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State's rural growth taxing water supplies
Unregulated building raises question: Will there be enough to go around?

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Unchecked development threat-ens to overwhelm rural Arizona's limited water resources, leaving entire communities vulnerable to shortages and rivers at risk of running dry.

Rural Arizona's population, which doubled to more than 1 million people in the past 25 years, is projected to grow by an additional 500,000 in the next 25 years. The result is a soaring thirst for a finite supply of groundwater.

Nine years of drought have exposed how finite that supply is in many areas. But the threat to rural residents arises from a deeper problem: the inability of state and local governments to manage water and growth together and ensure there are dependable water sources for new communities.

At the heart of the problem are weak state laws that fuel development but offer little help to deal with its consequences. Those laws are allowing thousands of homes to be built with no guarantee of water. In contrast, such guarantees are required in urban areas.

The same laws force local governments to scramble for more and more water instead of giving them the authority to regulate growth as they develop sustainable supplies.

The impact of this gathering crisis will reach beyond rural areas, into Arizona's cities and even as far as Washington, D.C. Growing demand could severely reduce the flow of the Verde River, an important source of water for metropolitan Phoenix, and will increase pressure on the already overtapped Colorado River.

Importing water to meet rural needs will cost billions of dollars. If rural communities can't foot the bill - and it's hard to see how many will be able to do so - it's likely that state and federal taxpayers will be stuck with the tab. The costs will rise more if the projects are delayed until crises force them to proceed to save communities.

The warning signs have multiplied in recent years, especially in high-country communities, where second-home sales keep growth rates high and reservoirs and wells need regular replenishing by rain and snowmelt. Sporadic shortages have afflicted Pine, Strawberry, Mayer and other small towns in Yavapai and Coconino counties. Williams drilled one of the deepest domestic wells in the West to pull through the drought.

In some of those same areas, hundreds of families must haul water to their homes or pay to have it hauled. Their numbers are growing steadily as builders break ground in even more remote places where there are no municipal water systems and the groundwater is too deep or skimpy to drill wells.

Communities are going to great lengths to secure water supplies, and the scramble is generating tensions. Prescott and Prescott Valley bought land outside their limits for the right to drill wells and pipe water back to new subdivisions. Developers in Payson are importing water from unincorporated areas to meet the town's requirements that new homes come with an outside water source.

"They're trying to remedy their problems by taking what we have," said Chris Benjamin, who owns a small resort park in unincorporated Star Valley, the area targeted for the import plan. "They'll suck us dry. Something needs to be done so it's fair for everybody and not just the developer."

But there is evidence that even these efforts will not be able to avert a crisis. State and local records analyzed by The Arizona Republic document an alarming strain on rural water supplies.

An increasing number of individual wells are drawing groundwater at an unknown rate and in unknown quantities. More large subdivisions are being built or soon will be on land where water supplies are uncertain or clearly inadequate. Even if water is available, the number of homes drawing on it is escalating: Since 2001, projects involving an estimated 20,000 new houses have been launched across rural Arizona. Over the next decade or so, more than 200,000 new homes are planned, many in northwestern Mohave County, which is now sparsely populated.

The rural water crisis will be driven by those thousands of new homes, some in so-called wildcat subdivisions that sprout outside local zoning laws and a much greater number in more familiar planned communities in areas without proven water supplies.

It's that lack of assurance that adds to the risk. In Maricopa County and four other mostly urban areas of Arizona, cities and home builders must prove there is a 100-year water supply before the state will allow a new subdivision.

In rural Arizona, those protections don't exist. Subdivisions can be built even when the state knows there is insufficient water to support the new homes or when little or no information is available about the water source. Attempts to change the law have been repeatedly blocked by lawmakers and rural interests who don't want the state to tighten regulation, suggesting the demand for water will continue to grow even as the supply shrinks.

GROUNDWATER: Rising use raises concerns

In the arid West, water generally falls into one of three categories: surface water from streams or rivers, groundwater pumped from subsurface aquifers, and treated wastewater, or effluent. Rural Arizona's climbing population depends mostly on groundwater.

Groundwater, much of it in aquifers that took thousands of years to fill, is not a renewable resource. This supply is shrinking because it is being used faster than nature can replace it. For rural Arizona's growing population, however, there are few alternatives to groundwater. A few communities, such as Flagstaff and Williams, draw on small reservoirs. Cities and towns on the state's western border hold water rights to the Colorado River. But few other areas have developed sources other than groundwater.

The Central Arizona Project, which carries Colorado River water, serves only three counties: Maricopa, Pinal and Pima. Although a few places outside those counties were able to secure limited allocations from the canal, they have no way of moving the water.

All the surface-water rights in wide swaths of Yavapai and Gila counties were claimed by Salt River Project more than a century ago for its customers in metropolitan Phoenix. Consequently, residents in those counties can take none of the water that flows by in streams and rivers. That leaves groundwater.

The demand on groundwater reserves in rural Arizona is climbing steadily. In 1990, there were 1,382 new wells drilled outside the areas regulated by the state's groundwater management laws. In 2004, there were 2,894 new wells drilled. From 1990 to 2004, there were a total of 30,997 new wells, according to state records.

The problem is, in many areas, there's no way to know how many wells is too many because so little information exists on how much water the aquifers contain. The only measure is how fast water levels drop from the top of the aquifer.

State and local governments don't even know how much water is being pumped from the aquifers. The state monitors larger industrial and municipal wells. But Arizona law allows individual landowners to drill wells and use what groundwater they need without reporting just how much that is. Under the law, the owner of one of these "exempt" wells can pump up to 35 gallons a minute, or more than 18 million gallons a year, enough to serve a small subdivision of about 100 homes.

Most exempt wells produce only a tiny fraction of that amount. But that fraction adds up when multiplied by the thousands of unmonitored wells operating across rural Arizona. This uncertain drain on the aquifers makes it even harder to predict how many people an area can sustain.

Yavapai County has more wells than any other county in Arizona, more than 21,000 in all. Nearly half are unmonitored, more than 7,000 in the Verde Valley alone. Although many of those wells produce only enough water to serve one or two families and a small farm or ranch, the potential collective drain on groundwater supplies is enormous.

The life expectancy of such private domestic wells is also unknown. Experts say some could last indefinitely while others could dry up next week. And when they do go dry, cities such as Flagstaff and Prescott fear that homeowners will turn to them for water.

Although Arizona law distinguishes between groundwater and surface water, hydrologists see a fuzzier line. A well drilled too close to a river can draw water away from that river, reducing its flow. That threatens wildlife habitat and takes water from downstream users like metropolitan Phoenix.

Growth around Sierra Vista has devastated stretches of the San Pedro River. Riparian areas are disappearing as wells suck water away from the river, which now dries up along some stretches during warmer weather.

The Verde River is also showing signs of overpumping. Environmental activists fear that a plan by Prescott and Prescott Valley to pump water from land purchased in Chino Valley will further drain the river.

The proliferation of wells could dry up stretches of the Verde within 80 to 100 years, according to a study conducted for a citizens group that opposes plans to export water from Chino Valley.

And SRP warns that wells along the Verde will reduce water available for its users in Phoenix. (See the related story, "Pumping endangers state rivers and wildlife," on the next page.)

"What are we going to leave the next generation?" said Michelle Harrington, who is working on Verde River issues for the Center for Biological Diversity, an environmental advocacy group. "Is our heritage going to be bone-dry streams and rivers and cookie-cutter houses as far as the eye can see? I hope that's not where we're going."

WEAK LAWS: Buyers get little protection

Overpumping uncertain supplies of groundwater is part of a larger water-management problem clouding rural Arizona's future.

An especially alarming trend in the past five years is the accelerated growth of subdivisions that are being built even though developers and local and state officials know there may not be enough water to serve new homeowners over the long term.

Hundreds of homes may be in one of these subdivisions. Collectively, the number of homes could reach the hundreds of thousands in the next 25 to 30 years. These developments are being built in areas not covered by laws that tie growth to the available water supply.

Those laws, enacted in 1980, apply only to Maricopa, Pinal, Pima and Santa Cruz counties, along with the Prescott area of Yavapai County. In those areas, developers must show they have a 100-year assured supply of water, a requirement verified by the state.

Outside those areas, a builder need only seek review of subdivision plans by the state Department of Water Resources, which examines the intended water source and decides whether it is adequate. That finding is advisory only and doesn't prevent the builder from selling homes.

A review of state records by The Republic found that 60, or 35 percent, of the 171 subdivision applications processed since 2001 received an inadequate finding from the state.

Most applicants have proceeded with plans that would result in more than 4,100 new homes - and they did so legally. Moreover, the number of applications has been soaring. In 2001, applications for two subdivisions, with a total of 51 planned homes, were submitted. In 2004, applications for 39 subdivisions, with 2,447 planned homes, were filed.

Those figures reflect little of the anticipated growth in Yavapai or Cochise counties and none of the nearly 200,000 new homes that have been proposed for Mohave County.

In an increasing number of cases, according to records and interviews with state water officials, the developers don't even bother providing details about water sources. Some simply submit applications, fees and request a quick finding of inadequate water so work can move ahead.

The state requires the finding to be included in the public report issued by the Real Estate Department. But subsequent sellers don't have to repeat that notice, which means future buyers would have to take the initiative to dig into records at the Real Estate or Water Resources departments to find out whether the properties they were considering had adequate water.

Meanwhile, developers are continuing to exploit an older loophole in state law that also allows them to build homes on land without regard to the water supply. The law lets landowners skirt zoning regulations by creating wildcat subdivisions, or "lot splits."

If a piece of land is divided into five or fewer parcels, it isn't a legal subdivision and, therefore, isn't subject to laws that require streets, sewers or water service. Builders don't even have to submit their plans to state or local officials for review.

That means its water sources are not reviewed by any agency.

Those lot-split homes are typically served by private wells that are exempt from reporting requirements, which then raises the issue of overpumping. Although these developments don't match the scale of the larger "reviewed" subdivisions, they nonetheless are a significant drain on groundwater.

And in either case, the wildcat subdivision or the "reviewed" development built with an uncertain water supply, home buyers lack the basic protection provided to residents of the major metropolitan areas.

"I know regulation is not a good word in rural Arizona," said Rep. Tom O'Halleran, R-Sedona, who is one of the few state leaders to call for reform of rural water laws. "There's a fear of change. But I don't see how we can continue to deal with water the way we have."

The Legislature refused again this year to add enforcement authority to rural water planning laws, a position that O'Halleran finds indefensible.

"The home builders, the Realtors, the cattlemen, all of them helped stop the bill this year," he said. "Some of them had legitimate concerns - the rules about well depths need flexibility. But some-

where along the line, we need to connect land development with water availability."

When the groundwater laws were enacted, rural Arizona was excluded, in part because groundwater reserves were being depleted the fastest in the urban areas and, in part, to help ensure construction of the Central Arizona Project Canal.

Most lawmakers say the laws written in 1980, which cover about 20 percent of the state but include 80 percent of its population, wouldn't work in rural Arizona. But many leaders still believe rural residents deserve equal treatment.

"There may be a middle ground somewhere," said Alan Stephens, Gov. Janet Napolitano's chief of staff and water adviser. "The people who are property owners and the development community want to go slow, and that's reasonable. But the property can devalue over time if the water's not there, and that's a big concern. Growth is occurring in rural Arizona, and we have to prepare for it."

MAJOR OBSTACLES: Rising tensions, rising costs

That growth is creating tensions between rural communities, where competition for water resources is increasing.

Star Valley homeowners discovered that state laws can't stop plans by a developer to drill wells in their unincorporated community and export it to a Payson subdivision. The developer bought the land and Payson agreed to accept water from wells drilled on the land.

"What are we going to do if we don't have water?" said Gary Hatch, the fire chief in Star Valley. "We need someone to protect our rights."

Town officials say the planned wells draw on an aquifer deeper than the one used by Star Valley homeowners.

Moving water from Star Valley to a Payson development is not only legal, it also represents an emerging, if inelegant, form of water management meant to fill in gaps in state law. Payson is one of a handful of incorporated towns or cities that require builders to provide a source of water for new homes, a policy known as "bring your own water."

The hitch is that such approaches can pit one community against another and leave residents in unincorporated areas like Star Valley unprotected. It can also cause problems for water users far removed from the new homes.

In Yavapai County, Prescott and Prescott Valley have launched a $200 million project to import water from a ranch in Chino Valley, purchased by Prescott for $23 million. Water will be piped 30 miles to the west to serve new subdivisions.

Prescott and Prescott Valley officials say that the water is critical to meet demand and that the ranch is a first step toward broadening water resources for an area that can't benefit from the CAP Canal or other in-state supplies of surface water.

"We did not have a renewable supply that was federally financed. So we're forced to go to the only area where we can and build a pipeline," Prescott Valley Town Manager Larry Tarkowski said. "That's a hardship."

But critics fear the wells will destroy riparian habitat along the upper Verde River, which is fed by springs in Chino Valley.

In Mohave County, as many as 200,000 homes are planned over the next several decades on land near a new bridge spanning the Colorado River. This will create essentially a bedroom community for Las Vegas. Nevada would reap the economic benefits, said Tom Whitmer, manager of statewide water resource planning for the Arizona Department of Water Resources, "but the water is up to us."

Whitmer said the 200,000 homes would require groundwater, which is likely deep in that area and thus expensive to provide.

Several developers marketing lots north of Kingman, near Meadview, are advising buyers that they may have to drill 600 to 700 feet or more to find water, which is two to three times the depth of an average well in Arizona.

The challenges in Mohave County are not the same as the ones in Yavapai or Cochise or Gila counties, which is why elected officials struggle to agree on a solution.

Without such a solution, a crisis seems inevitable as the growing number of people building homes in rural communities runs into a diminishing water supply.

John Breninger, a retired engineer who lives in Pine, foresees a crisis if a community as small as his can't find a solution. "The population of Arizona is increasing, but the ability to produce water is not. Right now it's simple," he said. "The guy with the biggest pump wins."

How to get information on your water supply

If you're purchasing a home in rural Arizona and are unsure about the adequacy of its long-term water supply, two state agencies might be able to provide information.

To view the original public report produced for the subdivision, contact the Arizona Department of Real Estate. The phone number is (602) 468-1414. The agency is at 2919 N. 44th St., Suite 100, in Phoenix. Go to the web site for more information.

You'll need to know the name of the subdivision to find the public report, which will include a section on water.

• If you don't find the information at that agency, try the state Department of Water Resources.

Again, you will need the name of the subdivision and, if possible, the year it was built. The phone number is (602) 417-2400; ask for the Office of Assured and Adequate Water Supply. The agency is at 500 N. Third St. in Phoenix. For the addresses of other offices around the state, see the web site and click on "Contact Us."

If the home was built on a single lot or part of a subdivision with five or fewer homes, the builder is not required under state law to submit a plan for review.

As a result, it's unlikely that information on its water supply will be available.

Already adequate

The state has designated certain communities and water providers as having adequate water. If the home is located there, it didn't require a separate review.

• The communities: Springerville, St. Johns, Benson, Douglas, Willcox, Flagstaff, Page, Globe, Safford, Parker, Wickenburg, Kingman, Lake Havasu City, Bullhead City, Holbrook, Show Low, Taylor, Winslow and Pinetop-Lakeside.

• The private water companies: in Mohave County, the Cerbat Water Co., Golden Valley Water Improvement District, Joshua Valley Utility Co., Valley Pioneer Water Co., Arizona-American Water Works, Bermuda Water Co., North Mohave Valley Corp; in Navajo County, Arizona Water Co.; and in Yavapai County, the Little Park Water Co., Big Park Water Co., American Ranch Domestic Water Improvement District and Verde Santa Fe Water Co.