NATIONAL WATER REUSE ACTION PLAN

WRAP QUARTERLY UPDATE January–March 2023

A Message from Sharon Nappier, National Program Leader for Water Reuse

It's hard to believe that we recently celebrated the <u>third anniversary</u> of the National Water Reuse Action Plan (WRAP). The country has experienced significant obstacles since the initial release in 2020; all the while, the efforts of the WRAP collaborators have remained remarkably consistent—in a word, inspiring! In fact, there are over 130 unique partner organizations who have developed more than 100 different publicly available resources to help make water reuse more accessible.

Last month, I was joined by several WRAP action leaders at the United Nations Water Conference, which focused on how to respond to the global water crisis. Governments, businesses, and civil society committed billions of dollars to advance the water agenda. WRAP collaborators, including the Pacific Institute, International Desalination Association, U.S. Chamber of Commerce, WateReuse Association, Veolia, and EPA, discussed water reuse as a tool for water security and resilience. The Biden-Harris administration is encouraging states to invest in innovative solutions like water reuse to meet their climate resilience needs via the historic Bipartisan Infrastructure Law, which provided over \$50 billion to EPA's water programs.

At the same time, EPA recognizes that many disadvantaged communities need assistance to support these types of adaptations. On World Water Day, the administration announced an additional \$49 billion commitment that prioritizes equitable access to climate-resilient water and sanitation infrastructure both domestically and abroad. These once-in-a-generation investments in water, in conjunction with our most robust <u>technical assistance</u> program ever, help ensure that we support many low-income communities and that communities of color get their fair share of federal resources.

To help those considering water reuse projects overcome implementation challenges, EPA is chairing the federal Water Reuse Interagency Working Group established under the Bipartisan Infrastructure Law to "develop and coordinate actions, tools, and resources to advance water reuse across the United States." Although climate change presents big challenges, EPA is committed to addressing a broad range of issues facing the water sector. Thank you to all the WRAP collaborators for their continued partnership and for all that they are doing to create a resilient water future—here's to another year of bold action!

Abbreviations are defined at the end of this document. See the <u>Online Platform</u> for more information about each action.

New WRAP Action

WRAP actions seek to advance water reuse planning and implementation across the country. Actions are organized by strategic theme to help focus efforts and inspire future action. We are pleased to announce that the following new action is now underway. Please email the action leaders using contact information from the <u>Online</u> <u>Platform</u> for more information!

IN CASE YOU MISSED IT

WRAP email updates highlight relevant water reuse activities and events. Monthly updates from this past quarter are available online:

- January update
- <u>February update</u>
- March update



Evaluate Antimicrobial Resistance in Wastewater and Sewage Sludge and Its Impact on Surface Waters: Research Grant (Action 7.9, led by EPA)

<u>Brief description and strategic theme tie-in</u>: Fund research through EPA's National Priorities grant program to support safe and sustainable water resources. Once published, this request for application will solicit research to close data gaps on removal and relative significance of AMR organisms to receiving waters and genes found in treated wastewater effluent and biosolids.

We welcome federal, state, tribal, local, and water sector partners to propose actions to advance water reuse. Ideas for new actions may be sent to <u>waterreuse@epa.gov</u>. For information about how to propose, lead, or collaborate on a WRAP action, visit <u>this webpage</u>.

Completed WRAP Actions

Four WRAP actions were completed this quarter, demonstrating productivity and progress under four different strategic themes. The <u>completed WRAP action summaries</u> were developed with action leaders and highlight impacts, lessons learned, and potential future activities.



Policy Coordination

Develop Informational Materials to Address how CWA NPDES Permits can Facilitate Water Reuse/Capture

(Action 2.6, led by EPA and ACWA in collaboration with four partners) Action leaders assembled a diverse group of permittees, permitting authorities, reuse experts, and other stakeholders to explore NPDES permitting opportunities and concerns, identify approaches for effective water reuse permitting, and develop case studies that demonstrate where reuse practitioners have successfully worked with permitting authorities to expedite the NPDES permitting process. The collaboration resulted in the report *Navigating the NPDES Permitting Process for Water Reuse Projects: Strategies to Enable Recycling and Protect Water Quality*. Building off the work completed under this action, Action 2.19 (Advance Strategies for Permitting Innovative Wastewater Management Practices and Water Reuse) aims to refine, communicate, and disseminate information about how permitting processes can promote innovative wastewater treatment and management.



Implement and Manage the NAWI Energy-Water Desalination Hub

(Action 4.6, led by DOE and NAWI in collaboration with four partners)

DOE's Energy-Water Desalination Hub (Hub) represents a five-year, \$110 million investment in the research and development of energy-efficient and cost-competitive desalination technologies. The strategic goal for the Hub is to conduct early-stage research on technology solutions to develop new water sources that are cost-competitive with existing water sources and end-use applications (i.e., achieve "pipe parity"). DOE selected <u>NAWI</u> to lead the Hub through a competitive funding opportunity process. As part of this action, NAWI developed a <u>Master Roadmap</u>, which guides NAWI investments that could have transformative impacts on desalination in five end-use sectors, collectively known as PRIMA: Power, Resource Extraction, Industry, Municipal, and Agriculture. To date, NAWI has awarded more than \$50 million to U.S. universities, industry, and national labs to develop desalination and water treatment technologies to secure affordable and energy-efficient water supplies. NAWI tracks progress toward achieving pipe parity in the highest impact areas by creating a central, strategic, and integrated data and analysis platform that aligns research across all topic areas with the tools <u>Water Data and Analysis Management Systems</u> and <u>Water Technoeconomic</u> Assessment Pipe-Parity Platform.



Compile and Promote Existing USDA Funding and Resources for Rural Communities (Action 6.4, led by USDA in collaboration with three partners) This action aimed to identify, compile, and promote USDA funding opportunities for water and wastewater infrastructure projects, including the <u>Water and Waste Disposal Loan and</u> <u>Grant Program</u> and the <u>Water and Waste Disposal Technical Assistance and Training Grant</u> <u>Program</u>. The action team provided information and technical assistance to rural communities, promoted and financed water reuse projects, and assessed new opportunities for water reuse within USDA Rural Development programs. USDA will continue to work on water reuse opportunities and train engineers and loan specialists on funding projects that include water reuse and outreach to reuse-focused systems and engineers.



Facilitate U.S.-Israel Collaboration on Technology, Science, and Policy of Water Reuse

(Action 11.1, led by EPA, MoEP, and MoEI in collaboration with eleven partners) Because of infrastructure, regulatory, and institutional reform, Israel has become a global leader in water reuse. Today, nearly 90 percent of Israel's treated wastewater effluent is used for irrigation purposes. This action offered various informational exchanges that introduced U.S. regulators and practicioners to innovative water reuse technologies, equipment, and best practices, and showcased the roles of utilities, agriculture, and industry in implementing reuse. In 2021, the action team held a three-part Israel <u>Water Reuse Virtual Tour</u> as part of a knowledge sharing partnership between the United States and Israel. In fall 2022, 39 U.S. representatives from the water sector joined a delegation mission to Israel to observe the country's science, technology, and policy. The delegation <u>summary report</u> showcases key observations from the trip, and a post-delegation <u>webinar</u> highlights three states' perspectives on the innovative approaches Israel is taking to ensure adequate and resilient water supplies.



This Quarter's WRAP Action Outputs and Activities

Visit the <u>Water Reuse Information Library</u> for a robust set of WRAP outputs and other water reuse resources.

Reports and Publications

- <u>Celebrating the WRAP's Third Year of Outstanding Achievements</u>. Leaders and partners from across the water sector made significant contributions to the field of water reuse this year. The WRAP now includes over 130 unique organizations leading more than 60 different actions that encompass everything from research to funding. Please join us in celebrating this milestone! (<u>Action 10.3</u>: Facilitate Implementation of the WRAP)
- <u>REUSExplorer Updated to Compile State Regulations and</u> <u>Support Reuse Adoption</u>. The REUSExplorer tool has been updated to include summaries of all U.S. state reuse regulations and guidelines organized by four sources of water and nine end-use applications! (<u>Action 3.1</u>: Compile Existing Fit-for-Purpose Specifications)
- From Water Stressed to Water Secure: Lessons from Israel's Water Reuse Approach. This report summarizes the 2022 U.S. delegation to Israel, including activities, key observations, and other insights to share with interested parties throughout the United States. (Action 11.1: Facilitate U.S.-Israel Collaboration on Water Reuse)

New <u>Water Reuse Resource Hub</u> The recently launched online Resource Hub includes end-usespecific materials to help communities seeking to initiate and implement water reuse. Please help us identify key resources to include by emailing suggestions to waterreuse@epa.gov.

- <u>Water Recycling for Climate Resilience through EAR and ASR</u>. EPA's Water Reuse Program published a report summarizing different technical and policy considerations influencing how recycled water can be used to recharge groundwater. It includes a discussion of EAR and ASR drivers, current practices in the United States, potential subsurface water quality changes and technical considerations, treatment needs, and regulatory considerations. The document was completed in coordination with other EPA program offices. (Action 7.4: Increase Understanding of Current ASR Practices)
- <u>SCU Infographics</u>. EPA's Water Reuse Program released two infographics demonstrating how SCU can be integrated into an urban environment. These graphics cover both <u>onsite</u> and <u>community-scale</u> reuse for different potable and non-potable applications. Stormwater practitioners can use these graphics to explain SCU to stakeholders and decisionmakers, show how it can support different water quality and supply goals, and help build support for new projects. These graphics are part of ongoing coordination across EPA's Office of Water to advance SCU as a resilient water practice. (*Action 3.3*: *Convene Experts on Urban SCU*)
- Research Report on Using Biochars as a Low-Input Treatment Technology for Removing Pharmaceutical Residues from Effluent Prior to Irrigation. Low-input reuse technologies, such as biochar produced from agricultural byproducts, are cost-effective and easily deployable. Ndoun Tangmo and Marlene Carla published Cotton Gin Waste and Walnut Shells Derived Biochar for the Removal of Pharmaceuticals and Humic Acids from Aqueous Solutions, which concluded that biochar derived from these materials is an environmentally friendly adsorbent and has the ability to remove pharmaceutical residues and humic acids from aqueous solutions. (Action 4.7: Evaluate Low-Input Methods to Remove Pharmaceutical Residues)
- <u>Water Reuse Communications Library</u>. The WateReuse Association and partners have developed a living library of ready-to-use outreach materials and examples from leading water reuse agencies. The library hosts a broad range of materials that utilities and other communicators can borrow or use as inspiration— whether they are just beginning to envision water reuse or are looking to breathe new energy into their

water reuse communications. Materials include PDFs, graphics, web tools, videos, and more! (<u>Action 8.1</u>: Compile and Develop Water Reuse Program Outreach and Communication Materials)

 <u>ASR-MAR Library</u>. The library, hosted by GWPC, is an easily searchable collection of materials related to ASR and MAR, such as webinar recordings, maps, journal articles, and reports. Users are encouraged to submit an article or information to add to the collection. (<u>Action 7.4</u>: Increase Understanding of Current ASR Practices)

Webinars

- Water Recycling in Israel: U.S. Lessons from Israel's Water Reuse Approach Webinar. In this webinar, which featured Israeli hosts and members of the 2022 U.S. delegation to Israel, attendees learned about the innovative approaches Israel is taking to ensure adequate and resilient water supplies in their country and how others may apply these lessons in their own communities. U.S. water sector leaders from California, Oklahoma, and Washington, D.C., who were part of the delegation, discussed their experiences with water reuse and shared key takeaways from Israel's approach and how it potentially fits within a U.S. context. (Action 11.1: Facilitate U.S.-Israel Collaboration on Water Reuse)
- Low-Input Water Reuse Solutions Webinar. In this ECOS-hosted webinar, speakers from Lincoln, Nebraska; Hugo, Minnesota; and Tucson, Arizona shared how water reuse can improve the sustainability of municipal wastewater systems, help conserve groundwater, recharge dry riverbeds, manage stormwater, meet state water quality standards, and improve resilience to flooding. ECOS is developing case studies on these projects. (Action 1.5: Develop Case Studies of Low-Input Solutions)
- Assessing Water Quality Monitoring Needs, Tools, Gaps, and Opportunities for Potable Water Reuse Webinar. This WRF-hosted webinar presents results from WRF Project 5079. Presenters discussed a database of technologies that are conventionally available or promising for the future, monitoring needs that future technologies can address, ways to select the appropriate water quality and treatment monitoring tools, and tips for optimizing the information the tools provide to ensure the quality of recycled water. To access the webcast, create a free login account with WRF. (Action 5.2: Identify Water Quality Monitoring Practices for Reuse Applications)
- <u>On Farm Implementation and Economics of Agricultural MAR Webinar</u>. In this webinar, USDA-ARS presented on MAR lessons learned in the mid-South and discussed the economics of MAR in California. This webinar is one of several hosted by GWPC that aims to increase understanding of ASR practices. (<u>Action 7.4</u>: Increase Understanding of Current Aquifer Storage and Recovery Practices)

Abbreviations Used in This Document			
ACWA	Association of Clean Water Administrators	MoEP	Israeli Ministry for Environmental Protection
AMR	Antimicrobial resistant	NAWI	National Alliance for Water Innovation
ARS	Agricultural Research Service	NPDES	National Pollutant Discharge Elimination System
ASR	Aquifer storage and recovery	PFAS	Per- and Polyfluorinated Substances
CWA	Clean Water Act	REUSExplorer	Regulations and End-Use Specifications Explorer
DOE	U.S. Department of Energy	SRF	State Revolving Fund
EAR	Enhanced aquifer recharge	STAR	Science to Achieve Results
ECOS	Environmental Council of the States	SCU	Stormwater capture and use
EPA	U.S. Environmental Protection Agency	USDA	U.S. Department of Agriculture
GWPC	Ground Water Protection Council	WIFIA	Water Infrastructure Finance and Innovation Act
MAR	Managed aquifer recharge	WRF	Water Research Foundation
MoEl	Israeli Ministry of Economy and Industry		