

These cities coordinate to save water, a model for parched Western areas

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Credit: Unsplash/CC0 Public Domain

There are no lush green lawns among the rows of single-family homes that line a quiet boulevard a mile west of the University of Arizona campus. Instead, small lizards scurry across gravel to the shade of cacti,

shrubs and trees native to the Southwestern desert, as cicadas drone and backyard chickens cluck in the triple-digit heat now common here in July.

In the middle of the road, the curbs of a roundabout have been cut to allow [water](#) from the summer monsoons to flow into the public landscaping in the roundabout's center circle and soak the soil, replenish native plants and trickle underground.

This city in the Sonoran Desert, which relies heavily on Colorado River water, will depend more and more on robust water reuse—including from stormwater—as climate change worsens.

Tucson's 4-year-old Storm to Shade program builds urban infrastructure to divert stormwater from [parking lots](#), streets and rooftops, then captures it to grow trees and native vegetation in public parks, traffic circles and other public spaces, creating shade and natural habitats and allowing the 11 inches of annual rainwater to seep back into the ground.

All new commercial developments in the city must install mechanisms to capture stormwater from their roofs and parking lots for part of their landscaping. The city also offers rebates for existing commercial properties to add stormwater capture.

Tucson has been working on sustainable water solutions for more than three decades, well before the current controversy over how to allocate water from the shrinking Colorado River, said John Kmiec, director of city utility Tucson Water. The city uses virtually the same amount of water as it did in the mid-1980s with 40% more population; there are around 546,000 residents.

"It's an ethic of understanding what it is to be an important desert-dweller and being responsible for our water supply," Kmiec said.

"Rainwater and stormwater are an important part of the urban water cycle."

Western states have agreed on how they will share Colorado River water over the next three years, cushioned by a wet winter that staved off any difficult decisions over drastic cuts. But for communities in states such as Arizona, the work doesn't stop. They understand that one good water year doesn't lessen long-term concerns for water supplies, especially from the Colorado River.

Cities around Arizona already have begun collaborating on [water treatment plants](#) and sharing data to better allocate water resources in the region. There is no single solution or source that will solve the region's long-term water security, local officials say. But a coordinated effort is underway to better adapt to a future with less Colorado River water.

The state of the river

The Colorado River is in crisis, as the region suffers from two decades of drought—the worst megadrought in 1,200 years. Climate change will only exacerbate these conditions over time, delivering less and less water to the 40 million residents of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming.

Still, it was a very positive winter for the region, said Patrick Dent, the assistant general manager for water policy at the Central Arizona Project, which delivers Colorado River water to 6 million residents in Maricopa, Pima and Pinal counties. Arizona gets 36% of its water from the Colorado River.

There was a 10% increase in freshwater storage in major reservoirs along the Colorado River from last July, increasing from 20 million acre-feet to 26 million acre-feet—an acre-foot equaling around 326,000

gallons.

But, he cautioned, the state remains in a difficult water supply situation.

"One good year on the watershed of the Colorado is not enough to offset 20 years of consistent drought," Dent said. "There still remain a number of challenges in front of us."

Dent spoke at a conference earlier this month at the University of Arizona, where 300 water officials, tribal leaders and environmental experts representing 30 Arizona communities and nine states sought wide-ranging solutions to the West's depleting resource, from experimental agriculture technologies to databases for locating safe wells on tribal reservations.

Because of the heavy rain and snow in the region this winter, Arizona and other Colorado River states have a bit of a reprieve in making heavy cuts before new federal rules go into effect after 2026.

In May, the governors of Arizona, California and Nevada agreed to 3 million acre-feet of voluntary water cuts to prevent mandatory restrictions from the federal government. Arizona is cutting its allocation by 1.8 million acre-feet—the most of the three states. Arizona's cities will be major contributors to that reduction.

For a state like Arizona, there are several strains on water supplies, not least of which are projected cuts to Colorado River water because of climate change. For most of the last century, the state relied on groundwater pumping, severely depleting underground aquifers that are still used by the agriculture sector today. Meanwhile, the state's population continues to grow.

Arizona has been reusing its water for decades, said Karen Peters, the

director of the Arizona Department of Environmental Quality. While it has traditionally used recycled wastewater for irrigation or to recharge groundwater aquifers, the state now is developing new rules and guidance that will lead to widespread use for drinking purposes, she said.

"The technology is safe and proven," Peters said. "In this time of uncertainty for Arizona's water supplies, this option can help bolster water resource portfolios for many communities."

She hopes the state will finalize rules for rural wastewater recycling by next July.

Some cities aren't waiting. Scottsdale, a city of 243,000 residents just northeast of Phoenix, has been recycling wastewater on a small scale, which so far has been used by local breweries. By 2026, city officials hope to use it widely in the community.

"We firmly believe in water conservation, we firmly believe in recycling and reusing our reclaimed water," said Brian Biesemeyer, executive director of Scottsdale Water. "It is a significant part of our portfolio, and it's only going to get bigger."

The city isn't stopping there. Earlier this month, the Scottsdale City Council approved an ordinance that bans grass on front lawns of new single-family homes.

Communities partnering to save water

Communities largely manage their own [water supplies](#), drawing specific percentages from different sources, whether the water is from the surface, underground or reused. But an interconnected economy and workforce crosses the city limits that divide the landscape; a risk to one community is a risk to all.

Communities need to do more to collaborate with their neighboring municipalities to reduce overall water risk, said Richael Young, a senior economist at ERA Economics, LLC, an economic analysis company that created a digital, up-to-date tool that helps Phoenix- and Tucson-area communities buy and sell water to prevent water shortages.

The tool, called the Central Arizona Water Clearinghouse, provides water supply and demand information, showing water infrastructure, communities' capacity and the way they connect to other water infrastructure in the region. Ultimately, the tool can pair different communities' needs with potential collaborators, she said.

"The challenges we face today are too hard to tackle alone," Young said. "As we face increasing scarcity, we also have an increasing need for working together."

The clearinghouse has been embraced by water providers in the region, though it did face skepticism from some officials who were wary of entrusting water security to a digital tool. Building trust among communities was essential in getting past those concerns, Young said.

As water scarcity worsens, the "what's mine is mine" mindset among communities is changing, she added, shifting from fighting to collaboration.

Wastewater is a valuable resource that can now serve multiple communities through partnerships, said Nazario Prieto, the assistant water services director for Phoenix, which recently broke its record for most consecutive days with 110-degree or higher temperatures.

Phoenix co-owns a wastewater treatment facility with four other cities in the valley: Glendale, Mesa, Scottsdale and Tempe. That water is currently discharged into the Salt River, but Phoenix wants to now use

recycled wastewater for drinking water.

The city is building an advanced purified treatment facility that officials hope will have similar regional buy-in, using existing major water pipelines that go through the region, with the goal of pumping out 60 million gallons per day. Other cities have shown some interest in partnering with Phoenix.

"If some of these neighbors participate with us in this advanced purified water facility, we already have a mechanism that can send them potable water," Prieto said. "We're getting excited about what this can turn into within seven to 10 years."

With depleting Colorado River water, the future of water management in the region will depend on other large projects that will benefit multiple communities, said Bill Swanson, vice president for [water resources](#) planning and management at Stantec, an engineering consulting firm.

Unfortunately for communities, they won't know exactly how much they need to save until new rules for the Colorado River go into effect after 2026, he said. But those communities must start planning now, working with their neighbors to decide how to permit, build and finance projects, Swanson emphasized.

"That's going to create an inherent sense of interdependence among the water communities statewide," he said. "The future is going to bring in a lot of new challenges that now is the time to start laying the groundwork for."

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