## **Building Resilience in Rural Water**

**Systems** 

May 06, 10am PT / 1pm ET



## **Building Resilience in Rural Water**

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Raise Hand

Q&A

Chat

#### 000 O&A You ask: 13:05 How do I use these awesome tools? Joshua Jones answered: 13:06 You are already using one of the most awesome tools. We'll discuss the rest right away. Please input your question Send Anonymously Send waternow alliance J

Leave Meeting

Mute

Systems

# **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 <u>smallsystems@syr.edu</u>.



# About EFCN

The **Environmental Finance Center Network (EFCN)** is a university- and non-profitbased 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





### 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

#### **Deborah Thompson** Impact Director LiKEN Knowledge

**Amy Weinfurter** Director of Strategic Projects WaterNow Alliance



Andrew Teegarten Water Policy Associate WaterNow Alliance

# Who's in the room?





# Poll: Who's in the room?



### PACIFIC INSTITUTE



### **Building Resilience in Rural Water Systems**

WaterNow Alliance National Training #3 May 6, 2025

## Water and Climate Equity Project Partners

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





# **Presentation Agenda**

- Report background
- Focus on rural water and sanitation
- Extreme weather impacts on rural water systems
- Water and Climate Equity Framework
- Key areas of interest for resilience
- Project resources and next steps





### Water and Climate Equity in Rural Water Systems in the United States – Report Background

#### This report sought to answer the following questions:

- 1. How is climate change, in combination with other social factors, already impacting small, rural water systems, and how will future climatic changes exacerbate water stress, insecurity, and existing risks for rural communities?
- 2. What potential strategies exist for preparing equitable, climate-resilient water systems in those communities?
- 3. What are the barriers and opportunities for implementing those strategies in rural communities?

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# Focus on rural water and sanitation

- "Rural" can have different meanings, and government agencies and nongovernmental organizations use varying definitions
- Definitions of rural are often based on administrative boundaries, economic influence, and land-use patterns
- Rural water and sanitation systems are predominately small-scale operations to serve communities with small populations (e.g., 10,000 or less)
  - Decentralized water and sanitation infrastructure are common in rural areas
- Rural water and sanitation systems face unique and complex challenges
- Rural communities also possess unique assets that can be leveraged





# Climate change impacts on rural water and wastewater systems: Extreme temperature



# Impacts of extreme hot and cold temperatures

- Degrade water quality
- Compound health risks for most vulnerable
- Rupture water pipes
- Power outages disrupt water and wastewater services

**Example:** In 2024, Martin County, Kentucky, experienced extreme and sudden freezing temperatures that caused water outages.





# Climate change impacts on rural water and sanitation systems: Drought



#### **Drought impacts**

- Reduced water availability
- Groundwater depletion
- Exacerbate water quality and sediment levels complicating water treatment processes
- Disproportionate impacts, especially in rural areas with shallow wells

**Example**: During California's 2012-2016 drought there were 4,000 reported water shortages from households on private wells or small, non-public water systems

- 2/3 of impacted water systems served a "disadvantaged community"
- nearly 1/3 served a "cumulatively burdened community"





# Climate change impacts on rural water and wastewater systems: Extreme flooding



# Impacts of extreme or catastrophic flooding

- Among costliest disasters in the US
- Damage to water and sanitation infrastructure
- Contamination of water (toxins, sewage, etc.)
- Will disproportionately impact Black and rural communities

**Example**: In July 2022 (and again in January and April of 2025), eastern Kentucky experienced catastrophic flooding with some places receiving 8 inches of rain in a 24-hour period resulting in loss of lives and property.





## Climate change impacts on rural water and wastewater systems: Wildfire



#### Wildfire impacts

- Present a direct threat to water infrastructure during the fire; can place high demand on limited water resources to subdue and extinguish flames. Drinking water supplies can be at risk for years following a wildfire and rural areas can face a much slower recovery process
- Household-scale, melt and rupture water pipes and water meters. Domestic wells can also be damaged or destroyed
- **Community-**scale, can cause adverse effects to water intake systems, water-treatment systems, and reduce reservoir lifespan by worsening erosion and sedimentation

**Example**: 2018 Camp Fire in Butte County, California. The fire caused damage to water infrastructure and contaminated water supplies.





# Water and Climate Equity Framework

Climate and water resilience takes place at the intersection of these three components

 Pathways of Human Development

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- Nature-Human Interactions
- Collaborative action and learning



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### Vicious cycles and points of leverage

- Inequity in water systems often causes feedback loops and patterns of distrust leading to continuing and deepening risks
- Finding leverage points to disrupt the patterns allows for change to occur

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# Climate change and rural nature-human interaction

- Perception of natural landscape and how we live in the natural world affects our interactions with weather, climate, and the designs of our water systems
- Complex challenges tend to be seen as only engineering challenges, ignoring how culture influences choices
- Potential points of leverage

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- Improved emergency preparedness & communication among and between stakeholders who are reacting to water and climate emergencies
- Mutual learning and collaborative action empower residents to keep water systems accountable.





# Climate change and rural developmental pathways

- Trajectories of structures and institutions define the challenges, obstacles, and potential points of leverage for rural water systems
  - $\circ~$  These can be slow to change
- Water & climate risks and vulnerabilities cluster where inequalities and poverty also cluster
- Potential points of leverage:
  - Increased transparency as a shared value for all stakeholders
  - $\circ~$  Access to data & information
    - Educational toolkits
  - $\circ$  Technical assistance

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- Hiring grant writers to plan in synergy with community (community engagement)
- Assistance with audits



### **Climate change and collaborative action & learning**

- Distrust emerges from lack of transparency, lack of public scrutiny, and continuing water problems
- Distrust leads to emotional disconnection
  and lashing out
- Continual disappointment and cognitive dissonance can create trauma and "slow disasters"
- Potential points of leverage:

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- Civic participation and collaborative actions across government, technical, and private resident sectors
- Publishing to the community how grants and loans are spent
- Improving communications such as boil water advisories



Livelihoods Knowledge Exchange Networl

## Key areas for resilience building

- Increased capacity building at the local level (e.g., climate and water resilience literate and prepared workforce)
- Co-identifying potential climate disruptions that could occur within or near a community's water system
- Tailored disaster preparedness and management training for water operators/service providers
- Education and outreach for the community about the types of disasters that could impact the community water system
- Developing educational materials or trainings for future-proofing rural water systems





# **Project resources and next steps**

- <u>Water and Climate Equity in Rural Water Systems in the United</u> <u>States</u>
- Harlan County Water Resilience Toolkit
- The Growing Threat of Catastrophic Flooding in Rural America
- Development of tabletop exercises for emergency preparedness
- Rural Water and Sanitation in the US: Strategies for Achieving Equitable Climate Resilience (forthcoming, July 2025)
- Thursday, June 5th, 1-2pm ET WaterNow webinar (part 2)

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### PACIFIC INSTITUTE



## Thank you!

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

Questions or comments? wce@pacinst.org

## Technical Assistance Opportunities

#### Andrew Teegarden Water Policy Associate WaterNow Alliance

### 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 for Rural, Small, Tribal System

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



#### Tackle Your Technical, Managerial, and Financial Challenges: Services from the EFCN

We offer free, customized support services to water and wastewater systems, decentralized systems, local governments, and others seeking technical, managerial, and financial (TMF) solutions to environmental infrastructure challenges. Our team of experts work hand-in-hand with operators, elected officials, utility directors, and other utility staff to identify barriers and address challenges head-on.

Request Help Now

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

# What to expect from the RST TA Program?

- 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

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



### Support 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.



#### **FEATURED PROJECTS**



### Technical Assistance and Project Planning Through State, Revolving Funds

State Revolving Funds also provide technical assistance for RST water systems by:

- Answering questions to help determine project readiness
- Offering financial assistance for project planning and design
- Providing reduced interest rates on loan funds
- Offering "grant-like" dollars (e.g., principal forgiveness)

Source: <u>CWSRF Guide for Municipalities</u>





BUILDING BLOCKS OF TRUST

CREATING AUTHENTIC AND EQUITABLE RELATIONSHIPS BETWEEN COMMUNITY ORGANIZATIONS AND WATER UTILITIES





**Building Blocks of Trust: Best Practices for Authentic Partnerships & Community** Engagement

### **Overview: Building Blocks of Trust**

water leaders, resilient solutions





# **Building Blocks of Trust Training Series**

Based on the Building Blocks of Trust report, this online, self-paced training series covers the 8 "Foundations of Trust." Created to support community groups and water utilities in building strong relationships for clean and safe water, this training aims to uplift long-term partnerships with mutual benefits.

Sign Up Now





bit.ly/BBoTTraining



# JOIN THE ALLIANCE

#### LEARN MORE AND SIGN UP

#### www.waternow.org/join-the-leaders





#### Building Resilience in Rural Water Systems: Part 2

#### June 5, 10am PT / 1pm ET

• alliance

### PLEASE COMPLETE OUR SURVEY!





# **THANK YOU!**



#### For more information email:

Amy Weinfurter, <u>aw@waternow.org</u> Emerson O'Donnell, <u>eo@waternow.org</u> Andrew Teegarden, <u>ateegarden@waternow.org</u> **Resources:** 

https://efcnetwork.org/

