

Kansas Water Plan

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Overview

Under Kansas law, a public water supply system is defined as a system for the provision to the public of piped water for human consumption, if such system has at least 10 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.^(1,2) There are two categories of public water supply systems: community and non-community. Community systems serve a year-round population; non-community systems serve a non-residential population such as motels, parks or daycare facilities.

Kansas has about 1,100 public water supply systems, serving approximately 2.6 million Kansas residents. Fifty-nine percent of Kansas public water supply systems serve 500 or fewer people, while only five systems serve over 100,000.⁽³⁾ Public water supply systems are typically managed by a public entity, such as a municipality or a rural water district, but may also be managed privately. The governing bodies of public water supply systems bear primary responsibility for providing an adequate supply of high quality drinking water to the public.

The Kansas Department of Health and Environment (KDHE) has authority under Kansas law⁽⁴⁾ to regulate public water supply systems through permitting, investigations and regulations. KDHE administers all requirements of the Federal Safe Drinking Water Act and provides some technical and financial assistance. Additional technical and financial assistance is also provided to public water suppliers through a variety of programs administered by other state and federal agencies.

Federal Safe Drinking Water Act (SDWA)

The SDWA was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources. The SDWA does not regulate private wells which serve fewer than 25 individuals.⁽⁵⁾

SDWA authorizes the United States Environmental Protection Agency (EPA) to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. The EPA, individual states and public water systems then work together to make sure that these standards are met. The KDHE has adopted standards consistent with the SDWA for Kansas public water suppliers.

Originally, SDWA focused primarily on treatment as the means of providing safe drinking water at the tap. The 1996 amendments greatly enhanced the existing law by recognizing source water protection, operator training, funding for water system improvements and public information as important components of safe drinking water. This approach ensures the quality of drinking water by protecting it from source to tap.



Tri-District Clarifier. Photo courtesy Dennis Schwartz

Capacity Development Strategy

The SDWA, as amended in 1996, makes capacity development an important strategy in preventing public water supplier problems. This program is located within the KDHE.⁽⁶⁾ Capacity development involves helping public water suppliers improve their finances, management, infrastructure and operations so they can provide safe drinking water consistently, reliably and cost-effectively. Capacity has three components: technical, financial and managerial, each of which must be adequate for a public water supplier to achieve overall capacity. *Technical capacity* refers to the physical infrastructure of the water system, including source water adequacy, infrastructure adequacy (wells and/or water intakes, treatment, storage and distribution) and the ability of system personnel to implement requisite technical knowledge. *Financial capacity* refers to the financial resources of the water system including revenue sufficiency, credit worthiness and fiscal controls. *Managerial capacity* considers the management structure of the public water supplier, including ownership accountability, staffing and organization and effective internal and external relationships.

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Kansas Water Plan Goals, Policies and Objectives

The Water Resources Planning Act⁽⁷⁾ provides the statutory authorization for addressing public water supply management in the *Kansas Water Plan*. This Act established long-range goals for the management, conservation and development of the waters of the state, including:

- The development of sufficient supplies to meet anticipated future needs through planning and construction of multipurpose reservoirs and through the acquisition from the federal government of storage in federal reservoirs and by agreements with the federal government regarding the use of storage;
- The efficient, economic distribution of the water supplies of the state;
- The design of municipal water systems to provide an adequate water supply to meet the needs during a drought having a two percent chance of occurrence; and
- The achievement of the primary drinking water standards.

The Kansas Water Authority (KWA) has approved objectives as part of the *Kansas Water Plan*. These objectives provide established targets for quantifying progress in implementing the *Kansas Water Plan*. Three objectives address public water supplies:

- 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; and
- Ensure that all public water suppliers have the technical, financial and managerial capability to meet their needs and to meet SDWA requirements.

In addition, objectives in the [Water Conservation Management Section](#)⁽⁸⁾ of the *Kansas Water Plan* provide guidance to public water suppliers to use water wisely by targeting excessive unaccounted for water use and the development of water conservation plans. The KWO contracts with Kansas Rural Water Association (KRWA)⁽⁹⁾ to provide technical assistance to public water suppliers with over 30% unaccounted for water. The KWO also develops guidelines for municipal water conservation plan development to assist in meeting these objectives.⁽¹⁰⁾

Sources of and Access to Supply

Most Kansas public water suppliers have their own source of raw water. Such sources include wells in alluvial or deeper aquifers, streams and rivers, springs or municipal lakes. Several suppliers use lakes developed through the Kansas Multipurpose Small Lakes Program or obtain water from the Kansas Water Marketing Program. Many public water suppliers also buy finished water at wholesale from another supplier, either as a sole source of supply or to supplement their own source(s).

In eastern Kansas, the primary source of water is surface water: rivers, federal reservoirs, multipurpose small lakes and municipal lakes. In western Kansas, the primary source is ground water drawn from wells that reach into the water bearing aquifers. While 69% of the state's public water systems rely upon ground water sources, these systems serve only 27% of the population (Figure 1).⁽³⁾

Kansas Community Water Supply Source Data

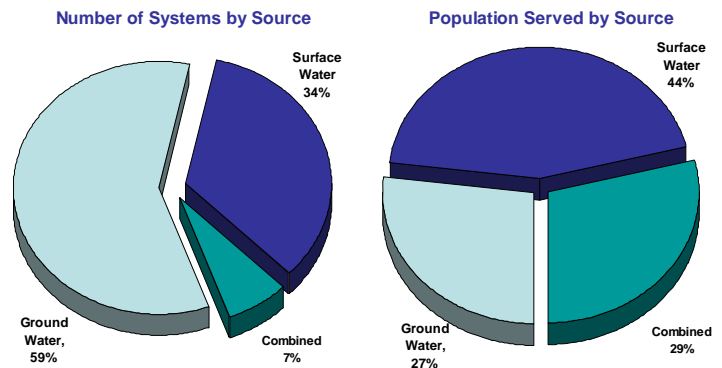


Figure 1.

Graphic courtesy KDHE.

Kansas Water Appropriation Program

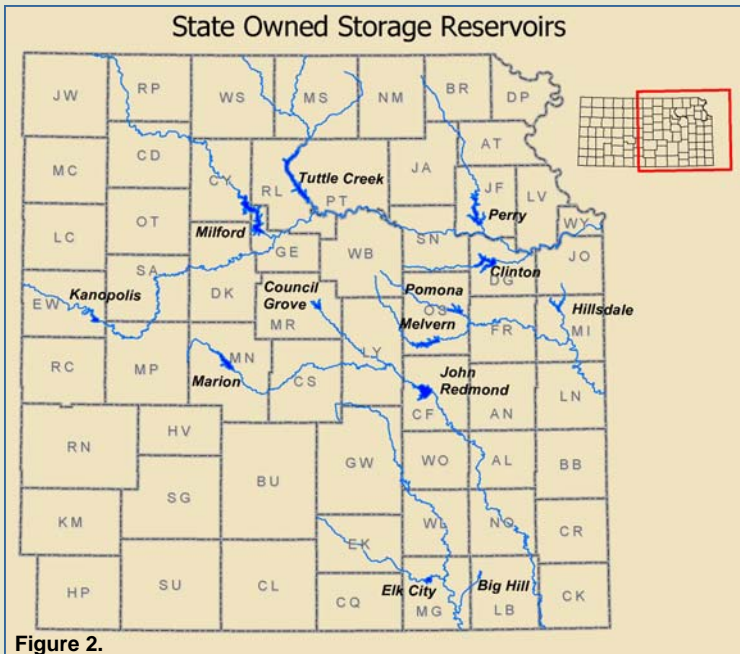
Public water suppliers that have their own source of supply must obtain a water right from the Kansas Department of Agriculture-Division of Water Resources (DWR). The Water Appropriation Program⁽¹¹⁾ provides for the processing, administration and enforcement of water rights. The maximum annual authorized quantity of water that can be diverted is established by the water right. An annual water use report is required to be submitted. Information from those reports is summarized annually.⁽¹²⁾

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Kansas Water Marketing Program

The State of Kansas has purchased water supply storage in 13 federal reservoirs (Figure 2). Water from this storage space is accessible via contract from the KWO for municipal or industrial use.⁽¹³⁾



The State Water Plan Storage Act⁽¹⁴⁾ enacted in 1974 and amended since, established the basic framework of the current Water Marketing Program. The basic principles of the program are:

- The entire system of reservoirs is treated as one large reservoir for pricing purposes, so that no particular user or region of the state receives preferential treatment in the pricing of water;
- The state requires payment of water storage costs by the municipal and industrial entities benefiting from that storage;
- The state retains material and fiscal control of the water stored in the reservoirs covered by agreements with the federal government;
- The state only sells raw (untreated) water to users at the reservoir. The state is not responsible for the delivery or treatment of water;
- Contract holders must pay a 50% minimum annual payment, but a purchaser may negotiate a graduated minimum “take or pay” schedule; and
- Purchasers must have a state approved water conservation plan prior to approval of a water purchase contract.

In 2006, the KWO developed the first *Water Marketing Program Capital Development and Storage Maintenance Plan*⁽¹⁴⁾ to implement recommendations in the *Kansas Water Plan* approved by the KWA in 2004. This report recommends a timeframe in which to begin paying for storage in two reservoirs (Hillsdale and Clinton) that are not currently called into service. This was implemented in that year as a component of the approach to address *Kansas Water Plan* policy section, *Long-Term Financial Solvency of the Kansas Water Marketing Program*.⁽¹⁵⁾

Kansas Assurance Program

The Kansas Water Assurance Program⁽¹⁶⁾ allows coordinated operation of state owned or controlled water supply storage space in federal reservoirs to satisfy downstream municipal and industrial water rights during drought conditions. Three water assurance districts are operational in the Kansas-Lower Republican, Marais des Cygnes and Neosho River basins.

Multipurpose Small Lakes Program

The Multipurpose Small Lakes Program⁽¹⁷⁾ was authorized by the 1985 Legislature as a result of recommendations in the *Kansas Water Plan*. This program provides financial assistance for flood protection, public water supply storage and water related recreational facilities while requiring a Local Nonpoint Source Pollution Management Plan to be developed for the project area. The program provides assistance for new construction or the renovation of an existing lake. Eligible sponsors as defined in statute include any entity with taxing authority and right of eminent domain. The KWO reviews all projects for future public water supply needs. Eleven multipurpose small lakes that have been constructed through this program include public water supply storage (Figure 3).⁽¹⁸⁾

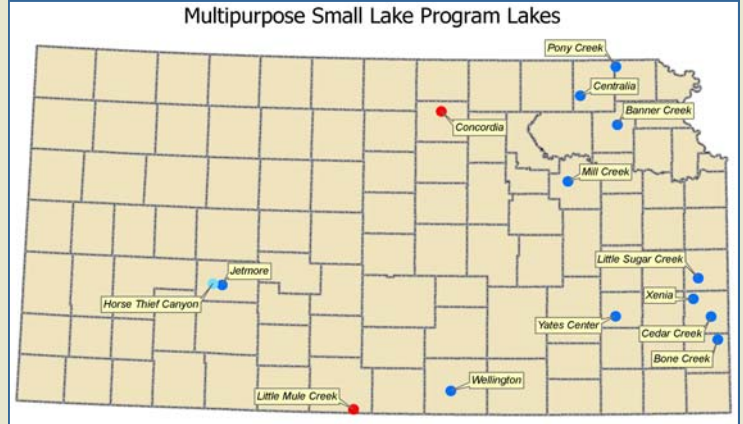


Figure 3. Construction Existing Inactive

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Water Supply Restoration Program

The Water Supply Restoration Program (WSRP) is a voluntary, incentive-based water management program designed to assist eligible sponsors to restore and protect water supply lakes where appropriate watershed restoration and protection are planned or in place. Eligible components for the financial assistance are removal of sediment, rehabilitation of structures, watershed protection and engineering fees.⁽¹⁹⁾



Tri-District. Photo courtesy Dennis Schwartz

Interlocal Cooperation

The state encourages the development of regional public water supply systems.⁽²⁰⁾ Regionalization is a key state strategy for ensuring that small systems attain and maintain technical, financial and managerial capacity. Regionalization is further encouraged by Kansas statute.⁽²¹⁾ The Secretary of the KDHE shall, “. . . in consultation with the KWO, encourage regional cooperative public water supply projects in accordance with the public water supply regionalization strategy of the *Kansas Water Plan*. . . .” The development of regional systems provides a mechanism for the efficient distribution of raw and finished water supplies for municipal use from existing state owned storage in federal reservoirs, multipurpose small lakes or other supply sources.

Regionalization of public water supply service in Kansas often involves formation of a public wholesale water supply district (PWWS).⁽²²⁾ PWWSs are commonly comprised of several municipalities and rural water districts that rely upon the water provided by the PWWS to supplement their own water supply sources or to provide their entire water supply. PWWSs provide the advan-

tages of economies of scale that commonly are not available to their individual members.

Twenty-five PWWSs have been organized in Kansas to date. Not all of these districts are actively delivering water (Figure 4). Several have been organized recently and have not yet had the time to develop the infrastructure to deliver water. Others were formally organized but never became operational.⁽²³⁾

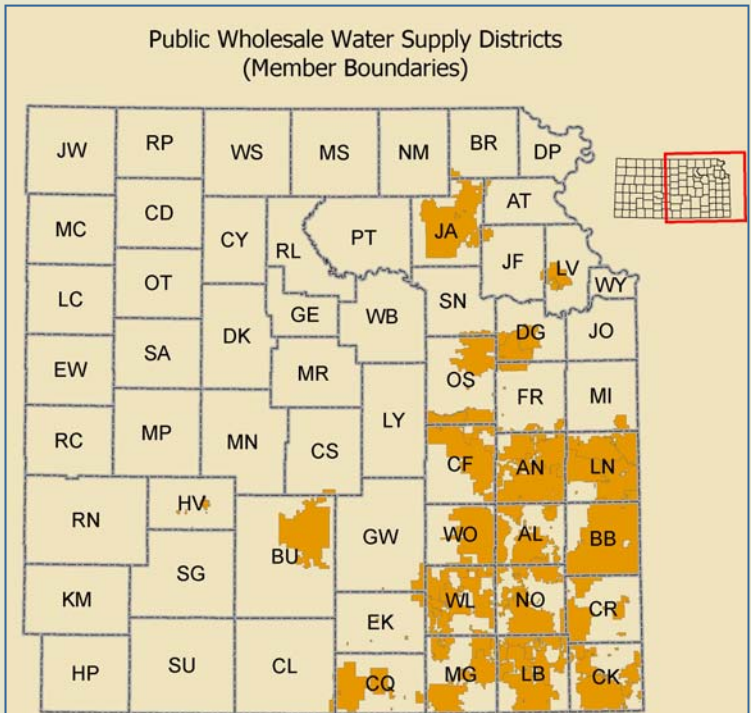


Figure 4.

WATER DEMAND

Water Use

Water use is regulated by the DWR. Annual water use reports are submitted by all public water suppliers with water rights.⁽²⁴⁾ The DWR also requests annual water use reports from water suppliers purchasing water from the State Water Marketing Program and from water suppliers purchasing water wholesale from entities that have water rights or marketing contracts. In 2006, 771 public water suppliers filed water use reports. While the range in 2006 was from a high of 886 to a low of 29 gallons per capita day (gpcd), it is more enlightening to compare usage by utilities of the same size and in the same geographic area. The average gpcd usage for public water suppliers in 2006 ranged from a high of 293 in western Kansas to a low of 84 in eastern Kansas.⁽¹²⁾

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Demand Projections

The KWO did a set of demand projections to 2040 for all public water suppliers in 1998. Though this information is still utilized by many entities, it should be used with caution, as it has not been updated since. However, the projections do lend guidance for planning purposes. The projections for population and demand for public water suppliers can be found on the KWO web site.⁽²⁵⁾

Supply and Demand Projections

In order to identify future potential surface water supply vulnerabilities in select eastern Kansas basins, the KWO initiated a mainstem river corridor surface water supply and demand projection project.⁽²⁶⁾ Supply and demand projections were estimated under a severe drought scenario. The initial estimates indicated concerns with meeting demands during drought in the Neosho basin within the next decade. For other eastern basins the concerns with meeting demands during drought were within the next several decades; while for still other basins, the next century. Basin priority issues to focus on the concerns are being developed in the basin sections of the Plan. More specific modeling to maximize supply to meet demands is being undertaken. (See [Kansas Water Plan Volume III, Basin Issues](#).)

Drought

Drought can severely challenge a public water supplier through depletion of the raw water supply and greatly increased customer water demand. Even if the raw water supply remains adequate, problems due to limited treatment capacity or limited distribution system capacity may be encountered.

In 2006, the KDHE assessed the number of drought vulnerable public water supply systems in Kansas based primarily upon 2002 and 2005 Capacity Development Survey information. The definition of drought vulnerability and the drought limitation categories used were similar to those used in a KWO 2001 assessment. Ninety-three systems were assessed to be drought vulnerable in 2005 as compared to 133 drought vulnerable systems identified in the KWO 2001 assessment. Comparisons were also made to earlier assessments dating back to 1979.

The KDHE assessment illustrates the progress that has been made by public water systems in reducing their drought vulnerability. A significant aspect of this pro-

gress has been related to development of PWWSDs that utilize raw water sources that are not drought sensitive.⁽²⁷⁾

Demand Management During Drought

The KWO has developed guidelines for development of municipal water conservation plans that contain a drought contingency component.⁽¹⁰⁾ Approximately 80 drought vulnerable public water suppliers have state-approved water conservation plans. Water conservation is also an effective mechanism for reducing long-term demand by reducing waste and lowering the amount of water used on a per capita basis.

Quality of Drinking Water

To help ensure high quality drinking water, several regulatory programs have been developed and implemented by the KDHE. These programs require water quality to be monitored for several constituents, ranging from microbiological organisms to inorganic and organic chemicals and radionuclides. The KDHE Drinking Water Program reports the overall compliance rate for all Kansas public water suppliers for all drinking water regulations during 2006 was 97%.⁽³⁾

Another provision of the 1996 amendments to the SDWA requires each state to develop a Source Water Assessment Program. A source water assessment for 763 public water supply systems that treat and distribute raw source water was completed by the KDHE. The assessment includes the delineation of the source water assessment area, an inventory of potential contaminant sources, susceptibility analysis and public information. As indicated in the Kansas Source Water Assessment (January 2004), 54% of the 677 systems utilizing a ground water source received a low susceptibility analysis score, 45% were scored moderate and one percent high. Fifty-one percent of surface water systems received low susceptibility scores, with 43% scoring moderate and six percent high. Communities are being encouraged by the KDHE to use these assessments as the foundation for development of a local source water protection plan.⁽²⁸⁾ The [water quality section](#) of the *Kansas Water Plan* also incorporates the source water protection concept.⁽²⁹⁾

Source of Assistance for Public Water Suppliers

Although public water suppliers in Kansas have a good track record of compliance, they face many challenges.

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The KDHE has prepared a listing of technical and financial assistance available to public water suppliers. The fact sheet can be found on the KDHE web site.⁽³⁰⁾

Some highlights are:

The KDHE Public Water Supply Program provides regulatory oversight and technical assistance to public water suppliers to assure safe potable drinking water to Kansas residents. The agency is responsible for implementation of the KDHE Drinking Water State Revolving Loan Fund Program⁽³¹⁾ which provides low interest loans to public water supply systems for infrastructure projects to help achieve or maintain compliance with SDWA requirements.

The KWO provides or arranges to provide technical assistance to public water suppliers to develop water conservation plans and address high unaccounted for water and other problems.

USDA Rural Development Water Loan and Grant Program provides financial assistance for water and sewer projects in rural areas and towns up to 10,000 people.

The Community Development Block Grant Program administered by the Kansas Department of Commerce (KDOC) provides grants for water and sewer infrastructure projects. Project applicants are required to discuss proposed projects with an interagency committee of funding agencies including the KDOC, KDHE and U.S. Department of Agriculture (USDA) Rural Development. Water project applications are reviewed by the KWO for input prior to selection of projects for funding.

Recommendations:

For the storage not committed to a user contract and not being paid for, the state should negotiate with the U.S. Army Corps of Engineers for most beneficial investment of state resources by:

- Establishing a joint, interest-bearing escrow account;
- Applying credit against the principal and interest for state investment in reservoir protection and restoration; and
- Requesting reallocation of water supply storage to water quality storage to serve minimum releases and to reduce the total storage quantity payment in Milford and Perry reservoirs.

Resources

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