

Advancing Stormwater Capture and Use within EPA

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Water Reuse Program

Office of Science and Technology

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WATER REUSE PROGRAM

Advancing reuse for a water secure future

Mission: Expand water reuse expertise and knowledge within EPA and across the federal government to serve as a resource hub to help build **technical, financial, and institutional capacity** for enabling communities of all sizes to incorporate reuse as part of a **resilient water management strategy**.

NATIONAL WATER REUSE ACTION PLAN (WRAP)

National Water Reuse Action Plan

Improving the Security, Sustainability, and Resilience of Our Nation's Water Resources

Collaborative Implementation (Version 1)



February 2020

NATIONAL WATER REUSE ACTION PLAN

Update on Collaborative Progress—Year 2

March 2022

The National Water Reuse Action Plan (WRAP) helps drive progress on reuse by leveraging the expertise of scientists, policymakers, and local experts across the country to create a more resilient water future for communities of all sizes. Now two years into WRAP implementation, there are 116 dedicated partner organizations contributing at various scales. Since February 2020, WRAP collaborators have been working through coordinated actions to address barriers to reuse, including issues related to funding, technology, policy, and organizational capacity. Currently, there are 50 WRAP actions, with 13 added since January 2021 on topics such as monitoring practices, plumbing codes and standards, and communication tools. Teams have finished 267 implementation milestones overall and completed 5 total actions to date, which included deliverables related to funding eligibility, tribal outreach and training, and raising global awareness for reuse. Through the Bipartisan Infrastructure Law, enacted November 2021, lawmakers called for continued WRAP implementation and the creation of a federal reuse interagency working group "to advance water reuse across the U.S." (Sec. 5026).

WRAP YEAR 2 HIGHLIGHTS

At this stage, WRAP collaborators have delivered many critical outputs that lay the groundwork for more substantial impacts in the coming years. The following is a snapshot of some key activities and accomplishments over the past year.

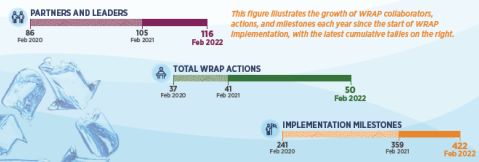
Incorporating Water Reuse into Programs and Policies

- **Expert convening and report on stormwater capture and use.** Investigates opportunities, challenge, and next steps to expand the implementation of stormwater harvesting across the country (Action 3.3, led by EPA, NWSA, WaterReuse, WEF, ReNUWit, and the Johnson Foundation).
- **Integrating Water Reuse into the Clean Water State Revolving Fund (CWSRF).** Describe the eligibility of water reuse in the CWSRF and highlights successful policies and practices that state CWSRF programs implement to support reuse (Action 6.2b, led by EPA).
- **\$2.4 million in Conservation Innovation Grants.** Awarded across three proposals in this new priority area, reflecting USDA's broader strategy for water reuse on agricultural land (Action 5.1, led by USDA).
- **Collaboration on NPDES permitting processes.** Enhanced understanding of how permitting can support new water management technologies and strategies, including through development of a training webinar (collaboration between three WRAP action teams: Action 2.6, Action 2.16, and Action 3.3).
- **Consolidation of Urban Waters and National Estuary Program water reuse activities.** Highlights the intersection of reuse with these key community-focused programs (Action 1.5, led by EPA).



In February 2022, EPA staff and Assistant Administrator for Water Radhika Fox toured the Scottish Water Campus in Arizona. The campus has over two decades of experience in indirect potable reuse, recycling 1.7 billion gallons of treated wastewater annually through aquifer recharge. Photo credit: EPA

514 million invested in 7 reuse infrastructure projects in 2021 through EPA's WIFIA loan program.



- Now in its third year, the WRAP facilitates collaborative progress on reuse through a series of actions by:

- Enabling multistakeholder collaborations
- Creating necessary tools and resources
- Funding critical research and technology development
- Coordinating federal government activities
- Communicating curated information early and often

WHAT IS STORMWATER CAPTURE AND USE (SCU)?

- The management practice of collecting, treating, and using stormwater, rainwater, and water in storm drain systems to achieve multiple benefits
 - Rainwater – water from rain, snowmelt or sleet that lands on rooftops and other surfaces before reaching the ground
 - Stormwater – water from rain, snowmelt, or sleet that lands on and flows over the ground
 - Differences in quality of rainwater and stormwater will influence the level of treatment needed
- Non-potable uses including irrigation, industrial supply, toilet flushing, dust suppression, etc.
- Potable uses such as aquifer recharge



Lawne Lake Stormwater Reuse Facility
Courtesy of Orange County, FL

SCU AT DIFFERENT SCALES

Onsite Reuse

often incorporates other waters (e.g., graywater)

Community Scale

can address local water quality and supply needs

Watershed Scale

can be incorporated into broader reuse schemes

COMING SOON! – SCU INFOGRAPHIC

- Infographics demonstrating what SCU is and how it can be integrated within an urban environment
- Audience of decision-makers who determine infrastructure investments, including community stakeholders. This audience works with and benefits from stormwater infrastructure but are not experts in the field.
- Two graphics covering onsite stormwater capture and use and community/watershed scale stormwater capture and use
- **Being developed with an internal Office of Water working group across all four program offices**

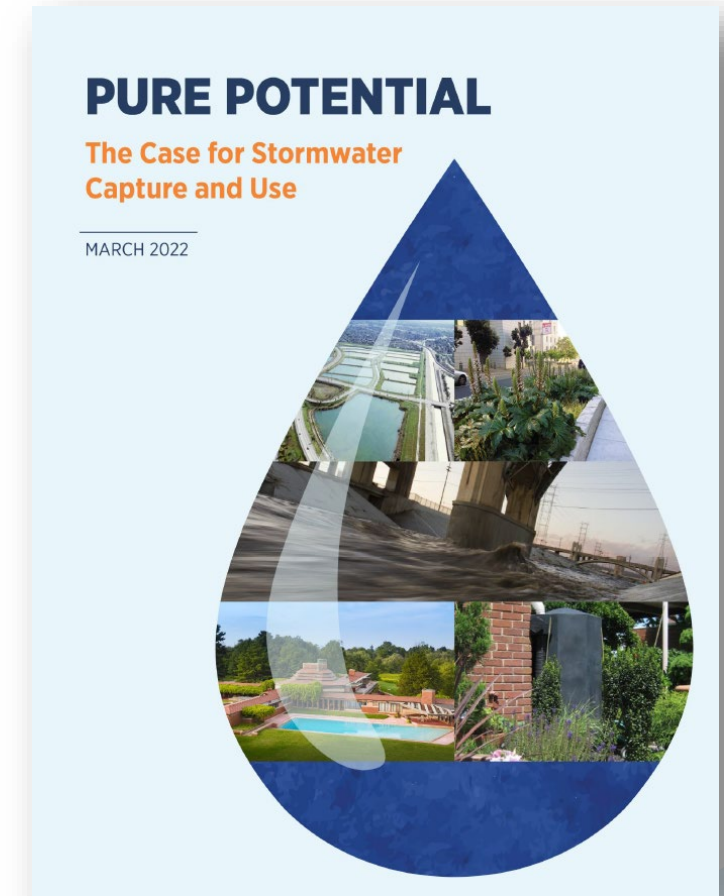
CO-BENEFITS MAKE SCU MORE COMPELLING TO COMMUNITIES AND DECISION-MAKERS

- Water diversification and resilience
- Address groundwater overdrafts and related impacts such as land subsidence and saltwater intrusion
- Water quality improvements by providing an alternative to managing runoff
- Flood control
- Urban amenities and quality of life

Tools to quantify co-benefits are continually evolving

2021 EXPERT CONVENING

- September 2021 convening of stormwater experts
- Principal focus on urban applications
- Objectives
 - Assess opportunities for SCU in the United States
 - Identify examples of urban SCU
 - Identify and prioritize the most barriers that need to be addressed
 - Identify follow-up actions
 - Educate water managers, elected officials, and the public on SCU



<https://www.epa.gov/system/files/documents/2022-03/wrap-pure-potential-report.pdf>

ADVANCE INSTITUTIONAL COMMITMENTS TO SCU

Recommended Actions

- Support and develop the national community of practice
 - Explore establishing an internal leadership caucus
 - Build capacity for coordination and information sharing at regional levels
- Develop more detailed estimates of SCU potential



Altamonte Springs-FDOT Integrated Reuse and Stormwater Treatment (A-FIRST) capture and treats stormwater from a nearby highway to be used for irrigation.

Photo credit: U.S. EPA/Pamala Myers

BUILD TRUST THROUGH PARTNERSHIPS

Recommended Actions

- Develop a beginner's guide to help stormwater managers get started with SCU
- Develop strategies for effectively communicating SCU co-benefits
- Develop frameworks for building broader partnerships in support of regional-scale SCU
- Analyze challenges and opportunities to integrating public and private investments



Convening attendees report out on the challenges and opportunities associated with communications and engagement specific to SCU

Photo credit: Meridian Institute/Molly Mayo

CLARIFY FUNDING MECHANISMS

Recommended Actions

- Evaluate and publicize methods for characterizing and monetizing the co-benefits associated with SCU
- Clarify how existing financing mechanisms can be used to pay for SCU projects
- Identify and share innovative SCU financing solutions
- Assist small and underserved communities in accessing funding opportunities



https://www.epa.gov/sites/production/files/2021-04/documents/cwsrf_water_reuse_best_practices.pdf

CLARIFY REGULATIONS, POLICY, AND GUIDANCE

Recommended Actions

- Develop a compendium of NPDES permitting approaches for SCU applications
- Clarify how states regulate SCU:
 - Case studies highlighting approaches that have helped advance SCU adoption
- Evaluate state water rights constraints to SCU at different scales and in different states



Allianz Arena at the Snelling Midway Site in St. Paul, MN, implements green infrastructure practices, including comprehensive rainwater and stormwater capture and reuse systems, as well as tree trenches and rain gardens to help improve water quality, reduce use of potable water supplies and enhance the city's tree canopy to reduce urban air temperatures and improve air quality.

ADVANCE SCIENCE AND TREATMENT STANDARDS

Recommended Actions

- Bolster research pertaining to the science of SCU and assessment of urban stormwater quality
- Research for treatment efficacy in SCU systems
- Develop guidance on treatment standards for SCU systems



The Bill and Melinda Gates Foundation in Seattle, WA incorporates a rainwater harvesting cistern that collects about 2.37 million gallons annually—meeting almost all the combined water needs for the buildings and landscape.

Photo credit: Gates Foundation

ACCELERATE THE ADOPTION OF NEW TECHNOLOGIES

Recommended Actions

- Support expansion of SCU technology validation processes to ease regulatory acceptance
 - The National STEPP program
 - ASTM Committee E64 on Stormwater Control Measures
 - WRF's TechLink online platform
- Update existing national stormwater practice databases to support validation of SCU system performance
- Validate and propagate sensing and control devices
- Identify common SCU technology permutations to enable development of standardized design plans and review processes

LEARN MORE! – WRAP ONLINE PLATFORM

Sign up for our newsletter!

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- Repository for all active actions
- Provides background and opportunities to be gained
- Identifies leaders and partners
- Captures milestones and progress
- Helps form the pipeline of new actions and collaboration

National Water Reuse Action Plan: Online Platform

Instructions: Click on an action in the table to display detailed information.

Strategic Theme Area: [Show all]

Show [10] entries

Strategic Theme Area	Action	Description
Integrated Watershed Action	Develop a Federal Policy Study Consideration of Water Reuse	
Integrated Watershed Action	Prepare Case Studies of Successful Integrated Water Resources Management	
Integrated Action	Incorporate Water Reuse and Planning Efforts at the Local Level	
Integrated Watershed Action	Leverage EPA's Water Partners for the Context of Integrated Watershed Scale	
Policy Coordination	Compile Existing State Policies	
Policy Coordination	Enhance State Collaboration on Water Reuse	
Policy Coordination	Complete the EPA Study of Oil Management	
Policy Coordination	Enhance Wastewater Source Programs to Support Water Reuse	
Policy Coordination	Compile and Develop Protect Waters for Potential Reuse	
Policy Coordination	Develop Informational Materials to Facilitate Water Reuse	

Showing 1 to 10 of 58 entries

Enhance State Collaboration on Water Reuse

Enhance State Collaboration on Water Reuse (Action 2.2.2)

Action Attributes | Action Team | Implementation Milestones | Outputs and References

Action Attributes

States Developed: U.S. Environmental Protection Agency (EPA)

Action Leaders and Key Contacts: Jeff Lape (lape.j@epa.gov), Jake Adler (jadler@acwa-us.org)

Association of Clean Water Administrators (ACWA)

Association of State Drinking Water Administrators (ASDWA)

Wend Wilkes (wwilkes@proton.org)

Description: Provide forums and opportunities for states to discuss water reuse. Some states, particularly in arid areas, have well-established opportunities to exchange ideas, experiences, successes, and challenges to learn from each other; (2) identify common needs to water reuse. The annual WaterReuse Pacific Northwest Conference, organized by the policies and strategies. This conference provides a useful model and a coordinated state-focused forum to encourage states to come together in September 2019. ACWA and ASDWA co-organized and facilitated the representatives from 18 state water programs participate in this event engagement of additional state associations to engage in future state

Opportunities:

- Increase state collaboration on water reuse across the spectrum
- Share experiences across state organizations.
- Enable water reuse discussions and networking opportunities.

Implementation Milestones

1. Convene the 18 state summit on water reuse at the 34th Annual WaterReuse Symposium in San Diego, CA.
Lead(s): ACWA (Julia Anastasio, janastasio@acwa-us.org), ASDWA (Wend Wilkes, wwilkes@proton.org)
Partners: EPA, WaterReuse
Target Completion Date: September 2019
Actual Completion Date: September 2019
Milestone Complete: Yes
2. Secure meeting facilitation and notetaking support for the 2nd state summit on water reuse.
3. Conduct water reuse-focused discussions at a session at the ASDWA Member Meeting.
4. Conduct water reuse-focused discussions at a session at the ACWA Member Meeting.
5. Initiate planning for next annual state summit on water reuse.
6. Compile a list of state water reuse contacts and roles and post in an accessible location online.
7. Convene the 2nd state summit on water reuse at the 2020 WaterReuse Symposium in Denver, CO.
8. Prepare state summit on water reuse meeting summary for state representatives.
9. Additional milestones to be determined.

Use the arrows to navigate between actions.

◀ Previous Action | Next Action ▶

<https://www.epa.gov/waterreuse/national-water-reuse-action-plan-online-platform>



THANK YOU!

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<https://www.epa.gov/waterreuse>

