Addressing and Mitigating Drought with the Drinking Water State Revolving Fund

Communities may use the Drinking Water State Revolving Fund (DWSRF) to address and mitigate the impact of drought on their drinking water systems.

BACKGROUND

During any given year, drought conditions are occurring in at least one region of the United States. Throughout many of these regions, the frequency, intensity, and duration of these drought events are increasing, a pattern expected to continue shifting outside of historical trends in the future. The start, severity, and duration of drought for a particular area is not necessarily disposed to forecasting. Therefore, it is necessary to take preemptive measures when installing, modifying, or upgrading drinking water infrastructure within drought-sensitive areas.

The impacts a drought may have on a drinking water system can vary. Some examples include a reduced or lack of raw water supply, lack of distribution system pressure, water main breaks from soil shrinkage and land subsidence, or a loss of aquifer recharge capability or capacity for recovery. In general, water management practices, techniques, and equipment that use less water will help reduce demand on existing supplies before drought conditions even occur, making some drought conditions more manageable.

DWSRF ASSISTANCE

The DWSRF can provide financial assistance to publicly owned and privately owned community water systems and non-profit non-community water systems for drinking water infrastructure projects. Projects must either facilitate the system's compliance with national primary drinking water regulations or significantly further the health protection objectives of the Safe Drinking Water Act (SDWA).

Each of the 50 states and Puerto Rico operates its own DWSRF program. They receive annual capitalization grants from the U.S. Environmental Protection Agency (EPA), which they use to provide low-interest loans and other types of assistance to water systems. Repayments of DWSRF loans begin up to 18 months after project completion, with loan terms up to 30

Additional EPA Drought Resources:
Drought Response and Recovery Website:
https://www.epa.gov/waterutilityresponse/drought-response-and-recovery-water-utilities
Drought Resilience Resources:
https://www.epa.gov/water-research/drought-resilience-and-water-conservation
Eligibility Handbook:
https://www.epa.gov/dwsrf/dwsrf-eligibilities
WaterSense
https://www.epa.gov/watersense/drought-watersense

years for most communities, or up to 40 years for disadvantaged communities.

Additionally, states may use a portion of their capitalization grant from EPA as "set-asides" to help communities build the technical, managerial, and financial capacities of their systems. With an emphasis on small systems, these funds help ensure sustainable infrastructure and public health investments.

Planning and Assessment

The DWSRF set-asides can be used to assess impacts a drought may have on public water systems, including, but not limited to drought monitoring, water loss audits, leak detection studies and purchasing leak detection equipment, pressure optimization studies, drought contingency plans, and water conservation plans. These activities can also be funded through the loan fund if they are likely to result in a capital improvement project or result in a reduction of water demand to alleviate the need for additional capital investment.

The DWSRF set-asides can also fund the development of drought response plans that monitor and recommend responses to drought impacts, develop and implement water conservation ordinances or regulations, and develop incentive programs or public education programs about conservation.

Water Efficiency

In general, the DWSRF can fund water management practices, techniques, and equipment that use less water, which will help reduce demand on existing supplies.

DWSRF funding can be used for water main replacement projects that could reduce breaks and leaks and extend the use of a water source, thereby lessening the water system's vulnerability to drought. Replacing other failing equipment, such as aging pumps and storage tanks, are also eligible projects, as well as any other general upgrades to public drinking water infrastructure that conserve water use.

Additionally, by purchasing products with a WaterSense label, consumers can save money while conserving water and energy. Water systems can use DWSRF funding to purchase or offer rebates for water efficient fixtures.

The DWSRF set-asides can be used to train water systems on how to conduct water loss control audits, as well as assist with the development of these audits. Infrastructure projects that result from these audits typically can be funded with the DWSRF as well.

Reliability/Redundancy

In drought-stricken areas, having secondary sources of water will help water systems be resilient to impacts of drought. The DWSRF can fund interconnections to other water systems, development of new water sources, deepening and rehabilitating wells, and new pumps for those deeper wells.

Aquifer Recharge and Water Reuse

Prolonged drought can deplete groundwater aquifers that many communities rely on for drinking water. The DWSRF can fund aquifer recharge projects such as aquifer storage and recovery (ASR) wells and new wells and pumps to draw water from a different or deeper zone in an aquifer. The DWSRF can also fund water reuse and recycling projects, which can replace or offset potable water use.

LEARN MORE ABOUT FUNDING

Water systems receive DWSRF assistance directly from state agencies. Each state has its own application procedure. Contact information for each state is posted at https://www.epa.gov/dwsrf/statedwsrf-website-and-contacts.

Drinking Water State Revolving Fund Case Studies: Drought

How communities are using the Drinking Water State Revolving Fund to address and mitigate the impact of drought on their drinking water systems.

NEW LONDON, CONNECTICUT

This project involved installing a raw water intake pump station located adjacent to the existing water treatment plant (WTP). The new pump station was constructed so New London could access additional water from Lake Konomoc and increase the safe yield of their source to augment the supply of the system during peak demand periods and severe drought conditions. This is especially needed when the surface water level in the lake is lower than the elevation of the existing WTP intake. This project serves a population of 26,273 people and received almost $6 million in DWSRF assistance.

TRUCKEE MEADOWS WATER AUTHORITY, NEVADA

Truckee Meadows Water Authority received approximately $8.9 million in DWSRF funding to construct a high-pressure transmission main between the Fish Springs and North Virginia water systems. The high-pressure transmission main allowed two-way flow between the North Virginia/Stead Booster Pump Station and the Fish Springs water system, allowing each to provide support to the other during drought and other emergency conditions. This project benefits 315,200 people.

BOYD, TEXAS

Boyd, a town of 1,382 people, received $720,000 of DWSRF assistance to create water conservation and drought contingency plans. These plans include recommendations for improvements to the water supply, treatment, pumping, storage facilities, and distribution system to help build resilience to drought.

CITY OF CULLMAN, ALABAMA

The City of Cullman, received $24 million in DWSRF assistance to construct a new raw water pump station and associated water transmission main for a city of about 14,775 people. This project allows the transmission of raw water from the newly constructed Duck River Reservoir to the Cullman water treatment facility, enabling Cullman to provide a second raw water source during droughts or emergencies, and thereby increasing the region's water supply to meet demand.

PASKENTA COMMUNITY SERVICES DISTRICT (PCSD), CALIFORNIA

PCSD's drinking water source repeatedly ran dry in the late summer due to drought conditions. PCSD received $500,000 in DWSRF assistance to conduct a long-term source reliability study evaluating their best alternatives for obtaining a reliable source of water during drought occurances. This study included the drilling of two test wells for a groundwater water source and served a population of 120 people.

BEST PRACTICE: RUSSELL, KANSAS

The City of Russell, established a drought response plan that includes trigger levels and water use reduction measures. The city developed a clear but flexible plan, including specific reduction goals and restrictions to address current and anticipated conditions. Between 2006 and 2018, the city declared either a Stage 3 or 4 of drought management every year. Having a drought response plan that clearly defined drought triggers and response actions for four drought stages helped their customers be prepared, as well as enabled the city to act quickly when droughts occurred. Drought-related planning assessments and contingency plans can be funded by the DWSRF. See EPA's Drought Guide for more best practices.

KERN COUNTY, CALIFORNIA

This planning project served the needs of three disadvantaged community water systems in Kern County. The water systems had aging water mains and wells needing repair and replacement. The Lake of the Woods Mutual Water Company had water shortage problems, as well as violations with the nitrate and fluoride maximum contaminant levels (MCLs), and the Lake of the Woods Mobile Village had also been out of compliance with the nitrate MCL.

Groundwater levels had dropped during a drought but remained accessible on the eastern side of the basin serving these communities. For this reason, in addition to the size and technical, managerial, and financial capacity of these communities, the solution selected was to form a regional water system.

Approximately $1 million in DWSRF assistance was used to drill two new test wells, interconnect the existing systems with distribution and transmission mains, and add storage tanks and booster pumps. This project serves a population of 4,147 people.

TOBIAS, NEBRASKA

In May 2014, the Village of Tobias's engineer developed a limited Preliminary Engineering Report (PER) that evaluated the Village's water system needs. Static water levels in the Village's primary well had dropped nearly 10 feet due to ongoing drought. The PER recommended the village drill a new well to establish a backup supply for the water system, as well as to lower the pump in the existing well to extend its operational capacity. Additionally, this project added valves and meters and upgraded existing well controls. This project received $315,000 in DWSRF assistance and serves a population of 106 people.