

11-30-84  
WORKSHOP IN POLITICAL THEORY  
AND POLICY ANALYSIS  
513 NORTH PARK 1  
INDIANA UNIVERSITY  
BLOOMINGTON, IN 47408-3895 U.S.A.  
REPRINT FILES

Ideology and Local Solutions to the  
Tragedy of the Commons:  
West Texas Groundwater Policy

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Paper presented to the 1994 Annual Meeting of the  
Southwest Political Science Association.  
St. Anthony Hotel, San Antonio. March 31 to April 2

### Ideology and Local Solutions to the Tragedy of the Commons: West Texas Groundwater Policy

West Texas is the setting for an unintended experiment in commons resource management. Dispersed, autonomous, local groundwater districts use non-regulatory strategies to promote conservation and groundwater quality. The central force driving this organizational form appears to be ideological. West Texans do not appear ready to accept state management of groundwater pumping. This paper uses key informant interviews to evaluate the strength of ideology in explaining West Texas groundwater policy and provides a theoretical framework for discussing the importance of the "local solution".

Managing resource quality and depletion of a fluid commons is one of the most difficult tasks of environmental policy. A fluid commons is one in which the resource is fungible and non-excludable due to its mobility. The atmosphere is a fluid commons, so is the ocean. Another fluid commons might be rare animals. In the Great Plains states, prosperity depends on a crucially important fluid commons known as the Ogallala Aquifer.

The Ogallala Aquifer is an underground sea of freshwater lying beneath an area from South Dakota down to West Texas. Agricultural prosperity in eastern Colorado, western Nebraska and Kansas, and the High Plains regions of West Texas is dependent on mining the Ogallala Aquifer. While the amount of water in the aquifer is enormous, it is a nearly non-renewable resource because pumping for irrigation is far greater than the relatively small recharge rate.

Across the Great Plains region and throughout the western United States, fears of depletion from declining aquifers drives the formation of policies intending to promote conservation of scarce underground

water. Some states like Arizona formed centralized groundwater agencies while others like Texas allowed local districts to assume authority over groundwater policy. Local districts rely on education, access to low-interest loans and persuasion to fulfill their conservation responsibilities while state-run regulatory agencies often use a strict well-permit system and pump monitors on existing wells with fines and shut-offs for excessive use.

The primary impetus behind the uniquely local autonomy of Texas groundwater districts appears to be driven by ideological demands. Citizens in agricultural counties in Texas, particularly West Texas, will not easily accept state-wide agency regulation. Texas groundwater policy moves in tandem with the ideological demand by structuring groundwater conservation and quality around local districts.

West Texas groundwater is often said to be a classic example of a tragedy of the commons.<sup>1</sup> As the groundwater commons is seen to be threatened, governments respond often with policies that encourage or force local actors to organize regional agencies by arguing that the larger regional organization can better match the technical and financial requirements of the commons regulation. Centralization is a common theme in water policy in the Southwest and, across various disciplines, scholars have debated the need for centralization of authority in southwestern water.

The state government of Arizona controls groundwater use quite strictly, perhaps more intrusively than in any other state. The strict 1980 Arizona groundwater law is used symbolically by West Texans as the price paid for failing to organize locally. Terrific ideological resistance to that kind of state control is echoed throughout West

Texas. In coming to grips with the need for groundwater regulation, traditional Populist ideology becomes a force encouraging West Texas to experiment with strong local controls.

Local management emphasizes a flattened hierarchy coupled with a reliance on professional norms and organizational commitment.<sup>5</sup> Conservation policy implementation in West Texas' local groundwater districts relies heavily on educating farmers,

providing conservation technology grants and loans, and inducing cooperation between intracounty and intercounty agencies. Thus, West Texas policy becomes an experiment not only in local autonomy in managing commons resources, but also in bottom-up environmental public service management.

The distinct localization of West Texas groundwater management institutions presents the potential for flexible and entrepreneurial change as each district adapts to its own specific circumstances. Local "home-grown" institutions may allow for more focused, evolutionary kinds of change than centralized state-dominated institutions. West Texas policy represents polycentric governance and is thus neither a market nor a centralized government system.<sup>6</sup> The recent growth in local groundwater organizations in West Texas provides a rich environment within which to study the web of interrelationships and interactions between the local districts, the state, and the market.

Market approaches to solving commons problems are well represented in the literature, but a serious difficulties attend their application to fluid commons. The unique nature of fugitive resources prevents easy capture by conventional private property mechanisms. Using a combination of legislation and markets like the air pollution credits market set up by the EPA is untested and requires just the sort of water. In short, while some authority to regulate groundwater depletion exists within the water districts, it is not sufficient to obstruct individual pumping, absent particular circumstances like deliberate waste.<sup>12</sup>

As water politics in West Texas has grown more competitive, and fear of state control is growing, nearly every agricultural area has requested "critical" status and the chance to organize groundwater districts. Some district elections have failed, but the authority to have an election has passed the Texas legislature for every county in West Texas. One important impetus for such elections is the fear of coming under management of the Texas Water Commission, if groundwater districts are not established locally. The most common strategy is to be annexed to an existing groundwater district as opposed to initiating a new district. As a result, West Texas has seen three districts—the North Plains, Panhandle, and High Plains—grow to incorporate more than half of the land in West Texas.

# UNDERGROUND WATER CONSERVATION DISTRICTS: POLITICS AND PROCESS

The rules for organizing a water district were initially established in 1949. The Texas GI Bill allowing low-interest farm loans and the widespread introduction of fossil-fuel driven groundwater pumps led to an acceleration in West Texas irrigated agriculture. To assist in protecting water quality and to provide information, Texas authorized the creation of special independent underground water conservation districts. Currently, the districts provide education and recordkeeping services intended to encourage water conservation and protect water quality.

without assuming any of the costs. The multicounty districts also argue that their efficiency and professionalism make a difference in state funding for low-interest, conservation-technology loan programs to farmers. The High Plains water district, serving Lubbock and fourteen surrounding counties, has provided 10 million dollars of low-interest loans since 1989. That is 22.2 percent of the estimated 45 million dollars invested in conservation technology in the High Plains district 13 area. No other district manager could report comparable results in acquiring state water-conservation funds although other multicounty districts are active in providing the low-interest loan program to their constituents.

## Methodology and Data Analysis

The first step was dividing the fifty-two counties in the study into three groups: multicounty-district member, single-county districts, and unorganized (no water district). Data analysis allows inferences to be made about why some counties join districts and some do not.

Of the seventeen unorganized counties, fifteen do not sit above the Ogallala Aquifer, the primary source of irrigation water in West Texas. In contrast, six of the seven single-county districts and all of the multicounty districts sit atop the aquifer. Irrigated agriculture is not common in the 15 unorganized counties, although some sit above smaller aquifers. Their lack of dependence on groundwater reserves makes them unlikely candidates for groundwater district formation. One of the two unorganized counties that sits atop the Ogallala, Gaines County, has received

Texas legislative approval to hold a water-district election. If the election fails, some Gaines County farmers will join water districts in neighboring counties—allowed only if the farm property is contiguous to the water district. Despite a couple of exceptions, it is clear that dependence on the aquifer's water is an impetus to water-district formation.

Similar data are not readily available to test a key feature of district organizing: the fear of state control. To determine its importance, every district manager (10) was surveyed by phone.<sup>14</sup> An open-ended question was posed asking managers to rank the most important reasons for voters to accept water districts. The first or second response from every manager was to ensure local control over groundwater.

Aside from fear of state control and somewhat unexpectedly, three of the ten managers mentioned oil-field pollution as the key element in forming a water district. Oil drilling and pumping creates a heavy flow of water that is as much as 110000 ppm saline. This concentration is poisonous to plants and advocates believed that local water-districts could organize water users to battle with oil companies. The saltwater pollution issue was used successfully in forming some water districts.

A second method was also used to assess fear of state control as an explanation. Local newspaper reports and editorials surrounding water-district organizing were analyzed from three recent water-district elections: South Plains, Sandyland, and Mesa. Every water-district board candidate and local representative (n=44) mentioned local control prominently. Many referred to Arizona's state control over groundwater and the belief that local control was necessary before the Texas Water Commission "takes control for us." Most candidates and representatives mentioned access to state funding (n=29), but it did not appear to assume the same prominence in their campaign statements as state control.

The results of this survey were supported by a series of key informant interviews taken during the spring and summer of 1993 (n=97). The interviews surveyed a mix of farmers, ranchers, local groundwater district officials, and agricultural support officials. The interviews were open-ended and sought to understand the politics and process of groundwater policy from the view of the individual user and administrator. Ninety-four percent of the respondents supported the creation of local groundwater districts with the need for local control (49%) and conservation

(39%) being the two most-oft mentioned reasons. Virtually every farmer interviewed expressed a concern for depleting groundwater reserves, but strongly resisted central regulatory policy over groundwater use. Many farmers argued that local irrigation practices had changed dramatically and that predictions of a drastically depleting Ogallala were outdated.

A 1988 mail survey of Texas groundwater policy officials (n=397) showed strong support for local districts and a reluctance to use a state-level regulatory agency. Sixty-three percent approved of groundwater policies implemented by local government with 58% choosing public education as the primary means of encouraging support for groundwater protection programs. State support was desired in establishing a framework for local government groundwater protection policies (78%) and encouraging the formation of groundwater districts (86%). The results of the survey showed a marked reluctance to support state agency formation, but strong support for state guidelines in helping local districts to organize.

#### Conclusion

West Texas has nearly completed the first step in government control of Ogallala groundwater. Given the need for attention to water quality and improved conservation, the state government began threatening to assume regulatory authority over local groundwater use. In response, county voters organized local water districts.

More generally, Texas has made a good start toward a local and cooperative solution to a thorny commons dilemma. While an early prediction for local control evolving into regional control is arguable, local districts might maintain their independence. Texas is conducting an experiment in cooperation, perhaps unwittingly. The fierce independence of West Texas farmers and ranchers, and their insistence on retaining local control of groundwater, has created a laboratory for studying small-group management of a commons resource.

## References

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<sup>7</sup>Allan Freedman, "Clayton Williams and West Texas Water," The Texas Observer, July 27, 1990.

<sup>8</sup>Harvey Everheart, author's interview with manager of the Mesa Underground Water Conservation District, March 5, 1993

<sup>9</sup>Ronald C. Griffin, and Fred O. Boadu, "Water Marketing in Texas: Opportunities for Reform," Natural Resources Journal 32 (1992): 265-288.

<sup>10</sup>Marc Reisner, and Sarah Bates, Overtapped Oasis: Reform or Revolution for Western Water (Washington DC: Island Press, 1990).

<sup>11</sup>Tarlock, A. Dan, James N. Corbridge, and David H. Getches, Water Resource Management: A Casebook in Law and Public Policy (Westbury, NY: The Foundation Press, Inc., 1993), pp. 536-538.

<sup>12</sup>Robert F. Beck (ed.), Waters and Water Rights vol.3 (Charlottesville, VA: The Michie Company Law Publishers, 1991) pp. 135-146.

<sup>13</sup>Agricultural Water Conservation Equipment and Low Interest Loan Program Report, (Lubbock, TX: High Plains Underground Water Conservation District No.1 1993).

<sup>14</sup>During the spring of 1993, research on West Texas groundwater politics was conducted by the author under a grant from the Texas Governor's Energy Extension Service. A 52 county area of the Texas High Plains was used to investigate UCWD formation and operations. Ten UWCDs were identified encompassing 34 of the counties. Each district office

was contacted and office staff and administrators interviewed. The remaining 18 counties are not organized into UWCDs and are used as a control group.

Three of the UWCDs were recently formed. The local newspaper offices were contacted and district election coverage was analyzed. The two newspapers, the Brownfield News and the Lamesa Press-Reporter, provided campaign statements from each district board candidate. Forty-four separate candidates across the three elections were identified. Field notes and interview data are available from the author.

<sup>15</sup>Texas Water Commission Survey on Ground Water Protection Attitudes (LP 88-05, Texas Water Commission, (July, 1988)).