

'We need water to survive': Hopi Tribe pushes for solutions in long struggle for water

Some Hopi families don't have running water. Many others have water tainted with arsenic. Steps toward fixes are finally taking shape.



MISHONGNOVI — At the end of a dusty road, beside two water tanks in the desert shrubs, a windmill spins in the breeze.

From a spigot, water flows through a blue hose and gushes into a bucket.

When the water reaches the brim, Kayla Johnson heaves the bucket into the back of her family's car. Her younger brother, Terron, holds the hose and keeps the stream running into a 5-gallon jug.

"We come here often," said Kayla, a 17-year-old high school senior. "This water will last us about two days tops, depending on what we're needing it for."

At home, Kayla and her three siblings, their parents, grandparents and an uncle all depend on these buckets and jugs. They use the water for bathing, cooking, doing dishes, cleaning house and washing their dogs. Some of it they drink.

Like many other Hopi families, they have no running water, so they make do with 16-mile trips to the windmill and back.

"This is how we've been living, without the water. And we just kind of got used to it," Kayla said, wearing a mask and gloves as she loaded the last of the jugs into the car. "It would be nice for us to have running water, or at least water closer to your home, instead of having to drive all this way."

Her family has been waiting many years for a water system to be built in their community atop a mesa on the Hopi Reservation. Now, they and other families are finally in line to be hooked up to a new water system.

The Hopi have long lacked adequate drinking water. In parts of the reservation, the water that flows from taps is contaminated with toxic arsenic at levels that exceed the federal standard. And in homes without running water, many families get by using what little they haul from communal faucets, which can amount to less than 2 gallons a day per person.

This acute state of water poverty has persisted for generations due to insufficient infrastructure, an injustice that leaders of the Hopi Tribe call a humanitarian issue that must finally be addressed. And while the tribe's leaders have gone to court over water rights, they are also moving ahead with plans for new infrastructure, including a pipeline project that will remedy the contamination problems and extend water lines to more homes.

"Water is life." Infrastructure needs on Hopi Reservation

From accessibility to arsenic contaminated water, the Hopi Reservation is facing water infrastructure needs for its people.

David Wallace, The Republic | azcentral.com

Many of the hundreds of families who will benefit from the project have tap water tainted with unsafe levels of arsenic. Others will be getting piped water for the first time.

The 2000 Census found that 27% of Hopi people lacked complete plumbing. Many families use outhouses or portable toilets.

A survey of more than 700 households in the mid-2000s found that 35% of homes had no sewer connection, 11% had no electricity and 18% [had no running water](#). In some villages, most or all homes have no tap water.

These problems are the results of a longstanding lack of funds to address basic needs on the reservation. The tribe's leaders have been pressing the federal government for assistance. And with \$20.5 million in federal funds now secured, the tribe's water utility is set to begin building the 41-mile pipeline, together with storage tanks and other infrastructure that will bring clean water to homes.

"When we look at the overall picture of some of our shortfalls, it's infrastructure, infrastructure, infrastructure," Hopi Tribe Chairman Timothy Nuvangyaoma said in an interview. "It's long overdue out here on Hopi, and it's just been underfunded for too long, and it's been our plea to the national level to bring some attention out here at Hopi."

In many parts of Arizona and the Southwest, the ground naturally contains arsenic. The element can be dissolved in groundwater at levels that pose health dangers. Over time, drinking arsenic-tainted water [increases risks of cancer](#),

kidney disease, heart disease, diabetes and other illnesses.

Water with high levels of arsenic flows not only to many homes but also to some of the community spigots where people fill jugs and tanks. Many of these water systems were built by the federal government between the 1950s and 70s, and the Hopi have been using the water ever since.

While the health effects haven't been studied, Nuvangyaoma said, there has been an increase in cancer cases among Hopi people.

"We know it has a health impact," he said. "Continuously having to drink arsenic water is just plain out not healthy."

The severity of the contamination problem came into focus when the federal Environmental Protection Agency lowered its threshold for arsenic in drinking water from 50 parts per billion to 10 parts per billion. That standard took effect in 2006, and since then several water systems on the reservation have consistently had arsenic levels over the limit.

A warning sign is posted at a well where people collect water on the Hopi Reservation.

David Wallace/The Republic

The problem affects eight of the reservation's 12 villages. In some communities, [tests have shown arsenic levels](#) as much as three to four times over the legal limit. The EPA has cited

the operators of several water systems for violations and has told the tribal government to address the problem or face fines.

Two wells [were drilled in 2013](#) to tap into a part of the aquifer with pure water. But the tribe was short of funds to complete the project.

Nuvangyaoma was elected in 2017 and over the past few years has [repeatedly testified](#) before the House Appropriations Committee to ask for more funding. Those requests ultimately succeeded, and the tribal government has been working with federal officials on plans for the water pipeline, which will supply communities in the eastern part of the reservation.

"It's been a hard-fought battle," Nuvangyaoma said. "We're on the right track now."

The tribe's newly created Hopi Utilities Corporation will oversee construction, which is scheduled to begin in the spring with funding from the EPA and the Indian Health Service.

This major expansion of infrastructure has been dubbed the [Hopi Arsenic Mitigation Project](#). Under the plan, the system will supply water to 869 homes in the areas of First Mesa and Second Mesa, including 778 households that have tap

water contaminated with arsenic.

Hopi leaders see the project as a step toward building other needed water projects throughout the reservation.

Nuvangyaoma said the tribal government recently assessed immediate water infrastructure needs and estimated the total cost at more than \$100 million.

In addition to this funding shortfall, the Hopi face other challenges that complicate their efforts to secure water supplies. The reservation, created 138 year ago by the U.S. government, is surrounded by the Navajo Nation, and its communities rely on wells for drinking water, drawing from an aquifer that has been declining in many areas.

This year, Nuvangyaoma and other Hopi representatives have appeared in virtual court hearings in a long-running case focusing on the Little Colorado River, seeking to clarify the tribe's water rights. When the case is eventually decided or settled, it could bring not only water but also funding to help build infrastructure.

"We have a lot of needs," Nuvangyaoma said. "I think we've been ignored for far too long. And we want to bring attention to some of the challenges that we face."

He understands from personal experience how the lack of infrastructure affects daily life. During his childhood, his

family had no running water at home, so they drove to windmills and other sources. They would fill a washbasin in the morning and use it to wash their hands throughout the day.

When they sometimes left the reservation and stopped in neighboring communities, Nuvangyaoma noticed how differently people used water elsewhere.

"You'd see the grass being watered and you'd see kids playing with water balloons, having water fights," he said. "Boy, if you tried that out here, you would have your uncles or your grandmother screaming at you."

Living with so little water, he said, Hopi people learn to value water at a young age and are very careful with how much they use.

"We all know water is life," he said. "If you're threatened with your water running out, it's definitely a concern for us out here on Hopi."

Kayla Johnson, 17, and her brother Terron Manuel, 10, use a windmill-powered well on July 30, 2020, to get water to bring to their home for drinking, cleaning and cooking.

David Wallace/The Republic

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Kayla Johnson is the oldest of four siblings and she often

helps with chores at home. She regularly makes trips for water, driving from their house on Second Mesa down to the windmill in the valley below.

Sometimes, if the family uses more water for cleaning and bathing, they have to make two or three trips.

Her mother, Dottie Johnson, said she's always lived without running water and it usually doesn't bother her. The only frustrating thing, she said, was when the family vehicle broke down and they had to find someone to help pick up water.

On a typical day, it's part of Johnson's routine to lug buckets around, just like she did as a girl when she walked to get water from the village faucet for her grandmother.

"It's just the norm for us," Johnson said. "We can do without."

Between trips, they store the water in buckets and plastic barrels. Because the house has no plumbing, they use an outhouse. To wash clothes, they regularly drive 65 miles to Winslow with their laundry.

When it's warm out, they bathe with a camping shower bag inside a makeshift enclosure. Johnson's boyfriend built the outdoor shower against the side of the house, making a floor with a wood pallet and walls of corrugated metal, with a blanket and bedsheet draped over the top.

"We shower during the summers, so that's kind of our luxury," Johnson said with a smile. During the winters, they find other places to bathe, including her boyfriend's family's home, where they have working faucets.

"We always wish we had running water," she said. "It would be so much easier, where we could have a washer and dryer and wash our clothes at home."

Johnson said she has heard talk for years about plans to extend a water line to the area, but nothing has happened. So she's skeptical.

Recently, she said, a woman and a man from a government agency stopped by and asked to look around the house to see where they could install a septic tank.

Angelene Manuel, 8, rides her bike on a path after using the outhouse at her family's home on Second Mesa on the Hopi Reservation.

David Wallace/The Republic

"It's been going on for years," Johnson said. "We just tell them the same thing: We'll see. We'll see if it happens. I mean, it's just broken promises."

Her family's house has a bathroom that's unfinished, with boards on the floor instead of concrete. They left the floor open so they could install plumbing once the water pipe comes.

Her father, Harold Johnson, is 70 and said he has been waiting to get water for about 30 years.

"They're slow. But I think this time we're going to get something," he said. "We need water. You've got to have water."

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A document issued by the federal Indian Health Service details plans for the [Hopi Arsenic Mitigation Project](#), including how the water will be delivered to several villages. In addition to the pipeline, the system includes three storage tanks, two booster stations, pump houses and other equipment.

According to the EPA, the system is scheduled to be delivering drinking water by the end of 2023.

Other federally funded projects are underway to build water infrastructure elsewhere on the reservation.

The coronavirus has brought greater attention to the fact that many Hopi people can't simply turn on a faucet to wash their hands. And some of the Hopi Tribe's federal coronavirus relief funds are being used to expand water access.

In the centuries-old village of Oraibi on Third Mesa, a newly

purchased portable “water buffalo” tank sits parked beside stone houses, enabling residents to fill buckets without having to drive several miles to the nearest communal spigot.

Oraibi (also spelled Orayvi) [dates to about 1100](#) and is thought to be the [oldest continuously inhabited community](#) in the United States. No one in Oraibi has running water, and some of the village’s elders have long preferred it to remain that way for a variety of reasons, including holding on to traditional ways and not disturbing sacred ground to lay pipes.

But Oraibi’s leaders recently decided to use coronavirus relief funds to drill a new well nearby and run a water line to a portion of the homes outside the historic heart of the village.

“I think it’s going to be a good move,” said Beatrice Norton, chairperson of the village board. “For the next generation, it’s really going to be a benefit to them.”

A drilling rig stands at the site of a new well near the village of Oraibi on the Hopi Reservation on Oct. 24, 2020.

Photo courtesy of Duane Humeyestewa

A drilling rig recently began humming near Oraibi, boring about 2,000 feet underground. Once a pump is installed, a water line will be laid to connect more than 20 homes and a communal faucet will be installed, Norton said.

In the meantime, residents can get water from the portable tank.

The virus has taken a toll in Oraibi, claiming the life of Norton's 91-year-old mother, Treva Burton, in April.

Norton is mindful that some of her older neighbors may not have relatives helping haul water, and she wants to make sure the tank has plenty for those who need it most.

To fetch water for her house, she continues to drive more than 5 miles to fill up at a well next to the Hopi Veterans Memorial Center. On a recent afternoon, she put a bucket under the faucet and opened the valve. The water sloshed in.

"This has good tasting water," Norton said, lifting a bucket into the back of her truck. "It's a hard life, but you get used to it after a while."

At another well in the flatlands near Second Mesa, Lucion Koinva hooked a hose to a faucet and water began to pour into a tank on his truck. He said the water would last about a week.

The tribe's water specialists periodically test some wells and windmills for arsenic contamination. But it's unclear when this well was last tested.

A sign next to the tank read: "UNREGULATED WATER SOURCE, CONSUME AT YOUR OWN RISK."

"We've always been drinking it. I haven't really noticed anything from it," Koinva said.

Craig Andrews, a member of the Hopi Tribal Council

I'm not fighting for today, for myself. This is into the future where my kids' grandkids are going to benefit. ... And that's the whole fight.



"We really didn't know anything about arsenic being in the water until, like, I don't know how many years back we started finding out," he said. "And they were saying there was arsenic in the water, but we never knew. So we're still

here.”

Koinva said he thinks faucets should be installed on the mesas so people wouldn't have to come so far. He drove 18 miles round trip to fill the tank and haul the water home.

Craig Andrews, a member of the Hopi Tribal Council who represents the village of Mishongnovi, said the goal is to make clean water available for everyone, enabling future generations to flourish.

“I'm not fighting for today, for myself. This is into the future where my kids' grandkids are going to benefit, or at least be somewhat better off than where we are today. And that's the whole fight,” Andrews said, watching another man fill a tank at the well.

“Infrastructure is really the key to the future, to benefit our tribe,” he said. “It starts with the water.”

* * *

The Hopi Tribe's access to water is shaped not only by the infrastructure that's available but also by the tribe's history.

Hopi Tribe Chairman Timothy Nuvangyaoma stands beside the tribal government offices in Kykotsmovi on July 30, 2020.

David Wallace/The Republic

In September, Nuvangyaoma spoke to a meeting of Gov.

Doug Ducey's water council about the tribe's history and culture and its long struggle to clarify its water rights. In [his prepared remarks](#), the Hopi chairman said the tribe has about 14,000 enrolled citizens, over half of whom live on the reservation.

"It has been said that to be a Hopi is to be a steward of the earth, a caretaker of the land and the water," Nuvangyaoma said. "It has also been said that in Hopi culture, everything is about water. Water is life. Water is the beginning and end of the cycle of life. Our connection to water is very sacred and intimate."

He explained how the Hopi ancestral lands, which they call Hopi Tutskwa, extend north to the Colorado River, west to the San Francisco Mountains and south to the Mogollon Rim, and how the reservation today is much smaller than those ancestral lands and completely surrounded by the Navajo Reservation.

The reservation's only reliable water source, he pointed out, is groundwater pumped from the Navajo Aquifer, also called the N Aquifer.

"Unfortunately, wells from this aquifer near the Hopi villages are minimally productive, and often contain arsenic in amounts that make the water unsafe for human consumption, making it necessary to develop expensive well

fields and related infrastructure north of the Hopi villages," Nuvangyaoma said.

He spoke of how the U.S. government established the reservation in 1882, how the Navajo encroached on Hopi ancestral lands and how the federal government later enlarged the Navajo Reservation over the years until it completely surrounded the Hopi Reservation.

Joshua Tewanima, 8, plays with an air rifle, as his grandfather, Lucion Koinva, background, fills a tank on the back of his pickup with water at a communal well on the Hopi Reservation.

David Wallace/The Republic

He explained the twists and turns in land disputes over the past century. He said Hopi and Navajo negotiators have made progress recently in talks on issues that have been "major stumbling blocks" in moving toward a water settlement.

In 2012, then-Sens. Jon Kyl and John McCain had sought to build support for a [Navajo-Hopi water settlement](#) on the Little Colorado, but the proposal encountered opposition and was scrapped.

Addressing the water council, Nuvangyaoma explained the tribe's effort to clarify water rights through the courts.

"Hopi is entitled to all water necessary for the Hopi Reservation to be a permanent economically viable and self-

sufficient homeland for the Hopi people," Nuvangyaoma said, including surface water from the Colorado River and off-reservation groundwater from Hopi ranches to the south.

In September, the Hopi Tribe's leaders and attorneys returned to court to make their case for water rights in the Little Colorado River basin, appearing in virtual hearings due to the pandemic.

The trial before the Arizona Superior Court is part of a larger case called the [Little Colorado River adjudication](#), which has been in litigation since the 1970s. The Hopi Tribe and the Navajo Nation, along with the federal government, filed claims in the case in 1985. The trial will determine the Hopi Tribe's future access to water in the river basin.

As the hearings began, Nuvangyaoma said it was important "we make it clear that we have an inherent right to good clean healthy water for our people."

The trial is scheduled to continue through January, with more than 80 witnesses giving testimony. Some hearings have focused on the tribe's water needs and plans for economic development.

Those giving testimony included two experts who last year submitted an economic assessment of future water needs on the reservation — Michael Hanemann, a professor of

economics and director of Arizona State University's Center for Environmental Economics and Sustainability Policy, and Dale Whittington, a professor of environmental sciences and engineering at the University of North Carolina, Chapel Hill.

They [wrote in their report](#) that the aim is to provide enough water for the Hopi Reservation to be a "livable and abiding place" for the tribe as a permanent homeland, and that at present the reservation does not "meet the standard of a livable homeland."

They said the very low levels of water use on the reservation reflect severe deficiencies of water systems that "constrain economic development."



Duane Humeyestewa carries a bucket of water that he collected from a communal spigot to his sister's home in Mishongnovi.

David Wallace/The Republic

"These water supply systems are quite similar to the simple piped water systems that were built in many poor rural communities in developing countries such as Pakistan and India in the second half of the 20th century, intended to supply basic human needs but not to serve as a platform for economic development," Hanemann and Whittington wrote.

In households without running water, they estimated that Hopi families typically use less than 2 gallons per person per day, which they said is probably the lowest of anywhere in

the United States, an amount that “would be considered low for a poor, rural household in most parts of Sub-Saharan Africa.”

These extremely low water use levels result from the inadequate infrastructure, “not because Hopi households do not want more water,” they said.

Addressing the severe infrastructure deficit is critical because infrastructure serves as a platform that enables economic development, Hanemann and Whittington wrote. The rapid growth of metropolitan areas in Phoenix and Los Angeles would have been impossible, they noted, without “the large-scale importation of freshwater supplies financed in part by higher level governments,” including large government water projects such as Hoover Dam and the [\\$4 billion Central Arizona Project Canal](#).

Without adequate water supplies and infrastructure, they said, the quality of life on the reservation will fall further behind and the reservation “will dwindle into little more than an old people’s home” — and will not be a “livable homeland.”

The worsening effects of climate change, which research shows are increasing temperatures and [intensifying drought](#) in the Southwest, pose an additional threat to water security, they wrote. Increasing the water supply allotted to the Hopi

Tribe, they said, would be an “insurance strategy” for reducing risks.

At the situation stands, Nuvangyaoma has said residents suffer high unemployment partly because the reservation’s remote and landlocked location hinders economic development. He and other Hopi leaders say securing additional water would change that, opening up economic opportunities.

The chairman said addressing the lack of water and infrastructure is a matter of finally righting a longstanding injustice.

“We're fighting for our livelihood right now and we need the government to pay attention to us,” Nuvangyaoma said.

In the water rights case, he added, the Hopi Tribe has faced opposition from a list of entities ranging from Salt River Project to Flagstaff and other cities.



Melissa Ami and Ramone Addington fill water jugs at a windmill below Second Mesa on the Hopi Reservation on Sept. 10, 2020.

David Wallace/The Republic

“I just look at it as if they don't want Hopi to survive. I mean, this is a humanitarian situation,” Nuvangyaoma said. “It bothers me that this is how another set of humans can be treated.”

Nuvangyaoma said the Hopi Reservation's serious water problems remind him of the [crisis surrounding lead-contaminated water in Flint, Michigan](#). He said he also thinks about the injustice of his tribe's long struggle for water in the context of the nationwide demands for change in protests over police killings of Black Americans.

"Black lives matter, they say, and they do. Native American lives matter. Hopi lives matter. We want that opportunity," Nuvangyaoma said. "We've been here since time immemorial. And it seems that we're invisible, to some of the inequalities, the injustices that are happening right here in Arizona's backyard."

He said his focus in speaking about these unresolved water issues, including with congressional leaders in Washington, has been "making as much noise as we can."

The goal is to make sure the Hopi Tribe has a homeland with water into the future, he said. "And when we talk about for the future, we don't talk about 100 years from now. We talk 500, a thousand years from now."

He said his hopes for the future are simple.

"I want better for the Hopi people," he said. "We need water to survive."

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Show caption Max Taylor, a Hopi water resource technician, fills a bottle at a communal water source in the village of Mishongnovi on the Hopi Reservation, where...

David Wallace/The Republic