Basics for Community Water Systems to Prepare for and Deal with Natural Disasters and Climate Change

Delivering safe water can challenging for water systems even in typical situations – but can become extremely difficult during natural disasters. Water systems need to prepare so they can face natural disasters and climate change as effectively as possible,[1] reduce the interruption of service to their community, and minimize losses. Natural disasters can, for example, damage the water treatment and distribution system or lead to power outages.[2] Emergency preparedness is critical for delivering safe drinking water, protect public health, and the safety of water system personnel.[3]

Natural disasters can happen any time and are now occurring with greater frequency and intensity. Water systems of all sizes need to prepare impact, which will also help with disaster recovery. Preparation increases your water system's resiliency to disasters and climate change.

For basic preparedness, a water system must have an updated emergency response plan that is easily accessible and reviewed regularly, keep a current list of people and organizations to call when a disaster strikes, including local police, the fire department, local public health officials, water and wastewater operators in your area, state officials, and the regional EPA office.[4]

A water system needs to establish contacts to request emergency water supplies. Arrange with your local power utility to be prepared to disconnect power to the plant in case of an evacuation or if powerlines are downed and to prioritize restoring the power to the water system after.

Increase your system's preparedness with two documents:

Assess: Conduct a **Risk and Resiliency Assessment** (RRA) to help find your water system's biggest risks.

Plan: Respond to your water system's threats in an **Emergency Response Plan** (ERP). An ERP has steps, procedures, and resources that the utility can use to prepare for and to respond to small and large incidents.

The America's Water Infrastructure Act (AWIA) requires community water systems that serve over 3,300 people to develop or update emergency response plans (ERP) and risk and resiliency assessments (RRA). While water systems serving fewer than 3,301 people are not required to certify the completion of these plans to EPA,[5] it is still a good practice for small systems to have these plans and keep them updated. Developing these plans is made easier by free resources. EPA's Small System Risk and Resilience Assessment Checklist[6] and EPA's ERP Template and Guidance[7] guides you through the steps, and technical assistance providers can help with this process.

---

1 https://www.epa.gov/region8-waterops/preparing-natural-disasters-drinking-water-systems-epa-region-8
2 https://www.epa.gov/system/files/documents/2022-10/RRA%20and%20ERP%20Primer%20for%20Very%20Small%20Drinking%20Water%20and%20Wastewater_National_10-4-2022%20508_1.pdf
3 https://www.awwa.org/Resources-Tools/Resource-Topics/Risk-Resilience/Emergency-Preparedness
4 https://www.epa.gov/region8-waterops/preparing-natural-disasters-drinking-water-systems-epa-region-8
5 https://www.epa.gov/waterresilience/awia-section-2013#RRA
6 https://www.epa.gov/waterresilience/small-system-risk-and-resilience-assessment-checklist
7 https://www.epa.gov/waterutilityresponse/develop-or-update-emergency-response-plan
8 https://toolkit.climate.gov/course-lessons/practical-considerations-climate-analysis-and-adaptation
9 https://toolkit.climate.gov/#steps
10 https://www.rcap.org/, https://nrwa.org/, and https://www.epa.gov/waterfinancecenter/efcn
11 https://www.epa.gov/crwu
12 https://www.epa.gov/crwu/resilient-strategies-guide-water-utilities

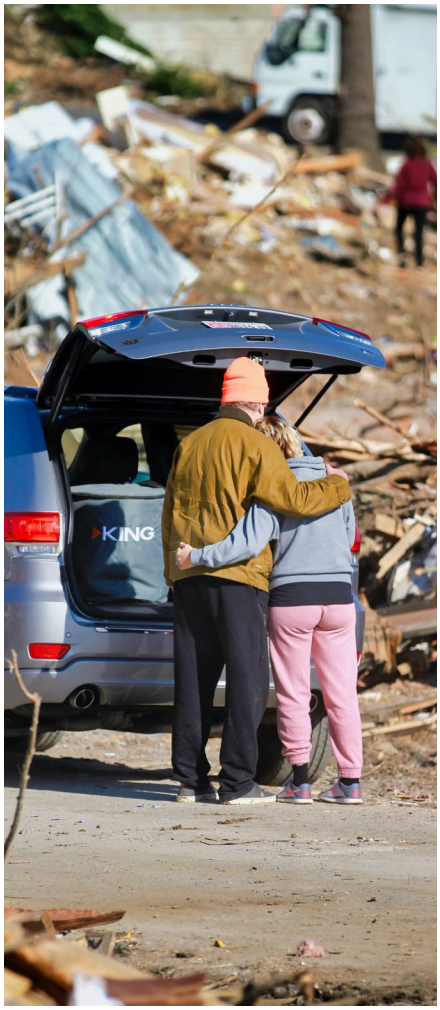
Join a Mutual Aid and Assistance Program

Become part of your local WARN (Water/Wastewater Agency Response Network), a mutual aid and assistance network between utilities to help each other out to quickly get help like personnel, equipment, or materials during an emergency. Joining a WARN network before an emergency happens can make all the difference. Being part of a WARN does not obligate your system to anything; rather it opens possibilities for help in case of a future event. You can find more information and contacts for your local WARN from EPA.

Steps to Increase Preparedness and Resilience:

A water system cannot afford to be unprepared for changing conditions but obviously cannot prepare for everything. You need to assess the disaster and climate risks and vulnerabilities of your system to prepare for your specific situation. Evaluating the risk of natural disasters and climate change is a new and essential part of running a water system. The Water Utility Climate Alliance[8] and the U.S. Climate Explorer toolkit[9] suggest these steps:

1. **Understand your exposure**: How will your system be affected by climate risk? What are your assets?
2. **Assess vulnerability and risk**: How are your system and assets vulnerable to potential disasters and climate changes? What is the probability of a hazard and the magnitude of a potential loss?
3. **Investigate options**: What are possible solutions for your highest risks? How do other communities respond to similar issues? Through inclusive discussions with your community, you can reduce the list of options to feasible solutions. You can also review adaptation case studies from other water utilities sorted by water sector type at ArcGIS.
4. **Plan and implement**: What adaptation strategies can your utility implement? Evaluate the costs, benefits, and your staff's capacity to implement the identified solutions. Try to identify some actions that you can do with your system's available resources.



Technical Assistance and Resources

Small water systems can get no-cost technical assistance to enhance disaster preparedness from the Rural Community Assistance Partnership, the National Rural Water Association, and Environmental Finance Centers.[10] EPA's Creating Resilient Water Utilities initiative[11] developed the Resilient Strategies Guide[12] to help small water systems understand their potential disaster and climate risks and offer adaptation strategies for your assets, sorted by cost factor, and includes funding options for your state. EPA's Climate Resilience Evaluation and Awareness Tool (CREAT) Risk Assessment Application for Water Utilities[13] is a more detailed tool that assists water sector utilities in assessing climate-related risks to utility assets and operations.

Funding for Resiliency

Many, but not all, strategies for increasing resiliency of your water system cost money. You can find grant opportunities and a list of other regular funding options to fund adaptive measures on EPA's Climate Adaptation Funding for Water Sector Utilities.[14] The U.S. Climate Resiliency Toolkit[15] has a list of funding opportunities as well. You can also contact your local FEMA representative to find out what projects can be funded under opportunities from FEMA.

Incident reimbursement tips: Emergency response and recovery costs from water utilities may be eligible for reimbursement on the local, state, or federal level when proper procedures and mechanisms are followed[16]:

- Coordinate efforts with emergency management agencies at the local, state, and federal level.
- Document emergency work before a federal declaration of a disaster, as emergency work completed before a declaration of a disaster may become eligible for reimbursement.
- Document labor costs, equipment usage time, and material purchases.

13 https://www.epa.gov/crwu/climate-resilience-evaluation-and-awareness-tool-creat-risk-assessment-application-water
14 https://www.epa.gov/crwu/climate-adaptation-funding-water-sector-utilities-0#funding_sources
15 https://toolkit.climate.gov/content/funding-opportunities
16 https://www.epa.gov/sites/default/files/2015-08/documents/fs_watersecurity_reimbursementtips_watersectory.pdf