-potable reuse topics, including approaches for developing regulations. ([Action 2.2](#), led by ACWA, ASDWA and EPA in collaboration with ASTHO, GWPC, ECOS and WaterReuse)
- **Updating design standards for federal facilities.** The GSA completed a public comment period in 2024 for an update to the P100 facilities standards for Public Buildings Services to consider goals for water net-zero and human health risk-based water treatment targets. ([Action 2.18](#), led by NBRC for ONWS and EPA)



Attendees of the Innovative Permitting workshop. Photo courtesy of The Johnson Foundation at Wingspread.

 **The EPA is using its convening power to bring people together across the country and across operational and regulatory silos to figure out how to bridge gaps and accelerate positive momentum through the WRAP.”**

– Felicia Marcus, William C. Landreth Visiting Fellow at Stanford University’s Water in the West Program and WRAP Action Leader

- ★ **New action:** Study the Public Benefit of a Potential Federal Investment Tax Credit to Support Private Investment in Water Reuse ([Action 6.6](#), led by EPA’s Environmental Financial Advisory Board)



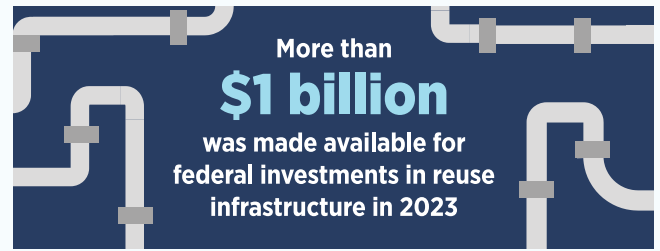
#### Receive Monthly Newsletters


Additional action highlights are showcased in WRAP monthly and [quarterly updates](#). To receive these newsletters, join the EPA’s [water reuse listserv](#) by emailing [waterreuse@epa.gov](mailto:waterreuse@epa.gov).



## Impact Area 2: Highlight Infrastructure Investments

- **Supporting community hazard mitigation and resilience to extreme weather events.** FEMA announced the availability of \$800 million for the [Flood Mitigation Assistance](#) grant program and \$1 billion for the [Building Resilient Infrastructure and Communities](#) program. Water reuse projects are eligible under the drought mitigation category. ([Action 2.14](#), led by FEMA and EPA)
- **Tracking water reuse investments.** The EPA released an interactive [tool](#) to track and analyze investments made through the Drinking Water and Clean Water State Revolving Funds, allowing users to view water reuse projects funded by states. ([Action 6.2A](#), led by EPA)
- **Investing in water reuse projects.** Reclamation announced the availability of \$239 million for water reclamation and reuse projects through [Title XVI Congressionally Authorized Projects](#) and [Title XVI WIIN Act Projects](#). The [Large-Scale Water Recycling Projects](#) opportunity provides up to \$180 million for eligible projects. ([Action 6.5](#), led by Reclamation)



 **Thanks to programs like WIFIA and the historic \$50 billion for water under the Bipartisan Infrastructure Law, EPA is rebuilding essential water infrastructure to address community needs while creating good-paying jobs in the process.”**

– Former EPA Assistant Administrator for Water Radhika Fox



## Impact Area 3: Advance Scientific and Technological Research

- **Advancing research to replenish and supplement groundwater supplies.** The EPA awarded nearly \$8 million to [four institutions](#) for research related to enhanced aquifer recharge to improve groundwater availability and quality. ([Action 7.8](#), led by EPA)
  - **Helping small businesses develop innovative reuse technologies.** The 2023-2024 Small Business Innovation Research reuse-related topics included zero-liquid discharge and brine concentrate minimization, and one recipient is developing an [ecological treatment for blackwater reuse](#). This [webpage](#) highlights previous grant awardees developing reuse technologies. ([Action 7.5](#), led by EPA)
  - **Supporting research on antimicrobial resistance.** The EPA is planning to fund research on the occurrence, fate, transport and persistence of antimicrobial resistant organisms and genes found in municipal wastewater effluent, water reuse and biosolids. The EPA plans to issue the awards, totaling nearly \$10 million, in spring 2024. ([Action 7.9](#), led by EPA)
  - **Developing a coordinated national research strategy for water reuse.** WRF [sought qualifications](#) to develop a national research strategy that communicates and prioritizes water reuse research, synthesizes identified research needs and coordinates with key stakeholder groups to create a roadmap document for the water sector. ([Action 7.2](#), led by WRF)
  - **Highlighting challenges and solutions related to the use of treated wastewater for irrigation.** This [review article](#) from an interdisciplinary group that convened in Israel at the treWAG 2022 Conference identifies agronomic and public health considerations of agricultural irrigation using treated wastewater. ([Action 1.6](#), led by USDA, EPA, FDA, University of Arizona and Volcani Institute)
  - **Analyzing onsite non-potable water system pathogen treatment targets.** This [research article](#) describes pathogen treatment targets for onsite non-potable systems for greywater, wastewater, stormwater and roof runoff. ([Action 3.4](#), led by NBRC for ONWS)
  - **Funding an academic consortium to advance water reuse.** The USACE [awarded](#) a \$12.3 million cooperative agreement for the first of a three-phase, \$38 million program to create the Water Reuse Consortium—a research collaboration between the University of Southern California, the University of Arizona and the University of Nevada, Reno. The consortium aims to tackle pressing water challenges through innovative research; education; communication; and unprecedented collaboration between government, local communities, industry and academia. ([Action 7.10](#), led by USACE and the Water Reuse Consortium)
- ★ **New action:** Evaluate Antimicrobial Resistance in Wastewater and Sewage Sludge and its Impact on Surface Waters: Research Grant ([Action 7.9](#), led by EPA)
- ★ **New action:** Implement the DoD-funded Water Reuse Consortium for Water Resiliency at Military and Municipal Facilities ([Action 7.10](#), led by USACE and the Water Reuse Consortium)



More than  
**\$121 million**  
in federal research awards for water reuse since 2020



**EPA**  
**\$36.6 million**  
SBIR, STAR and National  
Priority awards



**DOE**  
**\$70.5 million**  
National Alliance for  
Water Innovation awards  
for desalination and reuse



**DOD**  
**\$14.3 million**  
Water Reuse Consortium  
and cooperative agreements

## Impact Area 4: Improve Public Perception


- **Sharing resources through a communications library.** WaterReuse released a living [library](#) of ready-to-use outreach materials and examples from leading water reuse agencies that utilities and other communicators can borrow or use as inspiration. ([Action 8.1](#), led by WaterReuse)
- **Making the connection between water reuse and public health.** The CDC and EPA are anticipating to publish infographics and a general water reuse informational website in March 2024 to communicate water reuse safety; common treatment processes used for water reuse; and its importance for water security, resilience and sustainability. ([Action 8.6](#), led by CDC and EPA)
- **Recognizing businesses that incorporate water recycling.** The Innovation in Industrial Water Reuse Champion Award recognizes Fortune 1000 companies that incorporate best-in-class water recycling programs. Winners of the 2023 Industrial Champion Awards included APA Corporation, PepsiCo and Intel Corporation, and the 2023 Global Industrial Water Reuse Champion Awards were presented to Carlsberg Group and Kimberly-Clark Corporation. ([Action 8.4](#), led by U.S. Chamber of Commerce, Veolia, WaterReuse, UPenn Water Center and IDRA)
- ★ **New action:** Engage the Medical Community to Inform the Public About the Risks and Benefits of Water Reuse ([Action 8.8](#), led by SCCMA, Valley Water, Envirosppectives, WaterReuse and EPA)
- ★ **New action:** Produce a Compendium of Best Practices for Community Engagement Related to Water Reuse ([Action 8.9](#), led by WRF)
- ★ **New action:** Facilitate a Global Dialogue on Water Reuse ([Action 11.5](#), led by WaterReuse and IDRA)



Attendees of a meeting on the USACE-funded Water Reuse Consortium. Photo courtesy of the University of Southern California.

## Impact Area 5: Provide Technical Support and Information

- **Sharing lessons for optimizing the adoption of water reuse in underserved communities.** This [report](#) documents the process of piloting direct technical assistance for three self-nominated small, underserved communities. The report relays lessons learned from the pilot and highlights ongoing technical assistance efforts and support opportunities. ([Action 8.5](#), led by Pacific Institute and EPA)
- **Facilitating community connections with technical assistance providers.** The EPA developed a [map](#) to help connect communities with organizations that are part of the Agency's technical assistance program. Currently, 19 providers are listed as supporting water reuse projects specifically. ([Action 4.9](#), led by EPA)
- **Demonstrating the benefits of water reuse through case studies.** Six different organizations authored nine water reuse [case studies](#) to describe the projects' unique reuse solutions; ability to navigate the local policy, institutional and regulatory environment; financial and contractual agreements; and lessons learned. ([Action 11.3](#), led by the World Bank and EPA)
- ★ **New action:** Identify Opportunities for Industrial Reuse to Supplement Water Supply in Northeast Illinois ([Action 7.11](#), led by University of Illinois Chicago)

 **Through ongoing meaningful state-federal collaboration, the WRAP can advance effective water reuse practices on a national scale while also addressing the unique water management challenges faced by each state."**

—Julia Anastasio, ACWA Executive Director

### 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/reuseexplorer>
- 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>

## Federal Commitments to Water Reuse

The [Water Reuse Interagency Working Group](#) (Working Group), formally established under the Bipartisan Infrastructure Law, is celebrating its second year of coordinating and developing tools, actions and resources to advance water reuse. Part of the Working Group's purpose is to demonstrate leadership through WRAP implementation. The 60 WRAP actions with direct federal involvement reflect specific commitments to advancing reuse, along with the following activities:



Working Group panelists at the 2023 Water Reuse Symposium.

- The Working Group will release a report to Congress in 2024 that presents key information and outcomes related to its duties and outlines anticipated future activities.
- The Working Group and member agencies continue to fund critical water reuse research and infrastructure projects.
- Congress directed the EPA, in coordination with the Working Group, to undertake a study on the public benefit of a potential federal investment tax credit to support private investment in water reuse and recycling systems. The EPA's Environmental Financial Advisory Board has agreed to [conduct this study](#) and plans to engage different public and private sector stakeholder groups. ([Action 6.6](#), led by EPA's Environmental Financial Advisory Board)

## RECENTLY COMPLETED WRAP ACTIONS

Join us in celebrating [completed actions](#), which have met their goals and laid the groundwork for future progress.

- ✓ **Develop Informational Materials to Address how CWA NPDES Permits can Facilitate Water Reuse/Capture** ([Action 2.6](#), led by EPA and ACWA)
- ✓ **Implement and Manage the NAWI Energy-Water Desalination Hub** ([Action 4.6](#), led by DOE and NAWI)
- ✓ **Compile and Promote Existing USDA Funding and Resources for Rural Communities** ([Action 6.4](#), led by USDA)
- ✓ **Establish a Water Reuse Champion Award Program for Private Sector Companies** ([Action 8.4](#), led by U.S. Chamber of Commerce, UPenn Water Center, Veolia, WaterReuse and IDRA)
- ✓ **Engagement with Disadvantaged and Rural Communities on Water Reuse** ([Action 8.5](#), led by EPA and Pacific Institute)
- ✓ **Facilitate U.S.-Israel Collaboration on Technology, Science and Policy of Water Reuse** ([Action 11.1](#), led by EPA, MoEP and MoEI)
- ✓ **Develop and Highlight Case Studies Relevant to the Water in Circular Economy and Resilience Framework** ([Action 11.3](#), led by the World Bank and EPA)

RN | ICC | **UIC**  
NPS | SAWS | Volcani  
Commerce | NMSU | **USC**  
Parker Groundwater | WaTr | AMWA  
FDA | **UNC** | Wright Water Engineers | TTU  
ECOS | AHA and ASHE | IWA | USAID | ASTHO | CESPM | Purdue | GWPC | MWD | BIER | DOT | CILA | **OSU** | USGS | IWMI  
SBIR Programs | RTOCs | **MoAG** | FEMA | Water Innovation Services | WW | One Water Econ | NREL | SCCWRP | NTC  
Valley Water | JCI | USWP | NSU | NTWC | **El Paso Water** | Groundwork USA | DOD | WTA | AWWA | **Denver Water** | SRE  
Rice University | NYC DEP | USACE | SWAN | Conagua | SEPROA | Penn State | US Water Alliance  
CWCB | USGBC | **Israel Export Institute** | EPRI | Northwest Biosolids | GCCI | NAWI | WRF  
University of California | Trussel Technologies | USDA | **SCCMA** | CDC | WEF | CIFA | EPA  
Austin Water Utilities | NeoTech Aqua | Cambrian Innovation | RCAC | IDEQ | IRWA | **ARCISA**  
Tyson | GSA | Pacific Institute | Greenbiz Group | **IDRA** | CDPHE | DOS | CESPT | Stantec  
UWFP | ASHRAE | IBWC | The World Bank | ACWA | Veolia | Jacobs | **AVF** | WFX | DOI  
Columbia Water Center | NADB | **MoH** | LADWP | NRWA | RCAP | ORNL | JFW | Wahaso  
DOE | **WaterEdge.IL** | NM-PWRC | LACSD | IAPMO | Design Aire | PepsiCo, Inc | CDM Smith  
Embassy of Israel | CSO | DCPH-A | NMSA | ASDWA | ISPE | NBRC for ONWS | **CASE Team**  
WaterReuse | NWRI | ReNUWIt | UPenn Water Center | **EFAB** | Xylem | University of Arizona



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The growing WRAP collaborative is helping to expand water reuse expertise and address implementation challenges. Action leaders and partners that have joined since February 2023 are noted in **bold italics**.

