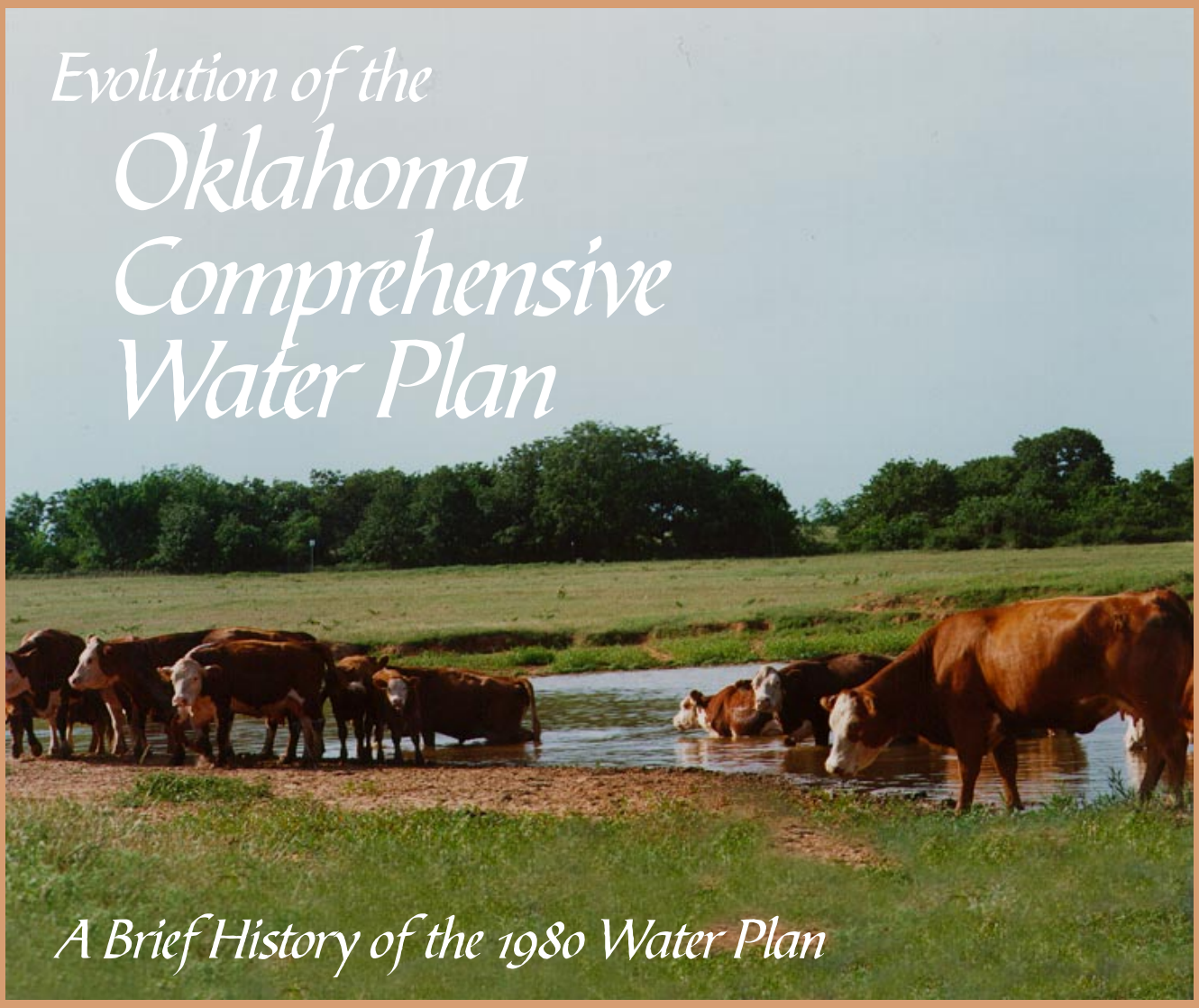


Evolution of the Oklahoma Comprehensive Water Plan

A Brief History of the 1980 Water Plan

The State Legislature planted the seeds for development of a state water plan through creation of the Governor's Water Study Committee in 1955. Citizen and legislative representatives of the Committee, appointed by Governor Raymond Gary to gather public opinion on the state's critical water problems and recommend appropriate solutions, held meetings throughout the state to obtain first-hand knowledge of Oklahoma's water situation and identify future water resource needs.

A landmark recommendation of the committee led to creation of the OWRB in 1957. The Water Board was initially given the task of managing the state's water supplies and developing a fair, long-range plan to assure the best and most effective use of water to meet the needs of Oklahoma citizens. Despite this legislative authority, limited staff and funding impeded the OWRB's early attempts to create a state water plan.

A major catalyst to the Board's efforts proved to be the federal Water Resources Planning Act of 1965 that provided grants to states to prepare individual water management plans. As part of this preliminary planning effort, the OWRB, in conjunction with other appropriate local, state and federal entities, compiled 11 reports collectively entitled the *Appraisal of Water and Related Land Resources of Oklahoma*. These reports assessed hydrologic, economic, geologic and social characteristics of each of the state's planning regions; identified local water problems; and proposed specific water development projects.

Still, this effort failed to fully incorporate long-range projections of water problems and requirements. In 1974, Senate Bill 510 gave specific statutory authority to the OWRB to expand on the appraisals and construct from them a comprehensive state water plan for submission to the State Legislature.

The initial phase of plan development utilized state agencies, universities and numerous federal agencies which, along with the OWRB, comprised the OCWP's Planning Committee. The Corps of Engineers' Planning Assistance to the States Program, Bureau of Reclamation's Technical Assistance to the States Program, write-in requests from the Congressional Delegation and other cooperative financial agreements were essential in funding plan formation. Substate planning districts assisted in developing population projections and future water requirements and, in an effort to gain broad-based input and public support for the plan, open meetings were held throughout Oklahoma.

Because of central Oklahoma's immediate water needs and the wealth of information already available on the Red River Basin, Phase I of the OCWP addressed the water supply needs of the state's 33 southern counties. Perhaps due to this limited scope, the Legislature failed to take action on the Phase I Water Plan following its submittal in 1975. Instead, the Legislature directed the OWRB to prepare a similar plan for the remaining 44 counties encompassing the Arkansas River Basin.

The final two-phase draft of the OCWP was completed by the OWRB in early 1980 and adopted by the legislature the following year. The primary impetus of the Water Plan was to meet Oklahoma's future demands through regional development and provide additional water to Oklahoma's water deficient areas by transferring surplus water from east to west. This ambitious transfer project was to be accomplished through the construction of separate northern and southern water conveyance systems. However, neither system could be economically justified under federal guidelines.

ACCOMPLISHMENTS

The 1980 OCWP presented a flexible, long-range strategy for managing and developing the state's water resources through the year 2040 and feasible plans to meet projected, future requirements of municipalities, industries and the public. The OCWP offered numerous recommendations that have resulted in stronger water development and management programs.

Probably the most significant recommendation of the 1980 OCWP was an initiative to provide a mechanism for financing community water and sewer system improvements. In 1982, the Oklahoma Legislature appropriated $25 million in seed money to create the Statewide Water Development Revolving Fund (SWDRF). The primary purpose of the SWDRF is to serve as additional security and collateral for revenue bonds issued by the OWRB. Loan monies are generated through the sale and issuance of the bonds; bond sale proceeds are then loaned to eligible applicants who pay back the loans over an extended period of time. Grant funds, derived from interest earned on the Revolving Fund, are available to eligible entities for emergency water and sewer problems. Additional purposes of the SWDRF are to make money available to fulfill cost-sharing requirements of federal water projects, construct state water projects and repay water storage contracts between Oklahoma and the federal government.

The SWDRF program has served as a model for other states while saving the infrastructures of hundreds of Oklahoma cities, towns and rural water districts from potential collapse. The SWDRF has been particularly effective in insulating small communities from the financial crises posed by aging systems, weather-related emergencies, dwindling budgets and increasingly stringent environmental regulations.

The OCWP also laid the groundwork for the Oklahoma Legislature to adopt statewide floodplain management legislation which ensures that every Oklahoma community has access to affordable flood insurance. The OWRB, through the National Flood Insurance Program (NFIP), provides assistance to city, town and county officials in implementing sound management programs aimed at guiding development in floodplain areas, thereby mitigating flood losses and reducing state and federal hazard assistance. The state program has grown enormously since its inception; there are currently 360 Oklahoma communities (including cities, towns and counties) participating in the NFIP.

Another major recommendation put forth by the OCWP was that the Governor, State Legislature and Oklahoma Congressional Delegation continue to support the Red River Chloride Control Project. Natural salt pollution within the Red River Basin makes this water virtually unusable as a source for irrigation, industries or municipalities. To free-up additional sources of fresh water in the basin, the Corps of Engineers embarked on a project in the Red River Basin to remove or bypass 10 major salt sources in southwest Oklahoma and northwest Texas. The initial pilot project, just across the Red River border in Texas, was deemed successful, removing an estimated 86 percent of the chlorides contributed from the South Fork of the Wichita River.

State weather modification ("cloud seeding") efforts, initiated under the Oklahoma Weather Modification Act in 1972, also gained significant momentum as a result of a 1980 OCWP recommendation. The OWRB now regulates all cloud seeding activities in the state through oversight of a comprehensive program of licensing, permitting and reporting. Also, the OWRB encourages scientific research and development of weather modification strategies and has prepared a flexible, long-term plan to utilize and develop weather modification technology to augment Oklahoma's water resource needs.

Recommendations offered in the 1980 OCWP also stressed the need for conservation among municipalities, industry and agriculture. Many of these issues and suggested options -- i.e., water reuse and recycling, conjunctive use of stream water and groundwater, water management districts, and water rate structuring that encourages conservation -- are also a focus of this update. To create public awareness of the need for conservation practices, the state has developed numerous education programs and related materials tailored to elementary and high school students. Although more comprehensive measures are likely required, conservation represents a promising and realistic method to alleviate Oklahoma's present and future water supply problems.

UPDATE OF THE WATER PLAN

The stark contrast of climate and resources from western to eastern Oklahoma compels water agencies to deal with many conflicting issues. Frequent

water supply and drought problems in the west prevail upon the minds of water planners while water quality and flooding are primary concerns in the east. Meanwhile, some 34 million acre-feet of water flows unused out of Oklahoma each year. While these irrefutable characteristics will undoubtedly provide the foundation for upcoming water planning efforts in Oklahoma, just as they have guided efforts in years past, new and evolving issues will complicate implementation of future state and federal water policy.

Long-range planning to protect and maximize the benefits of the state's surface and groundwater resources has been a continuing mission of the state since the 1950's, as demonstrated through such planning milestones as the *Appraisal of Water and Related Land Resources of Oklahoma* and, of course, creation of the 1980 *Oklahoma Comprehensive Water Plan*. Although the OCWP spawned numerous achievements related to improved management of state water resources, the 15-year interim since its issuance has seen profound changes in Oklahoma's social, political and economic conditions. The most notable event occurred in the early 1980's with the sudden and unanticipated collapse of the world oil market. That occurrence -- mirrored by a decline in the U.S. agricultural industry -- devastated Oklahoma's economy, significantly reducing projected growth patterns of population, industry, water use and virtually all other factors related to economic well-being.

Another monumental change is the federal government's declining role in state funding which will likely dictate that the expansion or more efficient use of existing projects, rather than the development of new ones, will dominant the 21st Century. Other major issues that are receiving increased federal and state attention include nonpoint source pollution control; development of watershed management strategies; improvements in groundwater quality and protection; and improved management and protection of wetlands resources.

Recognizing that update of the Water Plan is crucial if the state is to move forward into the next century with confidence that its water supplies are sufficiently protected and capable of keeping pace with the demands of Oklahoma's industry and populace, the State Legislature has directed the OWRB to continuously update the OCWP. As stated in HB 2036, this first update, along with future decennial revisions, will provide for the continuous management, protection, conservation, development (both structural and nonstructural) and utilization of state water resources in accordance with the following principles which also guided development of the original plan:

- Multipurpose dams and reservoirs, both existing and planned, should be utilized to the maximum extent possible;
- Water should be stored in the area of usage during periods of surplus supply for use during periods of short supply;
- Water within the state should be developed to the maximum extent feasible for the benefit of Oklahomans, rather than for the benefit of out-of-state, downstream users;
- Only excess or surplus water should be utilized outside the areas of origin and citizens within the area of origin possess a prior right to the water originating therein;
- All citizens, municipalities and other entities in need of water for beneficial use shall be entitled to appropriate water and vest rights in accordance with state and federal law in the most feasible manner; and
- The statutory power of the OWRB in the granting of water rights to water users shall be preserved.

Furthermore, HB 2036 emphasized that the powers granted by the legislation be utilized "for the benefit of the people of the state, for the increase of their commerce and prosperity and for the improvement of their health and living conditions." In reality, this credo directs all basic planning disciplines.

In development of the plan update, the OWRB participated with representatives of the following federal and state agencies and organizations who contributed their collective knowledge and expertise: the U.S. Army Corps of Engineers, Bureau of Reclamation, Natural Resources Conservation Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, National Weather Service, Oklahoma Tourism and Recreation Department, Oklahoma Department of Wildlife Conservation, Oklahoma Conservation Commission, Oklahoma State Department of Health, Oklahoma Department of Agriculture, Oklahoma Department of Commerce, Office of the State Secretary of Environment, Oklahoma Corporation Commission, Oklahoma Department of Environmental Quality, Oklahoma Department of Transportation, Oklahoma Climatological Survey, Oklahoma Geological Survey, Grand River Dam Authority and Southwestern Power Administration.

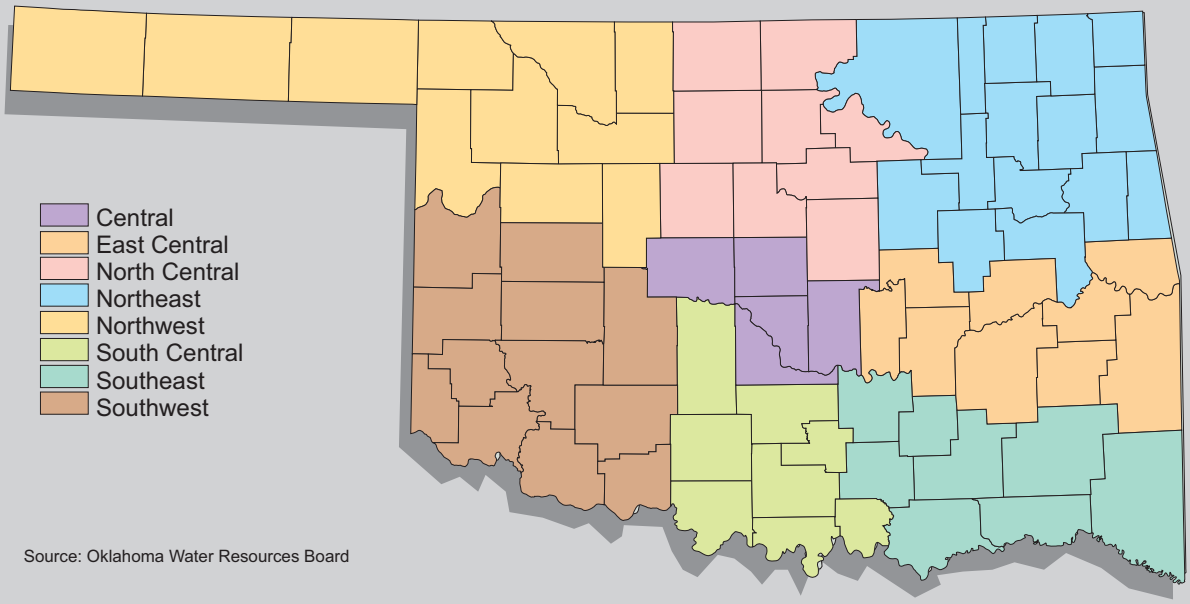
These organizations did not collaborate to replace or significantly alter the state's current water resource planning strategy. Instead, their intent was to build upon the successes of the 1980 OCWP and modify it to reflect changing water resource philosophies and trends of water use. The recommendations contained within this and future OCWP updates and interim reports, as necessary, are submitted to the Oklahoma State Legislature for their consideration in providing to Oklahoma citizens, as the need develops, additional flood control, water supply, recreation, navigation, hydropower and other water resource opportunities.

GOALS AND OBJECTIVES

To encourage development of optimum water resource management and protection strategies, especially in absence of sufficient funding sources, the Water Plan must be made more realistic, responsive and implementable. While it is recognized that structural and related alternatives must be implemented to resolve many of Oklahoma's water resource problems, the primary objective of the OCWP update is to explore solutions from a policy perspective. The policy approach for each water resource issue will focus on assessing general needs, identifying problem areas and opportunities, establishing objectives, and recommending specific and appropriate policy choices to achieve desired goals. The update of the OCWP addresses the following 11 categories of water resource policy issues:

- water rights;
- water quality;
- water and wastewater systems;
- reservoir operations;
- water marketing;
- water supply augmentation;

Figure 1
OKLAHOMA COMPREHENSIVE WATER PLAN
PLANNING REGIONS



Source: Oklahoma Water Resources Board

- water conservation;
- water resource planning;
- floodplain management;
- problem mediation and arbitration; and
- data collection and management.

By addressing important policy issues from new local, state and federal perspectives, it is envisioned that the following specific objectives, which are restated from the original OCWP, can and will continue to be realized:

- promotion of economic opportunity and development;
- preservation and enhancement of the environment;
- protection of lives and property from floods;
- expansion of agricultural production and agribusiness activity;
- development of recreational opportunities;
- maintenance and improvement of water quality;
- encouragement of water conservation;
- placement of excess and surplus water to beneficial use; and
- encouragement of public participation in water resource planning.

The public participation objective -- especially involvement of two Water Plan Advisory Committees representing various water uses -- was perhaps the most vital component of the recently completed OCWP update process. The Citizens Advisory Committee brought an invaluable grass-roots perspective to the planning table while the Technical Advisory Sub-Committee allowed state and federal water agencies to contribute their knowledge and experience. Committee members identified 31 water-related issues and offered recommendations to guide legislative efforts in addressing each issue or problem. In addition, public meetings held throughout the state in conjunction with OWRB rules hearings provided an opportunity for Oklahoma citizens to shape the final Water Plan document through comment on the state's current and future water requirements as well as water issue recommendations offered to the State Legislature.

PLANNING HORIZON AND STUDY AREA DELINEATIONS

The OWRB, Corps of Engineers and Bureau of Reclamation based OCWP statewide water demand projections on 50 years (the year 2000 through 2050) because it represents a reasonable, foreseeable time period and encompasses the minimum life span of most large water resources projects in Oklahoma. In addition, it provides consistency in that it is the standard reach of time used by many other state and federal planning agencies.

As in the original OCWP, the state is divided into eight planning regions to better facilitate water planning for the upcoming 50-year period. The counties in each region, shown in Figure 1, exhibit common characteristics -- such as homogeneity of climate, geography, hydrology, economics and demography -- that meld them into functional planning units. Each region is unique in its water resources and requirements.

PLAN ORGANIZATION

In order to develop plans and policies to effectively manage Oklahoma's water resources, it is necessary to have broad knowledge of the resources and their use. This includes detailed information which characterizes the state's major rivers, lakes and reservoirs, major and minor groundwater basins, surface and groundwater quality, the amount of available supplies, current

and projected rates of use for various purposes, and the size of the population served. Over four years, authors of the update of the *Oklahoma Comprehensive Water Plan* meticulously collected this data for use by state and federal agencies, municipalities, industry, water planners, citizens, students and others interested in the status and future of Oklahoma's water resources.

The initial section of the OCWP update, *Evolution of the OCWP*, details development of the 1980 OCWP, specific accomplishments of the original plan's recommendations and an overview of the philosophy, objectives and procedures that guided development of the updated plan. *Oklahoma Water Law and Administration* provides a general overview of state water law and agencies empowered to administer water and environmental laws in Oklahoma. *Overview of Water and Related Resources,* which revises a similar section of the original OCWP, includes a brief history of water resource development in Oklahoma, an inventory of surface and groundwater water resources in the state and an overview of various natural resource and socioeconomic conditions that affect the availability and use of water.

The section entitled *Statewide Water Use Projections* includes not only an analysis of various categories of future water use in Oklahoma through the year 2050, but also the methodology utilized in development of those projected figures. *Evaluation of Surface and Groundwater Supplies* consists of a detailed evaluation of current and projected surface and groundwater supplies and usage for each planning region. The final two sections, *Water-Related Issues and Problems* and *Recommendations*, present Oklahoma's most pressing water-related policy issues and problems (including the general principles and objectives that guided their development) as well as specific options recommended to address those issues.