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Stephen N. Bretsen

Peter J. Hill

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WATER MARKETS AS A TRAGEDY OF THE ANTICOMMONS

STEPHEN N. BRETSSEN* AND PETER J. HILL**

ABSTRACT

In much of the American West water shortages are becoming an important concern. With increasing demands for water for municipal, industrial, and environmental uses, transfers of water from the currently predominant agricultural uses to these other uses should produce economic gains. Even though most commodity markets respond rapidly to price differentials and reduce those differentials over time, water transfers out of agriculture into higher value uses are not occurring very rapidly. The existence of multiple rights of exclusion unbundled from the rights of use under the prior appropriation doctrine in the American West creates an anticommons that has impeded water transactions. This article explains the tragedy of the anticommons, describes the various rights of exclusion that create an anticommons in western water markets, and concludes with case studies that illustrate the difficulty of water transfers.

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* William Volkman Associate Professor of Business & Law, Wheaton College. B.A., 1983, College of William & Mary; J.D., 1986, University of Colorado School of Law.

** George F. Bennett Professor of Economics, Wheaton College and Senior Fellow, Property and Environment Research Center. B.S., 1964, Montana State University; Ph.D., 1970, University of Chicago.

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INTRODUCTION

Water shortages are becoming an increasingly important concern in much of the American West. Urban and environmental demands for water are increasing rapidly and both physical and institutional constraints prevent new water supplies from being developed.¹ Although water shortages become headline news during droughts, the major ongoing dilemma is the need for water to be reallocated from existing agricultural uses to other uses. In the seventeen western states agricultural irrigation predominates, using 73% of total water withdrawals.² Thus not all irrigation would need to cease to satisfy the other demands for water. A 5% decrease in water usage in agricultural irrigation would increase the water available for municipalities by one third and a 15% decrease in irrigation water usage would double the municipal water supply.³

With increasing demands for water for municipal, industrial, and environmental uses, transfers of water from agricultural irrigation to other uses will produce economic gains. A study of water transfers between 1987 and 2005 revealed dramatic differences in the value of water in urban uses versus agricultural uses.⁴ During this time period, the average transfer price for sales of water from agriculture to urban uses was \$4366 for an annual flow of an acre-foot.⁵ In contrast, the transfer price

¹ Robert Glennon, *Water Scarcity, Marketing, and Privatization*, 83 TEX. L. REV. 1873, 1873-74 (2005).

² SUSAN S. HUTSON ET AL., ESTIMATED USE OF WATER IN THE UNITED STATES IN 2000, 8-9 tbl.3 (U.S. Dep't. of Interior, U.S. Geo'l. Surv. Circ. No. 1268, 2004). The seventeen western states are Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming. *Id.*

³ *Id.* at 8-9 tbls.3 & 4.

⁴ Jedidiah Brewer et al., *2006 Presidential Address: Water Markets in the West: Prices, Trading and Contractual Forms*, 46 ECON. INQUIRY 91, 100 tbl.1 (2008), available at <http://www3.interscience.wiley.com/cgi-bin/fulltext/119397861/PDFSTART>.

⁵ *Id.* An acre-foot is enough water to cover an acre of land with one foot of water, or about 326,700 gallons of water. *Id.*

within agriculture was \$1747 per acre-foot per year.⁶ As early as 1992 the mean estimated net gain from the transfer of water in Texas was \$10,000 per acre foot.⁷ Other estimates place the marginal value of water in municipal and industrial use at three to four times its marginal value in agricultural uses.⁸ As these studies reveal, what is especially relevant for water values is that transfers occur at the margin. While the water used in agriculture at a particular location may have a reasonably high average value, the marginal value of the last unit of water used can be much lower than the average value.

The sharp differentials between the value of water in various uses have lead to numerous transfers of water out of agriculture.⁹ Despite these transfers, water demands for urban and environmental uses are continuing to grow rapidly, and the price gap between the two forms of usage is growing rather than declining.¹⁰ In 2005 the difference in the median sales price for an agriculture to agriculture sale compared to an agriculture to urban sale was approximately \$7000 per acre-foot per year.¹¹ Only ten years earlier the same types of transfers showed almost no difference in sales prices.¹²

The increasing demand for water in alternative uses and the lower value of water in agriculture creates a puzzling result since most commodity markets respond rapidly to price differentials and market arbitrage reduces those differentials over time. What is different about water markets in the American West and why have those differentials grown rather than decreased? The answer lies in the tragedy of the anticommons since the existence of multiple rights of exclusion has impeded water transactions by increasing transaction costs.¹³ Part I describes the tragedy of the anticommons. Part II explains how use rights in water are created under

⁶ *Id.*

⁷ Ronald C. Griffin & Fred O. Boadu, *Water Marketing in Texas: Opportunities for Reform*, 32 NAT. RESOURCES J. 265, 274-75 (1992).

⁸ Janis M. Carey & David L. Sunding, *Emerging Markets in Water: A Comparative Analysis of the Central Valley and Colorado-Big Thompson Projects*, 41 NAT. RESOURCES J. 283, 287 (2001).

⁹ Brewer et al., *supra* note 4, at 107 figs.4, 5 & 6.

¹⁰ *Id.* at 101 fig.1.

¹¹ *Id.*

¹² *Id.*

¹³ Transaction costs are the costs of defining, enforcing, and exchanging property rights. See THRAINN EGGERTSSON, *ECONOMIC BEHAVIOR AND INSTITUTIONS* 14 (1990).

the prior appropriation doctrine. It also identifies the various rights of exclusion that exist in water transfers generally and in transfers from agricultural irrigation specifically. The combined effect of these multiple rights of exclusion is an anticommons in the water markets in the American West. Parts III and IV present two case studies that illustrate the difficulty of water transfers due to the tragedy of the anticommons.

I. THE TRAGEDY OF THE ANTICOMMONS

The tragedy of the anticommons and the tragedy of the commons provide two similar but opposite points of reference for understanding how unbundling property rights can increase transaction costs and lead to economic inefficiencies. "The basic logic is equivalent in the two cases. The inefficiency arises because the separate decision makers, each of whom acts in exercise of assigned rights, impose external diseconomies on others who hold similar rights."¹⁴ The two rights in tension in the twin tragedies are use rights and rights of exclusion (or veto rights).¹⁵

Michael Heller introduced the concept of the anticommons based on his observation of retail activity in Moscow after the fall of communism.¹⁶ He was puzzled by the large number of active kiosks on the streets in front of empty stores.¹⁷ His explanation was that four categories of right-holders—local government councils, users, balance sheet holders, and regulators—emerged with the transition from socialist property to private property and each had the right of veto over the use of storefront space.¹⁸ Since a single party who opposed a use could keep the storefront from being rented or sold, the transaction costs of coordinating all the veto rights proved to be too great for an entrepreneurial start-up retailer to overcome.¹⁹ "The tragedy of the storefront anticommons [was] that owners waste the resource when they fail[ed] to agree on a use."²⁰ Thus

¹⁴ James M. Buchanan & Yong J. Yoon, *Symmetric Tragedies: Commons and Anticommons*, 43 J. LAW & ECON. 1, 4 (2000).

¹⁵ *Id.*

¹⁶ Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621 (1998). See MICHAEL A. HELLER, GRIDLOCK ECONOMY (2008) for additional examples of the anticommons.

¹⁷ Heller, *supra* note 16, at 621.

¹⁸ *Id.* at 636-37.

¹⁹ *Id.* at 639.

²⁰ *Id.*

under-use of a scarce resource was the problem, rather than the overuse of that resource.

The tragedy of the commons and the tragedy of the anticommons exist when exclusion rights are separated from use rights.²¹ The tragedy of the commons occurs when there are multiple use rights.²² Those who hold the use rights do not also have the ability to exclude others from access to a resource.²³ In that situation, rents are dissipated by too many entries into the commons. The tragedy of the anticommons occurs when there are multiple rights of exclusion or veto rights.²⁴ Those who hold the rights of exclusion effectively undermine the right to use the resource, especially when exclusion rights and use rights are not necessarily bundled for all rights holders. The effect is an under-use of the resource. Economic modeling has revealed a “precise symmetry” between the overutilization equilibrium characterized by the tragedy of the commons and the under-utilization equilibrium characterized by the tragedy of the anticommons.²⁵ With a linear demand curve, if there are a finite number of users who do not hold exclusion rights, the loss will be identical to that experienced when there is the same number of individuals who have exclusion rights but do not have use rights.²⁶ Thus, the anticommons becomes “a useful metaphor for understanding how and why potential economic value can disappear into the ‘black hole’ of resource utilization, a wastage that may be quantitatively comparable to the overutilization wastage employed in the conventional commons logic.”²⁷

²¹ *Id.* at 623-24; Buchanan & Yoon, *supra* note 14, at 3-4.

²² Buchanan & Yoon, *supra* note, 14 at 3.

²³ *Id.*

²⁴ *Id.* at 1.

²⁵ *Id.* at 7.

²⁶ *Id.*

²⁷ *Id.* at 2. Smith argues that the fugitive nature of water leads to a combination of exclusion and governance rules under both the prior appropriation and riparian doctrines. Henry E. Smith, *Governing Water: The Semicommons of Fluid Property Rights*, 50 ARIZ. L. REV. 445 (2008). With increasing and disparate demands for water, information costs may be reduced by using more governance rules under a system that starts primarily with exclusion rules, as is the case with prior appropriation. *See id.* at 446. The combination of exclusion and governance rules creates what Smith calls a semicommons, where “a pattern of valuable uses requires extensive access by multiple parties.” *Id.* at 476. While Smith’s analysis is helpful, especially in understanding how multiple governance rules evolve, the difficulties in establishing workable water markets is evidence that the development of those governance rules have created an institutional inefficiency—the tragedy of the anticommons.

The existence of multiple veto rights over water that are not bundled with use rights make marketing of water difficult in the American West. In some cases no water trades will occur because of the multiplicity of veto rights; in other cases the tragedy of the anticommons leads to protracted and expensive negotiations with the need for side payments to secure the approval of all concerned. Furthermore, even after water transfers have been placed under contract, there is still the strong possibility that lawsuits can be brought to invalidate such transfers. Thus, the tragedy of the anticommons has led to high transaction costs in western water markets.

II. USE RIGHTS AND EXCLUSION RIGHTS IN WATER TRANSFERS

A. *Use Rights in Water Under the Prior Appropriation Doctrine*

In the western states ownership of the water resource is vested in the state. For example, from its ratification in 1876 to the present the Colorado Constitution has declared that "[t]he water of every natural stream, not heretofore appropriated, within the state of Colorado, is hereby declared to be the property of the public, and the same is dedicated to the use of the people of the state, subject to appropriation as hereinafter provided."²⁸ However, this ownership interest has not given states or, the public generally, rights in water equivalent to use rights. Thus, the Colorado Supreme Court has held that this declaration in the Colorado Constitution "was primarily intended to preserve the historical appropriation system of water rights upon which the irrigation economy in Colorado was founded, rather than to assure public access to waters for purposes other than appropriation."²⁹ Similarly, in California, although the state water code declares that the state owns all water in trust for the people, the California courts have held that the state is not a property owner in the traditional sense and must follow the state statutory procedures to obtain a water right.³⁰ However, such declarations provide the legal

²⁸ COLO. CONST. art. XVI, § 5.

²⁹ *People v. Emmert*, 597 P.2d 1025, 1028 (Colo. 1979).

³⁰ *California v. Riverside Superior Court*, 78 Cal.App.4th 1019, 93 Cal.Rptr.2d 276 (2000), cited in A. DAN TARLOCK, JAMES N. CORBRIDGE, JR., & DAVID H. GETCHES, *WATER RESOURCE MANAGEMENT: A CASEBOOK IN LAW AND PUBLIC POLICY* 388 (5th ed. 2002).

foundation for the states' regulatory role in the creation and transfer of use rights in water as well as the creation of exclusion rights.³¹

Since the state or the public owns the water, the property right created in water is a usufructuary right.³² These use rights arise in context of the prior appropriation doctrine, which is the predominant form of water law in the western states.³³ Under this doctrine, water rights are created when a user diverts surface water for a beneficial use.³⁴ Seniority is granted based on the concept of "first in time, first in right" so that the first appropriator from a surface water source has rights to the water that are senior to subsequent, or junior appropriators.³⁵ Thus, during a drought, junior appropriators are denied access to water to satisfy the water rights of the more senior appropriators based on the order of priority.³⁶ The property right to water in a prior appropriation system "is not a right to specific water itself, but rather a right to divert a quantity of water, in accordance with one's priority."³⁷ Although water rights are not permanent, they continue *ad infinitum* unless they are abandoned or forfeited for failing to divert the water and make beneficial use of it, either due to non-use or waste.³⁸ Beginning with Wyoming in 1890, every prior appropriation state except for Colorado, which has a system of special water courts, has replaced common law adjudications with administrative permit based systems to grant water rights to users, to adjudicate abandonments and forfeitures by users, and to review the transfer of water rights among users.³⁹

³¹ See *Emmert*, 597 P.2d at 1029.

³² E.g., Nicole L. Johnson, *Property Without Possession*, 24 YALE J. ON REG. 205, 207 (2007).

³³ E.g., Andrew P. Morriss, *Lessons from the Development of Western Water Law for Emerging Water Markets: Common Laws vs. Central Planning*, 80 OR. L. REV. 861, 862-63 (2001).

³⁴ Andrew C. Mergen & Sylvia F. Liu, *A Misplaced Sensitivity: The Draft Opinions in Wyoming v. United States*, 68 U. COLO. L. REV. 683, 687 (1997).

³⁵ *Id.*

³⁶ *Id.*

³⁷ JAMES N. CORBRIDGE, JR. & TERESA A. RICE, *VRANESH'S COLORADO WATER LAW* 30 (rev. ed. 1999).

³⁸ Lawrence J. MacDonnell, *Out-of-Priority Water Use: Adding Flexibility to the Water Appropriation System*, 83 NEB. L. REV. 458, 490-91 (2004).

³⁹ See Morriss, *supra* note 33, at 862-63; see also JAMES J. JACOBS, PATRICK T. TYRRELL & DONALD J. BROSZ, *WYOMING WATER LAW: A SUMMARY* 2 (2003), available at <http://seo.state.wy.us/PDF/b849r.pdf>; Melinda Kassen, *A Critical Analysis of Colorado's Water Right Determination and Administration Act of 1969*, 3 U. DENV. WATER L. REV. 58, 59 (1999).

B. Exclusion Rights via Mutual Irrigation Companies and Irrigation Districts

One of the major factors in the creation of an anticommons is the way the institutions evolved to control water in the American West. Since most of the water in question was originally diverted for agricultural irrigation, institutions developed to facilitate diversion of water for that purpose.⁴⁰ In addition, adequate water supplies for non-agricultural use existed at the time these institutions were created. Thus, the institutional structure facilitated movement of water among agricultural users, but there was little reason to think of constructing institutions to facilitate transactions out of agriculture. As a result, the heavy hand of history has played a large role in water markets today.⁴¹

The delivery of water to farmers for irrigation has not been a simple matter in the American West due to transaction costs.⁴² The high degree of asset specificity in irrigation infrastructure and the number of farmers who receive their water from a single irrigation organization would lead, according to standard transaction costs theory, to vertical integration.⁴³ However, the economies of scale that existed to provide irrigation infrastructure meant that the optimal size of an irrigation facility was much larger than the optimal size of a farm.⁴⁴ In 1920 the number of irrigated acres per irrigated farm was eighty three while mutual irrigation companies averaged 1889 acres and irrigation districts were, on average, 9510 acres.⁴⁵ Given this enormous mismatch, vertical integration would result in irrigation organizations that would be too small to capture economies of scale or farms that would be too large to operate in a cost-effective manner.⁴⁶ This disconnection between the optimal size of the irrigated farm and the irrigation organization meant that alternative organizations had to evolve in the American West to solve the transaction cost problems

⁴⁰ See Stephen N. Bretsen & Peter J. Hill, *Irrigation Institutions in the American West*, 25 UCLA J. ENVTL. L. & POL'Y 283, 286-87, 289-90 (2006).

⁴¹ *Id.* at 297.

⁴² *Id.*

⁴³ See generally Benjamin Klein, Robert Crawford & Armen Alchian, *Vertical Integration, Appropriable Rents, and the Contracting Process*, 21 J.L. & ECON. 297 (1978) ("[A]s assets become more specific and more appropriable quasi rents are created . . . , the costs of contracting will generally increase more than the costs of vertical integration.").

⁴⁴ Bretsen & Hill, *supra* note 40, at 290.

⁴⁵ *Id.* at 290-91.

⁴⁶ *Id.* at 291.

of organizing irrigation.⁴⁷ Two primary forms evolved that are relevant for the effect of the tragedy of the anticommons on water markets—mutual irrigation companies and irrigation districts.⁴⁸

General incorporation statutes were passed in all of the western states in the late nineteenth and early twentieth centuries⁴⁹ and these became the basis for mutual irrigation companies.⁵⁰ Most mutual irrigation companies were not-for-profit since their sole function was to provide water at cost and allow farmers to overcome the transaction cost problems of providing irrigation water to their farms.⁵¹ The corporate governance of a mutual irrigation company consisted of shareholders who elected a board of directors that provided management supervision for the organization.⁵² As in a closely-held corporation, the farmers were typically the shareholders, board members, and officers of the mutual, thus aligning the interests of the water user and the water provider.⁵³ Shares of stock in the corporation were distributed to the shareholders in accordance with the articles of incorporation and by-laws.⁵⁴ Each share of stock usually represented a right to water service and the delivery of a specified quantity of water.⁵⁵ In 1920 incorporated mutuals were responsible for over 35% of irrigated acres in the seventeen western states.⁵⁶ Although the total acreage irrigated by mutuals was approximately the same in 1978, other forms of irrigation organizations had increased enough that mutuals only represented 16% of acres irrigated by that date.⁵⁷

Mutual irrigation companies were organized almost exclusively as a farmer-initiated institution and were designed as a means for farmers

⁴⁷ *Id.*

⁴⁸ Commercial irrigation companies were important in the beginning of the irrigation history of the American West, but because of contracting problems between farmers and the irrigation companies they were replaced by the mutual irrigation companies and irrigation districts. By 1978 commercial irrigation companies only provided water to 0.5% of the irrigated acres in the seventeen western states. *Id.* at 293 tbl.1.

⁴⁹ See ADOLPH BERLE, JR. & GARDINER C. MEANS, *THE MODERN CORPORATION AND PRIVATE PROPERTY* 126-28 (1933).

⁵⁰ Bretsen & Hill, *supra* note 40, at 303-05.

⁵¹ *Id.* at 305. Transaction costs are the costs of specifying, monitoring, enforcing, and trading property rights.

⁵² *Id.*

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ WELLS A. HUTCHINS, *MUTUAL IRRIGATION COMPANIES* 13, 55 (U.S. Dep't of Agric. Tech. Bull. No. 82, 1929).

⁵⁶ Bretsen & Hill, *supra* note 40, at 293 tbl.1.

⁵⁷ *Id.*

to cooperate to deliver water to their agricultural lands.⁵⁸ Since most of the mutuals were organized by 1920, there was almost no thought that the water would ever be more valuable for uses other than raising crops by the farmers who were members of the mutual.⁵⁹ Therefore, it is not surprising that the rules governing the operation of the mutual were designed almost entirely to deal with intra-organization transfers.⁶⁰ As a result, several institutional provisions of mutual irrigation companies make it difficult for individual members to transfer any of their water rights outside of the organization.⁶¹

First, in many cases the individual stockholder does not hold the water rights, but rather they are held by the mutual irrigation company.⁶² Since the farmers are the shareholders in the mutual, the issue of whether the company or the farmers hold the water rights might appear to be a moot one. However, most of the mutuals also provided governance rules for any transfer of rights when they were incorporated. In many cases these rules require an approval by the majority of voting stock.⁶³ In theory, there is no reason why the members of a mutual irrigation company should necessarily vote against a transfer of a portion of the water out of their use to a municipal or alternative use as long as the return flow is deducted from the water transferred. Nevertheless, equity issues loom large when a farming community votes on a water transfer due to the impact on both irrigators and non-irrigators, making it difficult to secure a majority approval for any transfer of water out of the mutual.

Second, perhaps more important than community sentiment and majoritarian voting rules are the even more stringent rules via the articles of incorporation and by-laws that prevent or inhibit transfers of water out of a mutual. In some cases these rules require the approval of the board of directors to ensure that the transfer will not injure other shareholders or require service beyond the capabilities of the mutual's irrigation system.⁶⁴ In other cases, rules create an inseverable appurtenance, in which the shares of stock and hence the water rights are appurtenant or "attached"

⁵⁸ *Id.* at 286-87.

⁵⁹ *Id.* at 287.

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² B. Delworth Gardner, *Institutional Impediments to Efficient Water Allocation*, 5 POL'Y STUDIES REV. 353 (1985).

⁶³ *Id.* at 357.

⁶⁴ HUTCHINS, *supra* note 55, at 20.

to the land.⁶⁵ With appurtenance, the stock and its associated water right each could not be transferred separate from the other.⁶⁶ Appurtenance made sense when water was used almost exclusively for irrigating farm land within a particular agricultural area since it served to limit transfers to outsiders who were not a part of the agricultural community. However, with the increasing differential in the value of water for municipal uses compared to agriculture, the governance rules of mutual irrigation companies and the ways in which rights were formulated and assigned has meant that any transfers out of mutuals have been difficult.

Irrigation and conservancy districts are another institutional innovation that provide irrigation water in the West. These districts differ from mutual companies since they are quasi-public, local government, special use entities rather than closely-held, non-profit corporations. In 1887 California passed the Wright Act, which was the first legislation that allowed farmers to form a taxing district to support the construction and operation of irrigation facilities.⁶⁷ Table 1 shows the rapid increase in irrigation districts in each of the seventeen western states after the passage of enabling legislation in that state. By 1928 there were 801 irrigation districts, varying in size from a few hundred acres to over 500,000 acres⁶⁸ and by 1930 these districts delivered water to 3,454,272 acres.⁶⁹ Today, irrigation districts are responsible for approximately one-fourth of the irrigated acres in the seventeen western states and their total acreage has increased to 10,769,762.⁷⁰

⁶⁵ CORBRIDGE & RICE, *supra* note 37, at 286.

⁶⁶ *Id.*

⁶⁷ WELLS A. HUTCHINS, SUMMARY OF IRRIGATION-DISTRICT STATUTES OF WESTERN STATES 2 (U.S. Dep't of Agric. Misc. Pub. No. 103, 1931); *see also* FRANK ADAMS, IRRIGATION DISTRICTS IN CALIFORNIA: 1887-1915 7,8 (Cal. Dep't of Eng'g Bull. No. 2, 1916).

⁶⁸ HUTCHINS, *supra* note 67, at 6 tbl.2; *see also* DONALD WORSTER, RIVERS OF EMPIRE: WATER, ARIDITY, AND THE GROWTH OF THE AMERICAN WEST (1985).

⁶⁹ Bretsen & Hill, *supra* note 40, at tbl.1.

⁷⁰ *Id.*

TABLE 1:
IRRIGATION DISTRICTS FORMED IN 17 WESTERN STATES TO DECEMBER 31, 1928, BY YEARS

Year	CA	WA	KS	NV	OR	ID	NE	CO	TX	WY	MT	NM	UT	AZ	OK	SD	ND	Total
1887	(a) 4																	4
1888	7																	7
1889	6																	6
1890	11	(a) 4																15
1891	13	2	(a)	(a)														15
1892	3	1																4
1893	4																	4
1895	1				(a)	(a)	(a) 9											10
1896							3											3
1897							2											2
1898							4											4
1900						1												1
1901						1	1	(a) 1										3
1902						2		1										3
1903								3										3
1904					1	3	1	4										9
1905					2	1	1	2	(a)									6
1906					1	2	2	3										8
1907						1		3		(a)	(a) 2							6
1908						1		5		1								7
1909	2					4	1	19		2	6	(a) 1	(a) 6					41
1910					2	3		18		1	2	1	2					29
1911	2	2			1	1	1	9	1	3	1	1	1					23
1912		5			4	8	4	5				1	1	(a) 2				30
1913	2	2			2	4	2	2	2		3			1				20

Year	CA	WA	KS	NV	OR	ID	NE	CO	TX	WY	MT	NM	UT	AZ	OK	SD	ND	Total
1914	1	6		1		2			3		1							14
1915	5	7			1	5	1		1						(a)			20
1916	8	9			7	2			1									29
1917	7	14			10	4			3		1	1	3		1	(a)	(a)	44
1918	8	8		1	8	4	3		1		3	1		2			1	40
1919	11	11		1	14	4	2		3		12			2				60
1920	18	16		1	12	12	2		4	1	22		3	2			1	94
1921	14	3			2	3		1	2	2	6		5	2				40
1922	9	7			6	7	1	1	2	1	6		1	9				50
1923	8	6			1	11			2	2	1	1		5		1		38
1924	7	7				2			5	2	1			3				27
1925	9	3			3	6	1	1	5	2	1	1		2				34
1926	3	2		1		2	2		2	1	1			2				16
1927	5	3			1				4	3				2				18
1928		2			1		1	1	7	1				1				14
Total	168	120		5	79	96	44	79	48	22	71	8	22	35	1	1	2	801

Source: Wells A. Hutchins, Irrigation Districts, Their Organization, Operation and Financing 5, table.tbl. 1 (U.S. Dep't of Agric. Tech. Bull. No. 254, 1931).

Note (a): Irrigation district enabling statute passed

Irrigation districts have several features that made them uniquely suited to the further provision of water for farmers.⁷¹ In the first place, they were farmer-initiated since each district was the result of a petitioning process.⁷² In that process farmers who wanted to construct irrigation facilities, or take over bankrupt irrigation organizations, could ask for the formation of an irrigation district.⁷³ Each state specified particular voting rules for the establishment of the district and, once the district was established, it had the power to tax, issue bonds, and use the power of eminent domain.⁷⁴ The power to tax and issue bonds was important for overcoming free riding problems when irrigation facilities were constructed and their popularity indicated that most farmers found them a useful organizational tool for overcoming the transaction costs of providing irrigation water. The fact that the approval rate was over 90% in irrigation district formation elections in California indicates that farmers saw the district as a useful mechanism for reducing transaction costs.⁷⁵ The high number of "yes" votes for the formation of irrigation districts also indicates that farmers were not substantially concerned that the districts would use their taxing power to inappropriately impose costs greater than its benefits.

Like the mutual irrigation company, the irrigation district was formed with the single purpose of providing a mechanism for delivering water to farmers.⁷⁶ Hence it also contained institutional provisions that were not particularly well suited for transfers once water became more valuable outside of the district. In most irrigation districts, the district itself owns the water rights.⁷⁷ Placing ownership in the irrigation district was seen as a way of holding the water rights in a form that could easily be transferred for the benefit of the landowners within the district without going through the requirements of the statutory transfer process. In many cases, the water rights, even though held by the district, were appurtenant to specific tracts of land.⁷⁸

⁷¹ *Id.* at 313, 316-317, 323.

⁷² *Id.* at 319.

⁷³ HUTCHINS, *supra* note 67, at 6-8.

⁷⁴ See John D. Leshy, *Special Water Districts—The Historical Background*, in SPECIAL WATER DISTRICTS: CHALLENGE FOR THE FUTURE 11, 12 (James N. Corbridge, Jr. ed., 1983).

⁷⁵ Edward P. McDevitt, *The Evolution of Irrigation Institutions in California: The Rise of the Irrigation District*, tbl.3.4 (1994) (unpublished Ph.D. dissertation, University of California-Los Angeles, on file with author).

⁷⁶ Conservancy districts could have multiple purposes, such as developing and delivering irrigation water and flood control.

⁷⁷ WELLS A. HUTCHINS, H.E. SELBY & STANLEY W. VOELKER, *IRRIGATION-ENTERPRISE ORGANIZATIONS* 49 (U.S. Dep't of Agric. Circ. No. 934, 1953).

⁷⁸ *Id.*

As a result, any present day transfer of water by a member of an irrigation district is subject to a complex set of decision rules and a complicated adjudication process to determine whether the farmer even has a clear enough water right to enable him or her to transfer it to a user outside of the district.⁷⁹ Even though irrigation districts have public prerogatives, they retain the attributes of a private corporation since its beneficiaries are private landowners and can allocate voting rights and other costs and benefits in different ways.⁸⁰ In some districts, voting is on the basis of one vote per water user, while in others it is apportioned by the amount of water used or the amount of acres irrigated.⁸¹ These different decision rules have a substantial impact on the way that water transfers take place.⁸² Where voting rules enable all water users to have an equal vote, it may be difficult for a person who holds a water right to justify the transaction costs of securing a majority vote for permission to transfer that right to a municipal or industrial use. For example, in the Imperial Irrigation District (IID) the one-person, one-vote voting rule made it time consuming to gain approval for a transfer of water from the IID to the Metropolitan Water District (MWD).⁸³ Voting rules that allocate votes based on the number of acres irrigated within the district may allow a numerical minority to veto a transfer of water rights out of the district. In some states irrigation districts have actually been given stronger powers than those which existed under their original enabling legislation. For example, in Arizona an irrigation district can stop the transfer of any water within its particular drainage.⁸⁴ This, of course, gives a substantial veto right to an irrigation district over water transfers, even those by individual water rights holders who are not part of an irrigation district and who find it profitable to sell their water right to a non-agricultural user.

⁷⁹ Bretsen & Hill, *supra* note 40, at 326-27, 329-330.

⁸⁰ Tim De Young, *Discretion Versus Accountability: The Case of Special Water District*, in SPECIAL WATER DISTRICTS: CHALLENGE FOR THE FUTURE 31, 42 (James N. Corbridge, Jr. ed., 1983).

⁸¹ The constitutionality of restricted and weighted voting systems in irrigation districts was upheld by the United States Supreme Court under the rationale that one-person, one-vote requirements do not apply to special purpose districts acting as a business enterprise and benefitting a specific group of landowners. *Ball v. James*, 451 U.S. 355, 355 (1981).

⁸² See generally Tim De Young, *Governing Special Districts: The Conflict Between Voting Rights and Property Privileges*, 1982 ARIZ. ST. L.J. 419 (1982); John M. McDowell & Keith Ugone, *The Effect of Institutional Setting on Behavior in Public Enterprises: Irrigation Districts in the West*, 1982 ARIZ. ST. L. J. 453 (1982).

⁸³ For a more complete discussion of the IID-MWD transfer see *infra* Part II.

⁸⁴ Susanna Eden et al., *Agricultural Water to Municipal Use: The Legal and Institutional Context for Voluntary Transactions in Arizona*, THE WATER REPORT, Dec. 15, 2008, at 9, available at <http://www.thewaterreport.com/Issues%2057%20to%2060.html>.

C. *Exclusion Rights via the Bureau of Reclamation*

Throughout the latter part of the nineteenth century irrigation projects in the American West were established through substantial private efforts using mutual irrigation companies and associations.⁸⁵ Subsequently, the passage of statutes enabled irrigation districts to form and by 1900 there were 7.5 million acres irrigated in the seventeen western states through localized, bottom-up irrigation institutions.⁸⁶ However there was still substantial pressure for federal involvement, and in 1902 Congress passed reclamation legislation.⁸⁷ Funding for the reclamation project was to come from the sale of public land in the sixteen western states with arid land.⁸⁸

Although the original intent of the legislation was to provide irrigation water directly to farmers, this proved impractical because of high transaction costs due to the number of individual farmers, and in 1922 Congress authorized the Secretary of Interior to contract directly with irrigation districts.⁸⁹ In 1926 Congress eliminated the possibility of the Bureau of Reclamation delivering water directly to farmers when it required that irrigation districts be the only entities that could enter into a contract with the federal government to receive irrigation water.⁹⁰

By 1929, the Bureau had invested enough money for irrigation projects that the funds invested were 67% of the total bonds that had been sold by irrigation districts up to that point.⁹¹ The Bureau has become an important supplier of water throughout the West, with 20% of the irrigated acres in the seventeen western states receiving at least some portion of their water from federal reclamation projects.⁹² Most of the water from the Bureau projects goes to agriculture.⁹³ A 1996 study by the Bureau found that 85% of reclamation water is used for irrigation.⁹⁴

⁸⁵ RICHARD W. WAHL, *MARKETS FOR FEDERAL WATER SUBSIDIES, PROPERTY RIGHTS, AND THE BUREAU OF RECLAMATION* 13-15 (1989).

⁸⁶ *Id.* at 17 tbl.1-2.

⁸⁷ See 43 U.S.C. § 391 (2007).

⁸⁸ PAUL W. GATES, *HISTORY OF PUBLIC LAND LAW DEVELOPMENT* 654-55 (1968).

⁸⁹ John D. Leshy, *Irrigation Districts in a Changing West—An Overview*, 1982 ARIZ. ST. L.J. 345, 345 (1982).

⁹⁰ *Id.* at 360. In 1939 this provision was altered and the Bureau of Reclamation was allowed to also enter into contracts with mutual irrigation companies. *Id.* at 360 n.72.

⁹¹ Bretsen & Hill, *supra* note 40, at 318.

⁹² Reed D. Benson, *Private Rights and Public Authority Over Reclamation Project Water*, 16 VA. ENVTL. L. J. 363, 364 (1997).

⁹³ *Id.*

⁹⁴ *Id.*

Because of the heavy involvement of the Bureau in irrigation in the American West, many potential transfers of water from agriculture to non-agriculture use involve the Bureau. Unfortunately, the role of the Bureau in transfers of any water that it has provided to farmers through irrigation districts is unclear. The Bureau does not have administrative guidelines that govern water transfers and the Supreme Court rulings on various issues involving Bureau water do not provide a consistent understanding of the role of the Bureau in transfers.⁹⁵

There are several reasons for the lack of clarity as to whether the Bureau has to give its approval for transfers of any water from Bureau projects. In the first place, Bureau water is often mixed with water from other sources since many Bureau projects provide supplemental water to existing irrigation organizations.⁹⁶ Since these organizations were already delivering water to farmers, the addition of Bureau water confuses ownership issues.

[T]he entire package of rights in reclamation project water can be thought of, as with other property rights, as a 'bundle of sticks.' In most cases, the sticks of the project water bundle are divided among at least four entities: the federal government, the state, the district, and the end user.⁹⁷

Even more confusing is that the rights of each of these entities are not the same across space and time. This means that a detailed investigation of each case is necessary to determine who has what decision-making power with respect to transfers. This lack of uniformity also means a greater probability of lawsuits since there are precedents, many of them conflicting, in terms of transfers and the right to approve or disapprove of transfers.⁹⁸

Second, Congress has generally deferred to state laws with respect to water rights, especially the state ownership of water and creation of individual usufructuary water rights under the western prior appropriation doctrine.⁹⁹ Section 8 of the 1902 Reclamation Act specifically expresses the intention of the federal government to respect state rules governing water use.¹⁰⁰ Nevertheless, the Supreme Court has not interpreted this

⁹⁵ Bruce Driver, *The Effect of Reclamation Law on Voluntary Water Transfers*, 33 ROCKY MT. MIN. L. INST. 26-1, 26-5 to 26-7, 26-14 (1987).

⁹⁶ Benson, *supra* note 92, at 371.

⁹⁷ *Id.* at 367.

⁹⁸ Driver, *supra* note 95, at 26-5 to 26-6.

⁹⁹ Benson, *supra* note 92, at 375.

¹⁰⁰ See Benson, *supra* note 92, at 375-76 (quoting 43 U.S.C. § 383 (1994)).

deference to state law to mean the Bureau has no control over how its water is used, especially when state law conflicts with specific congressional directives concerning project water.¹⁰¹ Therefore, when it comes to transfers of project water, the Bureau still maintains at least some decision-making authority.

Third, part of the authority of the federal government over water transfers comes not from the actual ownership of water rights by the Bureau, but because of the fact that water is delivered under contract to irrigation organizations. These contract rights, although not the same as property rights to water, limit the rights of water users to engage in transfers.¹⁰²

One of the major contractual restrictions comes from the Reclamation Project Act of 1939, which states that "[n]o contract relating to municipal water supply or miscellaneous purposes or to electric power or power privileges shall be made unless, in the judgment of the Secretary, it will not impair the efficiency of the project for irrigation purposes."¹⁰³ The United States Supreme Court affirmed that this provision explicitly reveals a congressional intent preferring irrigation uses for project water over municipal and other domestic uses.¹⁰⁴ The ambiguity of the term "impair the efficiency" means there is a great deal of uncertainty as to whether a transfer of project water is legitimate or not. Of course that creates an opportunity for lobbying by various interests since those who object to the transfers can argue that the efficiency of irrigation has been impaired.

Fourth, other unclear provisions in the enabling legislation for reclamation projects make transfers difficult. Most project authorizing legislation specifies, at least in a general way, a geographical area that the project is designed to serve.¹⁰⁵ This means that many potential transfers may run into boundary problems since water that is transferred from agricultural to other uses may violate the original boundary provisions.

Fifth, most water transfers are driven by the opportunity for participating individuals or groups to profit from a mutually agreed upon trade. The owner or quasi-owner of the water right expects to be made better

¹⁰¹ *Id.* at 376-77.

¹⁰² *Id.* at 397.

¹⁰³ Reclamation Project Act of 1939, ch. 418, § 9(c), 53 Stat. 1187, 1195 (codified at 43 U.S.C. § 485h(c) (2006)).

¹⁰⁴ *City of Fresno v. California*, 372 U.S. 627, 630-31 (1962); *California v. United States*, 438 U.S. 645, 671 (1978).

¹⁰⁵ *Driver, supra* note 95, at 26-18.

off by either leasing or selling that right to another user and that user is willing to make the purchase because of the value of the water in an alternative use. In an examination of the specific provisions of thirty four contracts,¹⁰⁶ fifteen of the thirty four contracts place some type of restrictions on any income that is generated from water resales by those receiving the water.¹⁰⁷ Six of the thirty four clearly specify that profits cannot be made until all financial obligations to the Bureau are repaid.¹⁰⁸ Since there is a very large remaining obligation to cover costs incurred in the original construction and ongoing operation of the project in most circumstances, there is little reason for present water users to consider a water transfer.¹⁰⁹

Most of the contracts examined also expressed some sort of limitation on waters end use, with eleven of them specifying only a single use of that water.¹¹⁰ Again, these types of restrictions make transfers more difficult, and if they do occur, open the Bureau up to lawsuits for violating the end use restrictions.

Finally, most of the contracts between the Bureau and water users specify that the Bureau is not liable for water shortages that may arise from any underlying alternative claim that is deemed important enough to trump the rights conveyed in the sale.¹¹¹ As a result, if the Bureau reallocates water from irrigation users to other uses in order to satisfy particular competing demands, such as the Endangered Species Act or the National Environmental Policy Act, there is no actionable impairment of the water rights of the original users.¹¹² This, of course, dramatically lessens the security of any property rights to water that farmers may think they hold, and also means that farmers have a much less valuable right

¹⁰⁶ WAHL, *supra* note 85, at 157. Thirty-four contracts represents a small sample of the over 4,000 water contracts under which the Bureau delivers water to users. *Id.* at 156. The contracts examined were "chosen with the assistance of the bureau's contracting officials to represent a wide variety of geographic areas and contracting circumstances." *Id.* at 157.

¹⁰⁷ *Id.* at 167.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* at 27. The original user often has repayment obligations much smaller than would exist for the new user of the water since farmers do not pay interest charges on Bureau debt and farmers are also subject to "ability to pay" legislation. As a result, the Bureau water delivered to farmers is heavily subsidized. *Id.* If the water is transferred to a non-agricultural use these subsidies cease and the new user must pay a much higher cost for delivery of the water.

¹¹⁰ WAHL, *supra* note 85, at 167.

¹¹¹ Benson, *supra* note 92, at 399.

¹¹² See Brian E Gray, *The Property Right in Water*, 9 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 1, 17 (2002).

to transfer water to other users. If their water right is not secure or does not represent a fixed amount of water, it is less likely that transfers will occur. Thus, when water deliveries were reduced to 50% of the contracted supplies during 1993 in California's San Joaquin Valley, members of the Westlands Water District claimed the contractual obligations had been reduced.¹¹³ However, the Ninth Circuit Court of Appeals held that the United States had not breached its contract to Westland's water users since the requirements to meet environmental needs trumped the contractual provisions.¹¹⁴ In a period of rising amenity values it may make sense to transfer water from agricultural to environmental uses. However, accomplishing this through regulatory decree rather than through a formal transfer means that greater uncertainty is introduced into the transfer process. It also means there is a greater likelihood that the multiple claimants upon the water resource will prevent water from going to its highest valued use.

Due to all these issues, apparently for any transfers of Bureau water to be legitimate those transfers would have to be approved by the Secretary of Interior.¹¹⁵ Thus, the Bureau generally has the right to refuse any district or end-user requests to reassign water deliveries to another party so long as any Bureau water is involved. This discretion, along with the uncertainty introduced by the numerous provisions specifying the use to which water will be put, the boundaries of the project area, the possibility that the efficiency of irrigation has been impaired, and the potential competing claims from environmental uses means that any transfer that is approved has the potential for being litigated in the court system. Therefore, any water users who are drawing upon Bureau projects face another barrier in their attempts to carry out a transfer of that water.

D. Exclusion Rights via the Statutory Transfer Process and the Public Interest Standard

The high transaction costs created by the statutory procedures in the western states for selling water rights have discouraged transfers both among agricultural users and from agricultural uses to urban and environmental uses. Traditionally, transaction costs arose when holders of water rights (i.e., use rights) exercised statutorily granted veto rights to

¹¹³ See *id.* at 17-18.

¹¹⁴ O'Neill v. United States, 50 F.3d 677, 689 (9th Cir. 1995).

¹¹⁵ Driver, *supra* note 95, at 26-9; see also WAHL, *supra* note 85, at 157.

the amount of water to be transferred. More recently, state statutory transfer provisions have been expanded through the concept of the public interest standard to grant exclusion rights to a broader class of potential objectors who do not hold water rights.

The transfer of irrigated farmland and its associated water rights from one farmer to another, who will continue the historical use, does not normally trigger the requirement for state review and approval.¹¹⁶ However, a transfer of a surface water right, especially from an agricultural use to other uses, occurs in the context of a change in that water right, either a change in the point of diversion, the time of diversion, the place of use, or the type of use.¹¹⁷ Whenever such a change occurs, the water right holder usually must first receive approval from the state by submitting an application with the administrative agency and following the statutorily mandated procedures.¹¹⁸ Once an application is filed, notices are published or mailed and opponents can protest the change in the water right.¹¹⁹ "The major issues that arise in transfer cases are the validity of the original right (e.g., has it been abandoned?), the extent of the right—especially the quantity of water historically used, and whether the transfer will cause injury to other water rights."¹²⁰ These issues reflect the nature of water as both a natural resource and a social resource and the interdependencies created among holders of use rights by the prior appropriation doctrine.¹²¹

The historical use doctrine recognizes that junior appropriators rely on both prior filings and adjudications by senior appropriators as well as the facts on the ground. Allowing junior appropriators to object to the amount of water to be transferred because the senior appropriator proposing the transfer has not historically used all of the water right or has wasted water protects the expectations and use rights of the junior appropriators.¹²² "Early appropriations . . . were frequently in excess of actual

¹¹⁶ Lawrence J. MacDonnell, *Transferring Water Uses in the West*, 43 OKLA. L. REV. 119, 121 (1990).

¹¹⁷ See N.M. STAT. ANN. §§ 72-5-3, 72-5-22-24 (West 2008).

¹¹⁸ MacDonnell, *supra* note 116, at 121-22.

¹¹⁹ C. Carter Ruml, *The Coase Theorem and Western U.S. Appropriative Water Rights*, 45 NAT. RESOURCES J. 169, 176 (2005). ("Typically, notices of the proposed transfer are published in local newspapers, and, in some states, individual notices will also be sent to local water users, water organizations, and community officials. Opponents of the proposed transfer can then file protests with the state listing legal grounds for why the change should not be allowed.")

¹²⁰ MacDonnell, *supra* note 116, at 127.

¹²¹ See GARY D. LIBECAP, OWENS VALLEY REVISITED (2007).

¹²² See MacDonnell, *supra* note 116, at 121.

need because there was no administrative system to police the amounts claimed."¹²³ In response, the courts argued that "the fundamental purpose of the change proceeding is to ensure that the true right—that which has ripened by beneficial use over time—is the one that will prevail in its changed form."¹²⁴

The no injury rule followed in all western states requires the state to prohibit a change to a water right if the change will injure junior appropriators. The potential for injury arises because irrigation efficiency in the western states stands at about 50%, and downstream junior appropriators rely on the return flow, which is not part of the transferor's historical use, to satisfy their water rights.¹²⁵

If a particular quantity of water is being used over and over, the value of that water is its worth not just to the first user, but to all users. If the price just exceeds the value of the water to the first user, the transfer may be inefficient. The injury to the junior appropriators who are now without water may exceed the marginal benefit of the water to the city. By protecting junior appropriators, the law "internalizes" that injury and forces the buyer to take it into account.¹²⁶

Thus, the no injury rule recognizes the property rights of junior appropriators as use holders of water rights even though senior appropriators have higher priority rights.

Given the economic incentives for junior appropriators to protest changes in water rights to increase the amount of available water and given the complex legal, historical, and technical issues that have to be resolved to determine historical use and noninjury, statutory transfer proceedings involve high transaction costs.¹²⁷ These transaction costs include the out-of-pocket costs for attorneys' and expert witness fees, haggling during informal negotiations prior to the administrative hearing or the appeals, holdout problems that increase with the number of junior

¹²³ JOSEPH L. SAX ET AL., *LEGAL CONTROL OF WATER RESOURCES: CASES AND MATERIALS* 285 (4th ed. 2006).

¹²⁴ *Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson*, 990 P.2d 46, 55 (Colo. 1999).

¹²⁵ TARLOCK ET AL., *supra* note 30, at 232.

¹²⁶ SAX ET AL., *supra* note 123, at 273-74.

¹²⁷ Barton H. Thompson, Jr., *Institutional Perspectives on Water Policy and Markets*, 81 CAL. L. REV. 673, 705 (1993).

appropriators objecting, and the opportunity costs of time since “the average processing time [for a transfer] appears to range from six months to one and one-half years (with controversial transfers occasionally taking up to several years).”¹²⁸ The transaction costs are borne most heavily by the transferor since the initial burden of proof is on the transferor to demonstrate that the water right has not been abandoned or forfeited in whole or in part and to calculate the historical use and return flows to prove the lack of harm to downstream junior appropriators.¹²⁹ These transaction costs become a de facto tax on the transfer of water rights and the uncertainty of the outcome creates a chilling effect that deters water right holders from even initiating a transfer.¹³⁰ A study of statutory transfer proceedings in Colorado and New Mexico involving various-sized transfers “revealed costs that ranged from a few hundred dollars to almost \$50,000,” or an approximate cost increase for smaller transfers of 20% since smaller transfers do not have the scale economies that allow the transaction costs to be spread over a larger number of acre feet of water.¹³¹ Although substantial, these transaction costs can be seen as a necessary part of the definition of property rights because of the return flow issue.

The transaction costs of water marketing have been expanded by incorporating a general public interest requirement into the statutory transfer processes. Originally, the concept of the public interest, which is inherent in state statutes and constitutions that declare the state the owner of all water resources, was primarily a way of protecting the property rights of downstream users or junior appropriators. The expanded public interest standard, however, creates new exclusion rights separate from use rights, thus leading to the tragedy of the anticommons in the transfer of rights.

Initially, the expanded concept of the public interest was incorporated into the appropriation statutes of western states. Fourteen of the seventeen western states require state administrative agencies to consider the public interest (or public welfare) when an application is made for a new water right.¹³² For example, in an appropriation hearing for a

¹²⁸ *Id.*

¹²⁹ *Id.* at 704; see also Ruml, *supra* note 119, at 176; Megan Hennessy, *Colorado River Water Rights: Property Rights in Transition*, 71 U. CHI. L. REV. 1661, 1670 (2004).

¹³⁰ Ruml, *supra* note 119, at 178.

¹³¹ Thompson, *supra* note 127, at 705.

¹³² ARIZ. REV. STAT. ANN. § 45-153 (2008); CAL. WATER CODE § 1255 (2007); IDAHO CODE ANN. § 42-203A(5)(e) (2008); KAN. STAT. ANN. § 82a-711 (2008); NEB. REV. STAT. ANN. § 46-234 (LexisNexis 2008); NEV. REV. STAT. ANN. § 533.370(5) (2008); N.M. STAT. § 72-5-7

new water right in Idaho, whether or not protested by third parties, the administrative agency "may reject such application and refuse issuance of a permit therefore, or may partially approve and grant a permit for a smaller quantity of water than applied for, or may grant a permit upon conditions" if the proposed use "will conflict with the local public interest,"¹³³ where the local public interest is defined as "the interests that the people in the area directly affected by a proposed water use have in the effects of such use on the public water resource."¹³⁴ The Idaho Supreme Court noted that "[p]ublic interest provisions appear frequently in the statutes of prior appropriation states of the West, but are explicated rarely."¹³⁵ Despite this problem, the Idaho Supreme Court determined that the statutory language created an affirmative duty to protect the public interest, including aesthetic and environmental considerations.¹³⁶ In arriving at this interpretation, the Idaho Supreme Court quoted with approval an observation by the New Mexico Supreme Court that the "public interest" should be read broadly to "secure the greatest possible benefit from [the public waters] for the public."¹³⁷

As interpreted by courts, the public interest standard not only creates a broad standard, but also allows multiple third parties to use that standard to veto a transfer of water rights. In a separate case involving an amendment to a permit for additional points of diversion, the Idaho Supreme Court held that parties without use rights could raise objections under the "local public interest" standard.¹³⁸ Idaho is not unique since "[m]ost [western] states permit any interested party to file a protest although the objections by holders of use rights are given greater attention."¹³⁹

The incorporation of a public interest standard into statutory appropriation provisions for new water rights is significant for water transfers because of the application of appropriation statute standards to the transfer of water rights. The Utah Supreme Court held that an individual without any use rights could protest a change application using the public

(2008); N.D. CENT. CODE § 61-04-06(4) (2008); OR. REV. STAT. § 537.170(6) (2007); S.D. CODIFIED LAWS § 46-2A-9 (2008); TEX. WATER CODE ANN. § 11.134(a)(3)(c) (2007); UTAH CODE ANN. § 73-3-8(1)(a)(iii) (2008); WASH. REV. CODE ANN. § 90.03.290(1) (2008); WYO. STAT. ANN. § 41-4-503 (2008).

¹³³ IDAHO CODE ANN. § 42-203A(5)(e) (2008).

¹³⁴ IDAHO CODE ANN. § 42-202(B)(3) (2008).

¹³⁵ *Shokal v. Dunn*, 707 P.2d 441, 448 (Idaho 1985).

¹³⁶ *Id.* at 448-49.

¹³⁷ *Young & Norton v. Hinderlider*, 110 P. 1045, 1050 (N.M. 1910).

¹³⁸ *Hardy v. Higginson*, 849 P.2d 946, 947 (Idaho 1993).

¹³⁹ *SAX ET AL.*, *supra* note 123, at 269 n.16.

interest standard contained in the statutory appropriation provisions.¹⁴⁰ At the time of the case, the Utah statutory appropriation provision stated the following:

If the state engineer, because of information in his possession obtained either by his own investigation or otherwise, has reason to believe that an application to appropriate water will interfere with its more beneficial use for irrigation, domestic or culinary, stock watering, power or mining development or manufacturing, or will unreasonably affect public recreation or the natural stream environment, or will prove detrimental to the public welfare, it is his duty to withhold his approval or rejection of the application until he has investigated the matter. If the application does not meet the requirements of this section, it shall be rejected.¹⁴¹

At the same time, the Utah statutory transfer provision stated the following:

No permanent change shall be made except on the approval of an application therefore by the state engineer The procedure in the state engineer's office and rights and duties of the applicants with respect to applications for permanent changes of point of diversion, place or purpose of use shall be the same as provided in this title for applications to appropriate water.¹⁴²

A conservancy district and an irrigation company had received preliminary approval for a change application from the state engineer. The protesting party claimed that his property and nearby property contemplated for use as a public park flooded as a result of the construction of new diversion works for the transfer so that the permanent change application was not in the public welfare.¹⁴³ The state engineer concluded that "he was without authority to address Bonham's claims because Bonham was not a water user and that the state engineer's authority was limited to investigating impairments of vested water rights."¹⁴⁴ However, the Utah

¹⁴⁰ *Bonham v. Morgan*, 788 P.2d 497, 502 (Utah 1989).

¹⁴¹ UTAH CODE ANN. § 73-3-8 (1)(e) (1985).

¹⁴² UTAH CODE ANN. § 73-3-3 (1980).

¹⁴³ *Bohman*, 788 P.2d at 498.

¹⁴⁴ *Id.*

Supreme Court held that a reasonable interpretation of the text and purpose of the Utah statutes supported the application of appropriation criteria to transfers of water rights, including whether a change of use would "prove detrimental to the public welfare."¹⁴⁵ In particular, the Utah Supreme Court feared that a two-step process of filing for an appropriation for one use and subsequently filing a change application for a different use would allow holders of use rights to eviscerate the intent of the entire statutory scheme of protecting the public interest.¹⁴⁶

A growing number of western states have codified the public interest standard to apply specifically to water transfers and other changes in water rights.¹⁴⁷ For example, in 1982 California expanded the public interest provision to read "[t]he board may approve any changes associated with a transfer . . . only if it . . . does not unreasonably affect the overall economy of the area from which the water is being transferred."¹⁴⁸ Since 1985 in New Mexico, water rights can be

severed from the land, simultaneously transferred and become appurtenant to other land, or may be transferred for other purposes, without losing priority of right theretofore established, if such changes can be made without detriment to existing water rights and are not contrary to conservation of water with the state and not detrimental to the public welfare of the state, on the approval of an application of the owner by the state engineer.¹⁴⁹

New Mexico's public interest requirement is closely associated with a lawsuit over an application to transfer water from agricultural irrigation to a commercial, recreational use.¹⁵⁰ Tierra Grande, Inc. and Penasco Ski Corporation dammed a creek to create a recreational lake for a ski resort in violation of state law and were required to breach the dam.¹⁵¹ The

¹⁴⁵ *Id.* at 500.

¹⁴⁶ *Id.* at 502.

¹⁴⁷ See, e.g., IDAHO CODE ANN. § 42-222(1) (2008).

¹⁴⁸ CAL. WATER CODE § 386 (West 2007). Similar restrictions have arisen at the county level, with twenty-two of the fifty-eight counties in the state enacting ordinances that require permits to export groundwater. These restrictions are largely directed at third-party effects, or pecuniary externalities. See ELLEN HANACK, WHO SHOULD BE ALLOWED TO SELL WATER IN CALIFORNIA/THIRD-PARTY ISSUES AND THE WATER MARKET 59-70 (2003).

¹⁴⁹ N.M. STAT. ANN. § 72-5-23 (West 2008).

¹⁵⁰ *Sleeper v. Ensenada Land & Water Ass'n*, 760 P.2d 787, 788 (N.M. Ct. App. 1988).

¹⁵¹ *Id.* at 496.

developers then contracted to purchase land and appurtenant surface water rights from two local property owners to create the lake, subject to obtaining the approval of the state engineer to the change application.¹⁵² The Ensenada and Park View Ditches used water from the same source “to water stock in the spring, to fill irrigation reservoirs for use in summer, and to fertilize the soil with its historically high silt content.”¹⁵³ The Ensenada Land and Water Association protested the transfer alleging that it would impair existing rights and would be contrary to the public interest.¹⁵⁴ As in Utah, the New Mexican statutory appropriation provisions had a public interest requirement while the statutory transfer provisions did not, and, as a result, the state engineer refused to hear evidence that the transfer was contrary to the public interest.¹⁵⁵

On appeal, the state district court reversed the state engineer’s decision on public interest grounds because the ski resort would only create a few menial jobs for local inhabitants and because the proposed development would erode the community’s agricultural subsistence economy, which was central to the northern New Mexico culture.¹⁵⁶ The New Mexico Court of Appeals reversed the district court because the statutory transfer provisions did not contain a public interest standard.¹⁵⁷ However, between the decisions of the two courts, the New Mexico legislature amended the statutory transfer provisions to specifically include a public interest requirement.¹⁵⁸

Incorporating a public interest standard into statutory transfer provisions further increases transfer costs and increases the risk that an anticommons will develop for three reasons. First, the often undefined term “public interest” or “public welfare” raises a number of questions in the context of water markets. “Is ‘public welfare’ or the ‘public interest’ simply the sum of individual’s well being” in accordance with utilitarian

¹⁵² *Id.*

¹⁵³ *Id.*

¹⁵⁴ *Id.* at 495-96.

¹⁵⁵ *Sleeper*, 760 P.2d at 499.

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*

¹⁵⁸ See generally Shannon A. Parden, *The Milagro Beanfield War Revisited in Ensenada Land and Water Association vs. Sleeper: Public Welfare Defies Transfer of Water Rights*, 29 NAT. RESOURCESJ. 861 (1989) (exploring “Sleeper’s procedural history and analyz[ing] the court holdings” and discussing the public welfare doctrine); Charles T. DuMars & Michele Minnis, *New Mexico Water Law: Determining Public Welfare Values in Water Rights Allocation*, 31 ARIZ. L. REV. 817 (1989) (examining the “concept of public welfare” in the administrative and judicial settings).

standards?¹⁵⁹ Is the public interest defined as the interests of all the people in the state in a particular transfer or just the communities or watersheds directly affected?¹⁶⁰ How is the public interest measured in a public policy balancing against private interests, especially when a transfer of water rights from agricultural uses to urban uses represents an economic gain?¹⁶¹ Second, the regulatory authority charged with determining the public interest cannot do so due to limited resources and expertise.¹⁶² Third, public interest standards allow third parties who do not hold property rights in water to protest a transfer of water rights. The sheer number of individuals and entities who are able to file a protest along with the broad nature of the public interest standard that forms the basis of the protest only increases the time and costs of a process already fraught with transaction costs. The cumulative effect of the statutory transfer process and the public interest standard is to make the transfer of water rights from traditional agricultural uses to higher value municipal, industrial, and environmental uses even more difficult and unlikely due to a tragedy of the anticommons.

E. Exclusion Rights via the Public Trust Doctrine

The public interest standard is statutory and thus a creature of the legislature. The public trust doctrine provides an additional, judicially-enforced means of creating exclusion rights separate from use rights that can potentially discourage voluntary transfers of water rights in the western states from lower value agricultural uses to higher value municipal, industrial and recreational uses. As with the public interest standard in the statutory transfer process, the anticommons created by the public trust doctrine arises both because the doctrine expands the number of individuals and entities who can object to a transfer and because the doctrine arms these litigants with additional arguments to employ against the transfer beyond the traditional arguments of historical use and noninjury to downstream junior appropriators.

The public trust doctrine has its origins in Roman law and English common law.¹⁶³ In both legal systems, the assumption was that the sovereign, whether the Roman emperor, the English king, or the Parliament,

¹⁵⁹ B. Delworth Gardner, *Weakening Water Rights and Efficient Transfers*, 19 WATER RES. DEV. 7, 14 (2003).

¹⁶⁰ *Id.*

¹⁶¹ *Id.*

¹⁶² *Id.*

¹⁶³ SAX ET AL., *supra* note 123, at 522.

owned all tidal lands up to the high water mark.¹⁶⁴ In England, waters affected by the tide became the definition of navigable waters because most navigable waterways were tidal.¹⁶⁵ Along with the assumption of sovereign ownership, three types of interests in navigable waters and submerged lands were recognized: the *jus publicum* as the common right of unobstructed navigation, commerce and fishing in navigable waters; the *jus privatum* as all private interests in these lands and waters, whether acquired by custom and usage, prescription, or a conveyance from the sovereign; and the *jus regium* as the sovereign's powers to regulate navigable waters and submerged lands on behalf of the public.¹⁶⁶ The *jus publicum* did not prevent the creation of the *jus privatum*, but it did place certain limits on the *jus privatum*.¹⁶⁷ First, the assumption that the sovereign held title to the land under navigable waters led to an evidentiary presumption against the *jus privatum*.¹⁶⁸ While private rights could be created, the burden of proof was on the private rights owner to overcome the presumption that the lands under navigable waters were owned by the sovereign.¹⁶⁹ Second, the easement-like nature of the *jus publicum* meant that the *jus privatum* was "subject to the public right of navigation, commerce and fishing and any obstructions or interference with those uses were subject of abatement or removal pursuant to an action in nuisance."¹⁷⁰

After the United States won its independence from Great Britain, the thirteen original states succeeded to the rights and responsibilities held by the king and Parliament, and the new states entered the union on an equal footing with the original states.¹⁷¹ All state authority was subject to the powers delegated to the new federal government in the United States Constitution, such as the power of Congress to regulate interstate commerce and thus navigation. Most states adhered to the English common law system of *jus publicum*, *jus privatum*, and *jus regium*, subject to two modifications made by American courts in the nineteenth century.¹⁷²

¹⁶⁴ *Id.*

¹⁶⁵ *Id.*

¹⁶⁶ James L. Huffman, *Speaking of Inconvenient Truths: A History of the Public Trust Doctrine*, 18 DUKE ENVTL. L. & POL'Y F. 1, 26 (2007).

¹⁶⁷ *Id.*

¹⁶⁸ Patrick Deveney, *Title, Jus Publicum, and the Public Trust: An Historical Analysis*, 1 SEA GRANT L. J. 13, 41-49 (1976).

¹⁶⁹ Huffman, *supra* note 166, at 94.

¹⁷⁰ *Id.*

¹⁷¹ *Id.* at 27.

¹⁷² *Id.* at 58-59.

First, the scope of the public trust doctrine was expanded when it was adapted to the topographical and hydrological conditions in North America.¹⁷³ Since many navigable waters in North America are not tidal, the English common law system was applied in most states to all waters that were historically subject to navigation.¹⁷⁴ "In fact reliance on the English conception of tidal waters in North America would do harm to the concept of unobstructed navigation since the law that protected navigation would not apply on the vast inland river and lake system (given the linking of the common right [the *jus publicum*] to state ownership)."¹⁷⁵ The "navigable in fact" standard looks to the condition and uses of the water at the time of statehood.¹⁷⁶ For example, the federal definition of navigability for title purposes includes "[t]hose rivers . . . [which] are navigable in fact when they are used, or are susceptible of being used, in their ordinary condition, as highways for commerce, over which trade and travel are or may be conducted in the customary modes of trade and travel on water."¹⁷⁷ As a result, this definition can include waterways only a few feet deep that were historically used by flatboats to transport livestock.¹⁷⁸

Second, the nature of the public trust doctrine was changed by nineteenth century American judicial interpretations of the *jus publicum*.¹⁷⁹ Under English common law, the *jus publicum* and the rights it granted to the public of navigation, commerce, and fishing on tidal waters existed whether the land was owned by the sovereign or was part of the *jus privatum*.¹⁸⁰ The *jus publicum* simply reinforced the evidentiary presumption against the creation of the *jus privatum*, but this presumption could be overcome by clear evidence of title, such as an express grant from the sovereign.¹⁸¹ However, under American law the *jus publicum* became linked to state ownership of the lands beneath navigable waters, so that it was no longer associated with a rule of evidence but was an attribute of state sovereignty and title.¹⁸² "By linking the *jus publicum* to state ownership, it would be difficult to extend the public rights theory to perceived public interests in the management and use of privately owned resources."¹⁸³

¹⁷³ *Id.* at 29-30.

¹⁷⁴ *Id.* at 30.

¹⁷⁵ Huffman, *supra* note 166, at 96.

¹⁷⁶ *Id.* at 74-75.

¹⁷⁷ *The Daniel Ball*, 77 U.S. (10 Wall.) 557, 563 (1870).

¹⁷⁸ *Utah v. United States*, 403 U.S. 9, 11-12 (1971).

¹⁷⁹ Huffman, *supra* note 166, at 97-98.

¹⁸⁰ *Id.* at 30.

¹⁸¹ *Id.* at 94.

¹⁸² *Id.* at 31.

¹⁸³ *Id.*

While extending the public trust doctrine to limit private rights in natural resources generally has not occurred, private water rights are in a different position, and, as a result, are less secure.¹⁸⁴ The historical context of the *jus publicum* and the public trust doctrine has involved water in general and tidal and navigable waters in particular.¹⁸⁵ Thus, the precedent for applying the public trust doctrine to natural resources is strongest with water and water law based on the common law's analogical reasoning and the common law doctrine of *stare decisis*.¹⁸⁶ In addition, because the state owns the water in the western states pursuant to constitutional and statutory declarations, the owner of a private water right under the prior appropriation doctrine possesses only a usufructuary right.¹⁸⁷ As a result, the linkage of the *jus publicum* to state ownership in American jurisprudence provides a link between the public trust doctrine and private water rights in a prior appropriation system that allows the former to limit the latter.¹⁸⁸

Twentieth century judicial interpretations of the public trust doctrine have also expanded its scope in several different ways. First, the public trust doctrine's historical tethering to navigable waters has been loosened.¹⁸⁹ For example, the Montana Supreme Court in a case involving public access rights held "that, under the public trust doctrine and the 1972 Montana Constitution, any surface waters that are capable of recreational use may be so used by the public without regard to streambed ownership or navigability for nonrecreational purposes."¹⁹⁰ The California Supreme Court used the public trust doctrine to reduce appropriative water rights by limiting the water diverted from both navigable waters and non-navigable tributaries of navigable lakes and streams that comprised the Mono Lake basin.¹⁹¹ Second, the scope of the *jus publicum* subject to the public trust has been expanded.¹⁹² Initially, even though the United States Supreme Court used broad rhetoric to describe the public trust doctrine in *Illinois Central Railroad Co. v. Illinois*,¹⁹³ the Court ultimately aligned itself with English common law by stating that "title

¹⁸⁴ *Id.* at 98-99.

¹⁸⁵ Huffman, *supra* note 166, at 29-30.

¹⁸⁶ *Id.*

¹⁸⁷ *Nat'l Audubon Soc'y v. Superior Court*, 658 P.2d 709, 712 (Cal. 1983).

¹⁸⁸ Huffman, *supra* note 166, at 98-99.

¹⁸⁹ See *infra* notes 202-03 and accompanying text.

¹⁹⁰ *Mont. Coal. for Stream Access, Inc. v. Curran*, 682 P.2d 163, 171 (Mont. 1984).

¹⁹¹ *Nat'l Audubon Soc'y*, 658 P.2d at 720-21.

¹⁹² Huffman, *supra* note 166, at 99-100.

¹⁹³ 146 U.S. 387 (1892).

to the lands under the navigable waters . . . is a title held in trust for the people of the state, that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein, freed from the obstruction or interference of private parties."¹⁹⁴ In more recent judicial decisions, however the public trust has evolved from a doctrine addressing navigation and commercial issues to one that also addresses ecological and recreational issues.¹⁹⁵ The California courts have recognized that the public trust includes "the preservation of those [tide]lands in their natural state,"¹⁹⁶ "non-consumptive or 'instream uses,'"¹⁹⁷ and "the people's common heritage of streams, lakes, marshlands and tidelands."¹⁹⁸

The sum total of all these changes has been to convert the original *jus publicum* and the common rights it granted to the public for limited purposes on navigable waters into a judicially enforceable public interest standard that can be invoked by a large number of individuals and special interest groups to enforce a broad spectrum of uses involving a variety of waterways.¹⁹⁹ Under the modern public trust doctrine, the state is the trustee of this broadly conceived public interest in water.²⁰⁰ The public trust becomes an affirmative standard imposed on state legislatures and administrative agencies to use their police powers, either on their own initiative or when directed by a court in response to litigation initiated by exclusion rights holders, to protect this public interest against the private rights of use holders.²⁰¹ As described by the California Supreme Court, "[t]he state as sovereign retains continuing supervisory control over its navigable waters and the lands beneath those waters . . . [which] prevents any party from acquiring a vested right to appropriate water in a manner harmful to the interests protected by the public trust."²⁰² This continuing power "extends to the revocation of previously granted rights or to the enforcement of the trust against lands long thought to be free of the trust."²⁰³ This included Los Angeles' rights to divert water from Mono Lake for

¹⁹⁴ *Id.* at 452.

¹⁹⁵ See *infra* notes 208-10.

¹⁹⁶ *Marks v. Whitney*, 491 P.2d 374, 380 (Cal. 1971).

¹⁹⁷ *United States v. State Water Res. Control Bd.*, 182 Cal. App. 3d 82, 103 (Cal. Ct. App. 1986).

¹⁹⁸ *Nat'l Audubon Soc'y v. Superior Court*, 658 P.2d 709, 724 (Cal. 1983).

¹⁹⁹ *Huffman*, *supra* note 166, at 96.

²⁰⁰ *Id.* at 97.

²⁰¹ *Id.* at 96.

²⁰² *Nat'l Audubon Soc'y*, 658 P.2d at 727.

²⁰³ *Id.* at 723.

municipal needs pursuant to its water rights and a state permit.²⁰⁴ Thus, in the first clash between private appropriative water rights and the public trust doctrine over the waters of Mono Lake, the use rights of Los Angeles were curtailed by the holders of exclusion rights, as represented by the National Audubon Society.²⁰⁵

A transfer of water rights becomes the catalyst under a prior appropriation system to determine if the diminished quantity of surface water due to diversions for private water rights violates the public trust.²⁰⁶ The statutory transfer provisions set the stage for a public trust review by requiring that notices be sent to exclusion rights holders and by creating a forum for exercising those rights.²⁰⁷ While the *jus publicum* originally represented easement-like common rights held by the public as a whole that were exercised through the legislature, under the public trust doctrine the *jus publicum* has become "individual rights held in common by all citizens and enforceable by each citizen acting on his personal behalf (like a tenancy in common)."²⁰⁸ As a result, under the public trust doctrine a large number of citizens without use rights have standing to block the transfer of water rights.²⁰⁹ While the holdup costs of bringing a legal action invoking the public trust are lowered, the transaction costs of settlement are increased as the number of potential exclusion rights holders increases and the ability to enforce a private settlement without encountering objections decreases.²¹⁰ Just as the grant of an appropriative water right is no

²⁰⁴ *Id.*

²⁰⁵ *Id.* at 728-29. Other western states have refused to adopt California's approach to the public trust doctrine. The Colorado Supreme Court has held the provisions of the Colorado Constitution concerning public ownership of the surface waters was primarily intended to preserve the historical appropriation system of water rights on which the irrigation economy of Colorado was founded, rather than to provide a public right to the recreational use of all waters in the state. *People v. Emmert*, 597 P.2d 1025, 1028 (Colo. 1979).

[I]n 1996, the Idaho legislature enacted legislation to make it difficult, if not impossible, for the state to assert a public trust interest in the state's waters . . . [by] allow[ing] the alienation of trust lands for agriculture, mining and forestry, or other uses and [by] adopt[ing] the federal bed title test of navigability.

TARLOCK ET AL., *supra* note 30, at 421-22; *see also* IDAHO CODE ANN. §§ 58-1201-1203 (West 2008).

²⁰⁶ *Nat'l Audubon Soc'y*, 658 P.2d 709, 712 (Cal. 1983).

²⁰⁷ *Id.* at 726-27.

²⁰⁸ Huffman, *supra* note 166, at 61.

²⁰⁹ *Marks v. Whitney*, 491 P.2d 374, 381 (Cal. 1971).

²¹⁰ Gary D. Libecap, *The Economic Implications of the Public Trust Doctrine* 13-14 (2006) (unpublished manuscript on file with author).

longer a ministerial act for state water agencies in states adopting the modern public trust doctrine, the transfer of a water right for these agencies becomes even more complex under the state statutory procedures and the no-injury rule.²¹¹ The amorphous public interest standard created by the public trust doctrine makes use rights already difficult to quantify due to issues of historical use and return flow even more uncertain. As the California Supreme Court noted in the Mono Lake case, plaintiffs are not limited to arguing that diversions are not "reasonable or beneficial," but "can rely on the public trust doctrine in seeking reconsideration of the allocation of the waters of the Mono Basin."²¹² The end result is an anti-commons in which exclusion rights prevent the exercise of use rights and lock water into lower valued agricultural uses rather than allowing voluntary transfers into higher value municipal, industrial, and environmental uses.

III. CASE STUDY—THE IMPERIAL IRRIGATION DISTRICT TRANSFERS

California is a good test case for the efficacy of water markets and for the argument that the tragedy of the anticommons exists in those markets. The state was one of the first to engage in large scale irrigation projects and 80% of developed water is used in agriculture.²¹³ Population growth has also been rapid in the state, particularly in the more arid, southern region so water has become much more valuable for municipal use than in farming. The fact that people in Southern California cities pay 100 times more for water than farmers in the Palo Verde Valley is one measure indicating the potential gain from water transfers.²¹⁴

The Imperial Irrigation District (IID) uses large amounts of water and both Los Angeles, San Diego, and their surrounding metropolitan areas want to have a portion of that water.²¹⁵ The IID was formed as an irrigation district in 1911 and in 1928 gained more water when the All American Canal, one of the major diversions of the Colorado River, was constructed. As one of the nation's largest irrigation districts, the IID delivers water to 495,000 acres of cropland and 25,000 acres of towns and

²¹¹ See *id.* at 12.

²¹² *Nat'l Audubon Soc'y v. Superior Court*, 658 P.2d 709, 732 (Cal. 1983).

²¹³ BRENT M. HADDAD, *RIVERS OF GOLD: DESIGNING MARKETS TO ALLOCATE WATER IN CALIFORNIA* 3 (2000).

²¹⁴ *Id.* at 66.

²¹⁵ Tony Perry, *Imperial Water Deal Completed*, L.A. TIMES, Oct. 3, 2003, at B-1.

parks.²¹⁶ It also generates power that is sold to 140,000 customers.²¹⁷ The water rights held by the IID are complex. The Imperial Irrigation District is third in line in terms of entitlements to Colorado River water, with earlier rights held by the Palo Verde Irrigation District and the Yuma Project Reservation District.²¹⁸ However, the IID has generally been able to claim 2.8 million acre feet a year, partly because it has first priority on water flowing through the All American Canal.²¹⁹ This claim is less secure than it might appear, however, because the Bureau of Reclamation governs Lake Mead and releases from Lake Mead eventually pass through the All American Canal and eventually are received by the IID.²²⁰ Thus Bureau cooperation is required for the IID to receive its water, a factor that became important in the 2003 agreement as discussed below.

The first significant transfer of water out of the IID was initiated in 1985, when the Metropolitan Water District (MWD), which includes Los Angeles and San Diego, negotiated a forty year agreement to receive 100,000 acre feet a year, with the price set at \$100 an acre foot for the first ten years.²²¹ However, the IID governing board refused to approve the contract and it wasn't until 1989 that a final agreement was reached.²²² The water transferred was to come from conservation measures undertaken by the IID, because the beneficial use doctrine, as interpreted by the California courts, meant that water that was not used was forfeited.²²³ The IID did secure the right to transfer conserved water in this instance, but the issue of ownership rights to future conserved water was left unresolved.²²⁴ This interpretation has serious implications for water transfers, since a farmer does not have a right to transfer water unless it is ruled excess. Thus there is little incentive to move to more efficient use of water, such as drip irrigation, because doing so will simply reduces the user's rights.²²⁵

²¹⁶ HADDAD, *supra* note 213, at 70.

²¹⁷ Imperial Irrigation District, IID Celebrates Public Power Week, Oct. 5-11 (Oct. 6, 2008), <http://www.iid.com/Sub.php?build=view&idr=4946&page2=1&pid=5261>.

²¹⁸ HADDAD, *supra* note 213, at 71-72.

²¹⁹ *Id.* at 70.

²²⁰ See generally, Bureau of Reclamation Lower Colorado River Operations, <http://www.usbr.gov/lc/riverops.html>.

²²¹ HADDAD, *supra* note 213, at 75.

²²² TARLOCK ET AL., *supra* note 30, at 361.

²²³ See SAX ET AL., *supra* note 123, at 163.

²²⁴ See HADDAD, *supra* note 213, at 79.

²²⁵ See SAX ET AL., *supra* note 123, at 163, 182-83. California has made several attempts to reduce the disincentive for water transfers through statutory revisions. Brewer et al.,

The 1989 agreement is seen by some as a win-win situation and as a model for future water transfers.²²⁶ However, local opposition to the transfer arose soon after the agreement was reached and it took an additional "five years of negotiations, three agreements, and a side letter from the MWD related to water banking" to make the original agreement work.²²⁷ "[A]lthough the IID-MWD agreement is hailed as an important example of a water-market transaction, in its details one finds complex arrangements involving substantial risks for both sides and numerous security features. . . . Ultimately, no water *rights* transfer ever occurred."²²⁸

In 1995, the San Diego County Water Authority ("SDCWA") began to negotiate with the IID for the transfer of water from agricultural uses to municipal and industry uses.²²⁹ This transfer was complicated by the fact that San Diego had no way to transport the water unless the Metropolitan Water District agreed to the use of its canals.²³⁰ Originally the MWD agreed to deliver the water for \$141 per acre foot but by the time the final agreement was reached SDCWA was paying \$250 for delivery and another \$250 for the purchase of the water.²³¹

In 2003, after eight years of negotiation, appeals to the state government for subsidies, and controversy over the circumstances under which the IID actually had the right to transfer water, agreement on delivery of water from IID to SDCWA was reached. However, it was the direct involvement of the federal government through the Secretary of the Interior that finally forced agreement. Secretary Norton threatened to cut California's share of Colorado River water by 11% if the IID did not agree to move water to San Diego.²³² The threat was based upon the claim

supra note 4, at 95-97. However, there is still considerable uncertainty in this area. See Brian E. Gray, *The Shape of Transfers to Come: A Model Transfer Act for California*, 4 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 23 (1996); CAL. WATER CODE § 386 (West 2009).

²²⁶ TARLOCK ET AL., *supra* note 30, at 362.

²²⁷ HADDAD, *supra* note 213, at 85.

²²⁸ *Id.* at 92.

²²⁹ Press Release, Coachella Valley Water District Recognition of Coachella as a Player in San Diego Imperial Water Dispute Seen in IID's Verbal Attack on CVWD (Nov. 18, 1996), available at <http://cvwd.org/news/press/cvansi2.htm>.

²³⁰ DAVID ZETLAND, INST. OF BUS. AND ECON. RES., PAPER XL07'015, FIGHTING AT THE SPIGOT: THE STORY OF A FAILING PUBLIC WATER COOPERATIVE 2-4 (2007), available at <http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1004&context=iber/xlab>.

²³¹ See SAX ET AL., *supra* note 123, at 733.

²³² *Feds Warn Lawsuit May Cost Desert Farmers in Southern California Deeper Water Cuts*, U.S. WATERNEWS ONLINE, Feb. 2003, <http://uswaternews.com/archives/arcrightrts/3fedwar2.html> [hereinafter *Feds Warn*].

of the Interior Department that it could take away IID water because it was not putting all of it to "reasonable and beneficial use."²³³

With the real possibility that water would be lost the IID finally agreed to the water transfer. However, in order to make the deal work, the State provided a subsidy of \$235 million.²³⁴ Also, both the public interest and the public trust doctrines created enough uncertainty about the clarity of rights that the SDCWA and the IID each contributed \$10 million to a fund to mitigate third party effects.²³⁵ In 2007 the SDCWA, because of the threat of liability for economic damages under these doctrines, contributed another \$29.5 million to the pool for the third party mitigation fund.²³⁶ Third party effects are notoriously difficult to define and the concept has no clear principle for determining who should receive compensation and for what amount.²³⁷ Almost anyone in southern California could claim they were affected in some way by water transfers from IID to SDCWA, either positively or negatively. Furthermore, despite the fact that \$20 million was initially allocated to cover the impact of transfers on individuals or firms who were not part of the agreement, a comprehensive study found that the net impact was actually a net gain to third parties of \$1.1 million.²³⁸

²³³ *Id.*

²³⁴ ZETLAND, *supra* note 230, at 4; see also Steven P. Erie, *Mulholland's Gifts: Further Reflections Upon Southern California Water Subsidies and Growth*, 37 CAL. W. L. REV. 147, 159 (2000).

²³⁵ Press Release, San Diego County Water Authority, Agreement Reached on Landmark Colorado River Water Accords: Hertzberg-Led Negotiations Produce Agreements on Imperial-San Diego Water Transfer and Quantification Settlement Agreement (Oct. 16, 2002) available at <http://www.sdcwa.org/news/101602ColRiverAgreement.phtml>. Third party effects, also known as pecuniary externalities, do not represent an inefficient allocation of resources. Randall G. Holcombe & Russell S. Sobel, *Public Policy Toward Pecuniary Externalities*, 29 PUB. FIN. REV. 304 (2001). Almost all changes in resource allocation in a market economy have some negative effects. See DAVID FRIEDMAN, *HIDDEN ORDER: THE ECONOMIES OF EVERYDAY LIFE* 271-72 (1996). Either previous users of a resource have to pay higher prices when a competitor for the resource enters the market, or firms face lower prices for their product with new entrants into an industry. See generally *id.* These types of economic change represent an increase in wealth for the economy overall. See generally Holcombe & Sobel, *supra* (arguing pecuniary externalities are necessary to achieve economic efficiency).

²³⁶ *Water Authority Ups Its Ante to \$40 Million*, THE SAN DIEGO UNION TRIBUNE, May 8, 2007.

²³⁷ See ROLAND N. MCKEAN, *EFFICIENCY IN GOVERNMENT THROUGH SYSTEM ANALYSIS* 135-36 (1958) (discussing methods of accounting for technological spillovers).

²³⁸ David Sundig, David Mitchell & Gordon H. Kubota, *Third-Party Impacts of Land Fallowing Associated With IID-SDCWA Water Transfer: 2003 and 2004* 35, Report for Local Entity and San Diego County Water Authority (Nov. 2004).

The process of transferring water from the IID to municipal uses is a prime example of the tragedy of the anticommons. The tragedy did not prevent the transfer, but only because there was an enormous difference between the value of water in agricultural uses and in urban uses and because the Secretary of Interior forced the transfer.²³⁹ Even so, the process was long, arduous and costly.²⁴⁰ Furthermore, the transfer is still subject to lawsuits that may make fulfillment of the terms of the agreement difficult. In September 2006, in response to a suit brought by environmentalists and Mexican agricultural interests, the Ninth Circuit Court of Appeals granted a temporary injunction stopping the lining of the All American Canal.²⁴¹ The lining was to prevent seepage and was an important part of the water conservation activities necessary to release water to the SDCWA.²⁴²

IV. CASE STUDY—SANTA FE, THE MIDDLE RIO GRANDE CONSERVANCY DISTRICT, AND THE ESTANCIA BASIN

If we don't get this water, I'm certain somebody else will.

—Santa Fe Mayor Larry Delgado²⁴³

If the State Engineer's Office received enough letters against this, they will HAVE to grant us a hearing. This will give us the time we need to be able to go through the proper channels to get this water basin adjudicated so that no more water could be pumped out of this valley in the future.

—Shellie Langley, Ewing area resident of the Estancia Basin²⁴⁴

New Mexico is a relatively arid state with significant water scarcity issues.²⁴⁵ Those issues are exacerbated by the state's rapid population

²³⁹ See *id.*

²⁴⁰ *Id.*

²⁴¹ Consejo De Desarrollo Economico De Mexicali, A.C. v. United States, 482 F.3d 1157, 1162 (9th Cir. 2007).

²⁴² *Feds Warn*, *supra* note 232.

²⁴³ John T. Huddy, *SF May Tap Into Salty Water*, ALBUQUERQUE J., Dec. 24, 2004.

²⁴⁴ Shellie Langley, *Fight to Keep Water in Estancia Basin*, ALBUQUERQUE J., Jan. 12, 2005.

²⁴⁵ New Mexico Chapter of the American Planning Association, Policy Guide on Water Planning, Oct. 1, 1998.

growth.²⁴⁶ Most of the growth in New Mexico has been in the urban areas, particularly in the metropolitan areas of Santa Fe and Albuquerque.²⁴⁷ In 2006, 76.5% of the New Mexico's population lived in urban areas while only 23.5% of the state's population lived in rural areas.²⁴⁸ Despite the overwhelming concentration of people in the urban areas, water is primarily allocated to agriculture since 95% of surface water diversions and 80% of groundwater withdrawals in New Mexico are for irrigation.²⁴⁹ As a result, transferring water from agricultural uses to urban uses has become a major issue in New Mexico, and the New Mexico Office of State Engineer ("NMOSE") has estimated that a 10% reduction in agricultural irrigation would allow New Mexico's population to double.²⁵⁰

Due to the lack of rainfall and urban growth, obtaining and maintaining an adequate supply of water are important civic objectives for the city and county governments of Santa Fe and Albuquerque.²⁵¹ Albuquerque traditionally met its water needs by pumping groundwater from its underlying aquifer but discovered conclusively in the 1980s that it was mining the aquifer.²⁵² Albuquerque has temporarily solved most of its water problems and reduced its reliance on groundwater due to the Bureau of Reclamation's San Juan-Chama Project, which, through a system of diversion structures and tunnels, diverts water from the Colorado River basin

²⁴⁶ U.S. Census Bureau, State & County Quickfacts, <http://quickfacts.census.gov/qfd/states/35000.html> (last visited Apr. 5, 2009). From 2000 to 2006, New Mexico's population increased at an annual rate of 7.5% compared to the national average of 6.4%. *Id.*

²⁴⁷ See U.S. Census Bureau, State & County Quickfacts: Albuquerque (city), New Mexico, <http://quickfacts.census.gov/qfd/states/35/3502000.html> (last visited Apr. 22, 2009); U.S. Census Bureau, State & County Quickfacts: Santa Fe (city), New Mexico, <http://quickfacts.census.gov/qfd/states/35/3570500.html> (last visited Apr. 22, 2009). From 2000 to 2006, the population of the City of Santa Fe increased at an annual rate of 14.5% from 62,203 to 72,056. *Id.*

²⁴⁸ Univ. of N.M., *The New Mexico Population*, <http://www.unm.edu/~nvaldes/326/NMPop06.htm> (last visited Apr. 22, 2009).

²⁴⁹ HUTSON ET AL., *supra* note 2, at 8-9, tbl.3 & 4.

²⁵⁰ Leslie Linthicum, *From Fields to Homes*, ALBUQUERQUE J., June 8, 2003 at B1.

²⁵¹ WATER ASSEMBLY, SUMMARY OF THE MIDDLE RIO GRANDE REGIONAL WATER PLAN: 2000-2050 1 (vol. 1 2004), available at <http://www.waterassembly.org/archives/MRG-Plan/C-Summaries/Rio%20Grande%20General%20Summary.pdf> [hereinafter SUMMARY]. Although the middle Rio Grande region receives less than ten inches of precipitation per year, the region contains "about two-fifths" of the state's population, and is the largest urban water user in the state" primarily due to Albuquerque. *Id.*

²⁵² WATER ASSEMBLY, MIDDLE RIO GRANDE REGIONAL WATER PLAN: 2000-2050, 2-9 to 2-15 (vol. 1 2004), available at <http://www.waterassembly.org/waterplan.htm> (click link "Chapter 2").

in Colorado to the Rio Grande basin in New Mexico.²⁵³ When the San Juan-Chama Project was first authorized by Congress in 1962, the Bureau experienced difficulty finding buyers for the water.²⁵⁴ However, Albuquerque was one of the first buyers in 1963 and contracted for the delivery of 48,200 acre-feet per year, or almost half of the average annual diversion of approximately 100,000 acre-feet.²⁵⁵ Albuquerque is in the process of building diversion facilities, pipelines, a pumping station, and a water treatment plant that will allow the city to divert 94,000 acre-feet per year, consume 47,000 acre-feet per year, and return the rest to the Rio Grande through a sewage treatment plant.²⁵⁶

However, the Santa Fe area will not benefit substantially from the San Juan-Chama Project since the city and county only contracted for 5,605 acre-feet in 1976.²⁵⁷ Further, "Santa Fe allows about half of its San Juan-Chama allocation—about 2,600 acre-feet—to flow down the Rio Grande to offset the effects of the city's ground-water pumping on the river and downstream water users."²⁵⁸ As a result, local governments in the Santa Fe region are actively searching for other sources of water to meet their current needs and to avoid growth constraints. Given the large percentage of water used in agriculture, both the city and the county have sought to buy or lease water rights from farmers in rural areas across the state, which have placed both the buyers and the sellers at the crux of the water controversy issues in New Mexico.²⁵⁹ For example, "Santa Fe County has been mired for years with Taos County acequias over its plan to import water from the Top of the World farm" that was purchased near the Colorado border for its water rights in 2006.²⁶⁰

The Santa Fe region's well known demand for water is increasingly reflected in the purchase price for water rights. Since 2005, the City of Santa Fe requires large residential or mixed used developments to transfer

²⁵³ *Id.* at ch. 1, 1-2; U.S. Dep't of Interior, Bureau of Reclamation, San Juan-Chama Project, available at <http://www.usbr.gov/dataweb/html/sjuanchama.html> (last visited Aug. 5, 2009).

²⁵⁴ Tania Soussan, *Critical Supply*, ALBUQUERQUE J., June 1, 2003.

²⁵⁵ *Id.*; WATER ASSEMBLY, *supra* note 252, at 2-2.

²⁵⁶ Albuquerque Bernalillo County Water Utility Authority, About the San Juan-Chama Drinking Water Project, <http://www.abcwua.org/content/view/31/24/> (last visited Apr. 22, 2009); WATER ASSEMBLY, *supra* note 252, at 2-2.

²⁵⁷ Soussan, *supra* note 254; U.S. Dep't of Interior, *supra* note 253.

²⁵⁸ Russell Max Simon, *Area's Water Future Is Flush*, ALBUQUERQUE J., Sept. 20, 2006.

²⁵⁹ Tania Soussan, *N.M. Has History of Water Transfers*, ALBUQUERQUE J., Jan. 23, 2005.

²⁶⁰ *Id.*

water rights to the city as a precondition to receiving building permits.²⁶¹ According to Gary Ehlert, executive officer of the Santa Fe Homebuilders Association, a developer in 2008 must pay between \$30,000 and \$40,000 for an acre-foot of water.²⁶² Yet, in 2007, farmers in the Middle Rio Grande Conservancy District ("MRGCD") south of the Santa Fe region were paying \$28 per acre foot for their water, even though the WaterBank, a water rights brokerage firm based in Albuquerque, had sent letters to landowners in the MRGCD offering to buy adjudicated water rights for up to \$14,000 per acre-foot.²⁶³ With farmers paying tens of dollars per acre-foot for water for irrigation and developers, cities, and urbanized counties paying tens of thousands of dollars per acre-foot for water for residential and commercial uses, it is clear that there would be huge gains from trade. However, due to the tragedy of the anticommons, water transfers from the MRGCD are neither quick nor certain.²⁶⁴

A. *The Middle Rio Grande Conservancy District*

The MRGCD is a multipurpose special water district created in 1925 to address problems arising from and related to agricultural irrigation.²⁶⁵ After reaching a peak in the 1880s, the number of irrigated acres in the middle valley of the Rio Grande declined due to the river's diminished flows caused by the development of irrigated agriculture upstream in the San Luis Valley of Colorado.²⁶⁶ The diminished flows reduced the

²⁶¹ Laura Banish, *New Water-Rights Law Upsets Developers*, ALBUQUERQUE J., July 28, 2005, at 3.

²⁶² Telephone interview with Peter J. Hill in Santa Fe, N.M. (July 7, 2008).

²⁶³ Juan-Carlos Rodriguez, *It's Rematch For MRGCD in Valencia*, ALBUQUERQUE J., June 1, 2007; *Water Rights Put Out to Bid*, ALBUQUERQUE J., July 15, 2006. The farmers in the MRGCD are being subsidized at \$28 an acre foot. *Id.* Based on this figure, one can calculate approximate costs of water for the MRGCD from its annual budgets. In 2007 the MRGCD had expenditures of \$15.8 million and provided 345,000 acre feet of water. Juan-Carlos Rodriguez, *MRGCD Spared '07 Water Shortage*, ALBUQUERQUE J., Dec. 16, 2007; Juan-Carlos Rodriguez, *Findings In Audit of MRGCD Improve*, ALBUQUERQUE J., March 12, 2008. Thus, water costs are approximately \$46 an acre foot. The figures vary somewhat from year to year depending on the amount of water delivered, but are always several orders of magnitude less than the value of water in surrounding cities.

²⁶⁴ See sources cited *supra* note 263.

²⁶⁵ Stephen A. Thompson, *Urbanization and the Middle Rio Grande Conservancy District*, 76 GEOGRAPHICAL REV. 35, 41 (1986).

²⁶⁶ *Id.* at 37; Lisa D. Brown, *The Middle Rio Grande Conservancy District's Protected Water Rights: Legal, Beneficial, or Against the Public Interest in New Mexico?*, 40 NAT. RESOURCES J. 1, 4-5 (2000).

Rio Grande's carrying capacity, increased sedimentation, and caused the river channel to aggrade and the water table to rise.²⁶⁷ The resulting waterlogged soils, alkali flats, and flooding reduced the land available for agriculture and devastated the local economy.²⁶⁸ In response, a small group of Albuquerque business owners and landowners successfully lobbied the legislature for the creation of a conservancy district to protect their property interests and stimulate the regional economy.²⁶⁹

The Conservancy Act of 1923 authorized the formation of the MRGCD for flood protection, river control, and land drainage.²⁷⁰ The Conservancy Act "provided that the organizing petition be signed 'either by one hundred (100) owners of land, or by a majority of the owners of land situated within the limits of the territory proposed to be organized into a district,'" and the MRGCD was formed on the basis of 148 signatures.²⁷¹ A majority of landowners opposed forming the MRGCD due to its power to compel the inclusion of all lands benefitted by its services and their concern about being able to pay the mandatory assessments.²⁷² Despite this opposition, the MRGCD was duly established as a conservancy district by a district court order in August 1925,²⁷³ and the constitutionality of the MRGCD's formation was confirmed by the New Mexico Supreme Court that same year.²⁷⁴ The Conservancy Act was amended in 1927 to both require more signatures on the formation petition and to include provisions for agricultural irrigation.²⁷⁵

²⁶⁷ Brown, *supra* note 266, at 5.

²⁶⁸ Thompson, *supra* note 265, at 37.

²⁶⁹ John R. Brown, "Whiskey's fer Drinkin'; Water's fer Fightin'! Is It? Resolving a Collective Action Dilemma in New Mexico, 43 NAT. RESOURCES J. 185, 206 (2003); Brown, *supra* note 266, at 5.

²⁷⁰ See The Conservancy Act of New Mexico, 1923 N.M. Laws 140 (codified at N.M. STAT. §§ 73-14-1 to -5 (1978)).

²⁷¹ *Id.*; see also Mary Humphrey, The New Mexico Conservancy Act 33 (Nov. 1998) (unpublished manuscript).

²⁷² Brown, *supra* note 266, at 6; Thompson, *supra* note 265, at 39.

²⁷³ CHARLES T. DUMARS, DAVID SEELEY & TANYA L. SCOTT, THE MIDDLE RIO GRANDE CONSERVANCY DISTRICT WATER BANK LEASING PROGRAM 1 (2007), available at <http://www.mrgcd.com/content.asp?IntLinkKey=277611&CustComKey=277608&CategoryKey=277609&pn=LinksIntView&domname=mrgcd.com>.

²⁷⁴ Proposed Middle Rio Grande Conservancy Dist., 242 P. 683 (N.M. 1925).

²⁷⁵ 1927 N.M. Laws 45, §§ 201, 910 (codified as N.M. Stat. §§ 73-17-23, 72-17-21 (2008)). The formation of irrigation districts was often approved by overwhelming majorities in the American West. See Bretsen & Hill, *supra* note 40, at 328. Resistance to the formation of the MRGCD by farmers might be traced to two factors. First, unlike an irrigation district, the MRGCD is a conservancy district and was originally formed for purposes other than

The MRGCD extends 150 miles from the Cochiti Dam in the north to the Bosque del Apache National Wildlife Refuge in the south and encompasses most of the Middle Rio Grande Valley. Within its boundaries are four counties, five cities, including Albuquerque, New Mexico's largest city, and over a quarter of New Mexico's population.²⁷⁶ Although the MRGCD contains 278,000 acres and 128,787 of those acres are irrigable, only about 70,000 acres are actually irrigated by the 11,000 farmers who receive water from the MRGCD.²⁷⁷ To deliver this water, the MRGCD manages and maintains four diversion dams and reservoirs, 834 miles of canals and ditches, and 404 miles of riverside drains.²⁷⁸ The construction of water storage facilities by the MRGCD and the reduction in discharge from agricultural irrigation due to the expansion of the Albuquerque metropolitan area decreased the risk of flooding. The MRGCD's success in reclaiming lands combined with municipal groundwater pumping that has lowered the water table in urban Bernalillo County means that drainage is no longer an important concern.²⁷⁹ Instead, the MRGCD exists today primarily to support agricultural irrigation.²⁸⁰ However, as the number of

agricultural irrigation. Provisions for irrigation that more directly benefited agriculture were not added to the statutory scheme until the 1927 Act. This original focus was not surprising since urban business interests rather than agricultural interests appear to have been instrumental in persuading the legislature to pass the 1923 Act. Thompson, *supra* note 265, at 38. The business coalition included the Albuquerque Chamber of Commerce, the Albuquerque Kiwanis and Rotary clubs, and the Albuquerque Board of Realtors, which joined with large landowners to form a group called the Rio Grande Association. Brown, *supra* note 266, at 5. The priority given to flood control "might have reflected the primary concern of the district's core supporters from the business community, who apparently perceived the flood hazard as the greatest threat to their vision of future development in the valley." Thompson, *supra* note 265, at 39. Second, the district's original governance structure was highly undemocratic because the board of directors was appointed by judges. *Id.* at 39-40. This political arrangement might have led to the appointment of directors who were sympathetic to the interests of politically influential business persons and large landowners, rather than smaller farmers.

²⁷⁶ Thompson, *supra* note 265, at 39; SUBHAS SHAH, THE MIDDLE RIO GRANDE CONSERVANCY DISTRICT: SUSTAINING THE MIDDLE VALLEY FOR OVER 70 YEARS 2-3 (2000). At the time his article was written, Subhas Shah was the Chief Engineer for the MRGCD, and he is currently both its Chief Executive Officer and Chief Engineer.

²⁷⁷ *Id.* at 3; Michael Davis, *Irrigation Season "Went Really Well,"* ALBUQUERQUE J., Dec. 15, 2005, at 1.

²⁷⁸ SHAH, *supra* note 276, at 3.

²⁷⁹ Brown, *supra* note 266, at 206; Thompson, *supra* note 265, at 46.

²⁸⁰ See MIDDLE RIO GRANDE CONSERVANCY DISTRICT, A LITTLE HISTORY, THE MRGCD OVER THE YEARS, <http://www.mrgcd.com/cms/kunde/rt/mrgcdcom/docs/619590059-05-25-2007-13-35-52.pdf>.

acres devoted to agriculture decreases due to urbanization, the MRGCD has also "portrayed itself as a guardian of riparian habitat, and essential partner in protecting the ecology of the river through its lands and ditch systems, and enhancer of recreational values, and a major source of recharge to the Albuquerque aquifer."²⁸¹

Since 1956, the NMOSE has considered the Rio Grande Basin to be fully appropriated.²⁸² Permits are no longer issued for new surface water appropriations and permits for new groundwater diversions are determined on a case-by-case basis in accordance with conjunctive management principles.²⁸³ Growing municipalities seeking water must retire or transfer existing water rights.²⁸⁴ Given its location near and among cities experiencing rapid growth, such as Albuquerque and Santa Fe, and the differentials in value between agricultural and urban uses of water, the MRGCD should be a likely source of water for these growing municipalities.

However, the MRGCD does not transfer water rights. The MRGCD has a strong commitment to maintaining control over the region's water and to restrict its use to agricultural irrigation. The MRGCD's stated policy is "to see as much water as possible remain in agriculture."²⁸⁵ According to Dennis Domrzalski, spokesperson for the MRGCD, "[w]e want to keep this valley forever green, and the way we do that is to keep agricultural land in production, and the way we do that is to keep water available to those lands."²⁸⁶ The Middle Rio Grande Water Plan notes that "the 1930 water rights developed by the [MRGCD] have never been available for transfer."²⁸⁷ The MRGCD's policies are reinforced by the NMOSE's policies of not allowing individual farmers to sell water rights arising from the MRGCD's permits, even though there is no state law prohibiting such transfers.²⁸⁸ However, underlying these policies are water rights whose uncertainties would be explored in a transfer due to the tragedy of the anticommons. Several factors combine to create this anticommons.²⁸⁹

²⁸¹ Brown, *supra* note 269, at 207.

²⁸² WATER ASSEMBLY, *supra* note 252, at 2-2.

²⁸³ THOMAS C. TURNEY, OFFICE OF THE N.M. STATE ENG'R, MIDDLE RIO GRANDE ADMINISTRATIVE AREA GUIDELINES FOR REVIEW OF WATER RIGHT APPLICATIONS 2 (2000).

²⁸⁴ *Id.*

²⁸⁵ SHAH, *supra* note 276, at 5.

²⁸⁶ *Water Rights*, *infra* note 320.

²⁸⁷ WATER ASSEMBLY, *supra* note 252, at 2-1.

²⁸⁸ Tania Soussan, *Village Challenging Water Rights Policy*, ALBUQUERQUE J., Oct. 24, 2006, at D3. Municipalities are seeking a test case to challenge both the MRGCD's and the NMOSE's policies. *Id.*

²⁸⁹ See Brown, *supra* note 269, at 207-08.

The first factor is the mixed and uncertain nature of the ownership of water rights within the MRGCD. When the New Mexico water code was enacted in 1907, existing water rights created by diversion and beneficial use were affirmed and did not require a permit from the NMOSE to confirm their priority date.²⁹⁰ The MRGCD took the position that some of these pre-1907 water rights are appurtenant to 80,785 acres of land within the MRGCD.²⁹¹ However, since pre-1907 water rights are vested in the user and pre-date the creation of the MRGCD, individual landowners who hold such rights within the MRGCD can transfer them without obtaining the approval of the MRGCD. While the MRGCD has taken the position that pre-1907 are transferable subject only to the statutory transfer process, it has not taken such a position with regards to the small number of individual water rights represented by post-1907 permits issued by the NMOSE before the creation of the MRGCD.²⁹² As a result, the transferability of these water rights by individual users who have their water delivered by the MRGCD without the approval of the MRGCD is in doubt.

A third set of water rights were created when the MRGCD was organized.²⁹³ The MRGCD claims water rights based on its mission and the language of the Conservancy Act. Since the MRGCD was formed to prevent floods, regulate stream channels and the flow of streams, divert and control watercourses, drain and reclaim inundated lands, and to provide for irrigation and develop irrigable agricultural land,²⁹⁴ any new water rights arising from new water supplies developed in connection with these statutory responsibilities belong to the MRGCD.²⁹⁵ This position is supported by additional language in the Conservancy Act that declares any water developed by a district in the pursuit of its statutory responsibilities to be an appropriation that grants the district "the rights that go with appropriation and beneficial use."²⁹⁶ Further, any disposition of this water by a conservancy district is deemed a beneficial use.²⁹⁷ These new water rights are confirmed by permits issued by the NMOSE several years after

²⁹⁰ N.M. STAT. ANN. § 72-1-2 (West 2008).

²⁹¹ SHAH, *supra* note 276, at 3.

²⁹² *Id.*

²⁹³ *Id.* Two other water rights in the MRGCD are reserved water rights owned by the six Native American pueblos within the MRGCD that are senior to all other rights and individual and MRGCD groundwater rights based on wells drilled before 1956 or permits issued by the NMOSE after 1956. *Id.*

²⁹⁴ N.M. STAT. ANN. § 73-14-4(A) (West 2008).

²⁹⁵ DUMARS ET AL., *supra* note 273, at 2.

²⁹⁶ N.M. STAT. ANN. § 73-14-47(F) (West 2008); *see also id.* at 6.

²⁹⁷ DUMARS ET AL., *supra* note 273, at 6.

the MRGCD was organized. Permit 0620 was approved by the NMOSE in 1931 based on an application to transfer perfected, pre-1907 water rights for 80,785 acres through a change in the point of diversion.²⁹⁸ Permit 1690 granted the MRGCD surface water rights to 42,482 acres of land that were waterlogged but would be drained by the MRGCD.²⁹⁹ Although the MRGCD claims water rights through both its enabling legislation and permits, counterarguments based on the language of the Conservancy Act raise the issue of whether the MRGCD has the legal right to transfer water from agricultural to municipal uses. A current MRGCD board member argues that transfers from the MRGCD to municipalities are not sanctioned by its enabling legislation since conservancy districts are formed for the limited purposes of flood control, drainage, and agricultural irrigation.³⁰⁰

Issues have also arisen about the validity of the MRGCD's water rights because farmers within the MRGCD are irrigating lands that represent less than 60% of the MRGCD's claimed water rights. The position taken by the MRGCD is its water rights are not subject to forfeiture or abandonment.³⁰¹ According to the Conservancy Act, "The rights of the . . . [conservancy] district to the waters of the district, or the use thereof, or the land within the district and property owned by it shall not be lost by the district by prescription or by adverse possession, or for nonuse of the waters."³⁰² The New Mexico Supreme Court ruled that this provision of the Conservancy Act "precludes abandonment of [a] conservancy district's priority by non-use," noting that the "[l]oss of the priority date is often tantamount to loss of the water right."³⁰³ In that case, a municipality sought to defeat a priority call made by the conservancy district as a senior appropriator by claiming that the nonuse provision of the Conservancy Act violated the equal protection clause of New Mexico's Constitution since conservancy districts were protected against non-use while other water users were not.³⁰⁴ The New Mexico Supreme Court noted that conservancy districts are different from other water users because they "were not likely to waste water" and did not need "managerial oversight in order to assure beneficial use."³⁰⁵ Thus, according to the New Mexico Supreme Court,

²⁹⁸ See *id.* at 7; Brown, *supra* note 266, at 8.

²⁹⁹ DUMARS ET AL., *supra* note 273, at 9; Brown, *supra* note 266, at 8-9.

³⁰⁰ Telephone Interview by Peter J. Hill with William M. Turner, Director—Position No. 3, Bernalillo County in Albuquerque, N.M. (Jul. 15, 2008).

³⁰¹ SHAH, *supra* note 276, at 4; see also DUMARS ET AL., *supra* note 273.

³⁰² SHAH, *supra* note 276, at 4 (quoting N.M. Stat. § 73-17-21 (1978)).

³⁰³ Raton v. Vermejo Conservancy Dist., 678 P.2d 1170, 1175 (N.M. 1984).

³⁰⁴ N.M. CONST. art. 2, § 18.

³⁰⁵ Brown, *supra* note 266, at 12.

Section 73-17-21 does not violate the equal protection clause of the New Mexico Constitution. The legislature's distinction between conservancy districts and other appropriators with respect to the loss of water rights through nonuse is neither unreasonable nor arbitrary. The legislature has created an entire body of law pertaining specifically to conservancy districts for the purpose of providing and maintaining flood protection, river control, drainage, water storage for irrigation needs and constructing and maintaining distribution systems. Thus, the state's unique and extensive regulation of such districts ensures maximum beneficial use of water. See NMSA 1978, § 73-14-1 to 73-19-5. Section 73-17-21 is a rational part of that scheme.³⁰⁶

Despite this precedent and the statutory language of the Conservancy Act, several counterarguments have been raised concerning the validity of the MRGCD's water rights due to nonuse.³⁰⁷ First, since the New Mexico Supreme Court has only addressed the common law doctrine of abandonment, its decision does not preclude the MRGCD's loss of water rights due to nonuse under statutory provisions in the water code related to forfeiture,³⁰⁸ or under the public interest standard,³⁰⁹ or the public welfare doctrine.³¹⁰ Second, critics have accused the MRGCD of being inefficient³¹¹ and thus subject to the loss of water rights due to waste. In response, the MRGCD has cut the amount of water it diverts from the Rio Grande almost in half from 618,000 acre-feet in 1996 to 307,000 acre-feet in 2006 through ditch lining, metering technology, and other initiatives.³¹² Third, the MRGCD has never applied for a proof of beneficial use with the NMOSE describing the amount of water used and the number of acres irrigated. William M. Turner, a member of the MRGCD's board of directors,

³⁰⁶ *Raton*, 678 P.2d at 1175.

³⁰⁷ See Brown, *supra* note 266, at 14-17.

³⁰⁸ N.M. STAT. ANN. § 72-5-28, 72-12-8 (West 2008); Brown *supra* note 266, at 14.

³⁰⁹ N.M. STAT. ANN. § 72-5-23, 72-5-5.1 (West 2008).

³¹⁰ Brown, *supra* note 266, at 14-17. The statutory forfeiture provisions indicate that they apply to conservancy districts as well as other irrigation institutions. N.M. STAT. ANN. § 72-5-28(G) (West 2008).

³¹¹ Kara Gillon, *Watershed Down?: The Ups and Downs of Watershed Management in the Southwest*, 5 U. DEN. WATER L. REV. 395, 416-17 (2002); Tania Soussan, *Water Spigot Tightens*, ALBUQUERQUE J., May 30, 2004, at B1.

³¹² Juan-Carlos Rodriguez, *No Water to Spare: MRGCD Uses Technology to Keep Track of the Resource Under Its Watch*, ALBUQUERQUE J., July 17, 2007, at 1.

argues that when farmers do not use their water, the MRGCD does not have a clear claim to the water and cannot transfer it because of the failure to file proofs of beneficial use with the NMOSE.³¹³ According to this argument, the unused water rights revert back to the public domain and the control of the NMOSE rather than remaining with the MRGCD.³¹⁴ To address the issue of unused water rights, the MRGCD created a water bank in 1995 to lease unused water rights.³¹⁵ The water rights in the water bank consist of the MRGCD's surplus water created by the loss of agricultural lands to urbanization as well as deposits from individual holders of pre-1907 water rights.³¹⁶ Despite the MRGCD's hundreds of thousands of acres and acre-feet of water rights, the water bank only had about seventy leases that represented 850 acres of land and 1,800 acre-feet of water per annum as of May 2007.³¹⁷ Lawsuits about the legality of the MRGCD's water bank program are ongoing.³¹⁸ Compounding all these issues is the lack of an official, judicial adjudication of the water rights in the Middle Rio Grande Basin.³¹⁹ As a result, all post-1907 water rights, including the MRGCD's water rights, have not been quantified as to amount, ownership, and priority. The NMOSE does not have an active adjudication in the Middle Rio Grande Basin due to the lack of funding from the state legislature and estimates that such an adjudication will cost \$100 million, take ten years, and affect at least 150,000 people.³²⁰ The sum total of all these issues cloud the title of water rights held by the MRGCD and make their transferability less certain because all of these issues would be raised by multiple parties in the statutory transfer process.

Acequias, traditional Hispanic community ditch associations, also have a role in the anticommons effect associated with transfers of water rights from the MRGCD. At the time of its formation, seventy-nine existing,

³¹³ Telephone Interview, *supra* note 300.

³¹⁴ Juan-Carlos Rodriguez, *Water Bank Plea Rejected*, ALBUQUERQUE J., July 17, 2007, at 1.

³¹⁵ SHAH, *supra* note 276, at 4; DUMARS ET AL., *supra* note 273, at 3.

³¹⁶ SHAH, *supra* note 276, at 4; DUMARS ET AL., *supra* note 273, at 3.

³¹⁷ DUMARS ET AL., *supra* note 273, at 4; *see also* SHAH, *supra* note 276, at 5. The water bank had only grown from 1400 acre-feet per annum to 1,800 acre-feet between December 2000 and May 2007. *Id.*

³¹⁸ Juan-Carlos Rodriguez, *MRGCD Lawsuit on Docket*, ALBUQUERQUE J., Oct. 15, 2007, at A1.

³¹⁹ *See* N.M. STAT. ANN. §§ 72-4-13 to 72-4-19 (West 2008).

³²⁰ Juan-Carlos Rodriguez, *Water Rights Adjudication Put on Hold*, ALBUQUERQUE J., March 28, 2007, at 1 [hereinafter *Water Rights*]; Juan-Carlos Rodriguez, *Acequia Group Keeps Eye on Water Rights Rules*, ALBUQUERQUE J., Nov. 16, 2007, at 1.

independent acequia systems were incorporated into the MRGCD, and the MRGCD manages most of the acequias in its four county region.³²¹ In the United States, the acequia culture is unique to northern New Mexico and southern Colorado and reflects a tradition in which water is viewed as a community resource and decisions about water are made collectively.³²² To support this acequia culture, the New Mexico state legislature granted each acequia the right to veto any proposed transfers of water rights out of its ditch system.³²³

Finally, the Bureau of Reclamation affects the transferability of water from the MRGCD through its claims of ownership to water and water-related infrastructure. "In 1963 the [MRGCD] contracted with the Bureau of Reclamation for 20,900 acre-feet of water per anum from the San Juan-Chama Project."³²⁴ Water from the Bureau carries with it all the uncertainties described in Part II.C. *supra*. For example, the Bureau's website states that the water contracted by the MRGCD is supplemental water provided for irrigation, and there is an indication that the water may not be transferable to other uses or may not be transferable if doing so would impair the efficiency of the project for irrigation purposes.³²⁵ In addition to issues about water, the MRGCD and the Bureau are engaged in an ongoing dispute over who owns much of the MRGCD's infrastructure, especially the El Vado Reservoir, the San Acacia Dam, and the Angastora Dam.³²⁶ During the late 1920s and early 1930s, the MRGCD constructed its four major diversion dams.³²⁷ However, during the 1940s, the MRGCD became financially unstable and was unable to maintain its infrastructure.³²⁸ At the request of the MRGCD, the Bureau and the MRGCD entered into a contract in 1951 in which the Bureau reconstructed and improved the MRGCD's facilities and loaned the MRGCD \$15,708,567 on an interest-free basis for fifty years so that it could retire its existing

³²¹ See Thompson, *supra* note 265, at 36; Juan-Carlos Rodriguez, *Acequia Users Join on Water Rights*, ALBUQUERQUE J., Oct. 28, 2006, at 1.

³²² See Greg Hanscom and Bruce Selcraig, *Acequia Culture Feels Under the Gun*, HIGH COUNTRY NEWS, October 11, 1999, <http://hcn.org/issues/164/5304>.

³²³ N.M. STAT. ANN. § 72-4-24.1 (West 2008).

³²⁴ SHAH, *supra* note 276, at 4.

³²⁵ See USBOR.gov, Water Operations Group: Operations Fact Sheet El Vado Dam and Reservoir, http://www.usbr.gov/ue/albug/water/sanjuanchama/reservoirs/fs/sjc_elvado.html (last visited Apr. 22, 2009).

³²⁶ Tania Soussan, *Denial of Bid a Blow to Water District*, ALBUQUERQUE J., July 27, 2005, at B1.

³²⁷ DUMARS ET AL., *supra* note 273.

³²⁸ SHAH, *supra* note 276, at 2.

bonds.³²⁹ In return, the Bureau received title to the MRGCD's dams, canals, and ditches.³³⁰ Although the MRGCD paid off the debt in 1999, a federal district court ruled in 2005 that the Bureau continued to own the MRGCD's infrastructure since an act of Congress was required to transfer title back to the MRGCD.³³¹ As described in Part II.C. *supra*, whenever the Bureau claims ownership rights, water transfers are extremely complicated since there is no clear mechanism by which reclamation water can be legally moved from one party to another.

Another complicating factor involving the Bureau has been the struggle over the Rio Grande silvery minnow, which has been declared an endangered species.³³² Under the Endangered Species Act,³³³ federal agencies, such as the Bureau are prohibited from taking actions which might undermine the survival of an endangered species.³³⁴ During drought years, such as in 2002, the water used by the MRGCD, including water from the Bureau's San Juan-Chama Project, lowers flows enough to place the survival of the Rio Grande silvery minnow in question.³³⁵ Given the presence of reclamation water, conservation groups were able to use the Endangered Species Act to compel the Bureau to modify its water contracts and reduce water deliveries to users, including the MRGCD, to increase the Rio Grande's instream flows for the benefit of the silvery minnow.³³⁶ The Circuit Court of Appeals for the Tenth Circuit did not accept the Bureau's argument that the Endangered Species Act only applied to discretionary federal actions and that its contracts with water users such as the MRGCD precluded such discretion.³³⁷ The ability of the Endangered Species Act to override water contracts creates further doubt about the ability of the MRGCD to enter into any water transfers from agricultural to municipal uses.

The overall effect of all these issues is to create an anticommons that makes the MRGCD's water unavailable to cities. A transfer by the

³²⁹ *Id.*

³³⁰ Soussan, *supra* note 326.

³³¹ *Id.*

³³² *Rio Grande Silvery Minnow v. Keys*, 469 F.Supp. 2d 1003, 1006 (D.N.M. 2008).

³³³ 16 U.S.C. § 1531 et seq. (2006).

³³⁴ *See id.*

³³⁵ *Rio Grande Silvery Minnow*, 469 F.Supp. 2d at 1006.

³³⁶ *See id.* at 1011.

³³⁷ Beth Richards, Case Note, *The Pump Don't Work Because the Bureau Took the Handle: The United States Bureau of Reclamation's Discretion to Reduce Water Deliveries to Comply with the Endangered Species Act*. *Rio Grande Silvery Minnow v. Keys*, 333 F.3d 1109 (10th Cir. 2003), 4 WYO. L. REV. 113, 134-35 (2004).

MRGCD would trigger the statutory transfer process and provide a forum for both holders of use rights and veto rights to question the validity and extent of the MRGCD's water rights. The tragedy of the anticommons also extends outward from the MRGCD to include the entire Middle Rio Grande Valley. As the NMOSE has noted about its Middle Rio Grande Administrative Area:

Offsetting the effects of groundwater diversions is critical to the conjunctive management of the water resources within the Rio Grande stream system. Any existing permittee requiring surface water rights for offset purposes is confronted with finding a seller of valid surface water rights and obtaining a permit from the State Engineer to transfer the surface water rights. The transfer of surface water rights within the Rio Grande stream system is a complicated and often lengthy process due to complex inter-relationship between the surface and ground waters, the numerous existing appropriations to be protected, and the diversity of the numerous interests having standing to participate in the administrative process for an application for a permit. Because a transfer application can be denied or approved and the decision appealed to the district court, the court of appeals and the state supreme court, the final decision may be far removed from the time the application was filed.³³⁸

Although the MRGCD in the Middle Rio Grande Valley would be a logical source of water for nearby growing urban areas, such as Santa Fe, the tragedy of the anticommons has meant that these cities must look to other geographic areas and entities for transfers of water rights, even if those sources are politically or hydrologically questionable. Santa Fe discovered a double effect of the tragedy of the anticommons when it tried to buy two billion gallons of groundwater rights in the Estancia Basin, which borders the Middle Rio Grande Valley. The first effect was the tragedy of the anticommons in the MRGCD and the Middle Rio Grande Valley that drove Santa Fe to a source such as the Estancia Basin. The second effect occurred when Santa Fe tried to transfer water out of the Estancia Basin and experienced the tragedy of the anticommons in a very direct manner.

³³⁸ TURNER, *supra* note 283, at 2.

B. *The Estancia Basin*

The Estancia Basin is located roughly in the center of New Mexico, south of Santa Fe and southeast of Albuquerque and consists of approximately 2,260 square miles.³³⁹ The western edge of the Estancia Basin borders on the Middle Rio Grande Basin.³⁴⁰ As a closed basin, the Estancia Basin does not receive any surface water from outside its bowl-shaped boundaries, does not contain any perennial streams, and does not release any surface waters to other watersheds or basins.³⁴¹ As a result, "[t]he residents and economy of the Estancia Basin relies solely of [sic] the precipitation and groundwater for the water supply," with the Valley Fill Aquifer as the primary groundwater source.³⁴² Most of the Estancia Basin is rural and 97% of the water use in the basin is agricultural, although residential housing for Santa Fe and Albuquerque is expanding southward and eastward into the Estancia Basin.³⁴³

Although the prior appropriation doctrine applies to both surface water and groundwater in New Mexico,³⁴⁴ regulations issued by the NMOSE to conserve groundwater aquifers by balancing the interests of senior and junior groundwater appropriators have been upheld, especially in cases of groundwater mining.³⁴⁵ Since 1965 the NMOSE has treated the Estancia Basin as a mined basin because groundwater is pumped in excess of the natural recharge.³⁴⁶ However, its status as a mined basin has not prevented the NMOSE-declared water rights in the Estancia Basin from exceeding the water that is beneficially used by a factor of three or four.³⁴⁷ As a result, in 2001, the NMOSE issued an order "denying new groundwater appropriations in the [Estancia Basin] and setting limits on groundwater level declines."³⁴⁸ In 2002, the NMOSE issued guidelines that

³³⁹ ESTANCIA BASIN REGIONAL WATER PLAN: YEAR 2008 UPDATE (FINAL DRAFT) 4-1 (2008) [hereinafter ESTANCIA BASIN].

³⁴⁰ *Id.*

³⁴¹ *Id.*

³⁴² *Id.* at 4-3.

³⁴³ *Id.* at 4-1, 4-11.

³⁴⁴ N.M. STAT. ANN. §§ 72-1-1, 72-12-1 (West 2008).

³⁴⁵ *Mathers v. Texaco, Inc.*, 421 P.2d 771, 772 (N.M. 1966).

³⁴⁶ ESTANCIA BASIN, *supra* note 339, at 4-3, 5-2.

³⁴⁷ *Id.* at 4-4. Water rights in the Estancia Basin had not been adjudicated in 2004, and, as of 2008, "it is not anticipated that the Estancia Basin water rights adjudication will be completed in the near future and likely not within the 40-year planning window of the [Estancia Basin Regional Water] Plan." *Id.* at 5-3.

³⁴⁸ THOMAS C. TURNEY, OFFICE OF THE N.M. STATE ENG'R, ESTANCIA UNDERGROUND WATER BASIN GUIDELINES FOR REVIEW OF WATER RIGHT APPLICATIONS 4 (2002).

replaced the 1965 mined basin policies.³⁴⁹ Among other things, the new guidelines established critical management areas where the Valley Fill Aquifer was thin or where water levels were insufficient for sustained pumping and “adopt[ed] detailed enforcement provisions to cancel water rights which have not been developed.”³⁵⁰ “However, as of June 2008, “the implementation of these forfeiture guidelines has not been actively pursued by the NMOSE beyond initial issuance of potential water rights forfeiture letters.”³⁵¹ In addition, while the NMOSE’s guidelines stated that transfers into a critical management area would be denied, the guidelines did not address the transfer of water out of the Estancia Basin to another basin.³⁵²

During 2004, the City of Santa Fe negotiated with Sierra Waterworks LLC for the sale, and transfer, of water rights that had been used in the Estancia Basin. Sierra Waterworks had been incorporated in 2003 by a group of Estancia Basin farmers, including the then-incoming board president of the New Mexico Association of Conservation Districts, to construct and maintain reservoirs, canals, and pipelines.³⁵³ The company was headquartered in Moriarty, a town in the Estancia Basin about fifty miles south of Santa Fe, and owned an 8,702 acre farm in the Estancia Basin that had been used for grazing and to grow alfalfa and corn silage.³⁵⁴ Sierra Waterworks pumped 14,500 acre-feet per year from wells located on the farm, which was within the NMOSE’s estimates of 2.5 acre-feet of water per irrigated acre.³⁵⁵

The proposal that was negotiated between the city and the company was announced by Santa Fe Mayor Larry Delgado on December 23, 2004.³⁵⁶ Under the proposal, Santa Fe would pay \$27 million for a 51% ownership interest in the Sierra Waterworks’ farm and its 7,200 acre-feet per annum of associated water rights.³⁵⁷ Sierra Waterworks would retain

³⁴⁹ ESTANCIA BASIN, *supra* note 339, at 8-9.

³⁵⁰ *Id.* at 8-1, 8-7.

³⁵¹ *Id.* at 5-4.

³⁵² *Id.*

³⁵³ Huddy, *supra* note 243.

³⁵⁴ *Id.*

³⁵⁵ John T. Huddy & Kathy Louise Schuit, *Valley Residents Unite*, ALBUQUERQUE J., Jan. 13, 2005, available at <http://mvtelegraph.com/287215mntnview01-13-05.htm>.

³⁵⁶ Huddy, *supra* note 243.

³⁵⁷ *Id.* Although the Sierra Waterworks pumped 14,500 acre-feet per annum from its farm, the change in water rights from agricultural to urban use would have reduced the amount that could be transferred by approximately half since only about half the water that is used for irrigating crops is consumed and the rest evaporates into the atmosphere

a 49% interest, and the farm and water rights would be held by Santa Fe and Sierra Waterworks as joint tenants, giving each party an undivided interest in the whole.³⁵⁸ Sierra Waterworks would sell its interest in the water rights to Santa Fe based on a reasonable market price per acre-foot, and Santa Fe would lease its interest in the remainder of the farm back to Sierra Waterworks, which would continue ranching operations using a small number of windmill-driven livestock wells.³⁵⁹ To secure its option to the farm and water rights, Santa Fe would pay Sierra Waterworks \$6 million over three years, which would either be applied to the \$27 million purchase price if the transaction was finalized or be forfeited.³⁶⁰ However, the total cost of obtaining the water was estimated at \$127 million when an additional \$100 million was included to pay for sixty-five miles of pipeline and rights of ways to transport the water from the Estancia Basin to the city and for a water treatment plant to desalinate the brackish water via a reverse osmosis process.³⁶¹ Santa Fe anticipated funding the project infrastructure costs through a combination of long-term bonds and state and federal government assistance.³⁶² Water delivery was predicted to begin sometime between 2010 and 2012, but the water would be subject to the NMOSE's forty year planning window for pumping groundwater out of a mined basin.³⁶³

The supporters of the proposal, which was ultimately whittled down to Mayor Delgado, Sierra Waterworks, and an unknown number of anonymous Estancia Basin farmers who were also interested in selling their water rights to Santa Fe and other buyers outside the basin, identified several benefits.³⁶⁴ First, the transfer of water rights would allow Santa Fe to slow the heavy rate of pumping from its current groundwater wells.³⁶⁵ Second, the infrastructure created to transport the water to Santa Fe would create the backbone for a regional water system that could deliver water for residential, commercial, and industrial uses and spur

or seeps back into the ground. *Id.* By transferring less than half of its water rights, Sierra Waterworks argued that the transaction would have no hydrological impact on the Estancia Basin.

³⁵⁸ *Id.*

³⁵⁹ *Id.*; Tania Soussan, *Cities Covet Rural Water*, ALBUQUERQUE J., Jan. 23, 2005.

³⁶⁰ Huddy, *supra* note 243.

³⁶¹ *Id.*

³⁶² *Id.*

³⁶³ *Id.*; ESTANCIA BASIN, *supra* note 339, at 5-2.

³⁶⁴ See Huddy, *supra* note 243.

³⁶⁵ See *id.*

economic development in the Estancia Basin.³⁶⁶ Third, for many farmers, selling their water rights would be more profitable than continuing marginal agricultural activities.³⁶⁷ Finally, Sierra Waterworks argued that its crops consumed more water than the NMOSE's estimates, which meant that the Estancia Basin would experience a hydrological gain since less than half of the 14,500 acre-feet of water rights were being transferred.³⁶⁸

The announcement of the proposed transfer on the day before Christmas Eve in 2004 did not go unnoticed. An emergency meeting called by the Estancia Basin Water Planning Committee, a regional water resources advisory committee consisting of public officials and private citizens, on January 6, 2005 was moved from the county courthouse to the county fairgrounds to accommodate the more than 200 people who attended.³⁶⁹ At the meeting, many spoke against the proposal and no one spoke in favor of the proposal.³⁷⁰ By mid January 2005, the Torrance County Commission, the largest county by area in the Estancia Basin, as well as the town councils of the larger towns had unanimously passed resolutions opposing the transfer and had drafted letters to send to the NMOSE.³⁷¹ The Estancia Valley Economic Development Association issued a statement indicating that an increase in water exports from the Estancia Basin appeared counterproductive to its mission of promoting economic development while preserving the quality of life and unique characteristics of the Estancia Valley.³⁷² The biggest setback for supporters of the proposal was the creation of the Estancia Basin Resources Association, a grassroots activist organization that opposed transfers from the Estancia Basin.³⁷³ About 200 people attended the first public meeting of the Estancia Basin Resources Association on January 14, 2005, and the group was instrumental in packing the subsequent Santa Fe City Council meetings with Estancia Basin and Santa Fe residents opposed to the transfer.³⁷⁴

³⁶⁶ Kathy Louise Schuit, *Some Say Water Plan to Benefit All*, ALBUQUERQUE J., Jan. 6, 2005, available at <http://www.emtelegraph.com/283919mtnview01-06-05.htm>.

³⁶⁷ Soussan, *supra* note 359.

³⁶⁸ *See id.*; Schuit, *supra* note 366.

³⁶⁹ Shellie Langley, *We Must Protect Basin Water*, ALBUQUERQUE J. Jan., 13, 2005.

³⁷⁰ Huddy & Schuit, *supra* note 355. The Estancia Basin Water Resources Planning Committee remained neutral in the controversy and was criticized for its position and lack of preparedness in responding to the Sierra Waterworks-Santa Fe proposed transfer. *Id.*

³⁷¹ *Water Transfer Hot Topic*, ALBUQUERQUE J., Jan. 13, 2005.

³⁷² *Id.*

³⁷³ Estancia Basin Resource Association, <http://www.estanciabasin.org/> (last visited Apr. 22, 2009).

³⁷⁴ Kathy Louise Schuit, *Estancia Valley Politicians Lead Charge Against Water Plan*, ALBUQUERQUE J., Jan. 18, 2005.

The political firestorm proved to be too great for Mayor Delgado and his supporters. Passage of an ordinance by the Santa Fe City Council required two public hearings, and, at the first public hearing, only the Sierra Waterworks' president spoke in favor of the proposal.³⁷⁵ At the second public hearing on January 26, 2005, action on the proposal was postponed indefinitely, and the city staff was directed to cease pursuing any further negotiations with Sierra Waterworks on the proposal.³⁷⁶

Since the proposal was defeated before the Santa Fe City Council, Sierra Waterworks never filed an application to transfer water rights with the NMOSE because the company never had a buyer.³⁷⁷ Although some of the arguments against the proposal, especially by Santa Fe residents, were critical of the economics of the deal and its impact on water rates when combined with the \$60 million dollars Santa Fe had already committed to the San Juan-Chama Project, many of the arguments made in the media and before the Santa Fe City Council were dress rehearsals for the arguments the opponents anticipated making at hearings before the NMOSE.³⁷⁸ These arguments cumulatively create an anticommons in attempts to transfer water from agricultural to urban and other uses, and this anticommons effect exists independent of the underlying merits of any individual transfer.

One of the major issues raised by a transfer of water rights that involves a change in the place and type of use is the validity of the water right.³⁷⁹ Since water rights in the Estancia Basin have not been adjudicated and the Estancia Basin Water Planning Committee estimates "that three or four times the amount of water rights are recognized by the NMOSE than have been beneficially used in the Estancia Basin,"³⁸⁰ opponents were in a position to raise the issue of whether the Sierra Waterworks' water rights were "paper" rights that had either been abandoned or forfeited or whether they were "wet" rights supported by beneficial use.³⁸¹ In addition, questions were raised over whether Sierra Waterworks was

³⁷⁵ John T. Huddy & Laura Banish, *Council Hears Water Fears*, ALBUQUERQUE J., Jan. 13, 2005.

³⁷⁶ John T. Huddy, *Santa Fe City Council Kills Estancia Basin Water Plan*, ALBUQUERQUE J., Jan. 27, 2005.

³⁷⁷ George Johnson, *Dispatches from the Water Wars*, THE SANTA FE REVIEW, Sept. 17, 2004, <http://santafereview.com/review1.1.html>.

³⁷⁸ *Id.*

³⁷⁹ See *supra* Part II.D.

³⁸⁰ ESTANCIA BASIN, *supra* note 339, at 5-3.

³⁸¹ Huddy & Schuit, *supra* note 355.

pumping more water than needed for its agricultural (i.e., beneficial) use solely to have more water to transfer to Santa Fe.³⁸²

The New Mexico water code and the NMOSE's rules and regulations outline another set of issues available to opponents of a transfer of water rights.³⁸³ In evaluating a proposed water rights transfer, the NMOSE is required to evaluate whether the transfer "can be made without detriment to existing water rights and are not contrary to conservation of water within the state and not detrimental to the public welfare of the state."³⁸⁴ As a result, opponents of the proposed Sierra Waterworks transfer could question whether the pumping and exportation of groundwater from the Estancia Basin would negatively impact holders of senior water rights and whether it was consistent with water conservation, especially given the NMOSE's guidelines for the sustainability of the groundwater supply in the Estancia Basin as a closed, mined basin.³⁸⁵

The public welfare requirement provided opponents of the Sierra Waterworks-Santa Fe proposal who did not have any water rights directly impacted by the transfer with arguments to use against the transfer, especially since the phrase "public welfare" is not defined and is somewhat elastic.³⁸⁶ With an interbasin transfer, one issue raised by the public welfare requirement is who has a public welfare claim. Some of the possible claimants included: the residents of the Estancia Basin, the residents of Santa Fe, or the citizens of New Mexico. After the Sierra Waterworks-Santa Fe water rights transfer was defeated, the Estancia Basin Regional Water Plan was updated to clarify that "the exportation of water from the Estancia Basin runs counter to the public welfare of the Estancia Basin" especially given "the inevitable supply versus demand deficiency" created by the mining of a closed basin.³⁸⁷ However, the updated plan also notes that "the New Mexico State Water Plan (2003) suggests that the NMOSE reserves the right to implement water policies that may not be consistent with the public welfare of specific regions but that are consistent with the public welfare of the State of New Mexico."³⁸⁸ To overcome

³⁸² Soussan, *supra* note 359.

³⁸³ N.M. STAT. ANN. § 72-5-23 (West 2008); N.M. ADMIN. CODE 19.26.2.11.B. (Weil 2005).

³⁸⁴ N.M. STAT. ANN. § 72-5-23 (West 2008); N.M. ADMIN. CODE 19.26.2.11.B. (Weil 2005).

³⁸⁵ Shellie Langley, *We Must Protect Basin Water*, ALBUQUERQUE J., Jan. 13, 2005, available at <http://www.mvtelegraph.com/opinion/287224mtnoped01-13-05.htm>.

³⁸⁶ NEW MEXICO INTERSTATE STREAM COMMISSION, REGIONAL WATER PLANNING ADVISORY COUNCIL, REVISED MEETING NOTES 3 (2009).

³⁸⁷ ESTANCIA BASIN, *supra* note 339, at 5-5, 8-7.

³⁸⁸ *Id.* at 8-7 to 8-8.

these interbasin transfer issues in a public welfare review before the NMOSE, opponents of the proposed Sierra Waterworks-Santa Fe transfer were prepared to make the following arguments, which ultimately present the public welfare as a dichotomy between rural versus urban, agricultural versus residential and commercial, and poor versus rich:³⁸⁹

- The residents of the Estancia Basin are part of a long-standing community, and the farmers and ranchers of the Estancia Basin are currently making a contribution to New Mexico through their agricultural activities.
- The Estancia Basin has plans for future economic activity, perhaps industrial, commercial, and residential development linked to the growing communities near Albuquerque along the northwestern edge that will benefit New Mexico and that require keeping water in the Estancia Basin.
- Santa Fe already has groundwater available in the Espanola Basin and is attempting to mine the Estancia Basin simply to avoid mining its own aquifers. Thus a city with political power is attempting to take water from a region that has less political clout, and Santa Fe becomes to the Estancia Basin what Los Angeles was to the Owens Valley in the early 1900s.³⁹⁰
- The Estancia Basin does not have enough water to meet its long-term needs since groundwater is currently being pumped faster than it is being replenished.

³⁸⁹ Schuit, *supra* note 374; see also Estancia Basin Resource Association, Talking Points, <http://www.estanciabasin.org/talkingpoints.htm> (last visited Apr. 5, 2009).

³⁹⁰ The perception is that Los Angeles "stole" the water from the Owens Valley. Libecap argues that the transaction was profitable for both Los Angeles and the Owens Valley farmers, but there was controversy over the division of the gains from trade. LIBECAP, *supra* note 121.

Although these arguments were never made before the NMOSE, the Estancia Basin Resource Association did not disappear with the defeat of the proposal before the Santa Fe City Council and stands ready to assert them. Each month, the organization studies reports issued by the NMOSE to determine if anyone in the Estancia Basin is selling water rights that will result in a transfer out of the Estancia Basin.³⁹¹ In 2006, the Estancia Basin Resources Organization had raised \$55,000 toward its goal of developing a \$120,000 war chest to fund future legal battles related to transfers from the Estancia Basin.³⁹²

In addition to its goal of creating a legal fund, after the defeat of the proposed Sierra Waterworks-Santa Fe transfer, the Estancia Basin Resources Organization also pursued legislation to protect the groundwater supply of the Estancia Basin.³⁹³ After extensive lobbying by the organization, the New Mexico legislature passed Senate Joint Memorial 17 highlighting the need for transfers of mined groundwater from the Estancia Basin to be "consistent with the public welfare of New Mexico and not contrary to the planning objectives within a regional water plan."³⁹⁴ The memorial requests that the NMOSE, when evaluating applications to transfer groundwater from the Estancia Basin, require "proof of a need in the importing basin" and "proof that there are no alternative available in-basin sources of water to supply the region seeking to import groundwater from the Estancia [B]asin."³⁹⁵ A memorial is not a statute and is not presented to the governor for signature, hence the "request" made to the NMOSE. Since Senate Joint Memorial 17 was drafted with the assistance of both the Estancia Basin Resources Association and the NMOSE, and the State Engineer spoke in support of the memorial before the New Mexico Senate Rules Committee, the request will likely be honored. By providing yet another tool for opponents of transfers from the Estancia Basin, the memorial magnifies the anticommons effect on such transfers.³⁹⁶

Mayor Larry Delgado and the Santa Fe City Council experienced in a very public and painful manner the impact of the anticommons on water transfers. Given that it is a topographically closed basin that is currently being mined, the Estancia Basin was probably not the best source of

³⁹¹ Beth Hahn, *Valley Prepares to Protect Water*, ALBUQUERQUE J., Jan. 5, 2006.

³⁹² *Id.*

³⁹³ The Estancia Basin Resource Association, Regulatory Update, <http://www.estanciabasin.org/regupdate.htm> (last visited Apr. 22, 2009).

³⁹⁴ S.J. Mem. 17, 48th Leg., 2d Sess. (N.M. 2008), available at <http://www.nmlegis.gov/Sessions/08%20Regular/memorials/senate/SJM017.pdf>.

³⁹⁵ *Id.*

³⁹⁶ Laura Nesbitt, *Estancia Basin Memorial OK'd*, ALBUQUERQUE J., Feb. 21, 2008.

new water rights for the City of Santa Fe.³⁹⁷ A more logical source of water for the Santa Fe area is the nearby Middle Rio Grande Conservancy District,³⁹⁸ which has been accused of both inefficiency in the distribution and use of water and of illegally holding unused water rights through its own internal water bank. However, given the anticommons effect associated with water transfers generally and with water transfers from irrigation and conservancy districts specifically, the water markets in the West do not always function efficiently. As a result, municipalities, such as Santa Fe, are tempted to pursue proposals that do not necessarily make sense economically or environmentally to satisfy political promises made to urban constituents about the availability of water for current and future needs.

CONCLUSION

The tragedy of the anticommons, a situation where several entities without use rights have the right to exclude new uses of a resource, explains an economic anomaly. In the face of increasing demand for water for urban and environmental uses in the western United States water transfers out of agriculture have been fewer than one would expect based on price differentials, and most of those that have occurred have required extensive negotiations.³⁹⁹ The potential for lawsuits that will negate any transfer contracts also exists.

The multiple exclusion rights are the result of the evolutionary path of water institutions and the expansion of certain legal doctrines, such as the public interest and public trust doctrines. Those doctrines were originally quite limited and had the effect of protecting the property rights of people who used navigable waters and who depended on return flows from other irrigators. The efforts to recognize the increased value of non-agricultural water could have been directed to better measuring rights through more precise quantification of the actual nature of the right and the amount of return flow. Instead the path has been one of increased ambiguity as to the legal standing of a water right. Along with this ambiguity came increased claims of legal standing in water transfer disputes.

³⁹⁷ Menking et al., *Model Estimates of Runoff in the Closed, Semiarid Estancia Basin, Central New Mexico, USA*, 48 HYDROLOGICAL SCI. J. 953, 953 (2003), available at <http://www.atypon-link.com/IAHS/doi/pdf/10.1623/hysj.48.6.953.51424>.

³⁹⁸ See *supra* Part IV.B.

³⁹⁹ See generally Brewer et al., *supra* note 4 (discussing the increase in transfers over time).

Both the public interest and public trust doctrines, as presently interpreted, present a wide variety of opportunities for numerous parties to claim injury from a water transfer.

To further complicate matters, the rules governing the operation of mutual companies and irrigation districts were designed to facilitate intra-organization movement of water, but also made transfer outside of the organization difficult. The Bureau of Reclamation was created explicitly to deliver water to agriculture so the rules governing transfer of Bureau water are ambiguous and replete with veto opportunities. Thus it is accurate to say that in water markets “[a]nticommons’ is a useful metaphor for understanding how and why economic value can disappear into the ‘black hole’ of resource utilization.”⁴⁰⁰

⁴⁰⁰ Buchanan & Yoon, *supra* note 14, at 2.