Lower Arkansas River Basin Management Categories

January 2009

WATER MANAGEMENT CATEGORIES

The following categories include issues identified in the Lower Arkansas basin plan as items that require attention in addition to the basin priority issues. These issues are addressed within the following management categories:

- Water Management
- Water Conservation
- Public Water Supply
- Water Quality
- Flood Management
- Water-Based Recreation

These categories also correspond to the statewide management categories and policies of the *Kansas Water Plan* found in Volume II. These documents contain new policy issues and the existing policy and statutory framework that relate to the management categories.

ISSUE: WATER MANAGEMENT

Ground water recharge rates are variable throughout the basin, with both the Big Bend Prairie and Equus Beds aquifer areas managed under a safe yield policy. A majority of the basin is restricted or closed for new water appropriations. The basin is managed for sustainability, with the local leadership of Equus Bed Groundwater Management District No. 2 (GMD2), Big Bend Groundwater Management District No. 5 (GMD5) and the Kansas Department of Agriculture-Division of Water Resources.

Minimum desirable streamflow (MDS) levels have been set for 11 sites in the basin. According to an assessment conducted by the Kansas Water Office (KWO) in 2006, five MDS gages in the basin have shown improvement in the annual frequency, magnitude or duration of meeting minimum desirable streamflow.

Two Intensive Groundwater Use Control Areas (IGUCAs), Burrton and McPherson, have been initiated in the basin by GMD2. In 2006, the KWO calculated the median annual water level changes in wells from 1981 to 2005 for GMD2 and GMD5. The data assembled indicates that sustainable ground water yield has not yet been attained in GMD2 and GMD5.

Intensive management focus has been placed on the Rattlesnake Creek sub-basin over the last several years. Under the U.S. Department of Agriculture, Natural Resources Conservation Service's Environmental Quality Incentives Program (EQIP), grants have been offered to irrigators in the Rattlesnake Creek subbasin "quick response area" to transition to dryland farming or other non-irrigated use. Non-use of the irrigation water right must be for a minimum of four years. The Rattlesnake Creek is also an eligible area for state purchase and retirement of irrigation water rights through the Water Right Transition Assistance Program.

Rattlesnake Creek. Photo courtesy KGS.

Applicable *Kansas Water Plan* Objectives

- Reduce water level decline rates within the High Plain aquifer and implement enhanced water management in targeted areas.
- achieve sustainable yield management of Kansas surface and ground water sources outside of the Ogallala aquifer and areas specifically exempt by regulation. Sustainable yield management would be a goal that sets water management criteria to ensure long term trends in water use will move as close as possible to stable ground water levels and maintenance of sufficient streamflows.
- Meet minimum desirable streamflow at a frequency no less than the historical achievement for the individual sites at time of enactment.

Applicable Programs

The following programs help to meet the objectives in the Water Management category. For more information on the programs and associated policies, see the Programs Manual.

- Kansas Department of Agriculture-Division of Water Resources: Water Appropriation Program
- Kansas Department of Agriculture-Division of Water

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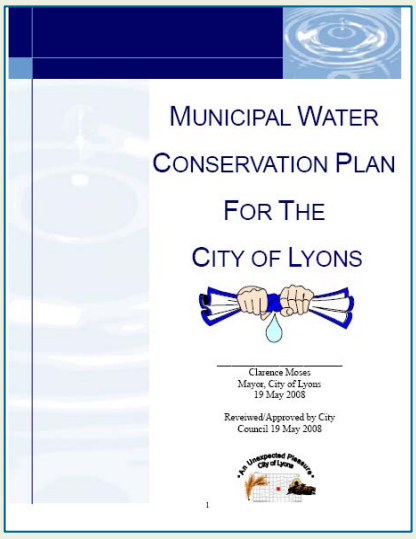
Resources, Subbasin Water Resource Management Program
- Kansas Geological Survey, Kansas Department of Agriculture, Division of Water Resources: Water Well Measurement
- Kansas Water Office: State Water Planning Program
- State Conservation Commission: Water Right Transition Assistance Program
- USDA-Natural Resources Conservation Service: Environmental Quality Incentive Program (EQIP)
- Kansas Geological Survey: High Plains Aquifer Technical Assistance Program

ISSUE: WATER CONSERVATION

Water conservation is essential for the effective management of water resources in the basin to assure that a sufficient, long-term supply of water is available for the beneficial uses of the people of the state. Conservation is defined by Webster's Dictionary as a careful preservation and protection of something, especially the planned management of a natural resource to prevent exploitation or destruction. Water conservation is a part of maintaining a long-term water supply for Kansas.

Water conservation activities apply to all uses: irrigation, municipal, industrial, etc., and from all sources. Irrigation accounted for nearly 75% of all reported water pumped or diverted in the basin. Municipal use accounted for 15% of water used in the basin (2006).



Of the 614 public water suppliers in Kansas that had an approved conservation plan in place as of December 31, 2008, 81 plans were for suppliers in the Lower Arkansas basin. One hundred and eighty four conservation plans have been approved for irrigation water rights. The number of diversion points in central Kansas, including the Lower Arkansas basin, that reported irrigation application rates over the regional average decreased for the period from 1991 to 2005. In the 2006 water use report, 85% of the points of diversion in the Lower Arkansas basin that pumped water were metered.

Applicable *Kansas Water Plan* Objectives

- Reduce the number of public water suppliers with excessive unaccounted for water by first targeting those with 30 percent or more unaccounted for water.
- Reduce the number of irrigation points of diversion for which the amount of water applied in acre feet per acre (AF/A) exceeds an amount considered reasonable for the area.
- All non-domestic points of diversion meeting predetermined criteria will be metered, gaged or otherwise measured.
- Conservation plans will be required for water rights meeting priority criteria under K.S.A. 82a-733 if it is determined that such a plan would result in significant water management improvement.

Applicable Programs

The following programs help to meet the objectives in the Water Conservation management category. For more information on the programs and associated policies, see the Programs Manual.

- Kansas Department of Agriculture-Division of Water Resources: Water Appropriation Program
- Kansas State University Research and Extension: Water Conservation and Management Program
- State Conservation Commission: Water Resources Cost-Share Program
- Kansas Water Office: Water Conservation Program
- USDA-Farm Service Agency: Conservation Reserve Program

ISSUE: PUBLIC WATER SUPPLY

The primary approach to addressing public water supply issues in the basin focuses on ensuring that there are adequate supplies of surface and ground water within the basin to meet future water demands, reducing the number of public water supply systems that are vulnerable to drought and ensuring that systems have the technical, financial and managerial capacity to meet future needs for water quality and quantity.

There are 118 public water suppliers in the basin, including 28 rural water districts. There are currently four public wholesale water supply districts in the basin. Ground water is the primary source for most public water supplies, accounting for over 90% of the total supply. The two major sources of ground water are the Equus Beds aquifer in Harvey, McPherson, eastern Reno and north-

ern Sedgwick counties, and the Great Bend Prairie aquifer, predominately underlying Pratt, Stafford, southern Barton, Edwards, Kiowa and Reno counties. Streamflows in the basin are highly variable within the year and from one year to another and so generally are not used as sources of public water supply. Cheney Reservoir, located on the North Fork of the Ninnescah River in Reno, Kingman and Sedgwick counties, supplies a portion of the water supply for the City of Wichita. Wellington Lake serves as a surface water supply for the City of Wellington.

Aerial of Wichita, Kansas. Photo courtesy of KGS.

Coping with drought presents a challenge for public water suppliers. During drought periods, the amount of raw water available typically is reduced at the same time customer demand for water increases. While all suppliers may be potentially impacted, some are particularly vulnerable. Of the public water suppliers in the basin, 13 (10%) were considered drought vulnerable in 2006.

Applicable *Kansas Water Plan* Objectives

- Ensure that sufficient surface water storage is available to meet projected year 2040 public water supply needs for areas of Kansas with current or potential access to surface water storage.
- Less than five percent of public water suppliers will be drought vulnerable.
- Ensure that all public water suppliers have the technical, financial and managerial capability to meet their needs and to meet Safe Drinking Water Act requirements.

Applicable Programs

The following programs help to meet the objectives in the Public Water Supply management category. For more information on the programs and associated policies, see the Programs Manual.

- Kansas Department of Agriculture-Division of Water Resources: Water Appropriation Program
- Kansas Department of Health and Environment: Public Water Supply Program
- Kansas Water Office: State Water Planning Program
- Kansas Water Office: Water Conservation Program
- Kansas Department of Health and Environment: Capacity Development Program

ISSUE: WATER QUALITY

Water quality and related water resource issues are addressed through a combination of watershed restoration and protection efforts utilizing voluntary, incentive based approaches, as well as regulatory programs (see Watershed Restoration and Protection Basin Priority Issue).

All the counties within the basin with the recent addition of Comanche County have developed sanitary/ environmental codes, and have a sanitarian funded by the Local Environmental Protection Program (LEPP). Counties in the basin that have countywide planning and zoning programs include Barton, Ford, Harper, Harvey, Kingman, Marion, McPherson, Pawnee, Reno, Rice, and Sumner. All conservation districts in the basin have adopted nonpoint source pollution management plans. Buffer coordinators have also been employed in nine counties in the basin to facilitate enrollment of stream buffers in the continuous Conservation Reserve Program (CRP) and State Water Quality Buffer Initiative. Several entities and municipalities in association with the Wichita urban area are included in the Phase I and Phase II National Pollutant Discharge Elimination System (NPDES) Stormwater Program. There are seven organized watershed districts in the basin.

Applicable *Kansas Water Plan* Objectives

- Reduce the average concentration of bacteria, biochemical oxygen demand, solids, metals, nutrients, pesticides and sediment that adversely affect the water quality of Kansas lakes and streams.
- Ensure that water quality conditions are maintained at a level equal to or better than year 2000 conditions.
- Reduce the average concentration of dissolved solids, metals, nitrates, pesticides and volatile organic chemicals that adversely affect the water quality of Kansas ground water.
- Maintain, enhance or restore priority wetlands and riparian areas.
- Nutrient reduction goals will be included in all Watershed Restoration Protection Strategy (WRAPS) pro-

jects within the basin.
- All public water suppliers will complete and implement a source water protection plan.

Applicable Programs

The following programs help to meet the objectives in the Water Quality management category. For more information on the programs and associated policies, see the Programs Manual.

- Kansas Department of Health and Environment: State Water Plan Program (Contamination Remediation)
- Kansas Corporation Commission: Conservation Division Programs
- Kansas Department of Health and Environment: Local Environmental Protection Program
- Kansas Department of Health and Environment: Watershed Management Program
- State Conservation Commission: Nonpoint Source Pollution Control Program
- State Conservation Commission: Water Resources Cost-Share Program

ISSUE: FLOOD MANAGEMENT

Kansas Water Plan flood management guidance has emphasized targeting watershed dam construction assistance to priority watersheds encouraging participation in the National Flood Insurance Program and preparing updated floodplain maps for priority communities.

In 1993, the Kansas Department of Agriculture-Division of Water Resources launched the *Kansas Flood Mapping Initiative.* The FY 2005 *Kansas Water Plan* Flood Management Policy Section update identifies Sumner, Sedgwick, McPherson, and Barton counties to be mapped, remapped or to have existing information digitized in the Lower Arkansas basin. Financial assistance from the *State Water Plan Fund* has been provided for this mapping.

There is growing national concern that many small flood control dams that were built by local watershed districts with U.S. Department of Agriculture technical and financial assistance are at or near the end of their 50-year planned design life. Watershed Rehabilitation Amendments to the Watershed Protection and Flood Prevention Act of 1954 (PL 83-566) were enacted in 2000. These amendments authorize the USDA Natural Resources Conservation Service (NRCS), to work with local communities and watershed project sponsors to address the public health and safety concerns and potential adverse environmental impacts of aging dams.

Only dams that were constructed through USDA assisted water resource programs or authorizations qualify for rehabilitation assistance. Rehabilitation projects must be cost shared between the federal government and local project sponsors. The NRCS may provide up to 65% of the total cost of the rehabilitation project. To date, the NRCS has received one application for dam rehabilitation planning in Kansas. This request was for the Sand Creek Site #2 in Harvey County. There is about a 3-year project implementation time period.

Applicable *Kansas Water Plan* Objectives

- Reduce the vulnerability to damage from floods within identified priority communities or areas.

Applicable Programs

The following programs help to meet the objectives in the Flood Management category. For more information on the programs and associated policies, see the Programs Manual.

- Kansas Department of Agriculture-Division of Water Resources: Water Structures Program/Floodplain Management
- Kansas Department of Agriculture-Division of Water Resources: Water Structures Program/Dam Safety
- Kansas Division of Emergency Management: Hazard Mitigation Grants Program
- FEMA: National Flood Insurance Program
- State Conservation Commission: Watershed Dam Construction Program
- State Conservation Commission: Watershed Planning Assistance Program

Arkansas River near Wichita. Photo courtesy KGS.

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ISSUE: WATER BASED RECREATION

Even though the Lower Arkansas basin has a wide variety and fairly high number of public water recreation sites proportional to the area covered, there is a demand for more water based recreation facilities to meet the needs of a comparatively large population.

The Arkansas River is one of the three streams in the state that are considered navigable as determined at time of statehood, and as such the land is considered public up to the channel's high water mark. Cheney Reservoir and State Park offer recreational opportunities including fishing, sailing, hunting and camping. The approach to enhancing opportunities for recreation is to improve access to water bodies in the basin.

Applicable *Kansas Water Plan* Objective

- Increase public recreational opportunities at Kansas lakes and streams.

Applicable Programs

The following programs help to meet the objectives in the Water-Based Recreation management category. For more information on the programs and associated policies, see the Programs Manual.

- Kansas Department of Wildlife and Parks: Rivers and Stream Access
- Kansas Department of Wildlife and Parks: Walk In Hunting Access Program
- Kansas Department of Wildlife and Parks: Fishing Impoundments and Stream Habitats Program/Walk-in Fishing

ISSUE: WETLAND AND RIPARIAN MANAGEMENT

The primary approach to wetland and riparian management in the basin focuses on providing technical and financial assistance to landowners to protect and restore resources in priority watersheds through the implementation of best management practices. Wetland and riparian management is addressed as a basin priority issue in the Lower Arkansas basin (see Watershed Restoration and Protection Basin Priority Issue). Cheyenne Bottoms and Quivira National Wildlife Refuge are designated wetlands of international importance that provide excellent birding, photography and hunting opportunities. In 2008, construction began on a Wetland Interpretive Center at Cheyenne Bottoms to expand public awareness of the Bottoms and the nearby Quivira wetland complex.

Riparian lands along the Arkansas River have been seriously impacted by the infestation of non-native phreatophytes. Of greatest concern are the effects tamarisk (salt cedar) and Russian olive are having on the basin's native riparian ecosystems.

Applicable *Kansas Water Plan* Objective

- Maintain, enhance or restore priority wetlands and riparian areas.

Applicable Programs

The following programs help to meet the objectives in the Wetland and Riparian management category. For more information on the programs and associated policies, see the Programs Manual.

- Kansas Forest Service: Forest Stewardship Program and Conservation Tree Planting Program
- State Conservation Commission: Riparian and Wetland Protection Program
- Kansas Water Office: State Water Planning Program
- Kansas Department of Wildlife and Parks: State Parks and Wildlife Areas Planning and Development
- Kansas Department of Wildlife and Parks: Wildlife Habitat Improvement Program

Tamarisk Shrub.