



Drinking Water Guide Fact Sheet: Climate Change Resilience

Key Points

- Drinking water systems are vulnerable to the impacts of climate change and can implement resiliency methods and strategies to mitigate these effects.
- Water conservation is an important tool to protect existing water supplies, especially in areas facing drought.
- When creating and implementing climate change adaptation plans, financial considerations must be considered first in order to pay for such measures without placing an undue burden on drinking water customers or municipalities.

Why is it Important For Drinking Water Systems to be Resilient?

For many water systems, how to be more resilient in the face of climate change has become a routine consideration for future planning and investment. For many more systems, climate change will become a reality in the near future. Water advocates and community-based organizations can play an important role in educating community members on the effects of climate change on their water resources and water services and involving them in decisions related to climate change planning.

In areas that are at the greatest risk of extreme weather, drought and other types of weather events, proactive water systems need to find practical ways to develop and implement the environmental, financial, physical, and educational measures to maintain an adequate, high-quality supply of drinking water. Community advocates have a critical role in helping to evaluate and promote these measures.

For example, water systems can implement protection measures for flooding using [green stormwater infrastructure](#) and [engineering strategies](#). It's important for water systems to [consider flooding](#) in their resilience plans.

It's important to note that there may also be state or municipal legal restrictions on some of the resiliency strategies identified in this fact sheet, which could affect the range of options available.

What Are Some Ways to Increase Climate Change Resilience?

Water Conservation

Encouraging customers to reduce water use through conservation can protect existing water supplies, preserve other water resources, and avoid more expensive alternatives. Customer behavior plays a powerful role in helping drinking water systems better manage their supplies. The impact of how much and when customers use water (e.g., for industrial, commercial, drinking, bathing, irrigation, and other purposes), manage water in their home or business (e.g., through use of low-flow devices), and monitor for potential water losses happening within their properties or residences (e.g., through leaking pipes or faucets) can have a significant effect on overall water usage.

Water systems can use the following approaches to encourage less use in their communities:

- Creating educational and outreach campaigns
- Providing greater transparency and up-to-date information on water usage
- Offering financial incentives (e.g., rebates) for installing water-saving devices, use of gray water for irrigation, and other conservation measures (see [example from San Antonio, TX](#))
- Conducting a water loss audit to evaluate how much water is being treated versus how much is actually being used to determine the amount of water loss occurring
- Pricing water to incentivize conservation, because any decision to manage water demand through pricing must be accompanied by careful financial evaluations
- Adopting conservation ordinances, drought mitigation plans, or other local policy mechanisms to change customer water use (see [example from Arizona](#))



Defining Water Conservation and Water Efficiency

Water systems in communities including Denver, San Diego, San Antonio and many more have worked closely with city governments to invest in large-scale and high-profile conservation programs. While water conservation and efficiency have the same goal of reducing overall water use, and the terms are often used interchangeably, they are different approaches toward the same end.

Water conservation is about using less water through “policies, programs and practices,” whereas water efficiency is defined as the “[m]inimization of the amount of water used to accomplish a function, task or result.” In other words, water efficiency is more technology-driven, and water conservation is more behavior-driven: installing a low-flow high-efficiency showerhead would be considered water efficiency, while taking a shorter shower would be considered water conservation.

Adaptation Planning

In coastal communities that are vulnerable to the effects of sea level rise and coastal and inland communities vulnerable to prolonged drought, water conservation alone will not be enough to effectively manage the impacts of climate change. Long-term adaptation planning may need to consider more cost-intensive investments, such as identifying alternative sources for water supply and water reuse strategies and technologies.

Options for alternative sources may include:

- Adding a new source of water (e.g., purchasing water rights or drilling a new well) for back-up or regular use
- Creating a new connection to a neighboring water system
- Having an agreement to purchase water from another system under certain emergency circumstances.

Similarly, reuse strategies and technologies incorporate, but are not limited to, treating and re-using wastewater, desalination (removing saline from saltwater water so it is suitable for drinking), or aquifer storage and recovery.

To prepare for unpredictable weather events, water systems can develop detailed preparation and response plans, and make sure that they have the personnel, support network and equipment such as extra chemical supplies and back-up generators in place to effectively respond to extreme events. For more information, see [EPA's Water Security Division resources and tools](#).

Financial Considerations to Address

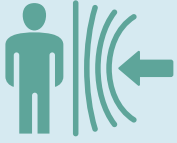


The costs of supply and demand management strategies can vary from **relatively minimal** (e.g., public outreach) to **extreme** (e.g., desalination technologies). Therefore, water systems must gauge the costs and benefits of each option, weigh such costs against the ability of their customers and municipalities to pay, and proactively plan to avoid significant, unexpected investments in response to an emergency.

Before implementing any conservation measures, water systems need to carefully evaluate the implications of successful reductions in water usage for revenue, and how that could be offset by a change in how water is priced or achieving other cost reductions.

While there are federal, state, and other comparatively low-cost programs available to finance these efforts, customers will ultimately shoulder at least some of the financial burden. As a customer or community advocate, it is important to understand **how** your water system is or is not planning to address the impacts of climate change, and **what** the process is for weighing the short and long-term costs and benefits of potential adaptation or resilience measures against each other, to arrive at a final decision.

Advocacy Opportunities



- Encourage your drinking water system to increase its resiliency!
 - Do you know what, if any, water conservation or efficiency programs are in place for your local water system? Try reaching out to your service provider and/or looking at your water bill to see what's been implemented. If the water system hasn't initiated any efforts to improve its resiliency to climate change, make a list of applicable suggestions that could benefit the community and water sources or keep an eye out for opportunities to engage with this topic on the local level.
- What emergency response measures are in place?
 - In the event of extreme weather events, wildfires, or drought, what emergency response measures are in place for your drinking water system or community? Try to find the answers online or by contacting local officials. Are there ways you can support the community or better prepare yourself? Check out the resources below for ways to plan for emergencies.
- Affording Short- and Long-term Resilience Efforts
 - How does your water system plan to afford both short-term and long-term resilience efforts? Check out our Water Affordability fact sheet for information on water rates and customer assistance programs. Aim to center water affordability and equity in any advocacy for climate change resilience.



Additional Resources

- [What is Climate Resilience? \(Union of Concerned Scientists\)](#)
- [Tools for Equitable Climate Resilience \(River Network\)](#)
- [U.S. Climate Resilience Toolkit \(NOAA & Other Agencies\)](#)
- [What is Climate Resilience, and Why Does it Matter? \(Center for Climate and Energy Solutions\)](#)
- [Video: What is Climate Resilient Development? \(Helvetas\)](#)