Water in Kansas:

Where We've Been, Where We're Headed

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For the past few years, the state's water community has been developing a 50-year water vision for the state of Kansas. The state's water agencies held hundreds of public meetings and conversations, gathering input from an unprecedented number of organizations and individuals. The result (on-line at https://kwo.ks.gov/water-vision-water-plan/water-vision) focused largely on two major issues facing the state: groundwater level declines in the Ogallala aquifer and sedimentation of large reservoirs, mostly in eastern Kansas. But public input made it clear that water quality was also a priority across the state.

As part of the process, fourteen regional teams were created to identify water issues in their areas and establish goals for addressing those issues. The planning process engaged many groups, individuals, and businesses, and created a heightened level of interest and concern in the state when it comes to water. But the 2017 Legislature failed to come up with sustained funding for the projects identified by this process.

Some of the problems identified are long-standing. Groundwater declines in the Ogallala aquifer, for example, have been an issue for decades. The Ogallala underlies about the western third of the state, and is the source of water for an economy based on irrigation. As early as the 1940s, there was recognition that groundwater supplies in the Ogallala were not infinite, and by the 1970s the state took steps to address long-term declines related to groundwater pumping. Based on the theory that local citizens understood and could best deal with the issue, five groundwater management districts were created. Using a variety of new technologies, irrigators became more efficient.

But water levels continued to decline. In places, wells no longer supported high-capacity pumping and landowners returned to dryland farming. And while various management scenarios were discussed, none was particularly popular. In places, eight intensive groundwater use control areas (IGUCAs) were established by the Division of Water Resources of the State Board of Agriculture. IGUCAs required various "corrective actions" to address problems. But the last IGUCA was created in 2008. Shortly after that, irrigators in northwestern Kansas developed the concept of a Local Enhanced Management Area (or LEMA), where landowners voluntary cut back water use by twenty percent in an attempt to extend the life of the aquifer. That area, largely in Sheridan County, was called Sheridan 6, and early results show that it had a positive affect on water levels, without a dramatic reduction in crop production.

Though LEMAs show promise as a management tool in dealing with groundwater declines in western Kansas, only one has been created thus far. The Northwestern Kansas Groundwater Management District has taken the first steps toward forming a district-wide LEMA, and conversations have taken place in other areas, especially in Finney and Kearny counties, where water-level declines have been severe.

The water vision process clearly sparked conversations about other ways to slow declines in the aquifer. There was renewed interest in improved technology, such as mobile drip irrigation systems and improved irrigation scheduling based on soil moisture probes, to make irrigation even more efficient. Also, recent research at the Kansas Geological Survey indicates that relatively modest reductions in water use (such as the twenty percent cutbacks in the Sheridan County LEMA) can extend the life of the aquifer substantially without huge impacts on production. In short, attempts at extending the life of the aquifer go on, with varying levels of success.

Reservoir sedimentation surfaced as an issue more recently, as a number of the state's reservoirs began to lose capacity to incoming silt. Because the state relies so heavily on those reservoirs for water supply, recreation, and wildlife habitat, allowing them to disappear through infilling is not an option. The Kansas Water Office, working with the U.S. Army Corps of Engineers, developed a first-of-its kind dredging project in John Redmond Reservoir in Coffey County, a reservoir that is particularly important for water supply but also particularly susceptible to sedimentation. That project, at a cost of about $25 million, demonstrated the feasibility of dredging as a near-term solution to reservoir sedimentation, but also

Dry Arkansas River bed. Photo by Joyce Wolf

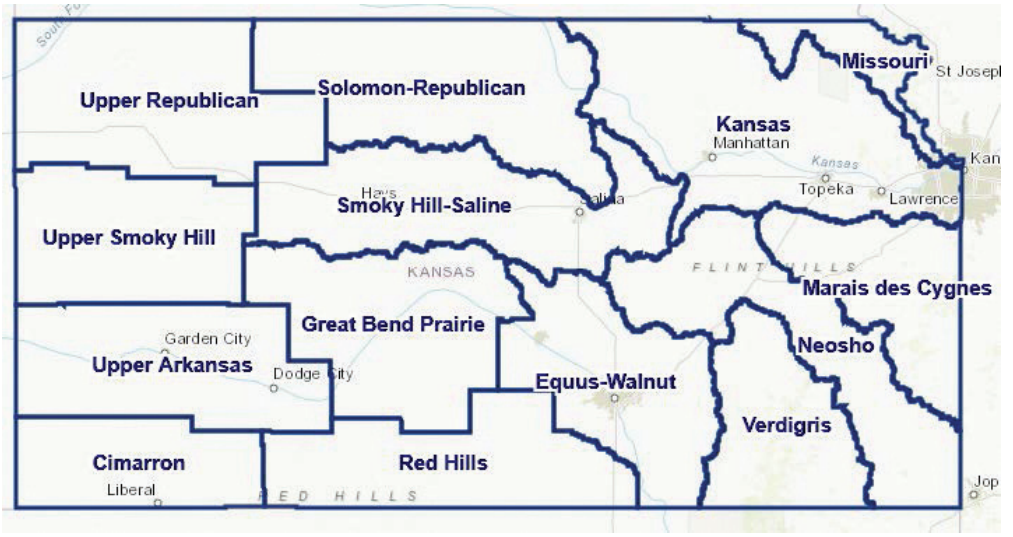

Illustration of the fourteen Regional Advisory Committees' territories, from the Kanas Water Office's website: kwo.ks.gov

called attention to the importance of preventing siltation in the first place. Given the scale of the issue and the substantial cost of dredging all of the reservoirs that need it, there is renewed emphasis on streambank stabilization to keep silt out of the reservoirs, though those remedies are costly as well, and their impact not completely understood.

Though in the water vision process, water quality was not immediately identified as a priority, it was a regular topic of conversation in public meetings. There was ongoing concern about blue-green algae blooms in the state's reservoirs; about high levels of various contaminants in the state's rivers; and about areas where nitrates, salinity, uranium, and other contaminants (both natural and man-made) cause problems for water use.

An area that received even less attention was reduced streamflow in many of the state's rivers and streams in western Kansas. The Arkansas River has generally been dry across much of western Kansas, from about Garden City to Great Bend, since the 1980s. Other smaller streams out west have also begun to experience drastically reduced flow, with an attendant impact on vegetation and wildlife that depends on that water. Tributaries of the Smoky Hill and the Republican River, for example, have seen substantially reduced flow.

Center-pivot irrigation depleting Ogallala aquifer.
Photo by John Charlton/KGS

The causes of that reduced flow are not entirely understood, but factors include river-water diversion for irrigation and pumping from alluvial wells, those wells that neighbor a stream or river and take water from the same aquifer that supports the stream during dry times. As water levels in those alluvial aquifers are reduced by pumping, much of it for irrigation, less water is available to flow back into the stream when it is dry. Without that water, streams cease to exist.

In some ways, the identification of water issues in the state has once again highlighted the divide between eastern and western Kansas. The Ogallala is primarily a problem out west, and reservoir sedimentation generally only occurs in the east. Yet it's clear that water issues in the two ends of the state affect each other. The economic engine of western Kansas, based on irrigation, supplies considerable tax funding for the entire state. Depleted streamflows in western Kansas eventually have an effect on streamflows in the eastern Kansas. And the budget for dealing with reservoir sedimentation will undoubtedly have an impact on taxes paid all over the state.

The past few years have made clear the variety and magnitude of water issues facing the state. The water planning process also made clear the range of actions that need to be taken to deal with those issues. And that range of action requires a level of resources and commitment that, thus far, the state has not been able to provide. The next few years will determine whether the water planning process was a step in dealing with the state's myriad water issues, or if it was another attempt that was better at identifying issues than resolving them.

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