HOUSE RESEARCH ORGANIZATION
Texas House of Representatives

focus REPORT

March 23, 2000

Managing Groundwater for Texas' Future Growth

Water is "the single most important factor for the future economic viability of Texas," in the words of the January 1999 report of the Joint Interim Committee on Water Resources Development and Management. Ensuring an adequate water supply is the subject of a long-running debate over the management of water resources, particularly groundwater.

Groundwater accounts for the majority of Texas' water supply and now is used mainly for agriculture, although some cities, such as San Antonio, depend on groundwater as their principal water source. Expectations that groundwater levels will fall substantially by 2050 require the state to develop alternatives to groundwater use.

The state's water plan, released in 1997 and scheduled for an update in January 2002, sets out various methods for maintaining an adequate water supply, such as new source development and reuse of wastewater. Water experts agree that conservation of existing supplies also is essential. The problem is that groundwater, unlike surface water in lakes or streams, is privately owned and subject to the "rule of capture." This rule, adopted by the Texas Supreme Court in 1904 and reaffirmed in 1999, vests landowners with an "absolute" right to withdraw water from beneath their land, without liability for injury to another landowner caused by excessive or harmful drainage.

"The days of relative plenty when an entity could drill a well or build a nearby lake to meet its needs have mostly passed."
— 1997 State Water Plan, Volume 1

Reconciling the rule of capture with needed water management has proven difficult. Opponents of the rule of capture contend that recent developments in technology, combined with increasing demands on limited water resources, render the rule obsolete. Supporters of the rule claim that it protects the property rights of landowners, while allowing the Legislature to manage limited groundwater resources by creating local conservation districts.

This report examines the history and principles of groundwater law, recent legislation and judicial decisions, and controversies regarding the nature and extent of water management.

Defining the groundwater problem

The Texas Water Code, sec. 35.002(5) defines groundwater as water percolating below — that is, filtering through — the surface of the earth. Underground streams and the underflow of a surface stream, however, are considered surface water.

Most groundwater in Texas is contained in aquifers formed when water collects in permeable strata such as rock or sand. Aquifers underlie about four-fifths of Texas' surface area of 266,807 square miles. Nine major and 20 minor aquifers have been identified within the state, and undifferentiated local aquifers provide groundwater in areas not encompassed by major and minor aquifers.

Though used mainly for crop irrigation, groundwater also serves domestic and municipal purposes. In 1997, groundwater made up 9.4 million acre-feet, or 61 percent, of the state's total water supply. This percentage, however, is expected to fall sharply by 2050 as groundwater resources are depleted. The Texas Water Development Board (TWDB) predicts that in 2050, groundwater will supply only 4.6 million acre-feet, or 31 percent, of Texas' water supply. With agricultural use of groundwater on the decline and plans to reduce irrigation further because of predicted water shortfalls, the municipal share of total groundwater use should more than double by 2050.

Like any renewable resource, groundwater could be consumed indefinitely as long as the rate of withdrawal did not exceed the rate of replacement. Overpumping of an aquifer occurs when groundwater is withdrawn faster than nature can replace or *recharge* it, just as a bank account is diminished by withdrawals that exceed deposits.

While aquifers such as the Edwards or the Carrizo-Wilcox have abundant recharge short of drought conditions, others, such as the Hueco-Mesilla Bolson in the El Paso area, have little recharge, making them practically nonrenewable. The management goal for each aquifer, therefore, is different. In the Edwards or Carrizo-Wilcox, the focus is on balancing recharge and withdrawal to ensure a sustainable resource, while in the Hueco-Mesilla Bolson, the focus is on managing depletion to ensure the maximum benefit from more finite resources.

In either case, current trends create concern about the state's ability to rely on groundwater to meet part of its future water demands. According to TWDB, changes in statewide behavior are needed to reduce overpumping, including increased conservation and groundwater management, reuse of wastewater, enhanced recharge, and weather modification techniques, such as cloud seeding to produce rainfall.

Groundwater law

In Texas, water rights depend on the location of water in the hydrological cycle, the flow of water from rainfall to collection within the earth. Despite the connection between surface water and groundwater, the state has developed two different management systems.

Surface water in lakes and streams is owned publicly, and the use of such water is subject to permission by the Texas Natural Resource Conservation Commission (TNRCC). The doctrine of "prior appropriation," codified in Water Code, sec. 11.027, gives priority to permit holders on the basis of seniority. Groundwater, on the other hand, is owned privately and controlled by the owner of the overlying land. Under the rule of capture, landowners may withdraw unlimited amounts of water lying beneath their land without liability to surrounding landowners.

The rule of capture originated with English common law and was applied first to the ownership of wild animals, providing that a person does not capture an animal until it is reduced to possession. The rule eventually was applied to oil and gas, minerals, and groundwater under the rationale that technology cannot locate these natural resources beneath the earth as it can locate surface water. Consequently, common law dictated that a landowner could use all the oil and gas, minerals, or groundwater that could be captured beneath the landowner's land and reduced to possession.

In 1904, the Texas Supreme Court adopted the rule of capture in *Houston & T.C. Ry. Co. v. East*, 81 S.W. 279 (Tex. 1904), allowing a landowner to pump as much groundwater as the landowner chooses, without liability

(continued on page 5)

Will the Well Run Dry?

Texas' 1999 population, estimated at 20 million, is expected to double by 2050. According to the Texas Water Development Board (TWDB), unless the state takes steps both to save water and to develop new supplies, the gap between the supply of water and the demands of a burgeoning population will result in a 35 percent shortfall statewide by 2050. Urban areas could experience a 15 percent shortfall by 2010.

TWDB estimates Texas' total water usage at 15.4 million acre-feet in 1997, the latest data available. An acre-foot is the amount of water needed to cover an acre of land to a depth of one foot, or about 326,000 gallons, enough to supply two or three households for a year. By 2050, annual statewide water use is expected to exceed 20 million acre-feet, while the available supply is estimated at only 14.9 million acre-feet.

Texas is no stranger to water shortages and the economic losses that follow. Past droughts provide a hint of the potential consequences of scarce water.

Texas' most severe drought occurred during the mid-1950s, when 94 percent of Texas counties were declared disaster areas. In 1956, Comal Springs, which normally flows at the rate of 200 million gallons per day, dried up for five months for the first time in recorded history. Sensitive aquatic species were threatened, power plants were disabled, and grain yields dropped sharply. Short, intense droughts in 1996 and 1998, though not as severe as the drought of the 1950s, resulted in an agricultural loss of about $11 billion.

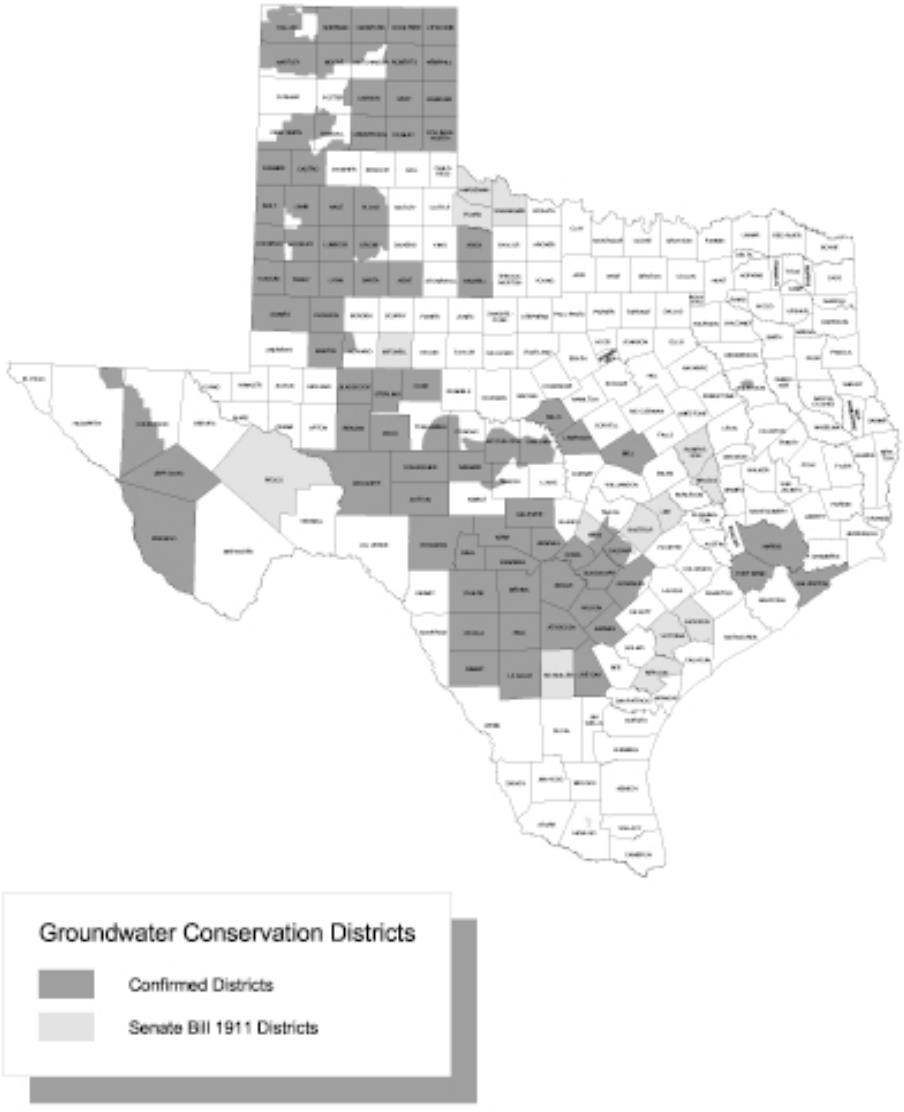
Texas is now suffering from drought for the third time in the past four years. According to the National Weather Service's Climate Prediction Center, all 10 of the state's climatic regions are in mild to severe drought. As of March 21, 147 counties were eligible for disaster assistance due to drought declarations by the U.S. Department of Agriculture. As of March 1, 71 water systems across the state had begun voluntary or mandatory rationing to prevent outages, and reservoir levels were the lowest in the 23 years, since the last large reservoirs were built.

Economists with the Texas Agricultural Extension Service estimate that the drought has cost Texas farmers and ranchers $319 million since last fall. According to the state's Drought Preparedness Council, ranchers are culling their herds because of scarce hay and water supplies. The Texas Department of Agriculture says that as of March 19, 89 percent of Texas ranges and pastures were in fair to very poor condition, and soil erosion and fires are on the rise.

Because of Texas' rapid population growth, the duration and severity of droughts reach critical levels much faster than before. Compared to the past, however, Texas is better prepared to handle potential short-term shortages. SB 1, the comprehensive water-planning bill enacted in 1997, enables state officials to mobilize more quickly during droughts and requires individual water systems to develop drought contingency plans that establish mandatory rationing procedures and identify backup sources of water.

Droughts eventually come to an end. With increasing demands on a dwindling water supply, however, the state's current water plan aims to meet larger long-term threats through conservation and reuse of water, reduced irrigation of farmland, and development of new sources. As mandated by SB 1, regional water-planning groups are developing plans that will be incorporated into an update of the statewide water plan in January 2002.

Experts, including those at TWDB, argue that while drought management and conservation are essential, Texas' long-term economic viability also depends on the development of new water sources and reallocation of existing supplies through water marketing. Even assuming reasonable conservation measures, TWDB predicts that by 2010, without new water development, urban water shortages will cost the state $25 billion to $40 billion per year in lost opportunities for business relocation or expansion.



Groundwater Conservation Districts in Texas as of December 1, 1999

Source: Texas Water Development Board.

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to neighbors who might claim that pumping has depleted their wells. In *East*, the court explicitly rejected the "reasonable use" doctrine, which limits the use of water to the reasonable amount for the land from which it is produced. Under this doctrine, groundwater may be used without waste on overlying land. If used on non-overlying land, that use may not interfere unreasonably with use by other overlying landowners.

In adopting the rule of capture, the court cited two public policy reasons. First, the court noted that the "secret, occult, and concealed" nature of groundwater and its movement made regulation hopelessly uncertain. Second, the court determined that any attempt to apportion groundwater would discourage both established and future water-development projects.

In 1917, Texas voters added Art. 16, sec. 59 to the Texas Constitution, known as the Conservation Amendment. This establishes that conservation, preservation, and development of the state's natural resources are duties of the state and that the Legislature shall enact all laws appropriate for this purpose. After droughts in 1910 and 1917, the Conservation Amendment was intended to enable lawmakers to fight water depletion and to make clear that the responsibility for a sustainable water supply lay with the Legislature. In all subsequent groundwater decisions, the Texas Supreme Court has reiterated the Legislature's broad power to regulate groundwater use, even within the common-law framework established by the rule of capture.

By the 1950s, scientific advances began to strip away the mysteries of groundwater. While the courts clung to the rule of capture, exceptions developed. In *East*, the Supreme Court had stated that captured water must be put to beneficial use and may not be wasted. In *City of Corpus Christi v. Pleasanton*, 276 S.W.2d 798 (Tex. 1955), the high court affirmed the rule of capture but prohibited a landowner from taking groundwater to injure a neighbor maliciously. In *Friendswood Development Co. v. Smith-Southwest Industries, Inc.*, 576 S.W.2d 21 (Tex. 1978), the court held that a well owner can be held liable for negligently causing subsidence of surrounding land.

In May 1999, the Texas Supreme Court again considered the rule of capture in *Sipriano v. Great Springs Waters of America, et. al.*, 1 S.W.3d 75 (Tex. 1999). The plaintiff, a domestic well owner who claimed that nearby pumping by Great Springs, a.k.a. Ozarka Natural Spring Water Co., had dried up his well, asked the court to impose liability on landowners who "unreasonably" use groundwater to their neighbor's detriment. The court declined, unanimously affirming the rule of capture and citing the court's long-time reliance on the Legislature to regulate groundwater.

In *Sipriano*, the court cited the Legislature's 1997 enactment of SB 1, which, as part of a comprehensive water-management plan, streamlined the process for creating groundwater conservation districts and gave districts more authority to establish requirements for groundwater withdrawal permits. According to the court, before revising the common-law framework under which the Legislature crafted SB 1, it is appropriate to wait and see if this legislative action results in more prudent water management.

Many commentators agree, however, that the court's *Sipriano* opinion shows that it may not feel bound to the rule of capture in the future should SB 1 and any subsequent legislation prove unsuccessful in relieving groundwater overpumping. In his concurring opinion, Justice Nathan Hecht stated: "I agree with the Court that it would be inappropriate to disrupt the processes created and encouraged by the 1997 legislation before they have had a chance to work. I concur in the view that, for now — but I think only for now — *East* should not be overruled."

Groundwater districts

Ever since the rule of capture was adopted, concern over unsustainable water demands has increased, prompting Texas lawmakers to enact measures to curtail unchecked pumping of groundwater. In 1949, the Legislature first exercised its constitutional authority by creating a petition process for designating groundwater management areas and by authorizing the creation of conservation districts to conserve and protect groundwater resources.

While the main purpose of a municipal utility or water-supply district is to provide water and wastewater service to residents, the main purpose of a groundwater district is to conserve and manage groundwater. In fact, a municipal utility district may be a permitted well owner whose groundwater pumping is regulated by the local groundwater district.

In 1951, the first groundwater district, now the High Plains Underground Water Conservation District No. 1, was established. As of December 1, 1999, Texas had 50 confirmed districts plus 13 provisional districts with limited powers, created by SB 1911, an act of the 1999 Legislature. The 63 districts cover 37 percent of the state, primarily in the western half, and all or part of 103 counties (see map, page 4). Although these districts cover a relatively small percentage of the state's land area, they account for 79 percent of all groundwater produced in the state.

With few exceptions, groundwater districts are governed by elected boards of five to 11 directors who serve staggered four-year terms. Districts generally are financed by local property taxes. They may levy *ad valorem* taxes, assess user fees for district maintenance and operation, and issue and sell bonds for capital improvements. Under Water Code, Chapter 36, a district is subject to a confirmation election to approve the creation of the district and the election of the board. Voters within the district must approve the levy of taxes and the issuance and sale of bonds secured by those taxes.

SB 1, enacted in 1997, explicitly recognizes groundwater districts as the state's preferred method of managing groundwater resources.

Districts may be created by the Legislature or by TNRCC, on its own motion or through a petition by landowners within the proposed district. Those created by the Legislature, known as special-law districts, typically follow the framework laid out in Water Code, Chapter 36. Those created by TNRCC, called general-law districts, must follow the framework in Chapter 36.

Each piece of legislation creating a special-law district may differ. For example, an act creating a particular district may limit *ad valorem* tax rates, eminent domain power, or authority to buy and sell water. Such a law also may add powers not granted in Chapter 36, such as water control and improvement. Legislation also may exempt a district, such as the Edwards Aquifer Authority or the Harris-Galveston Coastal Subsidence District, from holding a confirmation election, as long as a property tax is not proposed to finance the district. Currently, 36 special-law districts exercise powers in addition to those specified in Chapter 36, according to TNRCC.

The state's 63 groundwater districts include 56 special-law districts and seven general-law districts created by petition. Although landowner petitions are relatively rare, Blanco County landowners plan to initiate a petition to manage withdrawals from the Trinity aquifer after efforts to form a special-law district failed in the 76th Legislature.

Where districts exist, the rule of capture does not govern groundwater withdrawals. Rather, each district imposes specific requirements, including limits on the amount pumped. Those who view the rule of capture as simply a liability rule rather than the affirmation of an absolute property right point out that the state's tort law does not change simply because an administrative agency is created to regulate a resource. All sides agree, however, that the ability to pump unlimited amounts of groundwater is restricted inside districts, whether by traditional permitting, production limits, and well-spacing requirements or by the implementation of a special statutory permit system, such as that of the Edwards Aquifer Authority.

The primary tools available to districts to manage and conserve groundwater include permitting water wells, developing a comprehensive water-management plan, and adopting rules to implement the plan. A few districts also are implementing depletion rules, which restrict pumping upon a showing that the cone of depression around a landowner's well is increasing beyond some specified amount. A cone of depression is the area in the vicinity of a well where the water table is drawn down or depressed, like an inverted cone. Increasing or overlapping cones of depression can interfere with nearby wells, requiring deeper pumps to withdraw water.

Most districts require permits for wells, with certain exceptions. They also may impose requirements for well location, spacing, and construction, as well as limits on production. Limits usually are based on the number of gallons a well may pump per minute, day, or year. Districts also have the statutory authority to monitor groundwater quality and to make and enforce rules regarding pollution of groundwater. Comprehensive management plans created by the districts must identify the use of groundwater resources within the district's jurisdiction, identify current and future problems and shortages, and propose solutions.

Clearly, management tools are in place for a large majority of the state's groundwater resources. Some

critics, however, argue that district rules do not necessarily limit the amount of water that may be pumped. Instead, district permits may consist only of well spacing and construction limitations rather than actual production limits. Such "permitting" really is more data collection than regulation, critics say.

In 1949, when groundwater districts first were authorized, the Legislature also authorized the designation of underground reservoirs for the purpose of groundwater management. In 1985, the concept of an underground reservoir was changed to a "groundwater management area" (GMA), and the Texas Water Commission, a predecessor of TNRCC, was allowed to consider boundaries of political subdivisions, in addition to strict aquifer boundaries, in determining areas suitable for groundwater management. The Legislature also authorized the designation of "critical areas," recognizing that certain parts of the state were experiencing or might experience water shortages, land subsidence, groundwater pollution, and declining water tables.

Critical areas may overlap with GMAs and with previously delineated underground reservoirs. The creation of critical areas was intended mainly to establish management areas for TNRCC-initiated districts, but critical areas also can define the boundaries for landowner-created districts, such as the district proposed in Blanco County. Under Chapter 36, the boundaries of a general-law district must be coterminous with or inside the boundaries of a GMA or a critical area. Special-law districts are not subject to such a requirement.

SB 1 renamed critical areas "priority groundwater management areas" (PGMAs) and streamlined the PGMA process to facilitate district creation. Specifically, SB 1 changed PGMA designation from an agency-rulemaking procedure, subject to the requirements of the Administrative Procedure Act, to an agency order, subject only to specific procedures mandated in SB 1. The new law also involved the Texas Department of Parks and Wildlife and the Texas Agricultural Extension Project in educating landowners within a designated PGMA about the importance of district creation.Only after area landowners have failed to act upon a PGMA designation by petitioning to form a district will TNRCC make a proposal concerning an area in its biennial PGMA report to the governor and Legislature. TNRCC may recommend creation of a district by the Legislature or by annexation of the PGMA into an existing district, or temporary management of the PGMA by TNRCC.

As required in Chapter 36, all seven general-law districts are within GMAs and three are partially within PGMAs. Although the 56 special-law districts do not have to establish boundaries within management areas, 27 are within or partially within GMAs and eight are within or partially within PGMAs. Proponents of additional GMA and PGMA designations contend that creating districts within boundaries deemed suitable for management by TNRCC provides the best opportunity for regional water management as mandated by SB 1 because, to the extent feasible, GMA and PGMA boundaries will coincide with reservoir or aquifer boundaries or with specific subdivisions of an aquifer.

SB 1 also made other changes to groundwater district law. The act explicitly recognizes groundwater districts as the state's preferred method of managing groundwater resources. It establishes procedures for TWDB to certify district management plans and requires the districts to notify TWDB of any modifications to the plans. Once the first round of regional water planning is complete, district plans must be consistent with applicable approved regional water plans mandated by SB 1. The act, by authorizing the State Auditor's Office to determine whether or not a district is pursuing its plan actively, requires greater accountability from the districts. If a district fails to develop a plan, TNRCC must produce a plan that may call for dissolving the district.

Issue 1: The rule of capture

In his concurring opinion in *Sipriano*, Justice Hecht stated: "What really hampers groundwater management is the established alternative, the common law rule of capture." Opponents of the rule claim that in light of modern technology that can determine the origin and movement of groundwater, the rule should be replaced with another doctrine that makes groundwater management more viable. (See box, pages 10-11.) Supporters of the rule claim that it protects vested property rights and investment-backed expectations of landowners, while still allowing the Legislature to manage groundwater problems on a case-by-case basis.

In *Sipriano*, the court rejected the plaintiff's claim that Texas should replace the rule of capture with a "reasonable use" standard. However, the court has not addressed claims that abrogating the rule of capture would interfere with property rights. The court long has refused to set the exact parameters of groundwater law

and the appropriate balance between regulation and property rights, leaving the Legislature to determine the best policy choices.

Supporters of the rule say:

The rule of capture, as adopted in the 1904 *East* decision, establishes that landowners are the absolute owners of the soil and of the percolating waters below it. Because private property rights in groundwater are vested firmly in the landowner, any change in the rule of capture would alter those rights fundamentally and would amount to a judicial taking. The Legislature formally adopted the rule of capture in Water Code, sec. 36.002, which provides that "[t]he ownership and rights of the owners of the land and their lessees and assigns in groundwater are hereby recognized, and nothing in this code shall be construed as depriving or divesting the owners or their lessees and assigns of the ownership or rights, subject to rules promulgated by a [groundwater] district."

The rule of capture is not the draconian doctrine that critics describe. The Legislature has enacted laws, such as those creating special-law groundwater districts, that restrict a landowner's rights to groundwater. Most recently, SB 1 strengthened the role of groundwater districts to ensure a proper balance between private property rights and, when needed, conservation management. SB 1 should be given a chance to work before changing the common-law framework under which it was created.

As mandated by SB 1's "bottom-up" approach to water management, water planning — especially with respect to aquifers — should occur at the local level, not in the courts. Each aquifer in Texas differs in makeup, flow, and recharge capability. For example, in one aquifer, contamination may not be an issue, but production management is required to remedy shortages. Another aquifer may not experience shortages but may face frequent contamination. If Texas adopted another doctrine, such as reasonable use or correlative rights (see page 10), the courts would be flooded with well-interference cases to be resolved on an unstudied basis without reference to long-term regional plans or the local expertise of a groundwater district.

In many parts of the state, economic prosperity depends on access to water. Many landowners have invested in land, equipment, and development projects in reliance that the rule of capture, established for nearly a hundred years, will continue. Although critics of the rule note advances in groundwater technology, such technology is still very expensive. The rule of capture provides the necessary incentive to develop the additional water resources needed to meet predicted shortages in the future. The rule's opponents claim that it hinders wise use of water. Reasonable use or correlative rights, however, which would require a determination of equity in each case, would shift the focus to individual rather than collective needs. If maximum benefit is not the driving force and a court must weigh all the competing interests in every water-allocation case before it, water resources will be underdeveloped.

Some water experts believe that Texas groundwater is in transition from a common-law system to a comprehensive statutory-based groundwater management system, administered by local districts that are tailored to meet the needs of specific aquifers. Eventually, the rule of capture effectively will be obsolete as these districts blanket most of the state. Changing the rule of capture now would disrupt the orderly transition already in place. Critics of the rule have claimed that if transition to comprehensive management is indeed the answer, it is too slow in light of pressing water needs. While that may have been true in the past, SB 1 and the strengthening of the PGMA designation process have remedied the problem. The state no longer may wait until groundwater problems are critical before taking action.

Opponents of the rule say:

The only rationale for the rule of capture rested on public policy that was appropriate in 1904 but is no longer appropriate in light of changes in hydrogeology and declining water supplies. Today's science recognizes the interdependence of all water systems and can establish a cause-and-effect relationship between groundwater pumping and decreases in the water table. Now that the subsurface features of an aquifer are readily ascertainable, no impediment exists to allocating groundwater resources more equitably among competing landowners.

For example, under the doctrine of reasonable use, groundwater use on non-overlying land is permitted only if the use does not interfere unreasonably with use by other overlying landowners. The doctrine of correlative rights entitles each landowner to a proportionate share of available supplies in the event of a conflict. Texas already has carved an exception to the rule of capture by applying a

negligence standard to claims of subsidence due to neighboring groundwater pumpage.

Increasing water needs and declining supplies warrant abandoning the rule of capture. This outdated rule encourages inefficient use of water and conflicts with attempts to promote water conservation in a time when such measures are needed desperately. Under the rule of capture, a landowner has no incentive to conserve, as any water the landowner does not pump will be pumped by a neighbor, thereby creating a "race to the bottom" of an aquifer.

Strict adherence to the rule of capture also harms landowners who depend on the longevity of an aquifer. Landowners are sure to lose in a "battle of the pumps" since industrial users and large farming operations use expensive and powerful pumps that can extract up to a hundred gallons a minute. Encouraging domestic users and small farmers to respond in kind by capturing as much groundwater as possible is unrealistic. Digging deeper, more expensive wells is not cost-effective, nor is it practical to extract large amounts of water that the landowner does not need. To do so needlessly depletes an already declining aquifer.

Proponents of the rule of capture claim that the Legislature formally adopted the rule in Water Code, sec. 36.002 because it recognizes private ownership and rights in groundwater. The rule of capture, however, is a tort liability rule rather than a property right. The rule stands only for the proposition that landowners pumping groundwater from beneath their own land owe no duty of care to prevent neighboring landowners' wells from going dry. Although a landowner may have some property right in groundwater tied to the ownership of the surface, if these rights were vested or absolute, landowners could prevent pumping by their neighbors that harmed their own water supply. For example, in the *East* case, East's ownership was not absolute because it did not protect his groundwater from being captured by the railroad. Groundwater does not constitute private property until it is pumped by a landowner. If East absolutely owned the water *beneath his land*, he would have enjoyed judicial protection, one of the most significant aspects of ownership.

In addition, because the rule of capture is only a tort liability rule rather than the affirmation of an absolute property right, abrogating it would not interfere with planning efforts under SB 1.

Issue 2: District boundaries

Long-range planning efforts, originating with the enactment of SB 1, continued in the 1999 legislative session. The 76th Legislature considered creating at least 30 new groundwater districts. Considering the substantial authority of districts to restrict a landowner's ability to pump without limits, the abundance of proposed districts caused controversy, especially since only 44 districts had been created and confirmed in the previous 50 years.

Sen. J.E. "Buster" Brown, chairman of the Senate Natural Resources Committee and author of SB 1, raised concerns that too many of the proposed districts were based on political boundaries (county lines) rather than on aquifer boundaries and that the districts' management activities might interfere with regional water-planning efforts under SB 1. Brown was concerned that the many districts' plans might conflict with recommendations from the 16 regional planning groups whose efforts will be part of the state's updated water plan in 2002. Therefore, Brown recommended that the Senate not consider the creation of those districts.

Concerns raised during the 1999 legislative session have generated controversy about how to draw the boundaries of future groundwater districts.

Lawmakers enacted a compromise measure, SB 1911, creating 13 temporary districts with limited regulatory authority under Water Code, Chapter 36. SB 1911 districts lack the authority, for example, to elect permanent directors, impose taxes, or prepare management plans. However, they may require pumping permits, charge user fees, and establish rules for well spacing and construction. These districts will dissolve if not ratified by the 77th Legislature in 2001. If ratified, the districts presumably will receive broader power, including the authority to prepare management plans.

The concerns raised during the 1999 session have led to discussions about how to draw the boundaries of future districts, including an interim charge to the House Natural Resources Committee to assess the effectiveness and feasibility of aquifer-based management. Most experts

Alternatives for Groundwater Regulation

Individual states manage pumping of their aquifers and resolve well-interference disputes between landowners. Virtually all western states followed the rule of capture until the 1950s, when aquifer depletion became an issue and better scientific information about aquifer movement became available. Today, Texas is the only western state that still applies the rule of capture to such conflicts.

Since the Texas Supreme Court's *Sipriano* decision in May 1999 upholding the rule of capture in Texas, increased recognition of landowners' concerns about their ability to preserve groundwater resources has led even staunch supporters, such as the Texas Farm Bureau, to modify their position to the extent that they are willing to discuss the possibility of applying other doctrines to Texas groundwater.

The rule of capture is one of five main legal doctrines governing conflicts between landowners with competing groundwater wells. The others are reasonable use, correlative rights, prior appropriation, and the restatement-of-torts rule.

Under *reasonable use*, groundwater may be used without waste on overlying land. Traditionally, off-land use was presumed unreasonable. Strict adherence to common law has diminished, however, and in a reasonable-use state, transportation of groundwater is permissible as long as it does not interfere unreasonably with use by neighboring landowners.

Although opponents of the rule of capture often cite reasonable use as an alternative, some argue that in practice, the two doctrines are the same, except that under reasonable use, an owner of overlying land may sell water only if the sale does not harm neighboring landowners. In a reasonable-use state, a landowner may use as much water on his own land as he wants, as long as it is not wasted. A landowner whose neighbor's use is reasonable has no recourse. There is no proportional sharing and no preference for prior users. Critics of reasonable use claim that the doctrine is too vague to guide courts adequately.

The doctrine of *correlative rights*, which originated in California, prorates water among overlying landowners. When conflicts or shortages occur, each owner is entitled to a proportionate share of available supplies. Unlike reasonable use, a correlative-rights system attempts to accommodate all overlying owners through ratable reductions when all reasonable needs cannot be met. Some argue, however, that such reductions, while guaranteeing all users some amount of water, do not take into account that some uses are more beneficial than others and perhaps warrant a larger ratable share.

Under *prior appropriation*, a state permit is required before a landowner may install or use a groundwater well. Permits reflect seniority, recognizing the better legal right in the first user. Landowners whose usage predates the permitting system receive "grandfathered" rights. Usually, groundwater permits are similar to surface water permits in requiring actual and beneficial

agree that groundwater districts, whether they are single- or multicounty, should be large enough to support themselves financially and to manage the underlying aquifer adequately.

Single- vs. multicounty districts. In the case of large aquifers, such as the Ogallala, that underlie a large portion of Texas, unified groundwater management efforts necessarily will cross county lines. Each of Texas' 254 counties has its individual political will. When a call comes to put aside historical divisions, even in the interest of managing an important and finite natural resource, the fear of losing local control may hinder unified efforts.

In the past, landowners have resisted creating single-county districts, much less regional districts, because of apprehension about the effects of pumping limitations

use. Prior appropriation can apply to all groundwater, although in some states, the doctrine applies only to particular sources, such as underground streams (not defined as groundwater in Texas), or to areas where conflict is likely to arise.

Prior appropriation is designed to protect established investments in land, equipment, or business made with the expectation of a stable water supply. However, strict adherence to this doctrine usually is not practical as a means of allocation, as all pumping by junior water-rights holders will affect other, more senior, wells. Most prior-appropriation states temper the doctrine by setting reasonable pumping levels.

Sec. 858 of the *Restatement of Torts* (second edition) is entitled "Liability for Use of Groundwater." The restatement, developed by the American Law Institute, lays out the general common law of the United States in the form of model laws. Sec. 858 provides criteria for comparing the reasonableness of competing uses of groundwater. According to this rule, a well owner is not liable for withdrawal of groundwater unless the withdrawal:

- causes well interference by lowering the water table or reducing water pressure;
- results in pumping more than the well owner's reasonable share; or
- interferes with levels of streams and lakes that depend on groundwater.

Commentators argue that while the restatement protects against overpumping, it does not favor on-land use explicitly to encourage recharge of the underlying aquifer. Unlike correlative rights, allocation of groundwater under the restatement rule is not dictated by proportions of land ownership and can take into account uses that are more beneficial than others. Most states with a reasonable-use approach rely on some of the considerations discussed in the restatement.

Another common practice among western states with respect to groundwater is conjunctive management. Groundwater often is connected hydrologically to surface water. For example, seepage from a stream may recharge an underlying aquifer, or a particular stream may be aquifer-fed. Several states are managing interconnected, or tributary, surface and groundwater in a single system.

States such as California, Colorado, and New Mexico administer groundwater sources affected by or affecting surface water as part of the surface appropriation system. Oregon does not treat tributary water as part of the surface water system, but imposes certain conditions on groundwater that is interconnected with surface supplies. Proponents argue that such a system recognizes the importance of the whole hydrological cycle and enables better management of water resources.

Some states, including Texas, operate under the legal assumption that surface and groundwater always operate independently. However, recent efforts to take a more hydrological approach in Texas include a requirement under SB 1 that groundwater districts coordinate their management plans with area surface-water management entities. Also, SB 1 requires the Texas Natural Resource Conservation Commission to consider groundwater or groundwater recharge effects of applications for surface-water permits.

and the cost of additional property taxes. However, recent events such as the *Sipriano* ruling and the prospect of increasing groundwater exports from rural to urban areas have increased awareness of the need for more water management, leading to the proliferation of proposed single-county districts last session. Texas now has 43 single- or partial-county districts and 20 multicounty districts.

For purposes of groundwater management, critics of the single-county district concept decry the arbitrariness of political boundaries in relation to the more logical and efficient use of aquifer boundaries. For example, a single-county district regulates only the portion of the aquifer that underlies the county, leaving pumping that occurs outside the county either unmanaged or managed by another single-county district with possibly different objectives and rules for the same water source. Also,

Regional Water Planning Under SB 1

With the enactment of SB 1 in 1997, the Legislature instituted a "bottom up" approach to water planning. SB 1 requires the creation of 16 regional water planning groups (RWPGs) to prepare plans for their respective regions. RWPGs must include representatives of the public, counties and municipalities, local industries, small businesses, agricultural and environmental interests, electric generating utilities, river authorities, water districts, and utilities within each region. Each RWPG also includes nonvoting members from state agencies such as the Texas Department of Agriculture and Texas Department of Parks and Wildlife, as well as people representing significant local interests in addition to those specified by SB 1.

Regional water plans are to lay out ways to conserve water, meet future supply needs, and respond to future drought conditions. The RWPGs must complete and adopt their regional plans by January 5, 2001. The Texas Water Development Board (TWDB) will approve and incorporate the regional plans into a comprehensive state water plan by January 5, 2002, after which the water plans are to be updated every five years.

Upon completion of the updated state water plan, TWDB financial assistance projects and Texas Natural Resource Conservation Commission water permits for municipal uses must be consistent with approved regional plans.

Source: Texas Water Development Board.

The RWPGs have hired consultants to help develop hydrological, environmental, and legal aspects of the plans. Each RWPG holds public meetings and will furnish a draft report of its plan for public review and comment. TWDB rules require the use of state funds to pay 100 percent of the direct planning costs, while the individual RWPGs will cover their own administrative costs.

proponents of multicounty districts claim that the economies of scale produced by the larger tax base of such a district can provide the funds needed to obtain engineering and technical expertise, whereas many single-county districts cannot afford to hire engineers or do the computer modeling and data collection needed to manage an aquifer effectively.

Others argue that political boundaries, while arbitrary in the hydrological sense, are a reality that must be addressed. When adjoining counties overlie an aquifer, hydrologically the most effective solution would be a multicounty district. The tax base of each county, however, will differ in size, causing one or more counties to fear that they will wind up subsidizing the other counties by bearing a greater share of the costs. Similarly, a county with a small tax base might seek to join with an existing district pursuant to provisions in Water Code, Chapter 36, rather than form a single-county district. The existing district, however, might have to raise taxes to support the additional county and, therefore, might reject the addition of the new county. Rather than forgo

any management at all, the county could choose to form its own district.

Aside from their differing tax bases, adjoining counties may use different amounts of groundwater for different reasons. One county may depend heavily on an aquifer for irrigation, while the adjoining county may depend on the same aquifer mostly for domestic uses that require less water. Landowners in each district may not feel that their interests are the same as those of landowners in neighboring counties with respect to the same water source. This can lead to the creation of single-county districts.

Potential solutions. Proponents of new groundwater districts, whether single- or multicounty, were disappointed after the 1999 legislative session. Efforts are now underway to find ways to address concerns about regional planning while proceeding with the creation of locally controlled districts.

The Water Code provides for joint planning by districts within the same GMA or PGMA. Sec. 36.108 requires districts within the same management area to share their management plans and provides for voluntary meetings between districts to compare the effectiveness of their overall management plans and goals. Although it has not been used yet, Sec. 36.108 establishes a process whereby districts may petition TNRCC to inquire into the failure of another district in the same management area to adopt rules or enforce them adequately to protect an aquifer.

Critics, however, contend that Sec. 36.108 does not go far enough to require cooperation between districts. First, only districts within designated GMAs or PGMAs must share plans. Currently, four of the seven general-law districts and 23 of the 56 special-law districts are within GMAs or PGMAs that contain another district with the potential for coordination. Five of the special-law districts, however, are temporary districts under SB 1911 and may not create management plans.

Also, although districts within management areas are required to share plans, the district boards are not required to meet or attempt to coordinate their plans. Simply providing copies to neighboring districts does not constitute meaningful cooperation, critics contend. Any further efforts outlined in Sec. 36.108 are voluntary. Even if a district were to file a petition with TNRCC to initiate an inquiry into another district's failure to manage the aquifer, Sec. 36.108 establishes no specific sanctions. Sec. 36.302, however, does provide for audits of groundwater districts, which could lead to sanctions for failure to implement management plans.

Some voluntary coordination efforts have been successful. For example, in 1988, four districts in the San Angelo area formed the West Texas Regional Groundwater Alliance in an attempt to coordinate planning and management of the Edwards-Trinity Aquifer. The alliance has grown to include 11 districts today.

Another potential solution to the boundary debate is to appoint one manager for more than one district. Currently, four district managers each manage two adjoining districts. For example, a single manager oversees the South Plains Underground Water Conservation District in Terry County and the Llano Estacado Underground Water Conservation District in Gaines County. Proponents of this system note that, especially in the case of smaller counties, sharing the cost of a manager frees money for other expenses, such as data collection and education programs. Managers of two or more districts are better able to coordinate goals and management plans for the districts. Jointly managed districts operate under more of a hydrological management concept, yet the manager answers to each locally controlled board and each district retains its autonomy. This type of coordination is not limited to sharing district managers. Districts could maintain their own managers but share technical expertise, such as engineering services or computer modeling, that many districts cannot afford on their own.

Many districts complain that effective management plans are difficult to prepare because of the unavailability of data and computer modeling needed to determine the effects of different levels of water usage over time. The General Appropriations Act for fiscal 2000-01 provides funding for a new TWDB program called Groundwater Availability Modeling, the purpose of which is to produce state-of-the-art numerical models of groundwater flow for all major aquifers in Texas. Once completed, these models will be important tools for both regional water-planning groups and groundwater districts.

While the above scenarios address regional planning within the context of a single-county district, some maintain that individual counties can maintain local control within a multicounty district, even one as large as the High Plains district, which represents all or part of 15 counties. In a multicounty district, local landowners often fear they will

have no hand in policies set by the board, whose members may reside in another county and have different priorities.

To ensure that individual counties are equally involved in management, the High Plains district has a county committee, whose members are elected along with the board of directors. While the district has only five board members who represent roughly three counties each, each county or partial county within the district has five committee members. The county committee approves permits, recommends policies to the board, and serves as a contact for landowners who have concerns or need help.

Issue 3: Well exemptions

Certain groundwater wells are statutorily exempt from permitting requirements even though they lie within the boundaries of a groundwater district. Water Code, sec. 36.117 restricts a district's authority to permit or restrict production from certain wells, including:

- wells incapable of producing more than 25,000 gallons of water per day, which covers most wells serving single-family households;
- domestic wells supplying ten or fewer households;
- wells used to feed livestock and poultry; and
- wells used to supply water for oil and gas production, called rig-supply wells.

Water is a necessary part of oil and gas production. When reservoir pressure declines as oil is removed, an injected substance such as water can maintain the pressure so that more oil can be extracted. Without such injections, the well might have to be plugged with much of the oil left in the reservoir. The Texas Railroad Commission (RRC) issues permits for oil and gas exploration and production.

Although groundwater districts may not require permits for exempt wells, landowners must register exempt wells with the district before drilling and must comply with the district's well-construction requirements to prevent pollution of groundwater. Also, water wells drilled after September 1, 1997, for purposes of oil and gas exploration and production must meet the district's spacing requirements unless no space is available within 300 feet of the production well or the central injection site.

Exemption supporters say:

Water wells used for domestic and livestock purposes account for a very small portion of Texas' total groundwater usage. Groundwater regulation should focus on pumping that seriously affects supplies, such as municipal, industrial, and large farming operations. Opponents of permit exemptions have provided no empirical evidence that exempt wells have caused aquifer levels to decline or have contaminated groundwater supplies. Also, some owners of small wells would find it hard to pay district permit and/or production fees. As a compromise, the Legislature could amend Sec. 36.117 to authorize a district to revoke individual exemptions if waste can be shown or if the amount of groundwater pumped is unreasonable for that class of use.

Rig-supply wells use less than one-quarter of 1 percent of all fresh water consumed in the state. In West Texas, rig-supply wells use less than 1 percent of all water taken from the Ogallala aquifer. Current statutes protect fresh water used in the oil and gas business. Specifically, Water Code, sec. 27.0511 requires that an oil and gas operator investigate the availability of other substances for injection before getting approval from RRC. Also, TNRCC reviews each operator's request to use fresh water for injection.

Unlike a local landowner, oil and gas companies operate projects across Texas and would find it extremely difficult to comply with the varying requirements of all districts in the state. Oil and gas recovery generates large amounts of property tax, employment income, and other economic activity in Texas. Dual permitting requirements, from the district to use groundwater and from RRC to inject that water, could deter oil and gas operators from initiating new projects.

Oil and gas operators also are concerned that, if they were subject to the water-well permitting process, they would be treated less favorably than farming interests during times of shortage. In many districts, farming landowners are the largest political group and, therefore, wield the most influence with the board that governs permitting policy for the district.

While exemption opponents express concern about the use of rig-supply wells after completion of an oil and gas recovery project, conversion to domestic or commercial uses should not be an issue, because a converted well no longer is exempt and becomes subject to all district rules.

Exemption opponents say:

The exemptions in Water Code, sec. 36.117 obstruct uniform local management of groundwater resources. When landowners create local districts, they expect the district to manage groundwater for the benefit of all landowners. To manage effectively, districts must be able to apply rules uniformly. Exempting some classes of users hinders conservation efforts and is unfair to permitted users. If an exemption is appropriate, the decision should lie with local districts whose board members have the necessary expertise, rather than providing blanket exemptions that do not reflect specific problems in each district. For example, wells incapable of producing 25,000 gallons per day are exempt from permitting and production requirements. Many aquifers within the state cannot produce this volume of water, and the exemption prevents effective management of such aquifers.

Districts also experience problems with exempt single-family residential wells that are completed in subdivisions by the hundreds. Supporters of the exemptions point to a lack of proof that the small amount of water pumped by exempt wells can affect an aquifer significantly. A subdivision with hundreds of individual exempt wells can have the same dramatic and long-term impact as one municipal supplier, yet a district has no authority to regulate such wells. Such exemptions also are unfair to neighboring subdivisions that choose to operate on a water system, rather than from individual wells, and that must pay fees and follow the rules of the local district.

Many districts note that rig-supply wells generally extract groundwater only for the life of the oil and gas recovery project. However, the long-term impact of converting such water wells to domestic or commercial use causes concern. Districts face monitoring these conversions and determining how to move exempt wells into the permitting structure.

Issue 4: Export limitations

With Texas in its third drought in four years, large urban areas are desperate for more water. In the absence of a groundwater district, the rule of capture is law.

As only 37 percent of the state lies within the jurisdiction of a district, the accumulation of groundwater rights has become a lucrative business. Oil and gas entrepreneurs are amassing water rights by means of transactions structured like typical oil and gas leases, with landowners retaining ownership of the overlying land while leasing the rights to water underneath.

For example, the Houston-based Metropolitan Water Co. has proposed pumping water to cities and water districts in Williamson County from a field the company is attempting to develop in nearby Burleson County. The company has contacted local landowners about leasing water rights and has held preliminary discussions with the cities of Georgetown and Round Rock about buying the water. San Antonio has entered into a contract to buy water produced by Alcoa's lignite mining operations in Milam and Bastrop counties. T. Boone Pickens, chairman and chief executive officer of Mesa Petroleum and its Mesa Water subsidiary, has made a proposal to the South Central Texas Regional Planning Group, one of the 16 planning groups created by SB 1, to pipe groundwater from Roberts County in the Panhandle to water-strapped South Texas cities more than 600 miles away.

Some proponents of increased water marketing say SB 1's restrictions on interbasin transfers of surface water have caused the boom in proposed groundwater sales. Interbasin transfers occur when surface water is moved from its basin or watershed of origin to an area outside the basin. A basin is the area encompassing the drainage area of a major river system.

Use of surface water is permitted by the TNRCC, and the principle of prior appropriation gives priority to those whose rights have greater seniority. Before SB 1, the Water Code authorized TNRCC to assign an interbasin transfer the same priority as that of the water permit being amended to provide for the transfer. SB 1, however, made future interbasin transfers junior in priority to permits granted before the filing of the application for transfer. Thus, a senior water right that is transferred becomes junior to all other rights in the basin of origin. Critics claim that this provision makes transfers less attractive as a means of meeting future water needs. Those in need of water are unlikely to spend large sums of money to acquire water rights that could be interrupted easily, especially in times of drought. If such restrictions were eased, critics say, the focus on groundwater transportation would diminish. Proponents of the junior-rights provision, however, say that it protects users in the basin of origin.

In response to the rise in groundwater marketing, many communities have proposed districts to protect

against rampant water exports as well as to manage groundwater use. Many of the groundwater districts proposed during the 1999 legislative session included prohibitions or severe limitations on exporting water from the district. SB 1911 specifically provides, however, that with respect to the 13 temporary districts created under the act, transfers of water from the district may be regulated as provided in the Water Code but may not be prohibited. Currently, only the Edwards Aquifer Authority, a special-law district, explicitly prohibits groundwater export. Although the constitutionality of the Edwards Aquifer Act in its entirety was challenged unsuccessfully in 1996 in *Barshop v. Medina County Underground Water Conservation District, et al.*, 925 S.W.2d 618 (Tex. 1996), the export prohibition itself has not been challenged in court thus far.

Interstate export. In 1966, the U.S. District Court for the Western Division of Texas held unconstitutional a Texas statute prohibiting export of groundwater out of state, in *City of Altus v. Carr*, 255 F. Supp. 828 (W.D. Tex. 1966), *summarily aff'd*, 385 U.S. 35 (1966). Altus, in southwest Oklahoma, contracted with landowners in Texas for transport of groundwater over the state border. In response, the Texas Legislature enacted a law prohibiting interstate export without legislative authorization. The city filed suit, claiming that the statute violated the Commerce Clause of the U.S. Constitution. The federal court found the Texas law an unconstitutional burden on interstate commerce, noting that the prohibition against export bore no relationship to Texas' stated conservation goals, as the state had placed no corresponding restrictions on the intrastate transfer of water. The court also rejected Texas' claim that groundwater was not an article of commerce, stating that the transport prohibition was directed at water that had been captured by the landowner, which, under Texas law, constituted private property.

Many communities have proposed groundwater districts to protect against rampant water exports as well as to manage use of groundwater.

A U.S. Supreme Court case, *Sporhase v. Nebraska*, 458 U.S. 941 (1982), concerned Nebraska's attempt to limit interstate transfers of groundwater. Nebraska enacted a law requiring anyone who wished to transfer Nebraska groundwater for use in an adjoining state to obtain a permit from the Nebraska Department of Water Resources first. To obtain the permit, the applicant had to show that:

- the requested withdrawal was reasonable;
- the withdrawal was not contrary to the conservation and use of groundwater;
- the withdrawal was not otherwise detrimental to the public welfare; and
- the state in which the water was to be used would grant reciprocal rights to withdraw and transport groundwater into Nebraska.

First, the court found that groundwater was an article of commerce, noting that 80 percent of U.S. water supplies are used for agricultural products distributed worldwide. The court also referred to the multistate coverage of the Ogallala aquifer and its role in agricultural production. The court accepted Nebraska's stated conservation purpose for the limitations, citing the state's creation of groundwater conservation districts and similar limitations on intrastate groundwater transfers. According to the court, withdrawal restrictions imposed on state residents as well as out of state indicated no discrimination against interstate commerce. The court, finding no evidence of a relationship to the conservation goals claimed by the state, rejected the requirement that states receiving water from Nebraska grant reciprocal rights to their water. The court stated, however, that "[a] demonstrably arid State conceivably might be able to marshall evidence to establish a close means-end relationship between even a total ban on the exportation of water and a purpose to conserve and preserve water." *Sporhase*, 458 U.S. at 958. Thus, the court left open the possibility, however remote, that state statutory limitations on interstate transport of groundwater could be crafted narrowly to meet constitutional scrutiny.

Since *Altus* and *Sporhase*, the situation in Texas has changed. Arguably, with predicted shortfalls in water supply, the increasing use of groundwater districts to monitor groundwater use, and intrastate permitting of groundwater exports, the state may have a stronger case to make in defending some form of limitation on interstate export against a constitutional challenge.

Intrastate export. In 1995, the Panhandle Groundwater Conservation District's rule prohibiting any groundwater export out of the district was challenged in *Quixx Corporation v. Panhandle Groundwater*

Conservation District No. 3, No. 79-687C, 251st District Court, Potter County. The court rejected the rule, finding that any rule attempting to regulate or prevent transportation of water out of the district was beyond a district's authority. Absent any express statutory authority given to the district to limit export, an owner of groundwater may transport all or any part of its lawfully produced water for any non-wasteful and beneficial use, and the district may not impose more onerous permitting standards or restrictions for water use outside the district than it imposes for water use inside the district.

In 1997, in response to concerns about groundwater export, SB 1 added Sec. 36.122 to the Water Code, authorizing regulation of such transfers. This section allows a district to promulgate rules requiring a person to obtain a permit to increase, on or after March 2, 1997, the amount of groundwater to be transferred out of the district under existing contracts, or to transfer water out of the district, on or after March 2, 1997, under a new contract. The district must consider certain criteria in determining whether or not to issue a permit, including:

- availability of water in the district and in the receiving area;
- availability of alternative arrangements;
- amount and proposed uses of water in the receiving area;
- effects of the transfer on the aquifer and existing permit holders; and
- provisions of both the regional and district management plans.

Sec. 36.122 also allows a district to limit a permit issued under this authority and provides that a district may not prohibit the export of groundwater if the purchase was in effect on or before June 1, 1997.

Continued resistance to efforts to market groundwater has raised concerns about what will happen as more districts develop exportation rules and reject or severely curtail permit applications under Sec. 36.122. If challenged, should export limitations be upheld in court? If they are upheld, will a property owner have a viable claim that the district has taken his or her property without just compensation? While no challenges have arisen yet, these and other issues related to statutory limits on groundwater exports are likely to be part of future debates.

Opponents of export limitations say:

Unlike the simple creation of a groundwater district, export limitations unreasonably interfere with a landowner's right to use privately owned groundwater for any beneficial and non-wasteful purpose. No rational basis exists for treating groundwater transported out of the district differently from groundwater used within the district. In either case, the water is extracted from the aquifer, and that is where the regulatory focus should lie. Rather than limit exports, districts that wish to conserve groundwater should place more emphasis on production limits. Water marketing facilitates the most efficient use of water resources so that regions with excess water can contribute to water-poor regions and can garner some economic benefit. In light of regional planning efforts, the state should not encourage districts to hoard their water.

Supporters of export limitations say:

Limiting transfers of groundwater out of the district is part of a district's role in managing groundwater resources. Therefore, denying or limiting an export permit is not an abrogation of the landowner's property rights but a valid exercise of a district's statutory and constitutional authority to conserve an underlying aquifer. To ensure fairness, Sec. 36.122 provides a balancing test to weigh the interests of all parties and determine what is best in terms of an area's future water supplies. While meeting the needs of thirsty cities is important, rural landowners must ensure that their own needs are met before they become providers to their neighbors. Landowners also must ensure that increasing exports do not force them to dig deeper wells at considerable expense. Sec. 36.122 makes certain that in times of water shortage, city golf courses are not green while crops die in rural areas because water has been transported for urban use.

Issue 5: Export fees

In formulating export permit rules under Sec. 36.122, some districts charge fees on the exported water to offset economic losses to the district. While water-right sales benefit individual landowners, such transactions also affect the district's tax base and economy. For example, when a municipality buys agricultural land outright, part of the tax base is lost, affecting all taxing entities in the area, and agriculture-related jobs and businesses are

affected. Districts also argue that it is not equitable for municipalities outside a district's boundaries to benefit from the district's water, yet pay no taxes to support the district's efforts to preserve the groundwater source.

The Water Code does not authorize export fees explicitly, other than for administrative expenses. Proponents say the regulatory authority over exports granted in Sec. 36.122, combined with the fees for services outside the district authorized under Sec. 36.205, give districts full fee authority over exports unless prohibited by the district's enabling legislation. Others argue that without explicit authorization in the Water Code, districts should not charge such fees.

Issue 6: Regulatory takings

Regulatory takings arise when a state law imposes property restraints that result in depriving a landowner of property use. Opponents of export limitations claim that because groundwater is subject to the rule of capture and landowners are the absolute owners of the land and percolating waters below, an unconstitutional taking of private property occurs if a district denies an export permit to a landowner or curtails the permit significantly.

The Texas Supreme Court has been reluctant to determine whether regulation of groundwater through district rulemaking constitutes a taking. In *Barshop v. Medina County Underground Water Conservation District*, landowners and others challenged the state's authority to regulate groundwater through groundwater districts. The high court ruled that, on its face, the Edwards Aquifer Authority Act was not unconstitutional. The case was limited to a facial challenge because the act had not taken effect when the suit was filed.

The court held that the act's regulatory permitting scheme and cap on aggregate pumping were within the Legislature's constitutional charge to regulate groundwater. The court dodged the takings question by determining that it did not have to decide if rights to uncaptured groundwater were vested property rights in order to determine the constitutionality of the act. Assuming without deciding that the plaintiffs possessed a vested property right in water beneath their land, the court found that the act provided adequate compensation in the event that implementation caused a taking of property or the impairment of a contract.

More recently, in *Sipriano*, the Supreme Court did not address the property-rights argument and its impact on the court's decision to uphold the rule of capture. By not definitively responding to property-rights arguments, the court has left open the question of whether or not privately held groundwater is a vested property right and, if it is, to what extent regulations like those in Sec. 36.122 constitute a taking.

As discussed above, some argue that rights in groundwater are not vested in the first place because they lack enforceability and exclusivity. Furthermore, the Legislature's constitutional authority to regulate groundwater and to preserve a sustainable resource trump any takings claims in areas of the state covered by groundwater districts.

Supporters of export limitations claim that even if groundwater were deemed a vested property right, such limitations would survive a takings claim under the applicable U.S. Supreme Court test in *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003 (1992). The *Lucas* decision suggests that a regulatory taking occurs only when a landowner is deprived of all economically beneficial use of his land. It is unlikely that any permitting scenario would divest a landowner of all potential uses of groundwater beneath the land.

The Texas Private Real Property Rights Preservation Act, Government Code, sec. 2007.001 *et seq.*, requires a covered governmental entity to perform a "takings impact assessment" for certain proposed actions, including the adoption or issuance of an ordinance, rule, policy, or guideline, that could result in a taking of private real property. The act also allows judicial review of the governmental entity's failure to comply with the act's provisions. It defines "private real property" to include groundwater rights of any kind but does not define the extent of the "right." Nevertheless, the act specifically exempts actions taken by a groundwater district under its "statutory authority to prevent waste or protect rights of owners of interest in groundwater; or prevent subsidence."

— by Hope E. Wells

Protecting Groundwater from Contamination

The Texas Water Code, sec. 26.401 states that "protection of the environment and public health and welfare requires that groundwater be kept reasonably free of contaminants that interfere with present and potential uses of groundwater." The statute establishes that the goal of all state groundwater policy is to prevent degradation of groundwater supplies. However, that goal does not mean zero-contaminant discharge. Rather, state agencies are expected to use their best professional judgment to maintain a proper balance between the state's long-term economic health and the protection of public health and welfare.

Groundwater contamination, as defined by the Texas Groundwater Protection Committee (TGPC), is the detrimental alteration of the naturally occurring quality of groundwater. Common examples of contaminants include pesticides from agricultural activities; chemicals from commercial and business endeavors, such as dry cleaning; heavy metals from industrial and manufacturing activities, such as lead from battery recycling plants; and petroleum products from oil and gas production and related practices and from leaking storage tanks or pipelines. Contamination also can occur from natural sources that may be influenced by or result from human activities, such as saltwater intrusion, the induced flow of saltwater into freshwater aquifers caused by groundwater overpumping.

In 1989, the 71st Legislature created the TGPC to maximize water-quality protection by improving coordination among agencies involved in groundwater activities and by developing and updating a comprehensive groundwater-protection strategy for the state. Water Code, secs. 26.401 through 26.407 outline the TGPC's powers and duties.

As the TGPC's lead agency, the **Texas Natural Resource Conservation Commission** (TNRCC) is primarily responsible for the regulatory protection of groundwater. Water Code, Chapter 26 requires TNRCC to establish the level of water quality to be maintained and to control sources of pollutants. TNRCC divisions administer state and federally mandated programs, including, for example, those required by the federal Clean Water Act and the Safe Drinking Water Act.

Certain limited activities that require the protection of groundwater fall under the jurisdiction of other TGPC member agencies. Divisions of the **Texas Railroad Commission** monitor groundwater and field citizens' complaints of contamination related to surface mining and oil and gas drilling, production, and transportation. The **Texas Department of Agriculture** has primary responsibility for pesticide regulation. The **Texas Department of Licensing and Regulation** licenses water-well drillers and enforces standards of conduct for drilling and completion of water wells and the plugging of abandoned water wells.

The **Texas State Soil and Water Conservation Board** implements and manages programs for abating agricultural and silvicultural, or forestry-related, nonpoint-source (NPS) pollution. NPS pollution originates from sources that cannot be traced to any single point, such as a pipe. NPS pollution from agriculture and forestry includes nutrients, pesticides, organic matter, and animal wastes.

The **Texas Department of Health**'s Bureau of Radiation Control, which regulates radioactive materials in Texas, also samples groundwater in investigating incidents or situations in which groundwater may have been contaminated.

The **Alliance of Groundwater Districts** selects a representative for TGPC membership but has no regulatory or enforcement power as a body. However, individual groundwater districts, depending on their enabling legislation, may have authority to monitor groundwater quality and to seek injunctive relief against an entity that causes groundwater contamination.

For purposes of groundwater classification and resource planning, the **Texas Water Development Board** monitors changes in the quantity and quality of the state's aquifers and develops statistics on current and projected demands on groundwater resources. The **Texas Agricultural Experiment Station**, the state's official agricultural research agency, and the **Bureau of Economic Geology** of the University of Texas, which performs the state geological survey, also conduct research related to groundwater.

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