2005 Update

Spotlight on Groundwater Conservation Districts in Texas

ENVIRONMENTAL DEFENSE
finding the ways that work

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For more information on Texas water issues visit www.texaswatermatters.org.

Cover photo:
January 1994, Kevin Stillman/TxDOT.

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Environmental Defense is dedicated to protecting the environmental rights of all people, including the right to clean air, clean water, healthy food and flourishing ecosystems. Guided by science, we work to create practical solutions that win lasting political, economic and social support because they are nonpartisan, cost-effective and fair.

Updating the Spotlight

Introduction

As the number of groundwater districts in Texas continues to grow rapidly (Figure 1), it is essential that state policy makers and the public have objective information about how the districts are carrying out their various responsibilities.[1]

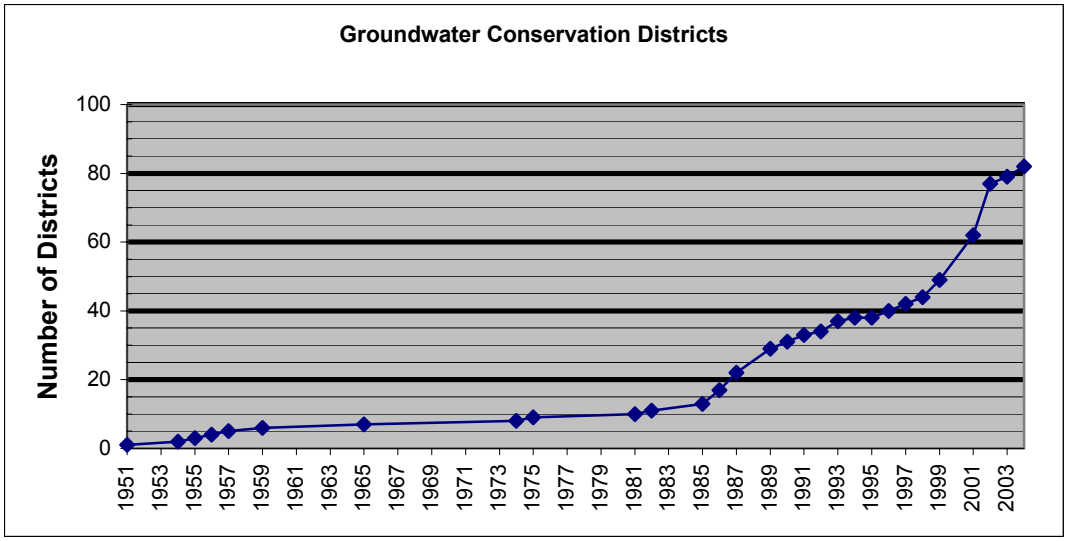


Figure 1. Creation of groundwater conservation districts in Texas (1951-2004)

In September 2003, Environmental Defense reported on the issues and challenges facing many of the groundwater districts.[2] Over the last year and a half, the magnitude and difficulty of the issues and challenges has increased in some parts of the state, as there is an increasing focus on what tools the state needs to best manage valuable groundwater resources in the face of increasing demand. At the same time, however, some groundwater districts have become increasingly sophisticated about how to work with the best available science, how to set appropriate management goals and even how to cooperate across district lines.

[1] The powers and responsibilities of groundwater districts are defined in Chapter 36 of the Texas Water Code and, for some districts, by various specific provisions in their enabling legislation. For more information on Texas groundwater districts, see www.texasgroundwater.org.

[2] Environmental Defense, **Spotlight on Groundwater Districts** (September 2003), available at www.texaswatermatters.org.

This report documents some specific recent developments in various groundwater districts across the state, focusing on the following five issue areas:

1) Groundwater Availability: Policy and Science
2) Production Caps: A Tool for Sustainable Management
3) Dealing with Large-Scale Groundwater Export Proposals
4) Operating on Shoestring Budgets
5) An Issue of Scale – Single County Districts vs. Regionalization

In addition to recommendations offered in our 2003 report and in other forums, we include here a few additional recommendations.

Recommendations

- **Groundwater Availability: Definitions**. The legislature, the Texas Water Development Board, the regional water planning groups and groundwater conservation districts need more precise definitions and distinctions among the various meanings of "groundwater availability." At a minimum, two terms may be useful: "aquifer storage" (the amount of water physically stored in the aquifer – also referred to in TWC§36.1071(e) as "total usable amount of water"), and "managed availability" (the amount that can be pumped in accordance with management objectives set by groundwater districts). In addition, whenever the results of Groundwater Availability Models (GAMs) are reported or used, the assumptions used in the GAM run to determine availability should be clearly stated.

- **Groundwater Availability: Science.** The legislature should ensure that TWDB and groundwater districts have adequate resources to develop the sound science required to establish both aquifer storage and the regulatory provisions needed to meet managed availability objectives. This would include resources for TWDB to assist districts with GAM analysis at smaller scales. The legislature could encourage cooperation among districts managing portions of the same aquifer by giving funding priority to cooperative efforts to develop such science, especially in areas of the state experiencing critical groundwater problems. In addition, groundwater districts should ensure that they share any groundwater availability assessments they conduct with TWDB and regional water planning groups in order to facilitate consistency and avoid duplication in the water planning process.

- **Funding for new districts.** The legislature should consider a grant program or even a revolving low interest loan program to help new districts get started. This approach would help to facilitate the necessary development of sound science for their management plans. Low-interest loans might be repaid out of future production or permitting fees collected by the district.

1. Groundwater Availability: Science and Policy

A consistent definition of "groundwater availability" is elusive. One definition, rooted in science, is the "aquifer storage" or the quantifiable volume of water that is physically available for withdrawal, notwithstanding cost or management policy. This volume is referred to in TWC§36.1071(e) as "the total usable amount of water." The volume of water that is practically "available" for withdrawal may depend on cost and other factors. On the other hand, the decision regarding what portion of the physical volume should actually be "available" for withdrawal is rooted in policy. Depending on what aquifer conditions groundwater managers elect to achieve or preserve,[3] policy-based groundwater "availability" can range from nothing to the total volume of stored water in the aquifer system. This policy-based "availability" is an overlay on the scientifically based aquifer storage.

Unfortunately, Texas water planning and management law currently lacks clear and consistent definitions for these various categories of groundwater availability. According to the 2002 State Water Plan,[4] groundwater availability represents the total amount of water available for use from an aquifer under a development (i.e. management) scenario selected by a regional water planning group. The Texas Water Development Board's (TWDB) *Guidelines for Regional Water Plan Development* charge regional water planners with calculating groundwater availability as the "largest annual amount of water that can be pumped from a given aquifer without violating the most restrictive physical or regulatory or policy conditions limiting withdrawals, under drought-of-record conditions".[5] The guide continues by defining "regulatory conditions" as referring "specifically to any limitations on pumping withdrawals imposed by groundwater conservation districts through their rules and permitting programs." Thus, the "availability" figure in regional water plans should reflect an overlay of policy decisions. However, in the first round of planning a few regions treated availability more as the absolute amount available (aquifer storage), without full consideration of the policy overlay.

On another front, Chapter 36 of the Texas Water Code mandates that groundwater districts use the results of the GAMs, in conjunction with any available site-specific information, in the development of their management plans.[6] The TWDB Rules reaffirm this directive.[7] The TWDB has completed GAMs for

[3] Aquifer conditions include maintaining spring flows and groundwater seeps, sustaining baseflows to local rivers and streams, preserving the water table levels and preserving stored water for future generations.

[4] Groundwater availability is discussed in Section 5.3.1.2 of the State Water Plan, Water for Texas – 2002, Texas Water Development Board, January 2002.

[5] Guidelines for Regional Water Plan Development, Exhibit B, Section 3.2.2, Texas Water Development Board, available at www.twdb.state.tx.us/rwpg/2nd_cycle_docs.asp.

[6] Sec. 36.071, Texas Water Code.

[7] 31 Tex. Admin. Code Sec. 356.5(b).

each of the state's nine major aquifers. The GAMs can produce a figure on "availability" under a variety of different non-management and management scenarios. That is, they can produce an estimate of aquifer storage, as well as an estimate of availability under different pumping limitation scenarios. Sometimes, however, when GAM results are reported in regional planning documents, it is not clear which "availability" figure is being contemplated. For example, the 2001 Regional Water Plan for the Lower Colorado Regional Water Planning Group (Region K) states that groundwater availability for most of its counties was based on the results of the Trinity aquifer GAM. There was no clarification as to what management scenario these results reflected.

Groundwater districts, via their management goals, can reduce how much water is authorized to be withdrawn from the aquifer, and in some cases this is just termed "available" water.

The confusion over exactly what "availability" means in which context is at the root of some disputes between groundwater districts and regional water planning groups. In order to have its management plan certified, a district's "availability" must be consistent with the figure used by the regional water planning group. However, if the RWPG's availability numbers do not properly reflect the amount available under the district's management "goals," an inconsistency can develop. These disputes can be referred to the TWDB for resolution, which many districts believe undermines the principle of local control upon which groundwater districts are based.[8] As we set out in the recommendations, clarification of these various terms by the legislature would be most helpful to prevent future confusion and disputes.

Beyond the confusion over the term "availability," some groundwater districts face hurdles in even quantifying the science-based availability or in assessing the effects of various management tools.

The regional scale GAMs developed by TWDB for the state's major aquifers provide an invaluable tool for groundwater managers and planners. That said, for many portions of these aquifers and especially in areas of the state that are dependent on minor aquifers, there is still a long way to go before the level of science reaches what is needed at the local scale to sustainably manage groundwater. Unfortunately, management decisions cannot await perfect science—if such a thing even exists—because the demand for groundwater is growing (including, in some cases, a clamor for large groundwater export permits) and decisions must be made in the short term.

[8] For example, the Lost Pines GCD is working to manage its portion of the Carrizo-Wilcox aquifer sustainably and has established a pumping cap for Lee County of 7,500 acre-feet; a volume which will help to maintain aquifer water levels into the indefinite future. By contrast, Region G Regional Water Planning Group, on the advice of its consultants, has thus far estimated groundwater availability in Lee County at 45,000 acre-feet per year; a volume that would result in a 150-foot drawdown of the aquifer over the 50-year planning cycle.

There are numerous examples from across the state where groundwater managers are grappling with the issue of developing sufficient science to support their management decisions. Here are just a few:

Gulf Coast Aquifer

A number of counties along the central Gulf Coast region were concerned with water availability estimates derived from the Central Gulf Coast GAM. They felt the model results were too regional in scale and could not be used at the district level for management plan purposes. In addition, they felt that the TWDB model underestimated the volume of groundwater that was discharged from the aquifers into the San Antonio and Guadalupe rivers from the riverbeds and banks.

To respond to these issues, the concerned districts – which include DeWitt, Refugio, Goliad, Bee, Karnes County GCD - and Victoria County officials combined their resources and funded the construction of smaller scale model that would be tailored to the local aquifer conditions by using locally derived information. This model is expected to be complete in the first part of this year (2005).

Carrizo-Wilcox Aquifer in Gonzales County

Due to their large geographic extent, a few of the state's major aquifers were subdivided for GAM purposes. The Carrizo-Wilcox aquifer, which runs the length of the state from Maverick County at the Mexican border to Bowie County at the Louisiana/Arkansas border, was split into three separate models. This division became an issue in Gonzales County, which is included in both the Southern and the Central Carrizo-Wilcox GAMs. Created by different consultants, the two models depicted different volumes of available water in the aquifer. In fact, the Central Carrizo-Wilcox GAM estimated that the aquifer in Gonzales County held approximately four times the volume of water estimated by the southern model.

The model outcomes varied due to different assumptions made by the modelers. Each consultant derived its recharge values by different methods, each made different assumptions on the thickness of the aquifer, and one included horizontal flow barriers like faults, while the other did not. The issue of availability was even further complicated when San Antonio Water System (SAWS), interested in exporting water from the Carrizo-Wilcox aquifer in Gonzales County, developed its own model, which produced still another different set of results. In the end, the conflicting science forced planners to take a more in-depth look at groundwater availability in the county. The Southern GAM is currently being revised and the District is planning to modify its management plan based on the results that most accurately reflect its local monitoring efforts.

Far West Texas Minor Aquifers

There is a general lack of information about many of the Far West Texas aquifers, due to a combination of factors, including their complexity, the sparse population and remote location, and a historic lack of high demand in most of the aquifers. The GAM for the West Texas Bolsons and Igneous Aquifers, both minor aquifers, was recently released at the end of 2004.

Of the local Far West Texas groundwater districts, neither Culberson County GCD nor Presidio County GCD currently has production limits in place, and both Jeff Davis County GCD[9] and Brewster County GCD have enacted a commonly used production limit of 2 acre-feet of water per acre of land.

The lack of adequate science has been a very important factor in the recent water lease discussions between Rio Nuevo, Ltd., a private water-marketing firm, and the General Land Office, with its vast land holdings in Far West Texas. Without information from tools such as the GAM supplemented with local data, there is no way to know how much water can be pumped from the area while maintaining adequate reserves essential for meeting current and future local needs and for maintaining spring flow.

Fortunately, the high level of controversy over the Rio Nuevo proposal has generated momentum for finishing the GAMs and for collecting other necessary information on the groundwater resources of Far West Texas. In addition, the State Lands Subcommittee of the Senate Select Committee on Water recommended that the General Land Office adopt a clear set of rules for the leasing of groundwater from the Permanent School Funds Lands. The Committee also proposed that all buyers or lessees of such lands abide by local groundwater district rules.

A full list of the committee's recommendations is available at www.senate.state.tx.us/75r/Senate/commit/c755/downloads/LSWR2004.pdf.

2. Establishing a Production Cap

In 2001, Senate Bill 2 explicitly provided groundwater districts with the ability to establish pumping limitations and well spacing requirements to prevent interference between wells (TWC§36.116). This same statute also gave districts the authority to establish pumping limitations to ensure availability of groundwater within district boundaries.

In efforts to do just that, a number of districts across the state have established pumping caps for aquifers within their boundaries. These caps are based on the estimated volume of groundwater that can safely be withdrawn while maintaining

[9] The Jeff Davis County GCD intends to modify this limit when additional information about the aquifers is available.

the development and use of the resource for an indefinite period of time. Here are few examples:

Lost Pines GCD, which manages the groundwater resources of Bastrop and Lee Counties, modified its pumping rules and Mission Statement in June 2004 in an effort to strengthen management of the Carrizo-Wilcox aquifer. The District's mission now states that it will maintain the aquifers on a sustainable basis, defining sustainability as development and use of groundwater in a manner that can be maintained for an indefinite period of time. Other changes included the strengthening of spacing requirements, the establishment of protocol for areas of depletion, and the addition of a surcharge on water exports.

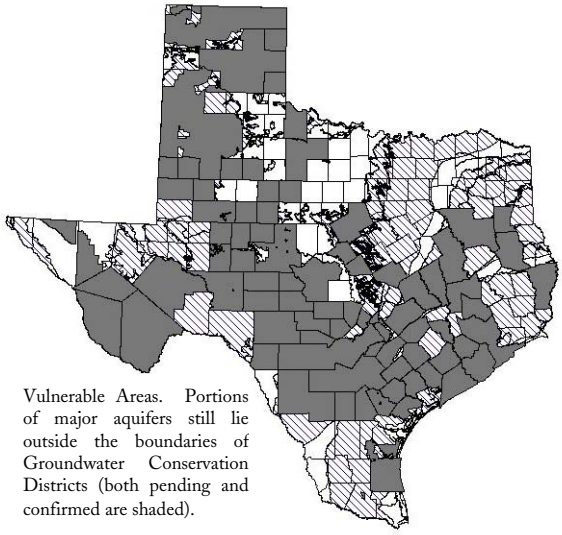
Menard County UWCD established pumping caps for the portion of both the Edwards-Trinity and the Hickory aquifer under its jurisdiction, based on TWDB estimates of the annual volume of recharge for both aquifer systems. The District intends to modify these caps as more local data on the aquifers is collected. It is currently setting up a monitoring network to better estimate recharge rates across the county. Due to the importance of groundwater to the county's surface water resources (local rivers are sustained by spring flow and seeps from the aquifers), the District also monitors streamflow gauges and is working to establish a water trust to ensure longer-term surface water flows.

Blanco-Pedernales GCD, which manages the groundwater of Blanco County in the Hill Country, has a policy in opposition to groundwater mining. In addition, the District has reserved the right to establish "Critical Groundwater Areas" where it could set a cap on the total production from that area. The District currently relies on the results of the regional GAM for its availability estimates. In this case availability is based on the "sustained yield" of the aquifer with sustained yield defined as the volume of groundwater that can be recovered by wells without adversely effecting baseflow to area streams and without causing adverse water-level declines and related en-croachment of poor-quality water.[10]

[10] Evaluation of the Groundwater Resources of the Paleozoic and cretaceous Aquifers in the Hill Country of Central Texas, TWDB Report 339, August 1992.

3. Dealing with Large-Scale Groundwater Export Proposals

As the state's preferred groundwater management approach, groundwater districts have the power to modify the rule of capture within their boundaries. However, as shown in this map, some parts of even major aquifers are left unmanaged by districts and thus vulnerable to unrestrained pumping and/or exports that may negatively affect local communities and the environment.



Vulnerable Areas. Portions of major aquifers still lie outside the boundaries of Groundwater Conservation Districts (both pending and confirmed are shaded).

Outlined below are some examples from across the state of both current and proposed large-scale groundwater export proposals and how local districts, where they are present, are dealing with them.

Ogallala Aquifer

Roberts County

The Texas Panhandle has a long history of irrigation made possible by the Ogallala aquifer, which supports 90 percent of the water needs in the Panhandle region. On the whole, the Ogallala is suffering from overuse and the amount of water held in storage is continuing to decline. Roberts County is different than its neighboring Ogallala counties in that the topography of the land is not conducive to irrigated agriculture. Until recently, its groundwater reserves remained largely untapped. Now, however, both the city of Amarillo and the Canadian River Municipal Water Authority (CRMWA) have established well fields within the county. In addition, oilman T. Boone Pickens, through Mesa Water Inc., has also amassed groundwater rights for land in Roberts County and obtained production permits from the Panhandle GCD.[11]

The Panhandle GCD is one of the oldest groundwater districts in the state. The District is currently managing its groundwater resources under a goal of maintaining the depletion of the Ogallala aquifer at a rate of no more than 50% decline over the next 50 years. To achieve this goal, in November 2004 the District adopted a 1.25% acceptable decline rate. This rate provides an annual benchmark for acceptable depletion of the Ogallala aquifer. The District has also established 'production floor rates' for all sections of the aquifer within its control. These rates reflect the most restrictive pumping levels that could be enforced on an individual permitee. Requests for rehearing on these latest rules were denied by the District in January 2005.

[11] Mesa's current production permits are contingent on the identification of an end user for the groundwater by May 2007.

Edwards Aquifers

Kinney County

Kinney County GCD initiated a well permitting process in 2004, after being roiled by controversy in its first couple of years. Based on initially available information, the District adopted an overall pumping cap of 69,000 acre-feet year. It received several applications requesting permits be issued based on a pumping rate of from 7.5 to 14.0 acre-feet of water per acre of land, far above normal irrigation rates. In fact, three permit applications together amounted to over 19,000 acre-feet per year. By comparison, records for total reported groundwater use in Kinney County from 1964 through 2000 indicate a maximum annual ***total*** countywide use of only about 14,000 acre-feet per year, with an average of about 2 acre-feet of water per acre of land.

The larger applications may have been intended for the export market, as Water Texas has been working with some of these permit applications to develop an export supply proposal for San Antonio or other locations.[12] The District is currently finalizing decisions on these and the other applications, after a series of permit hearings held during the fall of 2004.

Carrizo-Wilcox Aquifer

As noted previously, the Carrizo-Wilcox aquifer is one of the most geographically extensive in the state. In all, the aquifer system provides water to all or parts of 60 counties in Texas.

Milam and Burleson Counties

As of January 2004, Layne Water Development of Texas held water leases for almost 38,000 acres of land overlying the Carrizo-Wilcox Aquifer in east-central Texas. Of these holdings, just over 7,700 contiguous acres are located within the jurisdiction of the **Post Oak Savannah GCD** (Milam and Burleson Counties.) The District has an established a pumping limit for contiguous acreage of 2 acre-feet per acre of land. In September 2004, Layne applied for permits for 5 wells with the District, with permit requests for up to 4,516 acre-feet/year per well. Layne also applied for a historical use permit and a variance from the District's spacing requirements for a well that had not been used. Both of these requests were denied, however a permit was issued for the un-used well at a reduced pumping rate due to its proximity to the property boundary. While the District approved the permits for the remaining 4 wells, it only approved them for the maximum volume allowable under the District's pumping limits (cumulative volume of 15,488 acre-feet per year, versus the requested cumulative total of 22,580 acre-feet.)

[12] "Private Enterprise Becoming Involved in Water Marketing", Livestock Weekly, August 28, 2003; "Troubled Waters", Texas Monthly, March 2004.

In January 2005, the Post Oak Savannah District voted to enact a 6-month moratorium on all permit applications, in effect putting a hold on all new applications for well construction and the transport or export of groundwater from the District. The District felt this was necessary given that the total volume of water that could potentially be pumped from the District (includes both approved and pending permits) is already twice as much as the annual recharge rate of the Carrizo-Wilcox aquifer within the District. Given the hydrogeologic nature of the Carrizo-Wilcox aquifer, groundwater use outside the District boundaries can also affect groundwater availability. For this reason the District is also looking to discuss these issues with neighboring counties.

Lee and Bastrop Counties

Termed the 'Central Texas Carrizo-Wilcox Water Supply Project,' Water Texas is proposing to transfer 25,000 acre-feet per year of groundwater from Lee and Bastrop Counties to eastern Williamson and Travis counties. As of March 2004, Water Texas had preliminary commitments from several water utilities. In early 2004, Lost Pines GCD proposed changes to its rules that would establish stronger pumping limitations to ensure the long-term protection of the aquifer. Water Texas opposed the rule changes and argued that they were "targeting exports."[13] Despite pressure from such outside interests, the District passed its modified pumping rules in June 2004 in addition to modifying its mission statement to define sustainability as the development and use of groundwater in a manner that can be maintained for an indefinite period of time.

Fayette County

Water Texas is just one of the marketing interests that is showing an interest in the water resources in Fayette County. The Fayette County GCD, which borders Lee and Bastrop counties, was confirmed in 2001 and adopted its management plan and rules in 2003. Operating without the technical information needed to establish an appropriate pumping limit for the District, it enacted the commonly used limit of 2 acre-feet per acre of land. The District is planning a research study designed to more precisely estimate the volume of recharge within the District to provide information necessary for refining the pumping limit. It is doing this with the additional limitation of a minimal annual budget of approximately $74,000.

Gulf Coast Aquifer

The Gulf Coast aquifer stretches along the Gulf of Mexico from Mexico to Florida. In Texas, it provides for all or part of the water supply for 54 counties. The Lower Guadalupe Water Supply Project, a collaborative project involving the Guadalupe Blanco River Authority, San Antonio Water System, and San Antonio River Authority, is currently researching the potential of exporting up to 41,400 acre-feet

[13] Groundwater District Strengthens Rules, Lowers Rates & Budgets, Press Release, Lost Pines Groundwater Conservation District, 1/30/2004.

per year from the Gulf Coast aquifer within the vicinity of Goliad, Refugio, and Victoria Counties. In an effort to protect current groundwater uses, Goliad County GCD adopted a controversial "Mitigation Rule" in 2004. This rule, the first of its kind in Texas, requires high-volume pumpers to set up an escrow account to cover payment of potential mitigation activities resulting from damages to existing water wells or property values that are attributable to their pumping activities.

4. Operating on shoe-string budgets

The primary funding options for groundwater districts through the Texas Water Code include property taxes, well production fees, and administrative fees for well permits and export permits. Districts may also issue and sell bonds for capital improvements. In general, however, it is not the norm for a district to have access to all of these funding options. Many districts find their options limited by enabling legislation. In addition, because taxing authority must be separately confirmed by popular vote, some districts are confirmed while their taxing authority is not. Of the 87 districts (both confirmed and pending confirmation), 20% do not have taxing authority, 30% cannot issue bonds, and around 50% do not have the authority to establish well production fees. [14]

The result is that many of the newly formed districts are struggling to operate on limited budgets, many below $ 200,000/year.[15] Here are just three examples of newly formed districts that are experiencing budget issues:

While voters confirmed **Cow Creek GCD** (Kendall County) in 2002, they voted against its taxing authority, which left the District dependent on the collection of fees to fund its operations. Initially, the District set the annual fee on existing exempt wells at $25, which was unpopular with the 4,000 pumpers. About 15 percent did not pay the fee. In order to bring in sufficient funds to meet its proposed $170,000 budget, the District had to increase the inspection and construction fees for newly installed wells to $350 for small domestic wells, $500 for small commercial wells, and $1,000 for larger commercial or irrigation wells. The District is giving errant pumpers approximately 2 years to pay the required fees after which the District intends to turn over any unpaid accounts to a collection agency.

Bluebonnet GCD (Austin, Grimes and Walker Counties) was confirmed by popular vote in November 2002. Originally created as a five-county district, the vote was not confirmed in Washington and Waller counties. The District is fee based and can charge 3 cents per 1,000 gallons on all non-exempt wells in the three counties. There are currently 145 wells in operation. The District's current budget

[14] Information culled from Groundwater Conservation District database maintained by the Texas Water Development Board. Contact Rima Petrossian at rima.petrossian@twdb.state.tx.us for additional information about this database.

[15] By contrast, the annual budget for the Panhandle GCD is about $ 1.1 million.

is $151,500. In addition to being strapped financially, because the District was not confirmed in Washington and Waller, its coverage of the Gulf Coast Aquifer is not continuous.

Hays-Trinity GCD (Hays County) was confirmed by popular vote in 2003. Hobbled financially by its enabling legislation, the District's only available method of financing is the collection of fees associated with new well construction and new connections to water utility services. These sources gave the District an annual operating budget of approximately $70,000 in 2004.

5. **An Issue of Scale: Single County Districts vs. Regionalization**

When there are multiple management systems covering a shared resource such an aquifer, they must work collaboratively to be effective. Of the 87 districts confirmed and pending confirmation, 59 (68 percent) are single-county districts. While this level of local control works for some of the heterogeneous aquifers, it constitutes a piecemeal approach to aquifers that exhibit regional flow patterns.

Some have cited inconsistency among districts' rules and problems with local politics getting in the way of business as arguments in favor of regionalizing groundwater management. Others argue that combining efforts and resources of single-county districts could foster better aquifer management and achieve a certain economy of scale.

Voluntary efforts toward regional cooperation among single-county GCDs have been occurring in different parts of the state. While these voluntary cooperative efforts are a good start, the funding sources needed to sustain these coordination efforts are often lacking.

South Texas Regional Groundwater Alliance. About a year old, this alliance includes the Pecan Valley GCD, Refugio GCD, Goliad County GCD, Bee GCD, Evergreen UWCD, and Crossroads GCD. This alliance initially formed due to a shared concern with the results of the Central Gulf Coast GAM. The districts combined their resources to fund the construction of a smaller scale model based on more locally derived information from the districts collective monitoring efforts.

Southern Ogallala Regional Groundwater Alliance. This Alliance, which formed in April 2004, is composed of all the districts within the TWDB's Groundwater Management Area #2: Sandy Land UWCD, Garza County U&FWCD, Llano Estacado UWCD, High Plains UWCD #1, Mesa UWCD, Permian Basin UWCD, and the South Plains UWCD. The alliance agreement provides for the continuity and consistency of district rules, and also provides a framework for joint studies and other projects that concern the region.

West Texas Regional Groundwater Alliance. First formed in 1988, its current membership includes 12 districts that overlie the Edwards-Trinity Plateau aquifer

and encompass approximately 17,800 square miles. Member districts include Coke County UWCD, Glasscock County UWCD, Irion County WCD, Sterling County UWCD, Emerald UWCD, Hickory UWCD #1, Lipan-Kickapoo WCD, Lone Wolf GCD, Menard County UWD, Plateau UWC&SD, Santa Rita UWCD, and Sutton County UWCD. The alliance coordinates regional activities and works to maximize the benefit of the citizen's tax dollars.

Carrizo-Wilcox Aquifer Alliance. Membership includes five South Texas districts including the Medina County GWCD, Evergreen UWCD, Guadalupe County GCD, Gonzales County UWCD, and Wintergarden GWCD. The Alliance was formed in 1999 to cooperatively exchange information and try to manage the aquifer system collaboratively. District managers host quarterly meetings to discuss shared concerns and ideas. Some of the member districts exchange water level measurements and are discussing boundary issue agreements.

Hill Country Groundwater Conservation District Alliance. Created in 1999, member districts include Hays Trinity GCD, Barton Springs-Edwards Aquifer CD, Blanco-Pedernales GCD, Hill Country UWCD, Cow Creek GCD, Trinity Rose GCD, Headwaters GCD, and Medina County GCD. Just within the last year, the Alliance voted to continue to function as a coalition, which will operate on a more informal level, giving the members the freedom to conduct business without the constraints of the bylaws. The newly formed coalition, deemed the Hill County PGMA Alliance, will continue the tradition of allowing for an open exchange of information and ideas between member districts.

Far West Texas Alliance of Groundwater Districts. Formed in January 2004, member districts include Brewster County GCD, Culberson County GCD, Hudspeth County UWCD #1, Jeff Davis County UWCD, Middle Pecos GCD, and Presidio County UWCD. The alliance covers two major aquifers and eight minor aquifers. Because of the wide range of aquifer conditions and water user groups amongst the member districts, the alliance is not looking to coordinate management goals. Instead, the objective is to create an open forum for sharing of ideas, expertise, and experiences. Member districts have talked about standardizing the definitions used in their Management Plans and standardizing the various forms used in official district operations (i.e. permit request forms, etc.).