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Designing a Proactive Water Policy

History records numerous Texas droughts. Late in the last century, drought sparked the first state-wide water policy. Several water shortages prompted measures designed to improve state-wide water use. When a number of municipalities saw their water systems nearly fail in the 1996 drought, state leaders set out to define water policy for the twenty-first century.

Legislation instructed the Texas Natural Resources Conservation Commission (TNRCC), Texas Water Development Board and Texas Department of Parks and Wildlife to cooperate in developing a plan and policy for future water use. That plan envisions a series of measures designed to effectively allocate scarce water resources to support an expanding population. It also mandates a continuing planning process designed to consolidate regional efforts into a new state-wide plan by 2001. This innovative planning process marks the end of a reactive era and creates a proactive process that eliminates problems before they reach crisis proportions. Water marketing will play an important role as this plan guides Texas' water policy.

Water rights specifically regulate access by potential competing users. By specifying amounts of and conditions under which individuals may use water, water rights create a framework of expected behavior that leads to orderly, social and economic interaction. Water laws assign control of finite water resource pools and create mechanisms to promote efficient use.

Texas History All Wet

Early in its political history, Texas adopted the English common law convention of riparian water rights, granting those landowners bordering a stream the right to divert a reasonable amount of water. As populations expanded and droughts necessitated irrigation, however, this simple doctrine failed to adequately answer the need for orderly and efficient water use.

To counter complications accompanying expanding population and development, Texas moved from the riparian system to an appropriation system. Under this system, water rights endowed their owners with a legal claim to beneficial use of specific water amounts. Eventually, the state validated competing claims and issued certificates of adjudication, or legal mandate, for water rights (see "Ownership Governs Water Rights," Real Estate Center publication No. 715, for the history of water rights development).

Development and agriculture in the Lower Rio Grande Valley contributed to the adaptation of an appropriated system of water rights. After World War II, when Mexico began to use its portion of water in the Rio Grande, and a prolonged drought gripped Texas, water became a limited resource for Valley residents. The state had over-allocated the available water supply.

A lawsuit followed and caused the court to establish an adjudicated system of appropriated water rights based on proven, historical usage. This process lasted many years and produced the first truly marketable water rights in Texas.

Valley water rights exemplify all of the features necessary for marketability. They establish a claim to a specific amount of water from reservoirs on the Rio Grande (Amistad and Falcon). A TNRCC watermaster administers and enforces those rights, guaranteeing strong enforcement.

The rights are not tied to specific tracts of land, making them marketable in their own right. In fact, they take on the character of real property that can be sold or leased. Finally, a scarcity of good quality regional ground water makes these water rights highly valuable.

In addition, adjudicated Valley water rights are easier to transfer compared to other areas of Texas. Generally, transferring requires an amendment of the existing water right through a TNRCC prescribed and potentially lengthy process. Because of special provisions in its adjudication process, however, Valley water rights can be transferred without providing public notice or holding hearings as required in the remainder of the state.

Consequently, the Lower Rio Grande Valley has the most actively functioning water rights market in Texas. Sales are common as developing cities purchase water rights from individuals to add to their municipal water supplies. This market allows for population expansion in the Valley by reallocating water from irrigators to municipal use.

Emerging Water Market

The court's ruling settled Valley water rights; however, the remainder of Texas had no such adjudication; and the state's lack of formally mandated rights prompted adjudication of the remaining surface water rights. With some exceptions for limited domestic use, this process allocated all waters that have reached a streambed.

These surface waters are legally defined as state water. However, ground water not in an underground streambed has historically belonged to the landowner who had an unlimited right to pump the water. This so-called "right to capture" provided a private source of water making it unnecessary for owners to apply for surface water rights.

The rules governing ground water use provided no incentives for owners to conserve because neighbors could pump water for their own uses. In many areas, irrigation depended entirely on use of limited ground water resources, and unlimited pumping could threaten to deplete even the most bountiful aquifer.

Competing users could deplete the valuable resources leaving everyone with little or no water. The Edwards Aquifer underlying the Balcones Fault Zone from Kinney County on the west through Bexar County to Bell County on the northeast, provided the first definitive confrontation between limitless demands by users and a finite source of ground water.

Even before the endangered species threat emerged as an issue in the Comal, San Marcos and Barton Springs, friction had arisen between irrigators and municipal water users. Depending on the Edwards Aquifer for its municipal supply, San Antonio appeared to be headed for a water shortage. Then the Federal Endangered Species Act became a primary consideration when a federal court case ruled that Texas must provide for a flow designed to allow survival of endangered aquatic fauna. Clearly, the unregulated right to capture water threatened to deplete the aquifer below this prescribed minimum.

Initially, Texas addressed the situation by creating an Edwards Aquifer Authority (EAA), empowered to govern pumping rights among aquifer users. Currently underway, adjudication promises to fix the rights to pump specific water amounts from the aquifer annually at two acre feet per acre (enough water to cover one acre of land two feet deep) of irrigated land in normal times. The process will assign those rights to landowners who demonstrate a history of water use between June 1, 1972, and May 31, 1993.

Furthermore, the EAA must cap total pumping at 450,000 acre feet through 2007 when the cap falls to 400,000 acre feet. When the EAA completes the adjudication, no class of users will have a priority over others in non-drought times. However, the legislation creating the EAA instructs it to distinguish discretionary from non-discretionary uses during drought with a view to limit non-discretionary usage.

Using meters, the EAA will monitor all aquifer pumping to guarantee delivery of the amount envisioned in the adjudication process. When the EAA completes its task, the 11-county area over the aquifer will be the only broad geographic Texas region with adjudicated ground water pumping rights. The remaining areas will continue to adhere to the rule of capture.

Once implemented, marketing potential for water will emerge. Owners of pumping rights will be able to lease or sell their water on the open market. Attempting to protect the area's agricultural economy, the legislation permits owners to lease only 50 percent of their water. However, owners may sell all of their water in perpetuity if they first take specified conservation measures.

"Competing users could deplete the valuable resources leaving everyone with little or no water."

Not Yet Water Under the Bridge

The adjudication process is fraught with controversy. EAA has survived lawsuits challenging its constitutionality and charges that it has confiscated private property without compensating owners. Despite the uncertainty surrounding its legal procedures, the San Antonio Water System (SAWS) has purchased water rights in the EAA.

In addition to several purchases, SAWS made offers to lease water from 690 applicants who had been recommended to receive pumping rights. Approximately 190 responded. SAWS officials anticipate leasing this water at $70 to $80 per acre foot per year. Clearly, a market is developing even before EAA has accomplished its task.

Future Water Markets

TNRCC and its predecessors have already allocated most surface water in Texas through the adjudication process started in the late 1960s. State-wide water markets similar to those in the Rio Grande Valley, however, have failed to materialize for a variety of reasons.

First, property rights must assign and protect ownership unambiguously for a market to flourish. Most of Texas lacks a strong watermaster to enforce water rights.

Second, surface right owners face competition from ground water in many areas, limiting demand for rights.

Third, some river authorities possess considerable amounts of water for sale providing potent competition for private water rights owners.

Water Markets Stay Afloat

A viable water market hinges on the resolution of these difficulties. As population growth and development continue, additional water will be needed to satisfy the demands, and the expense of enforcing water rights will become relatively less burdensome than under current conditions. Stronger enforcement will come as the value of water increases.

The state will likely create additional underground water districts, authorities or watermasters to ensure prudent use of Texas' water. Continuing anxieties about availability will likely nudge the state toward more control over its remaining aquifers. Adjudication in ground water pumping rights will likely spread, eliminating the rule of capture (unique to Texas among states in the Western United States).

Resolution of the Edwards Aquifer controversy demonstrates that the rule of capture that still applies throughout most of Texas may vanish as future development encounters constraints. Uncontrolled pumping of underground water supplies will likely face restrictions and ultimately adjudication of some kind.

For example, the vastly different approaches taken in the Lower and Middle Rio Grande Valleys and the Edwards Aquifer cases indicate a willingness to tailor restrictions to fit important aspects of water resource issues. The legislature seemingly prefers creation and enhancement of underground water districts to accomplish this task.

Ambitious Plan Required

Sparked by recent droughts, concern for the environment and effects on third parties, the Texas Water Development Board (TWDB) has embarked on a mission to establish a statewide plan designed to provide adequate water for future use. According to estimates, Texas' population will double by 2050, placing increased demands on available water.

The plan projects water use will increase from 16.5 million acre-feet in 1994 to 18.4 million acre-feet in 2050. During that period, agricultural water use will drop from 67 percent in 1994 to 46 percent. At the same time, municipal use will expand from 20 percent to 34 percent, and industrial use will increase from 13 percent to 20 percent by 2050. Clearly, water use will continue to migrate from agricultural irrigation to urban uses, based on the plan estimates.

Besides the rural-to-urban-use shift, the supply source is expected to change from ground water to surface water as ground waters are increasingly depleted. Surface water totaled 43 percent of Texas water supplies in 1994. By 2050, the surface water share is projected to climb to 69 percent, rising from 7.1 million acre-feet to 10.3 million acre-feet.

***AS TEXAS' GROUND WATER** is depleted, more surface water will be needed: 10.3 million acre-feet by 2050.*

Concurrently, the agricultural share of surface water use will drop from 51 percent to 22 percent. If these projections materialize, a major portion of Texas' surface water rights will migrate from irrigation to municipal and industrial uses.

Meeting these projected needs requires an aggressive management program. Without an ambitious plan, water supplies in every area of Texas are likely to fall short at some point between 2000 and 2050. To remedy the anticipated shortfall, the plan prescribes a series of key management tools designed to effectively allocate and augment scarce water resources.

Those tools include water marketing to supply approximately two million acre-feet of the water Texas will need in 2050. However, the market awaits solutions for a variety of problems including the need for controversial interbasin water transfer. When the difficulties are remedied, owners of proven adjudicated water rights may find they own a valuable and marketable resource.

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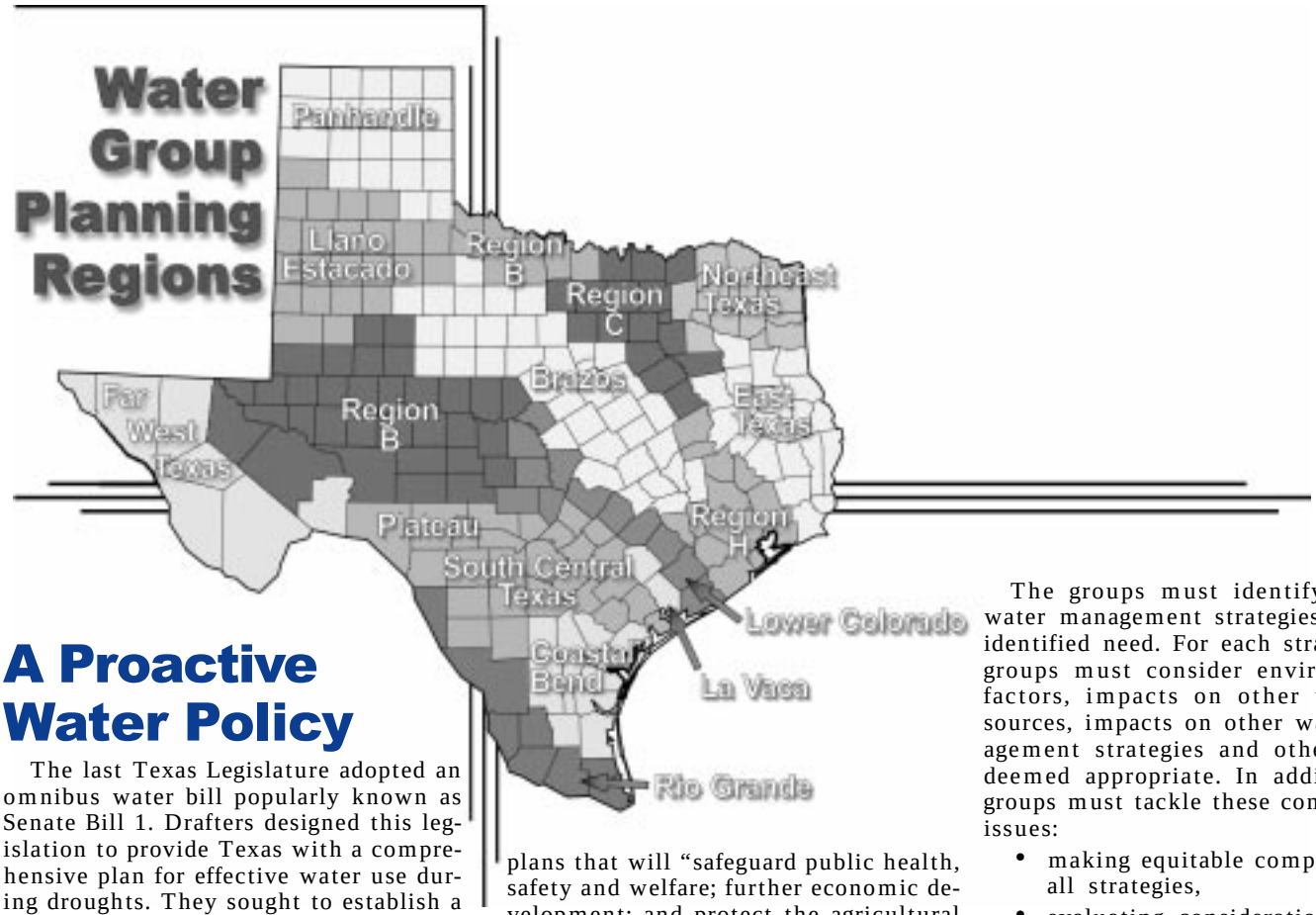

A Proactive Water Policy

The last Texas Legislature adopted an omnibus water bill popularly known as Senate Bill 1. Drafters designed this legislation to provide Texas with a comprehensive plan for effective water use during droughts. They sought to establish a target that ensures adequate supplies at reasonable cost.

The act instructs the Texas Water Development Board (TWDB) to establish regional water planning groups and assist them in devising plans for each region by September 1, 2000. TWDB must then combine those regional plans into a comprehensive state-wide water plan by September 1, 2001. After 2001, the Texas Natural Resource Conservation Commission may not issue a municipal water right that varies from the approved regional plan.

Currently, TWDB has established 16 regions (see map) and organized regional water planning groups that will soon begin to formulate plans. The groups must adopt plans that will "safeguard public health, safety and welfare; further economic development; and protect the agricultural and natural resources of the regional water planning area." For the period between the turn of the century and 2050, these planning groups must:

- describe the area,
- estimate population and water demands,
- evaluate the adequacy of current water supplies,
- compare water demand and supply to identify surplus and needs,
- develop plans to counter the drought of record,
- identify unique stream segments and reservoir sites and
- make policy recommendations.

The groups must identify feasible water management strategies for each identified need. For each strategy, the groups must consider environmental factors, impacts on other water resources, impacts on other water management strategies and other factors deemed appropriate. In addition, the groups must tackle these controversial issues:

- making equitable comparisons of all strategies,
- evaluating considerations appropriate for interbasin transfer of surface water and
- evaluating any third-party impacts.

These regional water planning groups have set about defining the face of economic and social development in Texas for the next 50 years. Their deliberations will set the course as TWDB drafts the next water plan for Texas.

Those who fail to participate in the decisions may find their concerns ignored if they do not take the time to become concerned with this regional planning process. Details can be obtained by contacting the TWDB Internet site at http://www.twdb.state.tx.us/wrp/.

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