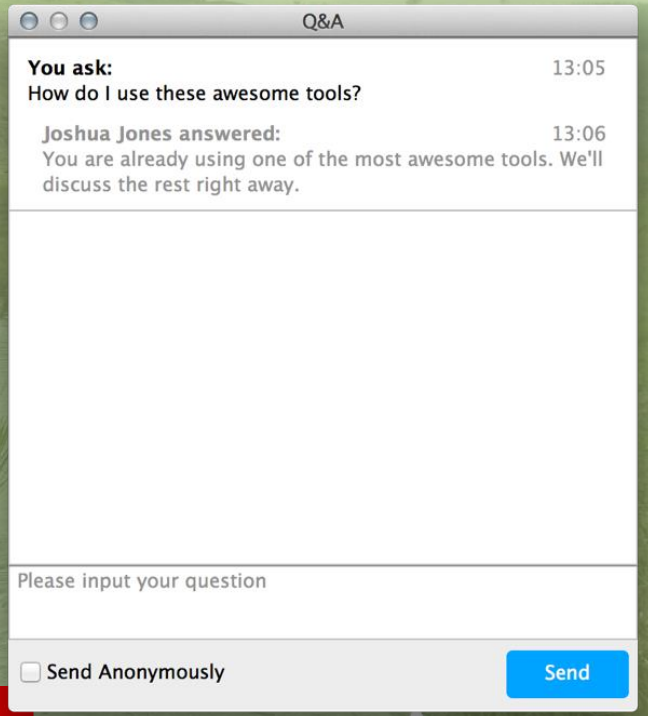
Building Resilience in Rural Water Systems: Part 2

June 5, 10am PT / 1pm ET

waternow alliance

Building Resilience in Rural Water Systems: Part 2



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Mute Chat Raise Hand Q&A Leave Meeting

Certificate of Completion

This session has **NOT** been submitted for pre-approval of Continuing Education Credits, but eligible attendees will receive a certificate of attendance for their personal record.

To receive a certificate:

- You must attend the entire session
- You must register and attend using your real name and unique email address - group viewing credit will not be acceptable
- You must participate in polls
- Certificates will be sent via email within 30 days

If you have questions or need assistance, please contact smallsystems@syr.edu.

About EFCN

The **Environmental Finance Center Network (EFCN)** is a university- and non-profit-based organization creating innovative solutions to the difficult how-to-pay issues of environmental protection and water infrastructure.

The EFCN works collectively and as individual centers to address these issues across the entire U.S, including the 5 territories and the Navajo Nation. The EFCN aims to assist public and private sectors through training, direct professional assistance, production of durable resources, and innovative policy ideas.

OUR MISSION

A forum and network of local water leaders advancing sustainable, affordable, and community-driven water strategies

waternow alliance
water leaders. resilient solutions.

Please Complete the Post-Webinar Survey!

AGENDA

- Meet Today's Speakers
- Building Resilience in Rural Water Systems
- Technical Assistance Opportunities
- Q&A

TODAY'S SPEAKERS

Shannon McNeeley
Associate Director
Water & Climate Equity
Pacific Institute

Becky Anderson
Research Specialist
Water & Climate Equity
Pacific Institute

Deborah Thompson
Impact Director
LiKEN Knowledge

McKensi Johnson
Community Engagement Coordinator
LiKEN Knowledge

TODAY'S SPEAKERS

Amy Weinfurter
Director of Strategic Projects
WaterNow Alliance

Andrew Teegarten
Water Policy Associate
WaterNow Alliance

Poll: Climate Change & Water Planning

Building Resilience in Rural Water Systems

Recording available:

https://waternow.org/event/community-climate-resilience-in-rural-water-systems/

May 06, 10am PT / 1pm ET

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Livelihoods Knowledge Exchange Network

Strategies for Resilient Rural Water and Sanitation in the US

WaterNow Alliance National Training #4

June 5, 2025

Water and Climate Equity Project Partners

- **Pacific Institute:** Shannon McNeeley, Becky Anderson
- **Livelihoods Knowledge Exchange Network (LiKEN):** Betsy Taylor, Deborah Thompson, Madison Mooney, McKensi Johnson, Maria Bareli, Natasha Moore
- **Technical Assistance Providers**

Presentation Agenda

- Strategies from upcoming report: *Strategies for Resilient Rural Water and Sanitation in the US*
- Community engagement with the Harlan County Water Resilience Toolkit
- Resources and next steps

Upcoming Report: *Strategies for Resilient Rural Water and Sanitation in the US*

Guiding research questions:

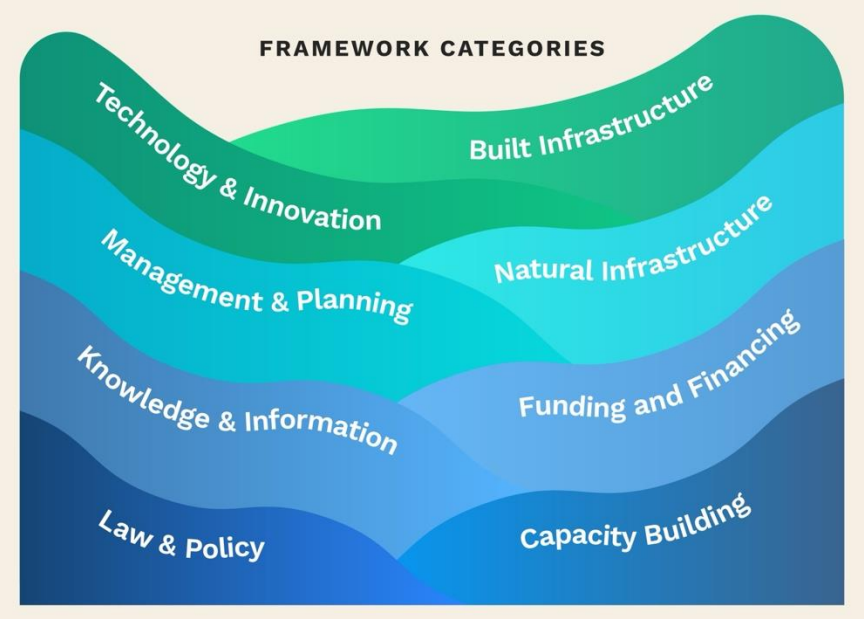
1. What is equitable, climate-resilient rural water and sanitation?
2. What are the characteristics or attributes?
3. What are practical strategies to achieve it?

Each framework category contains:

Attributes

↳ Strategies

↳ Documented examples and resources



Key Takeaways

Many rural water and sanitation systems experience distinct and growing climate-related risks that are often intensified by factors like geographic isolation, limited capacity, chronic underinvestment, and aging infrastructure.

Rural communities across the US are advancing creative, locally driven approaches to secure safe, affordable, equitable, and climate-resilient water and sanitation services.

We identified **37 attributes** of equitable, climate-resilient rural water and sanitation and **130+ actionable strategies.**

Water and sanitation strategies that are led by rural communities and build on local assets can play a powerful role in strengthening climate resilience.

Section 4 – Built Infrastructure

This category describes new or improved built infrastructure aimed at providing equitable, climate-resilient water and sanitation for rural communities.

- 4.1 Rural communities have access to drinking water and sanitation infrastructure and services that allow them to perform basic tasks and maintain personal hygiene in their homes.
- 4.2 Built infrastructure performs reliably under a wide range of climate conditions to deliver safe, sufficient, and acceptable water and sanitation for rural communities.
- 4.3 Processes for siting, designing, and constructing climate-resilient water and sanitation infrastructure are inclusive and equitable to center rural community values and needs.
- 4.4 The operations and maintenance (O&M) of water and sanitation improve climate resilience and facilitate equitable outcomes for rural communities.

Section 4 – Built Infrastructure

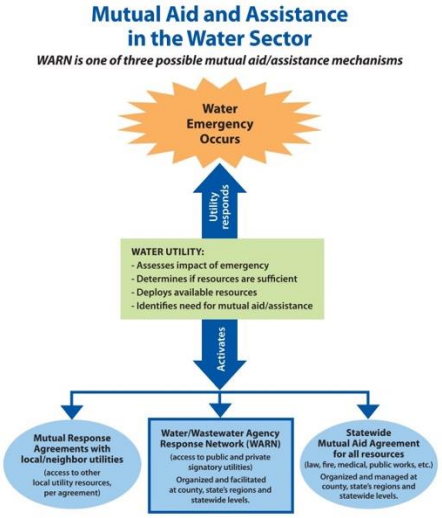
Attribute

4.4 Infrastructure operations and maintenance (O&M) are equitable, climate-resilient

Strategies

1. Identify specific O&M tasks that must be performed or adapted to protect infrastructure from climate impacts.
2. Put emergency response plans in place to help operators perform necessary actions during climate emergencies.
3. Work with technical assistance providers to perform regular O&M so that rural infrastructure remains in good condition to withstand climate disruptions.
4. Use materials, trainings, and tools from technical assistance providers and other supporting entities to learn about O&M tasks needed for improving climate resilience.
5. Engage directly with rural communities by prioritizing O&M work that addresses long-standing inequities.

Example



https://www.epa.gov/sites/default/files/2015-08/documents/poster_warn_0.pdf

Section 5 – Technology and Innovation

This category describes innovative technologies that help to develop or expand climate resilience and equitable outcomes for rural water and sanitation access and systems.

- 5.1 Sustainable, climate-resilient rural water and sanitation technologies are equitably implemented at the community level, with attention to factors such as local cultures and values, financial context, and ecological benefits.
- 5.2 Water fixture upgrades, water-saving appliances, and other water-saving technologies are equitably installed to save water and reduce cost-burden on utility bills of rural households.
- 5.3 Sustainable water-use and sanitation technologies are implemented for large-scale water users and operations, like commercial and industrial users, and increase equity and climate resilience for rural communities.
- 5.4 New, innovative climate-resilient water technologies are tested and evaluated to ensure dependability and safety for rural communities.

Section 5 - Technology and innovation

Attribute

5.4 New, innovative climate-resilient water technologies are tested and evaluated to help ensure dependability and safety for rural communities.

Strategies

1. Engage the community during the pilot phase of a new technology to understand local conditions, values, cultures, and needs before widespread implementation.
2. Apply a systematic and integrated management approach, such as Integrated Water Resource Management, to prioritize the safe and effective deployment of climate-resilient innovations within the intricate framework of water and sanitation systems.

Example

Portable Alternative Sanitation System Pilot in Kivalina, Alaska

https://www.anthc.org/wp-content/uploads/2016/01/Kivalina-Report-E-Version.pdf

Section 8 – Funding and Financing

This category describes adequate, sustainable, equitable funding, financing, and disaster insurance for rural communities to build, adapt, maintain, and restore climate-resilient water and sanitation.

- 8.1 Climate-resilient infrastructure projects for water and sanitation systems serving rural communities and households can obtain and sustain funding and/or financing.
- 8.2 Climate-resilient operations and maintenance (O&M) for water and sanitation systems in rural communities has adequate and sustainable funding and assistance.
- 8.3 Rural communities have access to adequate funding, financing, and disaster insurance for disaster preparation, response, and restoration so that water and sanitation can be equitably restored after a climate disaster.
- 8.4 Alternative approaches such as nature-based solutions (NBS), green infrastructure (GI), water efficiency, and water reuse have sustainable, adequate funding sources to support climate-resilient water and sanitation in rural communities.
- 8.5 Rural communities can afford climate-resilient water and sanitation in their homes without compromising their ability to pay for other necessities like food, housing, health care, and transportation.

Section 8 – Funding and Financing

Attribute	Strategies	Example
8.2 Climate-resilient operations and maintenance for water and sanitation systems in rural communities have adequate and sustainable funding and assistance.	1. Create and fund grant programs that explicitly name climate resilience and O&M as funding priorities for water and sanitation systems. 2. Work with free TA providers with climate knowledge and expertise to reduce the financial burden of O&M. 3. Offer programs that provide grants or assistance for income-qualified households to test well water, repair wells or septic systems, or train onsite system owners on O&M. 4. Provide free training and other resources that inform owners on well and septic system operations and maintenance to enhance climate resilience.	**Wake County, NC Well and Septic Pilot Assistance Fund**  https://www.wakegov/departments-government/onsite-water-protection/programs-help-your-septic-repairs-well-repairs-water-treatment-well-testing/well-septic-pilot-assistance-fund

What is a Community Engagement Coordinator?

- **Locally based -** CECs live in the communities they serve or are deeply rooted in some way
- **Boots on the ground** - CECs are involved in the community and have an active public presence
- **Develops community connections -** CECs nurture trust and collaboration between the residents
- **Helps provide resources -** CECs help identify resources that help residents become more water aware

What are the goals of a Community Engagement Coordinator?

- **Community building** - To create a community of interconnected and well-engaged individuals

- **Host community sessions** - To host community sessions where we can collaborate with residents to gain more knowledge around water solutions

- **Nurture water awareness -** To bring more awareness to what the water system concerns are and what improvements can be made

The Harlan County Water Resilience Toolkit

This toolkit is designed to help you:

- Better understand water and wastewater systems
- Recognize different stressors and challenges in daily system operations
- Better prepare for emergencies related to extreme weather events
- Know your water rights
- Understand where your water comes from - source to tap

Harlan County Community Engagement

Why a toolkit?

- To empower communities
- To prepare for & respond to extreme weather
- To nurture water stability & sustainability
- To enhance local knowledge and awareness
- To increase transparency

Development of this toolkit

This toolkit was developed through:

- **Collaboration with residents**
  - Designed with the input of local voices
- **Public review**
  - Gained resident feedback through community sessions
- **Locally tailored**
  - Specific to the area that it serves
- **Living document**
  - Continuously monitored and updated to reflect the evolving world around it
- **Launch and continued feedback**
  - Launched and brought to residents to gather their continued input

Harlan County Water Resilience Toolkit

A quick tour...

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Project resources and next steps

- May Webinar Recording
- *Water and Climate Equity in Rural Water Systems in the United States*
- Harlan County Water Resilience Toolkit (developing one for Martin County now)
- Development and piloting of tabletop exercises for emergency preparedness
- *Strategies for Resilient Rural Water and Sanitation in the US* (forthcoming, summer 2025)

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Thank you!

Questions or comments?
wce@pacinst.org

Project Page:

https://pacinst.org/water-and-climate-equity-in-rural-communities-in-the-united-states/

BHP | Foundation

Technical Assistance Opportunities

Andrew Teegarden

Water Policy Associate

WaterNow Alliance

The Clean Water SRF

1

How it works:

EPA funds state CWSRFs each year, with **20% state match.**

All 50 states and **Puerto Rico** have **CWSRFs**.

2

Communities | **Private entities** | **Nonprofit organizations** | **Citizen groups**

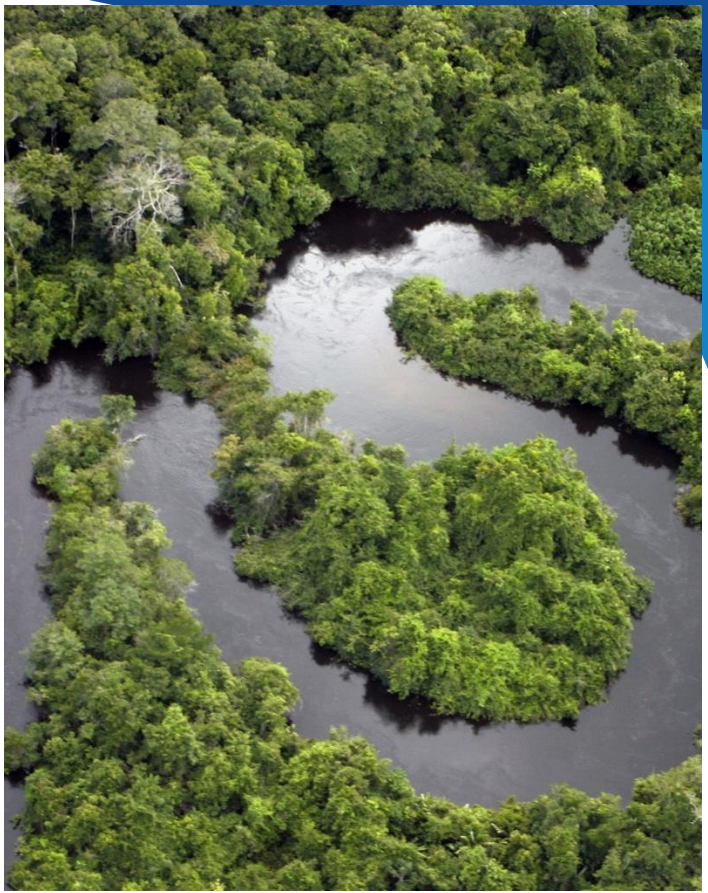
Apply for **financing** through **state CWSRFs**.

Purpose & Eligibility

Provide **low-cost financing** for projects that address **highest priority water quality needs**

Finance a **broad range of water-quality focused projects**, including:

- Wastewater
- Stormwater
- Non-point source pollution
- Water use efficiency
- Green infrastructure



Purpose & Eligibility

- Agricultural Best Management Practices
- Climate Resiliency
- Contaminated Sites Cleanup
- Combined Sewer Overflow
- Dam Rehabilitation
- Decentralized Wastewater Treatment
- Drought Resiliency
- Energy Conservation
- Energy Efficiency
- Estuary Protection and Restoration
- Green Infrastructure
- Groundwater Protection and Restoration
- Habitat Protection and Restoration
- Land Conservation
- Landfill Leachate Collection and Treatment
- Planning / Assessment
- Septic to Sewer
- Sewer System
- Silviculture
- Stormwater Management
- Surface Water Protection and Restoration
- Water Conservation and Efficiency
- Water Reuse
- Wetlands
- WWTP Consolidation / Regionalization
- WWTP Construction
- WWTP Upgrades, Repairs, Replacements

Purpose & Eligibility

CWSRF Projects and Case Studies

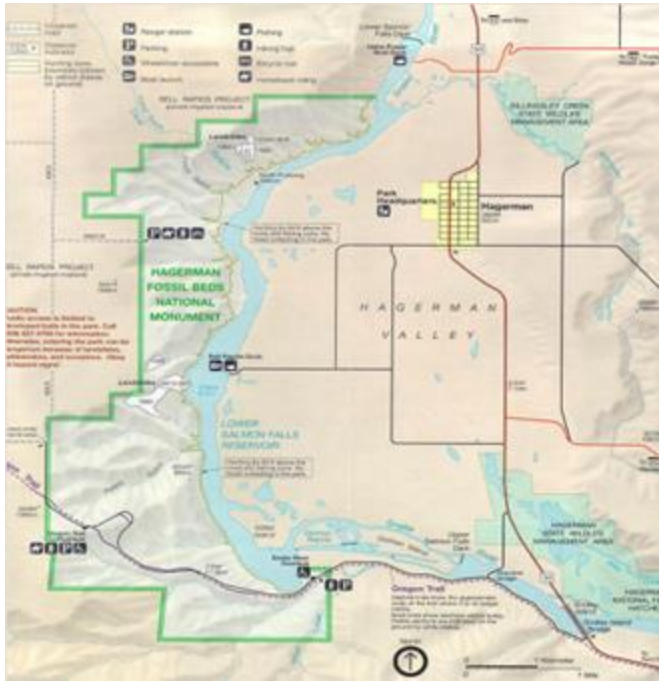
CWSRF Projects

Show 10 entries Search:

Project Category	Assistance Recipient	Project Name	State	Assistance Amount
Stormwater Management	City of Myrtle Beach	4th Avenue Ocean Outfall (pdf) (326.45 KB)	South Carolina	$12 million
Land Conservation	Brookhaven	Acquisition of forested land adjacent to DeKalb-Peachtree Airport (PDK) (pdf) (207.49 KB)	Georgia	$5.7 million
Land Conservation	Northwest Ohio Regional Sewer District	Acquisition of Medina Marsh (pdf) (344.82 KB)	Ohio	$963,702
Land Conservation	The Nature Conservancy	Acquisition of Palo Corona Ranch (pdf) (239.92 KB)	California	$9 million
Septic to Sewer	Town of Marana	Adonis Sewer Connection to Town of Marana (pdf) (228.93 KB)	Arizona	$1.5 million
Agriculture Best Management Practices	Murmac Farms LLC	Agricultural BMPs (pdf) (282.19 KB)	Pennsylvania	$800,000
Agricultural Best Management Practices	Garber Farms, Inc.	Agriculture BMPs (pdf) (282.19 KB)	Virginia	$230,000
Energy Conservation	Lewiston-Auburn Water Pollution Control Authority	Anaerobic Digestion and Cogeneration (pdf) (323.86 KB)	Maine	$14,719,490

Local Infrastructure Investment Stories

Clean Water Community Success Study # 1



City of Hagerman, Idaho

- Seeking to upgrade wastewater treatment infrastructure and purchase of 100 acres for beneficial reuse of wastewater
- Cost of $10 million for a population of less than 1000
- Collaboration between Idaho Department of Environmental Quality (DEQ) and other federal/state funding sources → reduced cost of project to $7.8 million
- DEQ provided Hagerman with a $5 million loan and $1.2 million in principal forgiveness, with the remaining infrastructure costs covered by other funding agencies.
- This collaboration between funding partners satisfied Hagerman's infrastructure needs and maintained a manageable monthly user fee of $57.

Source: Brief - Funding Disadvantaged Communities with the Clean Water State Revolving Fund

Clean Water Community Success Study # 2

City of Crown, West Virginia

- Long-standing issue of septic tanks in need of repair
- Community is remote and on rugged terrain, making it cost prohibitive to be serviced by centralized treatment
- $1.57 million grant from West Virginia Department of Environmental Protection, along with additional county funding
- Crown was able to address public health concerns by installing innovative onsite wastewater collection and treatment systems.
- The system collects waste in septic tanks and pumps separated effluent through a network of pipes to 44 recirculating sand beds.

Source: Brief - Funding Disadvantaged Communities with the Clean Water State Revolving Fund

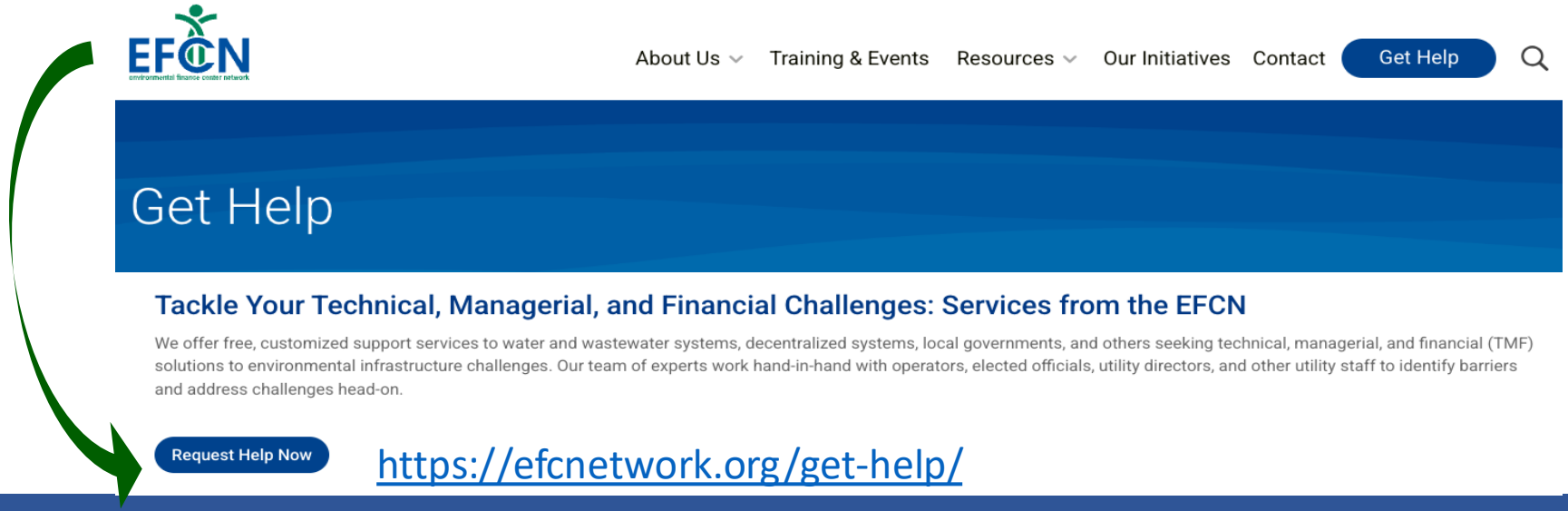
Technical Assistance: What is Available?

WaterNow can provide technical assistance for RST systems in a variety of ways:

- Direct assistance for participating RST systems including:
  - Support for planning and assessing system needs
  - Building technical, financial, and managerial capacity
  - Support for engaging the community to map challenges and assets
  - Identifying funding and financing opportunities

Specialized Technical Assistance: Rural, Small, & Tribal Systems

- Pro bono support for wastewater and stormwater systems serving ≤10,000
- National scope – utilities in all states and regions are eligible



https://efcnetwork.org/get-help/

What to expect?

- Dedicated team of **subject matter experts** to help answer your questions
- **Step-by-step guidance** to help rural, small, and tribal water systems address storm and wastewater challenges.
- **Resources & guidance documents** to ensure compliance with all applicable federal, state, and local regulations
- The **technical assistance process** includes:

Additional Water Technical Assistance Program can be found on EPA website here

Region 6 Environmental Finance Center (EFC)

WaterNow has partnered with the Southwest Environmental Finance Center to help RST systems in EPA Region 6 plan, develop, and acquire funding for projects under the CWSRF program

What Services does the EFC Offer?

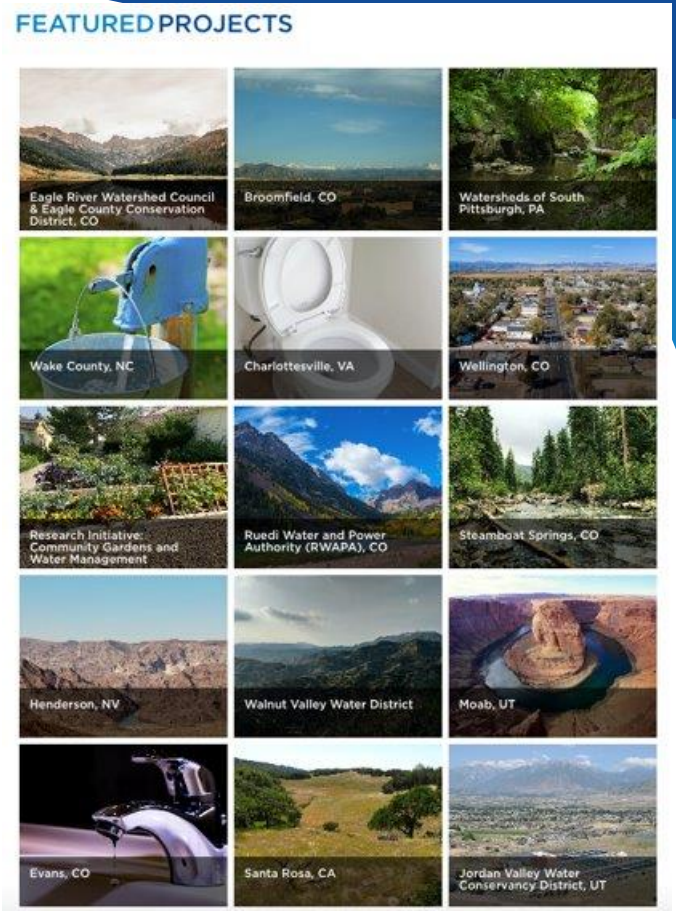
- Evaluating System Needs
- Community Engagement
- Project Development
- Technical Assistance and Capacity Building
- Finance and Funding
- Construction Management

SOUTHWEST ENVIRONMENTAL FINANCE CENTER

Submit an Intake Form today to find out how they can help you!

Project Accelerator Support

- 250 hours of pro bono technical assistance
- Over a 6-12 month period
- City/Agency identified project, driven by local priorities
- Jump start innovative water management initiatives



Technical Assistance: Accelerating Investments in Sustainable Projects

Become a TiR Pilot Community

Ready to bring your localized water infrastructure strategies to scale? Become a TiR Pilot Community!

WaterNow and our TiR Experts are available to provide up to **300 hours of hands-on technical support** to cities and utilities interested in activating and scaling-up innovative water strategies in their communities to address water security challenges. TiR communities have access to legal, policy, finance, and accounting expertise over a **6-12 month period, free of charge**, to help them strategize the full scale financing of their particular localized infrastructure project.

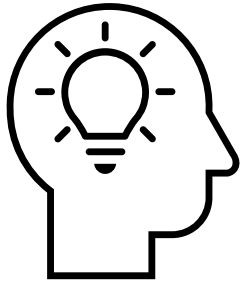
Benefits include:

- Access to a team of financing, bond, tax, and accounting experts to identify and execute on financing options.
- Tailored research and analysis on using debt financing mechanisms to pay for localized infrastructure.
- Facilitation of stakeholder meetings to build consensus on localized infrastructure financing options.
- Support on developing bond packets, capital improvement plans, city council resolutions, ordinances, or other materials to advance full scale localized infrastructure financing.
- Guidance on best practices for communicating with customers about localized infrastructure.
- Become a national leader on sustainable water management.

To find out more about becoming a TiR Pilot Community fill out this short form, and WaterNow staff will be in touch.

Getting Started: Determine Project "Readiness"

- What is the **primary purpose** of your project and what outcomes are expected?
- Where are you in the **planning and design** process?
- Have you selected an **architectural or engineering** firm?
- What is your **project schedule**?
- If planning to utilize a loan, what the project's **sources of repayment**?
- What is the total **estimated project cost**?




Q&A

JOIN THE ALLIANCE

LEARN MORE AND SIGN UP

www.waternow.org/join-the-leaders

PLEASE COMPLETE OUR SURVEY!

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water leaders. resilient solutions.

THANK YOU!

For more information email:

Amy Weinfurter, aw@waternow.org
Emerson O'Donnell, eo@waternow.org
Andrew Teegarden, ateegarden@waternow.org

Resources:

https://efcnetwork.org/