

DEVELOPMENT AND IMPLICATIONS OF IRRIGATION DISTRICT OPERATING RULES AND WATER RIGHTS IN THE RIO GRANDE VALLEY: AN INTERNATIONAL WATER RESOURCE

**Megan Stubbs, M. Edward Rister, Ronald D. Lacewell, John R. Ellis,
John R.C. Robinson, and Allen W. Sturdivant**

Ed Rister, Department of Agricultural Economics
Texas A&M University, Mailstop #2124
College Station, TX 77843-2124
979/845-3801, e-rister@tamu.edu

The rapidly growing population in the Texas Lower Rio Grande Valley, large shortfalls in water deliveries from Mexico, and a lingering drought have all highlighted a greater need for efficient water management and allocation in the region. The situation also suggests a greater role for public policy education and discussion of the 1944 Water Treaty between Mexico and the United States. Historically, support from both state and national authorities have played large roles in addressing the water issues facing this region.

This report (Stubbs et al.) presents a broad overview of how the history of settlement and development have played a key role in shaping the current water rights and laws, how the waters of the Rio Grande are divided between the two nations, and how the U.S. and the State of Texas currently manage their shares. Legal rules and regulations, both current and past, which include the current complexity related to water issues in the region, dramatically complicate change processes. Also included in Stubbs et al. are brief explanations regarding characteristics of the 1944 International Water Treaty and management of Amistad and Falcon international reservoirs by the International Boundary and Water Commission. This overview provides insight to the region's history and to the basic development of the current set of water allocations, institutions, rules, and regulations.

The Rio Grande provides a 1,200 mile boundary between the United States and the Republic of Mexico. The Rio Grande basin drains approximately 335,000 square miles; however, only about 176,000 square miles provide run-off into the Rio Grande (International Boundary and Water Commission). Since the early 1900s, numerous dams capable of holding approximately 6.1 million ac-ft of water have been built along the main Mexican tributaries that flow to the Rio Grande. This compares to one Texas dam (i.e., Red Bluff) built in 1953 capable of holding 307,000 ac-ft (International Boundary and Water Commission).

The history of settlement and development set the foundation for the current water laws/rights, irrigation districts, and current land use. Being a semi-arid region, the Texas Lower Rio Grande Valley was used principally for producing cattle throughout the 1700s and 1800s (Alonzo). It was not until the end of the 19th century that Northern developers saw potential for development of irrigated agriculture (Dillman). It was the combination of: (1) new centrifugal pumps that could get water over the river bank, (2) the railroad, and (3) large numbers of immigrant refugees from the bloody Mexican revolution. After clearing, selling and planting the area, the developers abandoned the area in the wake of bankruptcies and financial stress. The result was irrigation

networks without a legal or financial basis. Farmers eventually assumed leadership and established legal, well-organized irrigation districts in order to insure future water supplies (Tiefenbacher).

The history of Texas water law/rights is a long and complicated matter as is true across the U.S. The current system of water rights is derived from a monumental 1969 lawsuit, *State of Texas v. Hidalgo County Water Control and Improvement District no. 18* (Smith), which is commonly referred to as the Lower Rio Grande Valley Water Case. This case established categories (Domestic, Municipal and Industrial) and Class A and Class B water rights on which the current system is based.

The full report indicates how the inflows are allocated to the U.S. and Mexico, with emphasis on the United States. The U.S. has reserves of 225,000 acre-feet (ac-ft) of water from the Falcon and Amistad reservoirs (Texas Commission on Environmental Quality). Allocations across irrigation districts were established in the Lower Rio Grande Valley Water Case. The account balance for irrigation districts is subtracted from the 225,000 ac-ft. Thirdly, the allocated water is adjusted for loss (i.e., evaporation and seepage). Lastly, all available water that is left is allocated among the irrigation districts. All water needs by the individual irrigation districts are communicated through the Texas Commission on Environmental Quality Watermaster. The Watermaster keeps track of individual accounts and controls the water release from Falcon reservoir (Texas Commission on Environmental Quality).

The international treaty sets the 'rules' for operation between the United States and Mexico with respect to the Rio Grande. The treaty is commonly referred to as the 1944 Water Treaty (Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande). The 1944 Treaty also gives power to the International Boundary and Water Commission (IBWC) to regulate the water allocation of the Rio Grande.

Falcon and Amistad are two reservoirs on the Rio Grande in Texas. These reservoirs are operated by the IBWC, which maintains a record of inflows, releases, evaporation volumes and storage volumes. The operating activities of the reservoirs are discussed in more detail within the report.

Social and economic impacts are presently felt in the Texas Lower Rio Grande Valley due to a lingering drought and treaty compliance issues (Stubbs et al.). The large amount of urban growth, combined with a population boom, has placed many new pressures on the limited water resources in the region and on the irrigation districts that serve both municipal and agricultural uses. Mexico currently owes the United States 1.5 million ac-ft of water under the 1944 Treaty. This, combined with the long-standing drought, has provided costly economic repercussions in the region, with estimates approaching \$3 billion over the last ten years (Robinson). The North American Development Bank, the Bureau of Reclamation, state and local agencies, and a federal initiative to the Texas Agricultural Experiment Station and Texas Cooperative Extension are aiding the Valley through financial and expert support (Stubbs et al.). Local leaders within the Valley are involved in the organization of a Lower Rio Grande Water Authority in the hopes of implementing more efficient water management and allocation practices through coordination provided by the Authority (Pierson).

This brief overview summarizes a full report on the history of water development and water rights in the Texas Lower Rio Grande Valley. The water issues facing the region include an international dimension, interstate dimension, and the traditional multiple users' vested interests. It is valuable to have an appreciation for the evolution and culture that have led to current traditions and allocation policy in order to begin a process for improvement.

Knowledge of the background of the region will facilitate ongoing water management policy deliberations, revision/development of policies, and future management of limited water resources. A review of selected irrigation districts and associated operating principles will follow in subsequent reports.

REFERENCES

- Alonzo, Armando C. *Tejano Legacy: Rancheros and Settlers in South Texas, 1734-1900*. Albuquerque: University of New Mexico Press. 1998.
- Dillman, Daniel C. "Transformation of the Lower Rio Grande of Texas and Tampaulipas." *Ecumene* 2,2(1970):3-11.
- International Boundary and Water Commission, U.S. Section. "Flow of the Rio Grande and Related Data: from Elephant Butte Dam, New Mexico to the Gulf of Mexico." *Water Bulletin Number 70*. 2000.
- Pierson, Elizabeth. "Regional Water Authority Idea Gets Little Support." *The McAllen Monitor*. October 31, 2002.
- Robinson, John R.C. "Alternative Approaches to Estimate the Impact of Irrigation Water Shortages on Rio Grande Valley Agriculture." Texas A&M University, Texas Water Resources Institute. College Station, TX. Special Report 2002-15. May 17, 2002.
- Smith, Garland F. "The Valley Water Suit and Its Impact on Texas Water Policy: Some Practical Advice for the Future" *Texas Tech Law Review* 3,3(1977):577-636.
- Stubbs, Megan, Ronald D. Laceywell, M. Edward Rister, John R. Ellis, Allen W. Sturdivant, John R. C. Robinson, and Ralph A. Wurbs. "Evolution of Irrigation Districts and Operating Institutions: Texas, Lower Rio Grande Valley." Texas A&M University, Texas Water Resource Institute. College Station, Texas. Forthcoming, 2003.
- Texas Commission on Environmental Quality. *Chapter 303 – Operation of the Rio Grande Rule*. Log No. 2000-041-303-WT.
- Tiefenbacher, John P. "A Rio Grande 'Brew'." *Fluid Arguments*. (C. Miller, ed.). Tucson, AZ: The University of Arizona Press. 2001.
- "Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande." *Treaty between the United States of America and Mexico*. Washington D.C., signed February 3, 1944 and November 14, 1944. Treaty Series 994.