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## The Anti-Speculation Doctrine and Its Implications for Collaborative Water Management

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# THE ANTI-SPECULATION DOCTRINE AND ITS IMPLICATIONS FOR COLLABORATIVE WATER MANAGEMENT

Sandra Zellmer\*

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## I. INTRODUCTION

Human consumption of water has increased nine-fold since 1900 as the result of changing technologies, changing production methods, and changing lifestyles and personal habits.<sup>1</sup> This century, worldwide population numbers are continuing to climb, resulting in increased overall water demand. Mean-

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\* Professor of Law, University of Nebraska College of Law, and Co-Director, Water Resources Research Initiative. I am grateful to Blake Carlile for his stellar research, as well as to the University of Nevada, Las Vegas, Boyd School of Law Saltman Center for inviting me to speak at its Symposium on the Colorado River. I presented an earlier version of this article as a panelist at the American Bar Association's annual water conference in February 2008.

<sup>1</sup> Peter H. Gleick, *Making Every Drop Count*, SCI. AM., Feb. 18, 2001, at 40, 42. The total amount of water withdrawn since 1900 has increased nine-fold, while per capita usage has doubled. *Id.*

while, supplies of available freshwater resources are likely to decline in the not too distant future as a result of climate change.<sup>2</sup>

To alleviate conflicts and stretch scarce resources as far as possible, federal and state governments have taken pains to emphasize collaborative decisionmaking as a means of accomplishing conservation goals. The Western Governors' Association and the U.S. Environmental Protection Agency have both adopted a set of "Enlibra" principles intended to promote flexibility and innovation while avoiding litigation, torn communities, and natural resource wars.<sup>3</sup> Enlibra embraces collaborative processes for natural resources development, the globalization of resource markets, pollution, population growth, and land use patterns,<sup>4</sup> and encourages regulators and stakeholders to choose "markets before mandates" whenever possible.<sup>5</sup>

The water world is by no means immune to the heightened fervor to promote market-based solutions to resource scarcity and misallocation.<sup>6</sup> From Texas's über-entrepreneur T. Boone Pickens to Ontario's Nova Company, schemes to profit from large-scale water transfers have proliferated in the past decade or so. Meanwhile, on the international front, the World Bank and the International Monetary Fund have encouraged nations, particularly those in the developing world, to conform to a market paradigm by privatizing and thereby maximizing use of their water supplies.<sup>7</sup> Affected communities are often less than enthusiastic. Reactions from academics and other observers range from

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<sup>2</sup> See NEIL ADGER ET AL., CONTRIBUTION OF WORKING GROUP II TO THE FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, SUMMARY FOR POLICYMAKERS (2007), available at <http://www.gtp89.dial.pipex.com/spm.pdf> (predicting that water availability may decrease by 10-30% in some mid-latitude dry regions and in the dry tropics by mid-century).

<sup>3</sup> Western Governors' Association, Enlibra, <http://www.westgov.org/wga/initiatives/enlibra/> (last visited May 28, 2008). EPA Administrator Steve Johnson and former Administrator Mike Leavitt have endorsed Enlibra Principles to "emphasize[ ] collaboration instead of polarization, national standards and neighborhood solutions, markets instead of mandates, solutions that transcend political boundaries, and other common sense ideas that will accelerate environmental progress." Environmental Stewardship, Office of the Administrator, USEPA, Enlibra Principles, <http://www.epa.gov/adminweb/leavitt/enlibra.htm> (last visited May 28, 2008) [hereinafter Enlibra Principles]. Former Interior Secretary Gale Norton championed "[t]he 4 C's—conservation through cooperation, communication and consultation"—throughout her tenure. See 4 C's WORKING GROUP, LEAVING A 4 C'S LEGACY: A FRAMEWORK FOR SHARED COMMUNITY STEWARDSHIP 86 (2003), available at [http://www.blm.gov/4Cs/4CsFinalReport\\_Sec7.pdf](http://www.blm.gov/4Cs/4CsFinalReport_Sec7.pdf). Secretary Kempthorne is continuing the theme of "Cooperative Conservation." See Cooperative Conservation, <http://cooperativeconservation.gov/> (last visited May 28, 2008). For an assessment of the Enlibra Principles, see Gary C. Bryner, *Policy Devolution and Environmental Law: Exploring the Transition to Sustainable Development*, 26 ENVIRONS ENVTL. L. & POL'Y J. 1 (2002).

<sup>4</sup> Enlibra Principles, *supra* note 3.

<sup>5</sup> Western Governors' Association, *supra* note 3.

<sup>6</sup> See Christine A. Klein, *Water Independence: The Case Against Transbasin Diversions*, 27 UCLA J. ENVTL. L. & POL'Y (forthcoming 2008) (manuscript at 6 n.16) (citing twenty-three articles published between 1988 and 2006 championing the development of water markets).

<sup>7</sup> See Mateen Thobani, *Tradable Property Rights to Water: How to Improve Water Use and Resolve Water Conflicts*, PUB. POL'Y FOR PRIVATE SECTOR, Feb. 1995, at 1, 4 (claiming that an economic model could "increase the productivity of water use, improve operations and maintenance, stimulate private investment and economic growth, reduce water conflicts,

outrage at the commoditization of this precious resource to support for letting the market and its pricing signals move water to the most efficient use.<sup>8</sup>

On the Colorado River, conflicts over water use and allocation seem to have become the norm rather than the exception. Indeed, disputes arising from conflicting and sometimes mutually exclusive needs of water users—irrigators, cities, navigational interests, miners and other industries, and recreational users—have festered on many river basins throughout the nation’s history.<sup>9</sup> On the Colorado and other western rivers, where scarcity is the driving force,<sup>10</sup> market-based strategies may be one means of alleviating the effects of scarcity and reallocating water supplies from old, inefficient uses to new, high value uses.<sup>11</sup> As Professor Douglas Grant concludes in his article in this Symposium issue, collaborative agreements that enable intrabasin, interbasin, and interstate reallocation could help the Colorado River basin states “cope with an ever-growing imbalance between water supply and demand.”<sup>12</sup>

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rationalize ongoing and future irrigation development, and free up government resources for activities that have a public good content or positive externalities”).

<sup>8</sup> Compare James Salzman, *Thirst: A Short History of Drinking Water*, 18 YALE J.L. & HUMAN. 94, 96 (2006) (describing the attempt to privatize water resources in Bolivia as triggering a “morality play of rights versus markets, human need versus corporate greed”), and Klein, *supra* note 6, at 11 (“In the case of long-distance water diversions, the overwhelming human reaction has been [to] protest . . . This strong sense of water protectionism is particularly remarkable when compared to other natural resources.”), with Lawrence S. Rothenberg, *Incentives and Adaptation*, in ADAPTIVE GOVERNANCE AND WATER CONFLICT: NEW INSTITUTIONS FOR COLLABORATIVE PLANNING 213, 213-23, 234 (John T. Scholz & Bruce Stiftel eds., 2005) (advocating water taxes and tradable permit schemes), Roger Bate, *Water—Can Property Rights and Markets Replace Conflict?*, in SUSTAINABLE DEVELOPMENT: PROMOTING PROGRESS OR PERPETUATING POVERTY? 239, 247-48 (Julian Morris ed., 2002) (applauding Chile’s system of tradable water rights), and Robert Glennon, *Water Scarcity, Marketing, and Privatization*, 83 TEX. L. REV. 1873, 1902 (2005) (noting that the creation of clearly delineated property rights that enable market transfers can result in liberating water supplies from outdated, inefficient uses).

<sup>9</sup> For a discussion of conflicts over water resources in the Midwest and the East, see, e.g., Joseph W. Dellapenna, *Special Challenges to Water Markets in Riparian States*, 21 GA. ST. U. L. REV. 305 (2004); Joseph W. Dellapenna, *The Law of Water Allocation in the Southeastern States at the Opening of the Twenty-First Century*, 25 U. ARK. LITTLE ROCK L. REV. 9 (2002); Christine A. Klein & Sandra B. Zellmer, *Mississippi River Stories: Lessons from a Century of Unnatural Disasters*, 60 SMU L. REV. 1471 (2007); Mark Squillace & Sandra Zellmer, *Managing Interjurisdictional Waters Under the Great Lakes Charter Annex*, NAT. RESOURCES & ENV’T, Fall 2003, at 8; A. Dan Tarlock, *The Missouri River: The Paradox of Conflict Without Scarcity*, 2 GREAT PLAINS NAT. RESOURCES J. 1 (1997); Sandra B. Zellmer, *A New Corps of Discovery for Missouri River Management*, 83 NEB. L. REV. 305 (2004).

<sup>10</sup> Douglas L. Grant, *Collaborative Solutions to Colorado River Water Shortages: The Basin States’ Proposal and Beyond*, 8 NEV. L.J. 964 (2008); see David H. Getches, *Water Management in the United States and the Fate of the Colorado River Delta in Mexico*, 11 U.S.-MEX. L.J. 107, 107-08 (2003) (describing over-allocated status of the Colorado River and the effects of over-use on Mexico and the Delta); Tarlock, *supra* note 9, at 9-11 (drawing parallels between river restoration efforts on the Missouri River, which has such abundant flows that it frequently floods, and the Colorado River, which suffers from too little supply and too much demand).

<sup>11</sup> See NAT’L RESEARCH COUNCIL OF THE NAT’L ACADEMIES, COLORADO RIVER BASIN WATER MANAGEMENT: EVALUATING AND ADJUSTING TO HYDROCLIMATIC VARIABILITY 57 (2007) (concluding that reallocation of even a small percentage of agricultural water could go a long way toward meeting urban needs).

<sup>12</sup> Grant, *supra* note 10, at 993.

While the merits of market-based solutions to water conflicts are subject to debate, few could argue that collaborative strategies are more desirable than adversarial, winner-take-all water wars.<sup>13</sup> In the spirit of the "Collaboration on the Colorado River" Symposium, it is safe to assume that some degree of collaboration to resolve contested resource management issues is a positive thing. We can also assume, for the purposes of this Symposium Article, that collaborative innovations that include some degree of marketing can be useful in resolving water management disputes.<sup>14</sup>

Water banking, forbearance agreements, and other collaborative reallocation options, however, may violate the anti-speculation provisions of western water law. The law of all western states prohibits speculation, either explicitly or through requirements that water be applied continuously to actual, beneficial use.<sup>15</sup> Speculation is the act of acquiring a resource for the purpose of subsequent use or resale, in hopes of profiting from future price fluctuations.<sup>16</sup> The act of speculation is not inherently evil, and all sorts of resources, ranging from

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<sup>13</sup> Professor Robert Adler, one of the Symposium participants, makes a compelling case that collaborative processes (involving marketing or other approaches) are not, in fact, optimal for meeting river restoration objectives.

After a full decade of effort, it seems clear that the . . . stakeholder process is not suited to making these hard choices [regarding Colorado River restoration]. None of the interest group representatives are likely to concede that their interests can be eliminated or even significantly curtailed to accommodate a single, common vision for canyon restoration. As some program scientists and officials observed, consensus is not "likely in the future because of mutually exclusive objectives."

Robert W. Adler, *Restoring the Environment and Restoring Democracy: Lessons from the Colorado River*, 25 VA. ENVTL. L.J. 55, 104 (2007) (footnote omitted). Adler notes that collaborative processes do not serve scientific objectives well either because processes that strive for stakeholder consensus are too "slow to respond to the constantly changing directions" and to take advantage of sometimes time-limited experimental opportunities. *Id.* at 103. For a thoughtful debate on the advantages and disadvantages of collaborative decision-making, see Eric W. Orts & Cary Coglianese, *Collaborative Environmental Law: Pro and Con*, 156 U. PA. L. REV. PENNUMBRA 289 (2007).

<sup>14</sup> See *supra* note 8. For a compelling case against relying on market-based solutions to address water scarcity, see Klein, *supra* note 6, at 1, 15-19 (arguing that water markets foster the nineteenth-century supply-side mentality that brings water to people at all costs, thereby subsidizing an unsustainable addiction to growth). For additional arguments against water markets, see MAUDE BARLOW & TONY CLARKE, *BLUE GOLD: THE FIGHT TO STOP THE CORPORATE THEFT OF THE WORLD'S WATER* 207-08 (2002); PETER H. GLEICK ET AL., *THE NEW ECONOMY OF WATER: THE RISKS AND BENEFITS OF GLOBALIZATION AND PRIVATIZATION OF FRESH WATER* 4-10 (2002); VANDANA SHIVA, *WATER WARS: PRIVATIZATION, POLLUTION AND PROFIT* 20-30, 137-38 (2002). By contrast, Dan Tarlock offers a nuanced assessment of water marketing as a conflict resolution tool, using the Truckee-Carson experience to suggest that solutions can arise from litigation, which performs a power reallocation function, and then evolve to collaborative water management, including voluntary transfers, to redress dislocations caused by change. A. Dan Tarlock, *The Creation of New Risk Sharing Water Entitlement Regimes: The Case of the Truckee-Carson Settlement*, 25 *ECOLOGY L.Q.* 674, 691 (1999). For an assessment of how water supplies can be subject to price controls and also be protected as a human right, see JEFFREY ROTHFEDER, *EVERY DROP FOR SALE: OUR DESPERATE BATTLE OVER WATER IN A WORLD ABOUT TO RUN OUT* 95-96, 116-17, 119-37 (2001).

<sup>15</sup> Janet C. Neuman, *Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use*, 28 ENVTL. L. 919, 962-63 (1998).

<sup>16</sup> BLACK'S LAW DICTIONARY 1435 (8th ed. 2004).

real estate to precious metals, are held for speculative purposes. But locking up scarce and essential water resources from use by individuals and communities who have an immediate need to slake their thirst or grow crops on which to sustain themselves is a mortal sin under western water law. The universal prohibition against speculation in water resources stems from the near universal distrust of concentrated power over resources in the developing West, which in turn was a foundational force in shaping the doctrine of beneficial use.<sup>17</sup>

The focus of this Article is whether the anti-speculation doctrine in western water law poses a continuing, insuperable impediment to collaborative, market-based solutions and, if so, whether the doctrine ought to be dismantled. The Article concludes that, although the doctrine does pose an obstacle to some kinds of collaborative agreements that attempt to harness market forces for future uses through forward-looking transactions, it continues to serve an important public purpose. The anti-speculation doctrine curbs the worst potential abuses of market forces by forcing transacting parties to articulate how and when the water will be applied to actual, beneficial uses, and by providing an administrative or judicial “check” on speculative transactions that adversely affect third parties and ecological needs by depriving them of water. Moreover, exceptions for municipal planning, Indian reserved rights, and instream flow protection operate as an effective safety valve to liberate collaborative initiatives that serve important, contemporary public purposes.

## II. BEWARE OF WATER BARONS

Early twentieth century political commentator Matthew Josephson revived the term “Robber Baron” from its archaic German roots and applied it to Gilded Age billionaires who made their money in steel, oil, or railroads.<sup>18</sup> Josephson hoped to convey the image of armored, greedy thugs who ransacked each other’s estates and looted merchant caravans that passed by their castles.<sup>19</sup> According to Josephson, the Robber Barons’ wealth was the product of illicit gains due to anti-competitive practices and heavy-handed burdens levied upon the workers and craftsmen of America. Likewise, President Theodore Roosevelt advocated an aggressive role for the federal government in trust-busting—breaking up private concentrations of economic power in these “malefactors of great wealth.”<sup>20</sup>

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<sup>17</sup> Neuman, *supra* note 15, at 963.

<sup>18</sup> J. Bradford DeLong, Robber Barons (Jan. 1, 1998) (unpublished manuscript), available at [http://econ161.berkeley.edu/Econ\\_Articles/carnegie/delong\\_moscow\\_paper2.html](http://econ161.berkeley.edu/Econ_Articles/carnegie/delong_moscow_paper2.html) (citing MATTHEW JOSEPHSON, THE ROBBER BARONS: THE GREAT AMERICAN CAPITALISTS 1861-1901 (1934)).

<sup>19</sup> *Id.*

<sup>20</sup> *Id.* For details on Roosevelt’s trust-busting efforts, see *infra* Part V. Not all commentators condemn the Robber Barons, noting that Andrew Carnegie and others made America into a super-economy, if not a super-power, and contributed substantial sums to charitable undertakings. CHARLES R. MORRIS, THE TYCOONS: HOW ANDREW CARNEGIE, JOHN D. ROCKEFELLER, JAY GOULD, AND J.P. MORGAN INVENTED THE AMERICAN SUPREAECONOMY (2005); see THOMAS J. DiLORENZO, HOW CAPITALISM SAVED AMERICA: THE UNTOLD HISTORY OF OUR COUNTRY, FROM THE PILGRIMS TO THE PRESENT 110-33 (2005) (arguing that “robber barons” improved the lives of Americans by providing new and improved products at lower prices).

Today's Robber Barons can be found not only in the offices of huge oil and gas companies, like ExxonMobil and Enron, but also in the boardrooms of diversified corporations like Nestlé Waters, tycoons like T. Boone Pickens, and even the basements of individuals in the water-rich Canadian provinces.<sup>21</sup> These "Water Barons" have crafted schemes to privatize and sell water from Mono Lake, the Ogallala (High Plains) Aquifer, the Great Lakes, and many other waterbodies.

Yet not all privatization schemes are alike. There are all sorts of variations and degrees of privatization, and this is especially true of natural resources such as air, minerals, fisheries, and of course water. Many blend government regulation and oversight through tradable permits or other devices with an element of private management. Some of these strategies may be suitable for management of water resources, and some may already be occurring in some way, shape, or form. A relatively uncontroversial, rather mundane form of privatization enables a private company to design, construct, or operate a municipal water system or wastewater treatment system, or to administer billing and revenue collection services.<sup>22</sup> The type of privatization that raises concerns in the water world is that which involves placing the assets—the resource itself—in the hands of profit-driven firms, thereby interfering with the ability of residents and local governments to manage their own supplies, as decision-making becomes less transparent and opportunities for meaningful participation become less available.<sup>23</sup>

Outright privatization of water can concentrate power in monopolistic private firms,<sup>24</sup> and nothing strikes fear into the hearts of westerners quite like the specter of a water monopoly.<sup>25</sup> The scenario depicted in the movie *Chinatown* is the quintessential example of an early twentieth century water grab by the rapidly growing city of Los Angeles from rural northern California farmers,<sup>26</sup> leaving behind "a legacy of deception, violence, and environmental devastation."<sup>27</sup>

Monopolistic "water grabs" are no relic of the nation's rough and tumble past, however. Proposals for large-scale, arguably speculative water transfers by Water Barons seem to be on the rise these days.

Perhaps the most brazen of the modern-day Water Barons is T. Boone Pickens. This free-wheeling entrepreneur, widely known in the oil fields, has

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<sup>21</sup> See *infra* notes 28-32, 37-41, 46-49 and accompanying text.

<sup>22</sup> Glennon, *supra* note 8, at 1890.

<sup>23</sup> *Id.* at 1892-93.

<sup>24</sup> *Id.* at 1893.

<sup>25</sup> See Christine A. Klein, *The Law of the Lakes: From Protectionism to Sustainability*, 2006 MICH. ST. L. REV. 1259, 1259 ("There is something in the human spirit that responds with great passion and outrage when *outsiders*—however defined—look beyond their own backyards for a useable source of water.").

<sup>26</sup> CHINATOWN (Paramount Pictures 1974). For quotes and a description of the movie, see Chinatown Review by Tim Dirks, *Chinatown* (1974), <http://www.filmsite.org/chin.html> (last visited May 28, 2008).

<sup>27</sup> Klein, *supra* note 6, at 17; see NAT'L RESEARCH COUNCIL, WATER TRANSFERS IN THE WEST: EFFICIENCY, EQUITY, AND THE ENVIRONMENT 38-39 (1992) (describing toxic dust storms that result from Los Angeles' transbasin diversions), cited in Klein, *supra* note 6, at 23.

of late turned his attention to water, much to the dismay of residents surrounding his west Texas ranch. In the late 1990s, Pickens determined that growing municipalities could benefit by gaining access to the great quantities of Ogallala Aquifer groundwater underlying his ranch, so he devised a plan to extract and sell enough water to meet the demands of some 400,000 households a year.<sup>28</sup> According to Food and Water Watch, Pickens has been acquiring more land overlying the Aquifer so that he can pump and sell as much as 200,000 acre-feet per year of water to one of the state's large metropolitan centers.<sup>29</sup> Pickens' own website proclaims that his company, Mesa Water, is the largest private holder of groundwater rights in the United States.<sup>30</sup> In 2004, Pickens announced that he anticipated receiving \$500 an acre-foot from either Dallas-Fort Worth or San Antonio, a price that includes the cost of delivering the water through a nine-foot-diameter pipeline.<sup>31</sup> To date, however, Pickens is still waiting on a buyer.<sup>32</sup>

On the Colorado River, there have been a variety of proposals to transfer water from the Upper Division states, which historically have not used their full entitlement under the Colorado River Compact, to California and Nevada, whose demand far exceeds their Compact allocations.<sup>33</sup> Chevron Oil promoted one such scheme to lease water to Nevada from a proposed reservoir near Grand Junction, Colorado, until such time as Chevron was prepared to use the water for oil shale development in Colorado.<sup>34</sup> The Colorado River Basin states resisted Chevron's plan for fear of encouraging commoditization of water and opening up unfettered water markets between the Upper and Lower Basins.<sup>35</sup> The Compact, however, prohibits Upper Division states from with-

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<sup>28</sup> See Robert Elder Jr., *Pickens Hoping for River of Green: Brazos Could Be Used to Carry Panhandle Water to Thirsty Cities*, AUSTIN AM.-STATESMAN, Oct. 15, 2003, at A1.

<sup>29</sup> *T. Boone Pickens in Texas*, FOOD & WATER WATCH, <http://www.foodandwaterwatch.org/water/corporations/t-boone-pickens-in-texas> (last visited May 28, 2008). For details on the use of the Aquifer, see Sandra Zellmer, *Boom and Bust on the Great Plains: Déjà vu All Over Again*, 41 CREIGHTON L. REV. (forthcoming 2008). Five hundred dollars per acre-foot appears to be a mid-range price for water sales in Texas. See Richard E. Howitt, *Water Trades in the West: Risk, Speculation, and Property Rights*, ABA 26TH ANNUAL WATER LAW CONF., Feb. 21-22, 2008, tbl.2 (depicting volume-weighted lease prices at \$51/acre-foot and sale prices at \$956/acre-foot).

<sup>30</sup> T. Boone Pickens, *Ahead of His Time*, [http://www.boonepickens.com/man\\_ahead/default.asp](http://www.boonepickens.com/man_ahead/default.asp) (last visited May 28, 2008).

<sup>31</sup> *T. Boone Pickens Believes Water Deal with Dallas-Fort Worth Possible Soon*, DALLAS BUS. J., June 23, 2004, <http://www.bizjournals.com/dallas/stories/2004/06/21/daily22.html>.

<sup>32</sup> T. Boone Pickens, *Ahead of His Time*, *supra* note 30.

<sup>33</sup> James S. Lochhead, *An Upper Basin Perspective on California's Claims to Water from the Colorado River Part I: The Law of the River*, 4 U. DENV. WATER L. REV. 290, 321-22 (2001).

<sup>34</sup> *Id.* at 323.

<sup>35</sup> *Id.* According to Lochhead, allowing interbasin transfers would defeat the Compact's objective of providing security through a perpetual allocation, *id.* at 330, while allowing "the economic and political muscle of the Lower Division States to override the future of the Upper Division States . . . [and] continue economic development at the expense of the Upper Basin." *Id.* at 324; see *infra* notes 181-85 and accompanying text (discussing transfer options under the new interim guidelines for Colorado River management).



holding Colorado River water that they are unable to put to beneficial use, thereby allowing any unused portion to flow downstream (without payment).<sup>36</sup>

Speculative schemes have cropped up in the eastern United States as well. In 1998, Nova Group, a Canadian company allegedly founded in an individual's basement in Sault Ste. Marie, Ontario, obtained a permit to export 600 million liters of Lake Superior water annually via tanker vessel to some unidentified recipient in Asia.<sup>37</sup> Nova's proposal coincided with declining water levels in the Great Lakes, and the resulting public outcry persuaded Ontario to revoke the permit and also prompted the Canadian federal government to issue an outright ban on the bulk export of water.<sup>38</sup>

Like the star from which its name was derived, the Nova Group soon "fade[d] away to its former obscurity."<sup>39</sup> However, Nova's proposal had transcendent effects on water transfers on both sides of the border, in that it motivated the eight states and two Canadian provinces bordering the Great Lakes to adopt a measure known as "Annex 2001," designed primarily to prevent large-scale diversions from the basin.<sup>40</sup> Meanwhile, many Canadian provinces, including British Columbia and Ontario, enacted their own bans of bulk water exports.<sup>41</sup>

In response to the Canadian bans, in 1999, California company Sun Belt Water filed a notice of intent to submit a claim against the Canadian federal government and the provincial government of British Columbia under NAFTA's Chapter 11 investor provisions, claiming over \$200 million in lost profits for not being allowed to purchase water for export.<sup>42</sup> Although the Sun Belt arbitration has not moved beyond the notice of intent,<sup>43</sup> Sun Belt's scheme

<sup>36</sup> Grant, *supra* note 10, at 988; Lochhead, *supra* note 33, at 324-26; see Colorado River Compact of 1922 art. III(e), 70 CONG. REC. 324 (1928).

<sup>37</sup> Nova was subsequently revealed to be a shell company that had been put together by a professor at an Ontario community college and a handful of his friends. Milos Barutciski, *Trade Regulation of Fresh Water Exports: The Phantom Menace Revisited*, 28 CAN.-U.S. L.J. 145, 148 (2002).

<sup>38</sup> Squillace & Zellmer, *supra* note 9; see Eric Reguly, *It's Time Feds Came Clean on Water*, GLOBE & MAIL, Nov. 25, 1999, at B2 (describing the Canadian government's policy on water exports as the hottest trade and environmental issue facing Canada in the next decade). "Bulk export" is defined as "the siphoning of freshwater from lakes or other sources for shipment through pipelines, diversions, or by sea on supertankers." Christopher Scott Maravilla, *The Canadian Bulk Water Moratorium and Its Implications for NAFTA*, 10 CURRENTS: INT'L TRADE L.J. 29, 29 (2001).

<sup>39</sup> nova, Definition from the Merriam-Webster Online Dictionary, <http://www.m-w.com/dictionary/nova> (last visited May 28, 2008).

<sup>40</sup> Great Lakes Charter Annex: A Supplementary Agreement to the Great Lakes Charter, June 18, 2001, available at <http://www.cglg.org/projects/water/docs/GreatLakesCharterAnnex.pdf>.

<sup>41</sup> Maravilla, *supra* note 38, at 31.

<sup>42</sup> Gregory F. Szydlowski, Note, *The Commoditization of Water: A Look at Canadian Bulk Water Exports, the Texas Water Dispute, and the Ongoing Battle Under NAFTA for Control of Water Resources*, 18 COLO. J. INT'L ENVTL. L. & POL'Y 665, 676-77 (2007).

<sup>43</sup> The Canadian government believes that no valid Chapter 11 claim has been filed. Sun Belt Water, Inc. v. Government of Canada, Foreign Affairs and International Trade Canada, Dispute Settlement, <http://www.international.gc.ca/trade-agreements-accords-commerciaux/disp-diff/sunbelt.aspx?lang=EN> (last visited May 28, 2008). For Sun Belt's perspective, along with pleadings and other documents, see Sun Belt Water—NAFTA—Bulk Water Transport, <http://www.sunbeltwater.com/index.shtml> (last visited May 28, 2008).

was the first serious effort to turn Canada's water into an international commodity.<sup>44</sup> Unlike Nova, Sun Belt owner Jack Lindsey has refused to fade quietly into the sunset. Lindsey, an individual with "no shortage of chutzpah," is still trying to sell British Columbia water from defunct pulp mills and other sources.<sup>45</sup>

Another type of water marketing scheme, albeit one that is not terribly speculative given immediate and rapidly growing demand, comes from the bottled water sector. In a well-publicized dispute, Michigan residents, outraged by a proposal of Nestlé Waters to construct groundwater withdrawal and bottling facilities for its new product line, Ice Mountain, took to the streets in protest and blocked truckloads of bottled water from leaving the plant.<sup>46</sup> Michigan Citizens for Water Conservation, a group of riparians and other interested residents, took to the courts as well, alleging that groundwater pumping would adversely affect a nearby stream in violation of the public trust doctrine and other Michigan laws.<sup>47</sup> The public trust claim was dismissed on the ground that the stream was not a navigable water subject to the public trust doctrine. Nestlé was nonetheless enjoined because the court found the proposed withdrawal unreasonable under the balancing test applicable to disputes between riparian and groundwater users, to the extent that the withdrawal would cause the loss of recreational uses of the stream and lasting changes to its natural characteristics.<sup>48</sup> The opinion was reversed in part on standing grounds, and the company subsequently agreed to limit pumping to 218 gallons a minute, approximately half of the amount initially approved by state regulators.<sup>49</sup>

The controversy continues. In December 2007, Ohio Congressman Dennis Kucinich, a perennial presidential candidate, convened a House oversight subcommittee hearing to consider the environmental impact of bottled water operations.<sup>50</sup> It appears likely that the congressional query is aimed at greater federal oversight of the industry.<sup>51</sup>

Although neither Sun Belt nor Nestlé has made significant inroads in creating markets for bulk water transfers, it takes little imagination to envision a Sun Belt-like company orchestrating a large-scale water transfer from the water-abundant Great Lakes or the Ogallala Aquifer to the thirsty and growing

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<sup>44</sup> Szydowski, *supra* note 42, at 677.

<sup>45</sup> Eric Reguly, *Water Fight with U.S. Has Just Begun*, GLOBE & MAIL, Oct. 23, 1999, at B2.

<sup>46</sup> Klein, *supra* note 25, at 1260.

<sup>47</sup> Mich. Citizens for Water Conservation v. Nestle Waters N. Am. Inc., 709 N.W.2d 174 (Mich. Ct. App. 2005), *rev'd in part*, 737 N.W.2d 447 (Mich. 2007).

<sup>48</sup> *Id.* at 208-09. The court remanded for a determination of the level of water extraction from Sanctuary Springs that would provide the defendant with a fair participation in the common water supply while maintaining an adequate supply for plaintiffs' water uses. *Id.* at 209. The case was subsequently reversed in part for lack of standing with respect to a lake and wetlands where plaintiffs owned no land and provided no evidence of their use of the areas in question. *Mich. Citizens*, 737 N.W.2d 447.

<sup>49</sup> See Todd Spangler, *Nestle: We're No Danger to Michigan*, DETROIT FREE PRESS, Dec. 13, 2007, at 4; *Water Dispute*, GRAND RAPIDS PRESS, July 26, 2007, at A2.

<sup>50</sup> Spangler, *supra* note 49. Nestlé offered testimony about the socio-economic benefits of its Ice Mountain enterprise. *Id.*

<sup>51</sup> *Id.*

West.<sup>52</sup> Next time, it just might be some well-heeled corporation with plenty of capital and influence to throw around. Remember Enron? According to *New York Times* reporter Tim Egan, in 2001, Enron's water division, Azurix, revealed its plan to exploit what it called a "global industry worth about \$400 billion."<sup>53</sup>

Enron, the nation's No. 1 marketer of natural gas and electricity, saw water as a commodity that would eventually be deregulated, just as electric power was in California. If that happened, Enron would be free to buy and sell water to the highest bidders—no different from oil or megawatts. . . . But Enron discovered that water was not as easily corralled as oil or gas. Public agencies and consumer groups, many critical of Enron's role in the debacle of energy deregulation in California, fought the company and others pushing for privatization.<sup>54</sup>

After two years of "prospecting for liquid gold," Azurix collapsed, with losses of over \$300 million.<sup>55</sup> Enron's water division was not alone in its demise. Enron itself has since declared bankruptcy and been dissolved.<sup>56</sup> But the prospect of water riches is so enticing that Nestlé, Mesa Water, Sun Belt, and other Water Barons are surely waiting in the wings. After all, "water flows to money and power."<sup>57</sup>

There is at least some political support for large-scale, transbasin water speculation, at least from the arid Southwest. In October 2007, during the course of his bid for the Democratic nomination for president, New Mexico's Governor Bill Richardson caused an uproar when he suggested that water from the Great Lakes could be piped to the Southwest. Richardson rationalized that the Great Lakes states are "awash in water."<sup>58</sup> Michigan's Democratic Governor Jennifer Granholm responded swiftly and unequivocally: "Hell no."<sup>59</sup> If adopted by all of the member states and approved by Congress as an interstate compact, Annex 2001 would pose an obstacle to water exports from the Great Lakes.<sup>60</sup> If not, a unilateral ban on water exports would likely fail a dormant commerce clause challenge.<sup>61</sup>

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<sup>52</sup> See PETER ANNIN, *THE GREAT LAKES WATER WARS* (2006) (describing growing pressures to transport Great Lakes water to Asia and other far-flung places).

<sup>53</sup> Timothy Egan, *Near Vast Bodies of Water, Land Lies Parched*, N.Y. TIMES, Aug. 12, 2001, at 1.

<sup>54</sup> *Id.* Apparently, Enron attempted to take advantage of the multi-billion dollar Everglades restoration effort to purchase and sell the water resources captured by the project, but the proposal gained no traction. Klein, *supra* note 6, at 21 (citing Michael Grunwald, *How Enron Sought to Tap the Everglades: Water Unit Lobbied Jeb Bush on Privatization Bid, but Access Led Nowhere*, WASH. POST, Feb. 8, 2002, at A1).

<sup>55</sup> Egan, *supra* note 53.

<sup>56</sup> *In re Enron Corp.*, No. 01-16034 (AJG), 2001 Bankr. LEXIS 1564 (Bankr. S.D.N.Y. Dec. 4, 2001); Matt Moore, *Enron Seeks Chapter 11 Protection: Energy Company Files Suit Against Dynegy for Dropping Buyout*, BOSTON GLOBE, Dec. 3, 2001, at A2.

<sup>57</sup> LLOYD BURTON, *AMERICAN INDIAN WATER RIGHTS AND THE LIMITS OF LAW*, at ix (1991) (quoting Peterson Zah, Navajo Tribal Chairman).

<sup>58</sup> Tim Jones, *Great Lakes Key Front in Water Wars*, CHI. TRIB., Oct. 28, 2007, at 1.

<sup>59</sup> CNN Newsroom Transcripts, Oct. 13, 2007, <http://transcripts.cnn.com/TRANSCRIPTS/071013/cnr.05.html>. Ironically, at one point, speculators proposed to pipe Great Lakes water to the Western High Plains to replenish depleted portions of the Ogallala Aquifer. See Editorial, *Saving the Great Lakes*, CHI. TRIB., Feb. 16, 1985, at 8.

<sup>60</sup> See Great Lakes Charter Annex, *supra* note 40.

<sup>61</sup> *Sporhase v. Nebraska*, 458 U.S. 941 (1982).

Governor Granholm need not lose too much sleep, however, because large-scale, transbasin diversions are, as yet, the exception rather than the rule.<sup>62</sup> In part, this is a simple matter of economics—the cost of transporting water, a heavy and unwieldy substance, long distances has, in the past, outweighed the financial benefits. The lack of significant numbers of large-scale transfers also reflects concerns about externalities and adverse third-party effects.<sup>63</sup> Even if the pressures of a rapidly-diminishing supply and an ever-increasing demand change this dynamic, as may be likely in the not-too-distant future, the basic elements of prior appropriation law pose a significant impediment to bulk water transfers. The anti-speculation doctrine, in particular, stands in the way of some of the most ambitious marketing proposals.

### III. AVOIDING SPECULATION THROUGH THE TRINITY OF BENEFICIAL USE

Beneficial use is the lynchpin of the prior appropriation system, as it is “the basis, measure, and limit” of a water right.<sup>64</sup> All western water codes encapsulate the “doctrinal trinity of beneficial use, waste, and forfeiture.”<sup>65</sup> Many western state constitutions explicitly include the term “beneficial use.”<sup>66</sup> The definition of beneficial use is similar among prior appropriation jurisdictions, and it typically includes just about any domestic, agricultural, or industrial activity, including sewage treatment, crop production, stock watering, hydroelectric power generation, mining, and recreational pursuits. It does not, however, extend to speculative water uses.

#### A. *The Elements and Underpinnings of the Beneficial Use Doctrine*

The holy trinity of western water law—beneficial use, waste, and forfeiture—has three fundamental purposes. The first, avoiding speculation, is designed to advance the other two: maximizing the use of a scarce resource and providing flexibility to water users.<sup>67</sup>

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<sup>62</sup> Jedidiah Brewer et al., *Transferring Water in the American West: 1987-2005*, 40 U. MICH. J.L. REFORM 1021, 1043 (2007); Howitt, *supra* note 29, at 6. According to Professor Joseph Dellapenna, “true markets for water [have] been rare,” although “certain administrative regimes . . . have been misdescribed as ‘markets.’” Joseph W. Dellapenna, *The Importance of Getting Names Right: The Myth of Markets for Water*, 25 WM. & MARY ENVTL. L. & POL’Y REV. 317, 327 (2000).

<sup>63</sup> Klein, *supra* note 6, at 22-24; see Stephen E. Draper, *The Unintended Consequences of Tradable Property Rights to Water*, NAT. RESOURCES & ENV’T, Summer 2005, at 49, 55 (concluding that states should not adopt a model of tradable property rights in water because of high transaction costs and “significant irreversible economic, environmental, social equity, and legal consequences”); NAT’L RESEARCH COUNCIL, *supra* note 27, at 38-39 (describing potential harm to streamflows, wetlands, habitat, air quality, and aesthetic qualities).

<sup>64</sup> See Neuman, *supra* note 15, at 923-24 (“Statutes of nine states intone in nearly identical language that ‘beneficial use, without waste, is the basis, measure, and limit of a water right,’ and the remainder refer in some way to beneficial use.”) (footnote omitted)).

<sup>65</sup> *Id.* at 922.

<sup>66</sup> *Id.* at 923.

<sup>67</sup> *Id.* at 962-63.

An applicant for an appropriative right must demonstrate both the intent to appropriate water for beneficial use and an overt act manifesting this intent.<sup>68</sup> If water is put to beneficial use, the user develops a prior appropriation right, which is typically reflected in a state-issued permit or judicial decree. As between users, a person holding a senior appropriative water right has an exclusive right to use a specified amount of available water for a specified purpose at a specified time and place.<sup>69</sup> The appropriator may not, however, merely possess the water and may not waste it. Water rights holders who fail to show continuous beneficial use may lose the water right through abandonment or forfeiture.<sup>70</sup> These requirements are intended to ensure that the public's water resource is available to those who actually need water.<sup>71</sup>

All western states prohibit speculation in water rights.<sup>72</sup> Colorado law, for example, specifies that no appropriator "may obtain a right to use a portion of the public's water resource unless it establishes intent to make a non-speculative appropriation."<sup>73</sup> Other states implicitly prohibit speculation through their definition of beneficial use.<sup>74</sup>

Speculation is the act of acquiring a resource for the purpose of subsequent use or resale. *Black's Law Dictionary* defines speculation as "[t]he buying or selling of something with the expectation of profiting from price fluctuations."<sup>75</sup> Speculators in water do not acquire water rights for the pur-

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<sup>68</sup> *Pagosa Area Water & Sanitation Dist. v. Trout Unlimited*, 170 P.3d 307, 310 (Colo. 2007) (requiring that the appropriator establish that it "can and will put the conditionally appropriated water to beneficial use within a reasonable period of time").

<sup>69</sup> See Eric T. Freyfogle, *Context and Accommodation in Modern Property Law*, 41 STAN. L. REV. 1529, 1541 (1989) (noting that "a water right is . . . merely the right to continue a particular, existing pattern of water use . . . with a specific economic and social result").

<sup>70</sup> See, e.g., NEB. REV. STAT. §§ 46-290, 46-294 (2007); NEV. REV. STAT. § 533.060 (2007).

<sup>71</sup> David B. Schorr, *Appropriation as Agrarianism: Distributive Justice in the Creation of Property Rights*, 32 ECOLOGY L.Q. 3, 9, 22 (2005).

<sup>72</sup> See Neuman, *supra* note 15 and accompanying text. Federal reserved rights for Indian reservations and federal lands, however, are not subject to state law prohibitions on speculation or provisions for forfeiture. See *Winters v. United States*, 207 U.S. 564, 574-78 (1908) (stating that reserved rights vest when created, not when put to use); *Colville Confederated Tribes v. Walton*, 647 F.2d 42, 51 (9th Cir. 1981) (holding that reserved water rights are not lost through non-use), *cert. denied*, 454 U.S. 1092 (1981); see also *infra* Part IV.C (examining reserved rights as an exception to the anti-speculation rule).

<sup>73</sup> *Pagosa Area Water & Sanitation Dist.*, 170 P.3d at 314; see COLO. REV. STAT. § 37-92-305(9)(b) (2007).

<sup>74</sup> See *Arizona v. California*, 547 U.S. 150, 154 (2006) (defining a perfected water right as having been actually diverted and applied to an approved use); *Maricopa County Mun. Water Conservation Dist. No. 1 v. Sw. Cotton Co.*, 4 P.2d 369, 382-83 (Ariz. 1931) (stating that an appropriator must perfect a water right by applying the water to a beneficial use); *Avondale Irrigation Dist. v. N. Idaho Props., Inc.*, 577 P.2d 9, 19 (Idaho 1978) (describing state law requirements for the development of water rights as including beneficial use as well as rules against speculative rights, but noting that these rules are not applicable to federal reserved rights); *Little v. Greene & Weed Inv.*, 839 P.2d 791, 794 (Utah 1992) (requiring appropriation by diversion and application to a beneficial use to perfect a water right).

<sup>75</sup> BLACK'S LAW DICTIONARY, *supra* note 16, at 1435; see *Speculate* – Definition from the Merriam-Webster Online Dictionary, <http://www.merriam-webster.com/dictionary/Speculate> (last visited May 28, 2008) ("Speculate" means "to assume a business risk in hope of gain; especially: to buy or sell in expectation of profiting from market fluctuations.").

pose of immediately utilizing the water by applying it to beneficial use, but rather with the hope that water values will increase over time, allowing the water rights holder to sell those rights in the future for a substantial gain while locking up the resource from contemporaneous uses in the meantime.<sup>76</sup>

Speculation is not necessarily a bad thing.<sup>77</sup> “Speculative fever” was an important driving force in the development of the West—so long as there was “equal opportunity speculation open to ordinary folks as well as wealthy capitalists,” acquiring something for the purpose of selling it at a premium was encouraged.<sup>78</sup>

Today, with some constraints, the law allows speculators to hold real estate, stocks and bonds, grain, art, precious metals, and all sorts of other property for future uses.<sup>79</sup> But speculative buying or selling frenzies, whether in real estate or rubles, can have catastrophic, destabilizing effects on the nation’s economy. When the bubble bursts, as it did in the stock market crash of the Great Depression and the savings and loan scandals of the 1990s, investors and consumers alike are drug down with it.<sup>80</sup> The current sub-prime mortgage

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<sup>76</sup> See, e.g., Vidler Water Company, [http://www.vidlerwater.com/html/the\\_company.html](http://www.vidlerwater.com/html/the_company.html) (last visited May 28, 2008). Vidler Water Company bills itself as a water acquisition and trading company that invests in water for this stated reason: “The Company believes that continued growth in water demand will generate rate adjustments to its water contract prices that meet or exceed the rate of inflation, while the value of its underlying resources may continue to appreciate.” *Id.* PICO Holdings, Inc., a holding company traded on NASDAQ, owns Vidler Water. Pico Holdings Inc. – Stock Information, <http://investors.picoholdings.com/stockquote.cfm> (last visited May 28, 2008).

<sup>77</sup> See Neuman, *supra* note 15, at 972-73 (“It is perfectly acceptable for land developers to buy land and simply hold it empty until the value appreciates and then sell or develop the land at a profit. It is equally acceptable for speculators to attempt to acquire and control certain scarce resources, such as precious metals or valuable minerals, for later sale at a profit.”).

<sup>78</sup> *Id.* at 964; see also PATRICIA NELSON LIMERICK, *THE LEGACY OF CONQUEST: THE UNBROKEN PAST OF THE AMERICAN WEST* 67 (1987).

<sup>79</sup> See A. Dan Tarlock, *Can Cowboys Become Indians? Protecting Western Communities as Endangered Cultural Remnants*, 31 ARIZ. ST. L.J. 539, 546 n.28 (1999) (explaining that “the United States was settled as a series of rapidly moving frontiers with very low population densities . . . . Cities were laid out to encourage real estate speculation . . . .”) (citing JOHN W. REPS, *TOWN PLANNING IN FRONTIER AMERICA* 422-29 (1965)). The Internal Revenue Code provides myriad incentives for speculators. See, e.g., 26 U.S.C. §§ 165, 1031, 1211-1212 (2000) (providing limited tax relief for real estate developers and other speculators by authorizing them to use losses against income or to carry losses over to other tax years, and by giving favorable treatment to like-kind exchanges). Congress has taken steps in recent years, however, to protect consumers and the economy from the destabilizing effects of over-leveraged real estate companies and speculative bank investments. See Catherine L. Pollina, Note, *Bursting the Speculation Buying Bubble: Modifications to the Capital Gains Provision and the 1031 Exchange Rule*, 3 HASTINGS BUS. L.J. 271, 278-80 (2007) (observing a dramatic upward trend in speculative investments in commercial real estate and noting regulatory efforts to mitigate potential adverse effects).

<sup>80</sup> Edward Iwata, *Housing Market Troubles Still Look “Pretty Gruesome,”* USA TODAY, Aug. 9, 2007, at B3; Jeff Manning, *Risky Lending Mortgaged Life of an Industry*, OREGONIAN, Aug. 26, 2007, at A01; Gretchen Morgenson, *In the Subprime Crisis, the Lending System was Less Than Prime*, INT’L HERALD TRIB., Nov. 26, 2007, at 13. The sub-prime crisis arose when lenders gambled by making adjustable rate mortgages to borrowers with poor credit histories. The explosive growth in this aggressive type of lending in the past decade has had a devastating effect on some communities. Jim Rokakis, *The Shadow of*

debacle is a case in point. In 2007, there were 79% more home foreclosures than 2006, due to speculative lending practices by banks and mortgage companies that took the chance that high-risk borrowers would be able to continue making their monthly payments. In some cases, lenders enticed purchasers to take out more credit than the home was worth by offering low initial interest rates that would adjust with the prime rate over the life of the loan.<sup>81</sup> As a result, the nation swung from a “buying frenzy to a foreclosure frenzy.”<sup>82</sup> Over two million households experienced foreclosure in 2007 and similar numbers are expected in 2008.<sup>83</sup> Not only have mortgagors lost their homes, interest rates have surged, monthly payments have skyrocketed, the economy is faltering, unemployment is on the rise, and both U.S. and global investors have seen the value of their portfolios plummet.<sup>84</sup> Meanwhile, according to the Commerce Department, new home sales fell 25% in 2007, a record decline.<sup>85</sup>

Despite the risks, it remains common for investment companies to hold immense inventories of real estate, simply for investment value.<sup>86</sup> By contrast, “it is hard to picture similar treatment for water,”<sup>87</sup> both because of its unique physical characteristics and because of its unique treatment in western history

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*Debt*, WASH. POST, Sept. 30, 2007, at B1. Investing in sub-prime mortgages resulted in heavy losses when interest rates rose, increasing the debt service and eventually outpacing the property's income and forcing wide-spread defaults on the loans. Pollina, *supra* note 79, at 278; see Christopher Thornberg, *Fannie and Freddie, Old and New*, L.A. TIMES, Aug. 24, 2007, at A27 (stating that sub-prime loans “allowed Americans to speculate on real estate as never before”).

<sup>81</sup> Mike Barris, *Foreclosure Filings Surged 75% in '07 as Subprime Mess Grew*, WALL ST. J., Jan. 29, 2008, at D3; Alex Veiga, *Foreclosures in 2007 Jump to Record*, STAR-LEDGER (Newark, N.J.), Jan. 30, 2008, at 76.

<sup>82</sup> Veiga, *supra* note 81 (quoting Rick Sharga, vice president of marketing for RealtyTrac).

<sup>83</sup> *Id.*

<sup>84</sup> *Id.*

<sup>85</sup> Shobhana Chandra, *U.S. Housing Starts Drop to Lowest Level Since 1991*, BLOOMBERG.COM, Jan. 17, 2008, [www.bloomberg.com/apps/news?pid=20670001&refer=home&sid=AOla8HtUMRaA](http://www.bloomberg.com/apps/news?pid=20670001&refer=home&sid=AOla8HtUMRaA). Overall economic growth generally declines in tandem with U.S. construction rates. See Shobhana Chandra, *U.S. Housing Starts Slide to Lowest Level Since 1993*, BLOOMBERG.COM, Oct. 17, 2007, [www.bloomberg.com/apps/news?pid=20670001&refer=home&sid=A1t40XgWe6TY](http://www.bloomberg.com/apps/news?pid=20670001&refer=home&sid=A1t40XgWe6TY) (quoting Federal Reserve Chairman Ben S. Bernanke: “Housing will be a ‘significant drag’ on the economy into next year as ‘conditions in mortgage markets remain difficult’”). Although residential investment represents only four percent of the Gross Domestic Product, the housing sector is considered a strong indicator of near-term economic trends. Economic Indicators (By the Numbers) – Federal Reserve Bank of New York, <http://www.newyorkfed.org/education/bythe.html#housing> (last visited May 28, 2008).

<sup>86</sup> See Jim Clayton et al., *Real Estate Comes of Age*, J. PORTFOLIO MGMT., Special Issue 2007, at 15, 15, 17 (stating that “[r]eal estate has gained wider acceptance as a legitimate institutional investment . . . [and] now attracts the best minds in the world of financial economics”); James R. DeLisle, *Economy Set for Soft Landing*, 74 APPRAISAL J. 318, 318 (2006) (“Despite the uncertainty and risks in the current environment, one constant that continues to hold is the appeal of commercial real estate as an asset class and the market’s willingness to accept low current yields relative to historical averages.”); Neuman, *supra* note 15, at 972-73 (“It is perfectly acceptable for land developers to buy land and simply hold it empty until the value appreciates and then sell or develop the land at a profit. It is equally acceptable for speculators to attempt to acquire and control certain scarce resources, such as precious metals or valuable minerals, for later sale at a profit.”).

<sup>87</sup> Neuman, *supra* note 15, at 973.

and law. When it comes to water, the consequences of a market crash are not only economically threatening, they may be life-threatening.

Western history provides valuable context for our analysis of the modern-day prohibition on water speculation. Prior appropriation arose during the late 1800s as a way to encourage and support western settlement and economic development by allowing maximum use of a scarce but essential resource—water.<sup>88</sup> Experiences with scarcity led western societies to believe that the gains from private management of water would outweigh the costs of establishing and enforcing a system of private rights.<sup>89</sup>

Although the oft-repeated story is that westerners simply followed the customs of the mining camps in the use and allocation of water, the underlying objectives were almost certainly more complex. Prior appropriation's roots are as likely to be found in the populist inclinations of homesteaders and other settlers, who abhorred speculative maneuvering by monopolistic land barons and railroad companies.<sup>90</sup>

The fear of concentrated power over resources in the developing West shaped the doctrine of beneficial use.<sup>91</sup> Concerns about monopoly were part of a larger social movement and a much bigger set of issues, including populism, the burgeoning interest in conservation of public lands and wildlife, and Teddy Roosevelt's New Nationalism, a progressive platform of his 1912 election campaign.<sup>92</sup> The same sentiments played a role in shaping the provisions of the homestead acts, which required actual settlement and occupancy to obtain title to land,<sup>93</sup> as well as the Reclamation Act, which favored small farmers by limiting delivery of water to 160-acre parcels.<sup>94</sup>

According to legal historian Samuel Wiel, when the western states' constitutions were being adopted in the late 1800s and early 1900s, constitutional conventions embodied a strong sentiment against wealth and monopolies.<sup>95</sup> The railway and steamship lines were considered especially villainous, but concern about excessive power spread to other public services, including water supplies.<sup>96</sup> The rejection of riparian rights was one means of preventing an

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<sup>88</sup> *Id.* at 967.

<sup>89</sup> Terry L. Anderson & P.J. Hill, *The Evolution of Property Rights: A Study of the American West*, 18 J.L. & ECON. 163, 177 (1975).

<sup>90</sup> Schorr, *supra* note 71, at 9, 25-29, 33, 49.

<sup>91</sup> See *supra* note 78 and accompanying text.

<sup>92</sup> Neuman, *supra* note 15, at 964 (citing SAMUEL C. WIEL, *WATER RIGHTS IN THE WESTERN STATES* 166 (3d ed. 1911)). Roosevelt believed that a powerful federal government was essential in order to curb private property rights and guarantee social justice. PATRICIA O'TOOLE, *WHEN TRUMPETS CALL: THEODORE ROOSEVELT AFTER THE WHITE HOUSE* (2005); see *infra* Section V (describing antitrust efforts).

<sup>93</sup> See Homestead Act of 1862, ch. 75, 12 Stat. 392 (repealed 1976). The Taylor Grazing Act of 1934, 43 U.S.C. §§ 315-315r (2000), effectively drew the homesteading era to a close, and the 1862 Act was officially repealed by the Federal Land Policy and Management Act of 1976. See Robert Hockett, *A Jeffersonian Republic by Hamiltonian Means: Values, Constraints, and Finance in the Design of a Comprehensive and Contemporary American "Ownership Society,"* 79 S. CAL. L. REV. 45, 99-104 (2005) (outlining historic and political underpinnings of the Land and Homestead Acts of the eighteenth and nineteenth centuries).

<sup>94</sup> 43 U.S.C. § 431.

<sup>95</sup> WIEL, *supra* note 92, at 149.

<sup>96</sup> See *id.* (discussing the adoption of the California Constitution in 1879).



owner of just a few acres of land on a stream from locking up the water for that single parcel and thereby impeding the settlement of surrounding land.<sup>97</sup> Moreover, the adoption of prior appropriation, by definition, required the appropriator to apply the water to beneficial use, thereby precluding speculative hoarding in hopes of future gain.<sup>98</sup>

Through application of the beneficial use doctrine, territorial courts and legislatures ensured that actual users had an opportunity to make contemporaneous applications of water to beneficial purposes.<sup>99</sup> Modern legal doctrine has retained the beneficial use requirement and the attendant prohibition against speculation through judicial decrees and statutory provisions.<sup>100</sup>

Just as would-be Water Barons are not unique to the West, the fear of water hoarding is not unique to the West. Under the riparian rights regime followed in the eastern United States, speculation in water is limited by virtue of the doctrine's requirement that the water be used on the adjacent riparian tract of land.<sup>101</sup> Because riparian water rights can be sold only in tandem with the sale of the riparian parcel under the common law riparian system, the only way a person could speculate on the value of the water would be to hold onto the land until the land and/or water right attached to it increased in value.<sup>102</sup> Although it is possible to purchase a riparian parcel for the purpose of speculation in water, and a riparian does not lose water rights through forfeiture for non-use, as would be the case in the West, the likelihood of speculative water marketing schemes is minimized by a number of factors, including the common law duty to share water with other riparians,<sup>103</sup> to use water in a reasonable

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<sup>97</sup> *Id.* at 189 (citing *Stowell v. Johnson*, 26 P. 290 (Utah 1891)).

<sup>98</sup> Neuman, *supra* note 15, at 963-64. Professor Tarlock adds an interesting historical tidbit on the origins of the beneficial use requirement and the correlated anti-speculation doctrine in his treatise on water rights: "The roots can be traced to Mormon irrigation practices in Utah. From its earliest days wandering the frontier, the Church of Jesus Christ of Latter Day Saints conditioned the privilege of property ownership on the productive, non-speculative use of the property and policed the distribution of essential commodities." A. DAN TARLOCK, LAW OF WATER RIGHTS AND RESOURCES § 5:66, at 5-118 (2007) (citing L. ARRINGTON, GREAT BASIN KINGDOM: ECONOMIC HISTORY OF THE LATTER-DAY SAINTS, 1830-1900, at 53 (1958)).

<sup>99</sup> *High Plains A & M, LLC v. Se. Colo. Water Conservancy Dist.*, 120 P.3d 710, 719 n.3 (Colo. 2005) (citing Schorr, *supra* note 71, at 33, 41, 55-56).

<sup>100</sup> See, e.g., COLO. REV. STAT. § 37-92-103(3)(a) (2007) (describing speculation as a situation in which the purported appropriator lacks a right to use "the lands or facilities to be served by such appropriation," or lacks "a specific plan and intent to divert, store, or otherwise capture, possess, and control a specific quantity of water for specific beneficial uses").

<sup>101</sup> See, e.g., *Thompson v. Enz*, 154 N.W.2d 473, 483 (Mich. 1967) (holding "riparian rights are not alienable, severable, divisible or assignable apart from the land which includes therein or is bounded by a natural water course").

<sup>102</sup> See, e.g., Janice Francis-Smith, *Oklahoma Landowners Cash in on Groundwater Rights*, J. REC. (Okla. City), Jan. 10, 2008, at 3, available at 2008 WLNR 756979 (Oklahoma allows "landowners the right to pull about two acre-feet of water per year for each acre of land they own" and use it for a "beneficial use," including selling it to municipalities, making "[t]he practice of buying land to obtain more water rights . . . a hot topic.").

<sup>103</sup> See *Elmore v. Ingalls*, 17 So. 2d 674 (Ala. 1944) (recognizing the long-standing view that a right to use water was limited by a duty not to impair the rights and uses of other landowners); *Bassett v. Salisbury Mfg. Co.*, 43 N.H. 569 (1862) (noting that riparian water rights are confined by the rights of other riparians' reasonable uses); *White's Mill Colony Inc. v. Williams*, 609 S.E.2d 811, 817 (S.C. Ct. App. 2005) (abutting landowners are entitled

fashion,<sup>104</sup> and to use water only within the watershed of origin.<sup>105</sup> These requirements, in effect, ensure that no one user can hoard water rights for future sale in hopes of gaining a windfall.

Moreover, the fear of water hoarding is not unique to surface water bodies. Many states have inhibited speculation in groundwater by limiting usage to overlying lands.<sup>106</sup> A few states have explicitly applied the anti-speculation rule to “tributary” groundwater that is hydrologically connected to surface waters.<sup>107</sup> Colorado applies it to Denver Basin designated groundwater,<sup>108</sup> and

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to make reasonable use of water from a lake for any lawful purpose, so long as their use does not interfere with the rights of those above, below, or on the opposite shore).

<sup>104</sup> See *Three Lakes Ass’n v. Kessler*, 285 N.W.2d 300, 303 (Mich. Ct. App. 1979) (specifying reasonable use factors: the size, character, and natural state of the water course; the type and purpose of the uses proposed and their effect on the water course; and the benefits to the proposed user balanced against the injury to other riparian owners).

<sup>105</sup> See *Anaheim Union Water Co. v. Fuller*, 88 P. 978, 980 (Cal. 1907) (holding that riparians must establish that the water was used within the watershed); *McBryde Sugar Co. v. Robinson*, 504 P.2d 1330, 1341 (Haw. 1973) (holding appurtenant rights to use water may only be used in connection with the parcel of land to which the right is appurtenant and may not be transported to another watershed); *Alburger v. Phila. Elec. Co.*, 535 A.2d 729 (Pa. Commw. Ct. 1988) (stating that water must be kept within the watershed to protect downstream riparians’ expectations of return flows). These requirements have been altered in some states by statutory permitting systems. TARLOCK, *supra* note 98, §§ 3:90, 3:99; *see, e.g.*, CONN. GEN. STAT. § 22a-373(b) (2007) (providing that the state must consider a number of considerations in granting permits for water use, including economic, environmental, and navigational concerns, as well as “existing and planned water uses”); FLA. STAT. §§ 373.019(16), 373.223 (2007) (authorizing issuance of permits to transport water outside of the watershed so long as the use is considered a “reasonable-beneficial use,” defined as “the use of water in such quantity as is necessary for economic and efficient utilization for a purpose and in a manner which is both reasonable and consistent with the public interest”). In the early 2000s, the Georgia legislature considered a proposal to revise its water code to create tradable rights to surface and groundwater withdrawal permits, in hopes of defusing intra- and interstate conflicts, but it was defeated. Draper, *supra* note 63, at 49.

<sup>106</sup> See JOSEPH L. SAX ET AL., *LEGAL CONTROL OF WATER RESOURCES: CASES AND MATERIALS* 371-77 (3d ed. 2000) (describing American “reasonable use” rule of groundwater usage on overlying properties); Robert Haskell Abrams, *Water Follies: Groundwater Pumping and the Fate of America’s Fresh Waters*, by Robert Glennon, 46 ARIZ. L. REV. 473, 476 (2004) (book review) (stating that most eastern states follow the American rule, which is a “non-liability rule so long as the water is used for a reasonable use . . . on a tract that overlies the aquifer from which the water is drawn”). There are five different doctrines of groundwater rights (and various permutations to those doctrines) in the United States, and some allow off-tract use. *See, e.g.*, *Katz v. Walkinshaw*, 74 P. 766, 772 (Cal. 1903) (providing that all overlying owners have a right to a proportionate share of the groundwater basin, but also authorizing non-overlying landowners to appropriate surplus groundwater); *Sipriano v. Great Spring Waters of Am., Inc.*, 1 S.W.3d 75, 80 (Tex. 1999) (applying a rule of capture to groundwater).

<sup>107</sup> *See, e.g.*, *Jaeger v. Colo. Ground Water Comm’n*, 746 P.2d 515, 517 (Colo. 1987) (applying the anti-speculation doctrine to groundwater and denying an application for withdrawals because “the applicant hopes to sell the water in the future, but presently has no contractual commitment/s/ for the purchase of the water for a beneficial use”); *Bacher v. State Eng’r*, 146 P.3d 793, 797-99 (Nev. 2006) (stating that an applicant seeking an interbasin groundwater transfer must have a definite relationship with the party intending to put the water to beneficial use and must specify the intended beneficial use of the appropriation); *Dep’t of Ecology v. Theodoratus*, 957 P.2d 1241, 1246 (Wash. 1998) (noting that state statutes governing surface appropriations also apply to groundwater appropriation). *But see* *E. Cherry Creek Valley Water & Sanitation Dist. v. Rangeview Metro. Dist.*, 109 P.3d 154,

Nevada appears to apply the doctrine to all surface and ground waters in the state.<sup>109</sup> Texas, however, does not follow this approach, instead allowing Water Barons like T. Boone Pickens to transfer water to far-away purchasers for any purpose, speculative or not.<sup>110</sup>

### B. *Are Water Rights Fully Transferable Property?*

The anti-speculation doctrine's populist underpinnings, and the legal restraints on alienation for speculative purposes, do not reflect anti-property sentiment. To the contrary, in many western states, it is commonly accepted wisdom that appropriative rights are a form of property.<sup>111</sup> Most judicial opinions make it abundantly clear, however, that a water right does not constitute ownership of the water itself; rather, it is usufructuary, or a right to use water.<sup>112</sup>

The laws applicable to water, treating it as a semi-privatized yet community-based resource, are highly distinctive and apply to "virtually nothing else."<sup>113</sup>

The roots of private property in water have simply never been deep enough to vest in water users a compensable right to diminish lakes and rivers or to destroy the marine life within them. Water is not like a pocket watch or a piece of furniture, which an owner may destroy with impunity. The rights of use in water, however long standing, should never be confused with more personal, more fully owned, property.<sup>114</sup>

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158 (Colo. 2005) (holding that courts cannot apply the anti-speculation doctrine to an adjudication of non-tributary groundwater rights, but noting that, nonetheless, the appropriator cannot obtain a well permit without demonstrating actual beneficial use).

<sup>108</sup> Colo. Ground Water Comm'n v. N. Kiowa-Bijou Groundwater Mgmt. Dist., 77 P.3d 62, 78 (Colo. 2003).

<sup>109</sup> *Bacher*, 146 P.3d at 797-99. The Nevada Supreme Court held that an application by Vidler Water did not violate the anti-speculation doctrine, as a third-party landowner/developer had authorized Vidler to act as its agent in acquiring water resources for the development of a power plant, the housing for MGM Grand casino and mall employees, and the expansion of an outlet mall, but that the application was defective nonetheless because the evidence of the water user's need to import water from a basin was insufficient to support the State Engineer's decision to grant the application, as there was no evidence as to how much water each project would require and how that quantity would be reduced by water user's unused, existing water permits. *Id.* at 801.

<sup>110</sup> *Sipriano*, 1 S.W.3d at 80 (holding that, absent designation of a special management district, the rule of capture allows the use of groundwater wherever the user deems fit).

<sup>111</sup> TARLOCK, *supra* note 98, § 1:1. *But see* Sandra B. Zellmer & Jessica Harder, *Unbundling Property in Water*, 59 ALA. L. REV. (forthcoming 2008) (abstract available at [http://works.bepress.com/cgi/viewcontent.cgi?article=1000&context=sandi\\_zellmer](http://works.bepress.com/cgi/viewcontent.cgi?article=1000&context=sandi_zellmer)) (arguing that a water right under the prior appropriation system is not property for purposes of regulatory takings under the Fifth Amendment because it is not an irrevocable interest in the exclusive possession and use of a discrete, marketable asset).

<sup>112</sup> John C. Peck, *Title and Related Considerations in Conveying Kansas Water Rights*, J. KAN. B. ASS'N., Nov. 1997, at 38, 39.

<sup>113</sup> Joseph L. Sax, *Understanding Transfers: Community Rights and the Privatization of Water*, 1 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 13, 14 (1994).

<sup>114</sup> Joseph L. Sax, *The Limits of Private Rights in Public Waters*, 19 ENVTL. L. 473, 482 (1989).

Accordingly, unlike acquisitions and transfers of personal property or real estate, water has not been treated as an ordinary commodity, and transactions in water involve a variety of unique considerations. Surface and hydrologically connected groundwater resources serve a wide range of ecological, cultural, and economic values. As water is taken out of the hydrologic cycle for human use, ecological functions and cultural values may be dramatically impacted. Moreover, water is shared among many users, both instream (hydroelectric power, recreational activities, and fisheries, for example) as well as out-of-stream.<sup>115</sup>

Once secured through application for beneficial use, appropriative water rights generally can be conveyed by deed, lease, mortgage, or inheritance as an appurtenance with a conveyance of the land where the water was initially put to use.<sup>116</sup> Changes in place or type of use are tightly controlled by state statutes and common law, however, to ensure that no harm will come to other appropriators.<sup>117</sup> In addition, in some states, changes and transfers are forbidden if unreasonable adverse effects to other third parties, such as riparians, or the general public interest would occur.<sup>118</sup> Moreover, the anti-speculation doctrine applies to water transfers, just as it does to the initial acquisition of water rights, because water rights holders can only transfer the amount that has been applied to beneficial use and the recipient must continue its beneficial uses or forfeit the right.<sup>119</sup>

As a result of these constraints, permanent transfers of water away from the land on which it was initially used have been relatively infrequent, despite the increasing need to transfer senior priorities to other uses and locations to promote more socially and ecologically valuable uses.<sup>120</sup> There are a handful of exceptions to the anti-speculation doctrine that have operated to free up water transfers in certain limited cases, however, as described below.

#### IV. YET, MUNICIPAL AND FOREIGN SPECULATORS ABOUND

There are several categories of statutory and common law exceptions to the anti-speculation rule in western water law. Two of the most significant apply to municipal water supplies and foreign water. The third enables Indian

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<sup>115</sup> Lawrence J. MacDonnell, *Water Banks: Untangling the Gordian Knot of Western Water*, 41 ROCKY MTN. MIN. L. INST. 22-1 (1995).

<sup>116</sup> Douglas L. Grant, *ESA Reductions in Reclamation Water Contract Deliveries: A Fifth Amendment Taking of Property?*, 36 ENVTL. L. 1331, 1336 (2006).

<sup>117</sup> *Id.*; see Freyfogle, *supra* note 69, at 1544 n.65 (explaining that “water rights are bounded by the no-harm rule, which, though necessary to reduce otherwise overwhelming harmful externalities, transforms a water entitlement into a use right that lacks the exclusivity of ownership which effective markets require”).

<sup>118</sup> See, e.g., NEB. REV. STAT. § 46-294(1)(d) (2007). In contrast, restraints against alienation of real property are highly disfavored. 61 AM. JUR. 2D *Perpetuities and Restraints on Alienation* § 90 (2002); see RESTATEMENT (THIRD) OF PROP. (SERVITUDES) § 3.4 (2000) (“A servitude that imposes a direct restraint on alienation of the burdened estate is invalid if the restraint is unreasonable.”).

<sup>119</sup> *High Plains A & M, LLC v. Se. Colo. Water Conservancy Dist.*, 120 P.3d 710, 714, 719 (Colo. 2005); see TARLOCK, *supra* note 98, § 5:78 (describing continuing beneficial use as a requirement of water transfers).

<sup>120</sup> See *supra* notes 62-63 and accompanying text.

tribes to market their water rights despite not having put them to historic consumptive use. A final exception allows water banking or use forbearance for the maintenance of instream flows and other specified purposes. Each of these exceptions serves as a "safety valve" of sorts, alleviating the impediments posed by the anti-speculation doctrine for unique entities (municipalities and tribes), unique sources (foreign waters), or uniquely important public values (flowing riverine habitat and conservation).

### A. Municipal Growth

Each system of water law in the U.S.—prior appropriation, riparian rights, and the law of groundwater use—gives a sort of "super-preference" to municipalities.<sup>121</sup> If push comes to shove in a contest over scarce water resources, cities almost always win. The dedication of water to urban use tracks the long-standing preferences for domestic applications.<sup>122</sup> However, as a result, water law allows, if not encourages, virtually unrestrained urban expansion.<sup>123</sup>

Two closely related doctrines have allowed cities to grow by carving out exceptions from the anti-speculation doctrine. First, the "progressive growth" doctrine allows claimants, typically cities, developers, or irrigators, to perfect their water rights by documenting their anticipated needs for water.<sup>124</sup> In other words, claimants may hold onto an unused block of water rights in anticipation of future needs without losing priority or forfeiting the rights.<sup>125</sup> The appropriated water need not be immediately used to the full extent possible, provided there is a bona fide intent to use the water and the appropriator proceeds with due diligence.<sup>126</sup>

A second concept, the "growing communities" doctrine, is applicable only to municipalities. Like the progressive growth doctrine, it allows municipal providers to appropriate water to meet their anticipated future needs by constructing a "properly scaled water system" that reflects reasonable population

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<sup>121</sup> A. Dan Tarlock & Sarah B. Van de Wetering, *Western Growth and Sustainable Water Use: If There Are No "Natural Limits," Should We Worry About Water Supplies?*, 27 PUB. LAND & RESOURCES L. REV. 33, 48 (2006) [hereinafter Tarlock & Van de Wetering, *Western Growth*]; A. Dan Tarlock & Sarah B. Van de Wetering, *Growth Management and Western Water Law: From Urban Oases to Archipelagos*, 5 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 163 (1999); see Janis E. Carpenter, *Water for Growing Communities: Refining Tradition in the Pacific Northwest*, 27 ENVTL. L. 127, 128 (1997) (citing Frank J. Trelease, *Preferences to the Use of Water*, 27 ROCKY MTN. L. REV. 133, 158-60 (1955)) (describing municipal power to upset existing water use patterns and calling for an appraisal of the privileges granted by states to municipal suppliers).

<sup>122</sup> Tarlock & Van de Wetering, *Western Growth*, *supra* note 121, at 48. Several western states, including Colorado, Wyoming, Idaho, North Dakota, and Nebraska, have adopted statutory preference schemes that place domestic uses first, agriculture second, and manufacturing third in the hierarchy of use. Robert E. Beck, *Use Preferences for Water*, 76 N.D. L. REV. 753 (2000). Junior users with preferred uses may exercise private eminent domain over users with lower preferences in times of shortage. See, e.g., NEB. CONST. art. XV, § 6; NEB. REV. STAT. §§ 46-204, 70-668 to -672 (2007).

<sup>123</sup> Tarlock & Van de Wetering, *Western Growth*, *supra* note 121, at 48.

<sup>124</sup> *Id.* at 50-51.

<sup>125</sup> Carpenter, *supra* note 121, at 128.

<sup>126</sup> *Dep't of Ecology v. Theodoratus*, 957 P.2d 1241, 1256 (Wash. 1998) (Sanders, J., dissenting).

projections at the outset of a water development project rather than on a piecemeal basis.<sup>127</sup> Colorado law is fairly typical, in that it allows cities to perfect a water right to the amount they will need in advance of demand in order to satisfy projected population increases.<sup>128</sup> In this spirit, Colorado courts have described the reservation of water for Denver as “not speculation but the highest prudence on the part of the city to obtain appropriations of water that will satisfy the needs resulting from a normal increase in population within a reasonable period of time.”<sup>129</sup>

Cities might also escape the restrictions on speculation by seeking exemptions from forfeiture provisions. Many western states provide municipalities with explicit statutory exemptions.<sup>130</sup> The underlying rationale is that the development of large-scale supplies for municipal purposes cannot, for all practical purposes, be held to strict “use it or lose it” requirements.<sup>131</sup>

Although technically not an exception to the anti-speculation rule, would-be appropriators, including cities, may avoid its harshness to some extent by seeking conditional water rights. An appropriator who seeks a permit before putting the water to beneficial use may secure conditional rights and thereby reserve a place in the priority line for when the appropriation is complete. To obtain a conditional water right, the applicant must provide notice of the intent to appropriate water as well as the ability to put the water to beneficial use within a reasonable time, and must undertake some physical act to demonstrate a substantial commitment to the project.<sup>132</sup> To maintain a conditional right, the

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<sup>127</sup> *Id.* at 1258; see Lora Lucero & A. Dan Tarlock, *Water Supply and Urban Growth in New Mexico: Same Old, Same Old or a New Era?*, 43 NAT. RESOURCES J. 803, 829 (2003) (citing *St. Onge v. Blakeley*, 245 P. 532 (Mont. 1926); *State Eng’r v. Crider*, 431 P.2d 45 (N.M. 1967)); see also *Reynolds v. Rio Rancho Estates, Inc.*, 624 P.2d 502, 506 (N.M. 1981) (allowing consideration of a city’s future water needs caused by increasing population). Some states consider the water system’s physical capacity (the “pumps and pipes” test) to quantify the right, while others require specific details regarding the actual application to beneficial use. *Compare City & County of Denver v. Sheriff*, 96 P.2d 836, 839, 842 (Colo. 1939) (considering a diversion tunnel’s usable capacity in adjudicating a city’s water right and noting that beneficial use determinations for cities must be “more flexible” than for agricultural uses), with *Theodoratus*, 957 P.2d at 1246-47 (majority opinion) (rejecting the “pumps and pipes” test, which had been followed in Washington for forty years).

<sup>128</sup> *Sheriff*, 96 P.2d at 841; see *Pagosa Area Water & Sanitation Dist. v. Trout Unlimited*, 170 P.3d 307, 314, 322 (Colo. 2007) (citing, inter alia, COLO. REV. STAT. § 37-92-103(3)(a)(I) (2007), and *Colo. River Water Conservation Dist. v. Vidler Tunnel Water Co.*, 594 P.2d 566 (Colo. 1979)) (explaining that, while private entities “must have contractual commitments for any appropriations that are not planned for its own use, or the application will fail as unduly speculative,” the burden is diminished for governmental suppliers who face “a unique need for planning flexibility because it must plan for the reasonably anticipated water needs of its populace, taking into account a normal increase in population”); *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 40 (Colo. 1996). Proponents of this doctrine argue that “[w]aiting until the last minute to acquire water rights for a growing community would be the height of irresponsibility.” *Theodoratus*, 957 P.2d at 1258 (Sanders, J., dissenting).

<sup>129</sup> *Sheriff*, 96 P.2d 836.

<sup>130</sup> Neuman, *supra* note 15, at 965 n.332; see, e.g., NEB. REV. STAT. § 46-229.04(5) (2007); N.M. STAT. §§ 72-1-9, 72-12-8 (2007); N.D. CENT. CODE § 61-04-23 (2007); OR. REV. STAT. § 540.610(2)(a) (2007); UTAH CODE ANN. § 73-1-4(5) (2007).

<sup>131</sup> Neuman, *supra* note 15, at 965 n.332.

<sup>132</sup> TARLOCK, *supra* note 98, § 5:61, at 5-103.

appropriator may be required to file an application for a finding of due diligence every few years.<sup>133</sup> So long as the conditional right holder continues to demonstrate the intent to put the water to beneficial use and exercises due diligence in doing so, a conditional right can be held in perpetuity. When all of the elements of an actual appropriation are finally completed, the conditional water right becomes perfected and declared absolute in a permit or judicial decree.<sup>134</sup>

In *Pagosa Area Water and Sanitation District v. Trout Unlimited*, the Colorado Supreme Court imposed a new burden on cities: conservation.<sup>135</sup> It directed the water court to make specific findings of fact not only about future land use mixes, population projections for a normal growth rate, and per capita water usage, but also about the effects of implementing conservation and reuse measures on future water needs. The water court was also instructed to determine whether the water suppliers had met Colorado's "can and will" test; that is, whether they can and will put the conditionally appropriated water to beneficial use within a reasonable time period.<sup>136</sup>

The Pagosa Springs suppliers intended to use a reservoir on a tributary of the San Juan River to provide a storage supply to buffer area residents and businesses from the effects of droughts.<sup>137</sup> They estimated that they would need to triple their current storage capacity to 12,000 acre-feet to meet area residents' water needs by 2043. Taking this a step further, they proposed to develop the reservoir project with a total storage capacity of 35,000 acre-feet, almost triple their estimated 2043 needs, in order to serve population growth through the year 2100.<sup>138</sup> Expressing skepticism about this scheme, the Colorado Supreme Court cautioned the water court to "closely scrutinize" a governmental agency's claim for a planning period that exceeds fifty years, a period of time that had been found reasonable in a previous case where the applicant had "presented extensive evidence to support its projections of future water demand," including expert testimony, planning documents, and studies prepared by water consultants.<sup>139</sup>

Conservation has emerged as a priority in other venues. Santa Fe, for example, has bucked the trend of seeking favorable treatment for new municipal supplies by making water availability a determinant of future growth. The city has restricted new water connections outside city limits absent a valid, preexisting agreement for water service. It also adopted an ordinance requiring new, large construction projects to transfer water rights to the city prior to

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<sup>133</sup> See *Double RL Co. v. Telluray Ranch Props.*, 54 P.3d 908 (Colo. 2002) (examining Colorado's six year filing requirement).

<sup>134</sup> TARLOCK, *supra* note 98, § 5:61, at 5-103.

<sup>135</sup> *Pagosa Area Water & Sanitation Dist. v. Trout Unlimited*, 170 P.3d 307, 314, 322 (Colo. 2007).

<sup>136</sup> *Id.* at 320.

<sup>137</sup> Jeff Kray, *But Not Enough to Drink: Water Scarcity Leads Colorado Court to Reject Water Supplier's Petition*, MARTIN L. GROUP: ENVTL. NEWS, Dec. 5, 2007, <http://www.martenlaw.com/news/?20071205-water-petition-rejected>.

<sup>138</sup> *Pagosa*, 170 P.3d at 311.

<sup>139</sup> *Id.* at 317 (citing *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 40 (Colo. 1996)).

receiving building permits.<sup>140</sup> These innovative conservation measures minimize the need to seek additional supplies continually to keep up with residents' future demands.

Paradoxically, cities like Santa Fe that attempt to limit urban growth by restricting water deliveries to amounts that can be sustained by reliable water supplies face a dilemma—they may lack authority to deny service to new developments. Their power to defer or even deny the timing and manner of development on private land may be inhibited by a public utility's "duty to serve" all customers within its service area, "provided that the system as a whole can absorb the cost and still yield a reasonable rate of return."<sup>141</sup> California has extended the duty to serve to water providers, requiring them to acquire the necessary supplies to meet projected demands.<sup>142</sup> States that follow this model, in effect, require speculation on the part of municipal water suppliers, at least as necessary to meet projected demands.

### *B. Foreign (Developed) Water*

Much of the prior appropriation system is based on the notion that all surface water flows within a watershed belong to the stream and are therefore subject to appropriation by users. By the same token, appropriators have no expectation to water that was never part of the natural stream system.

Foreign or developed water is water that has been "added to the supply of a natural stream and which never would have come into the stream had it not been for the efforts of the party producing it."<sup>143</sup> Examples include water derived from mine dewatering, water imported from another watershed, treated sewage effluent, and non-tributary groundwater.<sup>144</sup> To reward the developer's efforts to make more water available to the stream system, this so-called "new" water is treated as the exclusive property of the developer, and is free of the call

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<sup>140</sup> Tarlock & Van de Wetering, *Western Growth*, *supra* note 121, at 65; see Julie Ann Grimm, *County Wades Into Long-Range Planning for Water Allocation*, NEW MEXICAN, Mar. 1, 2006, at A1.

<sup>141</sup> Tarlock & Van de Wetering, *Western Growth*, *supra* note 121, at 58 (citing *Reid Dev. Co. v. Twp. of Parsipanny-Troy Hills*, 89 A.2d 667, 670-71 (N.J. 1952)).

<sup>142</sup> *Id.* (citing *Lurawka v. Spring Valley Water Co.*, 146 P. 640, 645-46 (Cal. 1915)).

<sup>143</sup> TARLOCK, *supra* note 98, § 5:18, at 5-33 (citing *City & County of Denver v. Fulton Irrigating Ditch Co.*, 506 P.2d 144 (Colo. 1972)).

<sup>144</sup> See, e.g., *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 72 (Colo. 1996) (interbasin water transfer); *Pub. Serv. Co. v. Willows Water Dist.*, 856 P.2d 829, 834 (Colo. 1993) (non-tributary groundwater); *Fulton Irrigating Ditch Co.*, 506 P.2d 144 (interbasin water transfer and treated sewage effluent); *St. John Irrigating Co. v. Danforth*, 298 P. 365 (Idaho 1931) (springs in a "depression"); *Reynolds v. City of Roswell*, 654 P.2d 537 (N.M. 1982) (treated sewage effluent); *Mountain Lake Mining Co. v. Midway Irrigation Co.*, 149 P. 929 (Utah 1915) (mine dewatering); *Dodge v. Ellensburg Water Co.*, 729 P.2d 631 (Wash. Ct. App. 1986) (interbasin water transfer), *review denied*, 107 Wash. 2d 1031 (1987); *Thayer v. City of Rawlins*, 594 P.2d 951 (Wyo. 1979) (treated sewage effluent). Some states, in an effort to integrate their surface and groundwater management, have begun to apply the anti-speculation doctrine to groundwater supplies. See *supra* notes 107-109 and accompanying text.



of the river.<sup>145</sup> Accordingly, the developer is free to hold the water indefinitely for speculative purposes.

Another form of developed water that may become a significant source of water supplies in the future is precipitation generated by cloud seeding. During the Dust Bowl Era of 1930-1939, officials in towns throughout the Great Plains called on rainmakers to shoot explosives into the sky in hopes of bringing moisture.<sup>146</sup> The pyrotechnics were typically shysters who sold nothing but snake oil and empty promises.<sup>147</sup>

As far fetched as it may sound, interest in cloud seeding has reemerged during recent droughts. The State of Wyoming is spending millions of dollars on experiments to test its efficacy, in partnership with other regional universities, the National Center for Atmospheric Research, and the U.S. Forest Service.<sup>148</sup> A private company is under contract to seed the target area's clouds with silver iodide. Federal law has little to say on the subject, other than imposing reporting requirements.<sup>149</sup>

The practice has not yet gained wide acceptance, but if it does, questions about the use, allocation, and ownership of water produced by atmospheric manipulation are sure to arise. Causation—whether the cloud seeding produced the rain or snow being claimed—is likely to pose challenging legal issues.<sup>150</sup> If adverse effects, such as flooding or drought, occur inside or beyond the target area, the developers' liability for those effects will be in question as well. If it can be proven that the produced water has originated within, and is therefore part of, the hydrological cycle of the watershed, it may be subject to the call of the river; if not, it will be subject to application, management, speculation, and transfer at the discretion of the producer.

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<sup>145</sup> *Bijou Irrigation Co.*, 926 P.2d at 66 n.59; David Tighe, Comment, *Colorado's Foreign Water Doctrine: License to Speculate*, 60 U. COLO. L. REV. 1113, 1126 (1989).

<sup>146</sup> TIMOTHY EGAN, *THE WORST HARD TIME: THE UNTOLD STORY OF THOSE WHO SURVIVED THE GREAT AMERICAN DUST BOWL 190-92*, 231-33 (2006).

<sup>147</sup> See *id.* at 231-33 (reporting that one-tenth of an inch of snow was attributed to Tex Thornton, a former wildcatter who peddled "meteorological magic" to citizens of Dalhart, Texas, but in all likelihood his efforts only provoked more dust and sleepless nights).

<sup>148</sup> See Univ. Corp. for Atmospheric Research, *Wyoming Cloud Seeding Experiment Begins This Month*, UCAR, Jan. 26, 2006, <http://www.ucar.edu/news/releases/2006/seeding.shtml>.

<sup>149</sup> National Weather Modification Policy Act of 1976, 15 U.S.C. § 330a (2000). Wyoming's plans may be delayed by a provision in the Forest Service's Manual that precludes weather modification over wilderness areas unless no "permanent, substantial changes in natural conditions" and no visible alterations would occur. FOREST SERVICE MANUAL § 2323.45 (2006), available at [http://nevadawilderness.org/items/document\\_FSWilderness\\_Manual\\_2320.pdf](http://nevadawilderness.org/items/document_FSWilderness_Manual_2320.pdf); Brodie Farquhar, *Cloud Seeding Hits Snag*, JACKSON HOLE STAR-TRIB., Mar. 16, 2007, available at <http://www.trib.com/articles/2007/03/17/news/wyoming/ace6a6d2423a316f8725729f008034bb.txt>. The Wilderness Act of 1964 specifies that wilderness areas are "untrammeled by man." 16 U.S.C. § 1131(c) (2000).

<sup>150</sup> For a discussion of scientific and policy issues related to cloud seeding, see David J. Gochis, *Emergent Precipitation Enhancement Techniques and the Rights to Developed Water* (2001) (unpublished conference paper, Univ. of Arizona, Dept. of Hydrology & Water Resources), available at <http://www.awra.org/proceedings/dundee01/Documents/GochisD.pdf>.

### C. Indian Reserved Water Rights

Indian reservations and other federally reserved lands carry reserved water rights as necessary to fulfill the purpose of the reserve.<sup>151</sup> In the case of many Indian tribes, the purpose of the reservation was to create a homeland for the tribe and a means of subsistence through agriculture.<sup>152</sup> Reserved rights have a priority date as of the date of creation, making them senior to nearly all other uses on many western river basins, and therefore extremely valuable.<sup>153</sup> The measure of an Indian reserved right is based on the “practicabl[e] irrigable acreage” of the reservation<sup>154</sup>

To settle long-standing Indian water rights claims, several recent federal water settlement acts authorize water marketing by tribes.<sup>155</sup> The acts typically prevent permanent alienation of reserved water rights but authorize leasing for limited time periods (ninety-nine or one hundred years is a fairly standard time frame).<sup>156</sup>

Water marketing could become an important means for tribes to capture the economic benefit of their resources,<sup>157</sup> particularly where they had been historically unable to develop water projects on the reservation itself.<sup>158</sup> Tribal

<sup>151</sup> *Arizona v. California*, 373 U.S. 546 (1963); *Winters v. United States*, 207 U.S. 564, 574-78 (1908).

<sup>152</sup> *Winters*, 207 U.S. at 574-78; see *In re Gen. Adjudication of All Rights to Use Water in the Gila River Sys. & Source*, 35 P.3d 68, 76 (Ariz. 2001) (“‘[T]he general purpose, to provide a home for the Indians, is a broad one and must be liberally construed.’ Such a construction is necessary for tribes to achieve the twin goals of Indian self-determination and economic self-sufficiency.” (quoting *Colville Confederated Tribes v. Walton*, 647 F.2d 42, 47 (9th Cir. 1981))).

<sup>153</sup> *Winters*, 207 U.S. at 574-78.

<sup>154</sup> *Arizona*, 373 U.S. at 600. For a critique of this standard, see *Gila River*, 35 P.3d at 78 (“Limiting the applicable inquiry to a PIA analysis not only creates a temptation for tribes to concoct inflated, unrealistic irrigation projects, but deters consideration of actual water needs based on realistic economic choices.”).

<sup>155</sup> See Kevin Gover, *An Indian Trust for the Twenty-First Century*, 46 NAT. RESOURCE J. 317, 339 (2006) (citing examples); Judith V. Royster, *Indian Water and the Federal Trust: Some Proposals for Federal Action*, 46 NAT. RESOURCES J. 375, 394-95 (2006) (citing examples). For extended discussion of tribal water rights, settlement efforts, and federal expenditures, see DANIEL MCCOOL, *COMMAND OF THE WATERS: IRON TRIANGLES, FEDERAL WATER DEVELOPMENT, AND INDIAN WATER* (1987), and DANIEL MCCOOL, *NATIVE WATERS: CONTEMPORARY INDIAN WATER SETTLEMENTS AND THE SECOND TREATY ERA* (2002) [hereinafter MCCOOL, *NATIVE WATERS*].

<sup>156</sup> Royster, *supra* note 155, at 395; see Tarlock, *supra* note 14, at 691 (describing marketing provisions of the Truckee-Carson Settlement Act).

<sup>157</sup> David H. Getches, *Management and Marketing of Indian Water: From Conflict to Pragmatism*, 58 U. COLO. L. REV. 515, 541-48 (1988); Royster, *supra* note 155, at 394-95; Steven J. Shupe, *Indian Tribes in the Water Marketing Arena*, 15 AM. INDIAN L. REV. 185, 196 (1990); Lee Herold Storey, Comment, *Leasing Indian Water Off the Reservation: A Use Consistent With the Reservation's Purpose*, 76 CAL. L. REV. 179 (1988). Professor Royster has proposed a tribal water marketing act that would “authorize those tribes that wish to engage in water marketing to submit plans to the Department of the Interior; once the marketing plans are approved, the tribe would be free to market its water as it saw fit, without secretarial approval of each specific transaction.” Royster, *supra* note 155, at 397.

<sup>158</sup> Royster, *supra* note 155, at 395. For years, there were little or no tribal funds for water projects, and most federal water development money has gone to non-Indian irrigation projects. Royster explains, “[T]he water rights of many . . . tribes are presently in use by non-Indians. Under the prior appropriation regimes of the western states, any unused tribal

water rights that are transferred to an off-reservation party may be converted to a state water right during off-reservation use, making them subject to some state law provisions, but not provisions compelling forfeiture for non-use.<sup>159</sup> As a result, tribes have the ability to engage in speculative hoarding—holding onto the water until market conditions are most favorable—in a way that other rights holders do not. Explicit federal approval is likely required under the Indian Non-Intercourse Act, however, before tribes can market their water.<sup>160</sup>

#### *D. Water Banking and Forbearance for Instream Flows and Other Purposes*

The use of water banks to facilitate water marketing for specified purposes is gaining acceptance in many western states. Water banks provide a flexible framework for water transfers, as there is no single required formula.<sup>161</sup> Generally speaking, water rights are deposited in the bank and available for withdrawal for a fee. The bank serves as an intermediary that arranges the transactions and maintains records.<sup>162</sup> The pricing for water deposits and withdrawals can reflect both the purpose of the new use—urban, industrial, environmental, recreational, or agricultural purposes—and the location of use.<sup>163</sup> For example, prices may be higher for water that will be used outside the watershed of origin.

To avoid forfeiture and to enable holding water for future uses, however, legislation is typically required to facilitate water banking. The State of Idaho was one of the first to authorize a water bank nearly sixty years ago on the Upper Snake River.<sup>164</sup> Idaho law also authorizes a general purpose water bank for facilitating temporary water transfers.<sup>165</sup> The bank is designed to provide flexibility to irrigators by allowing those who do not need water in a particular year to grant it to others without forfeiting their water rights.<sup>166</sup> The Idaho Department of Water Resources was also explicitly authorized to use the bank to provide instream flows for salmon runs on the Snake River.<sup>167</sup>

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water is available for use by junior non-Indian appropriators until it is claimed by the tribes.” *Id.* As a result, unless tribes are able to enter into transactions with the users, tribal water will continue to be used by non-Indians for free.

<sup>159</sup> *Id.*

<sup>160</sup> See 25 U.S.C. § 177 (2000) (requiring federal consent for any “purchase, grant, lease, or other conveyance of [Indian] lands, or of any title or claim thereto . . .”); TARLOCK, *supra* note 98, § 9:42 (discussing tribes’ ability to transfer reserved rights).

<sup>161</sup> MacDonnell, *supra* note 115, § 22.02.

<sup>162</sup> See George W. Pring & Karen A. Tomb, *License to Waste: Legal Barriers to Conservation and Efficient Use of Water in the West*, 25 ROCKY MTN. MIN. L. INST. 25-1 (1979).

<sup>163</sup> See *id.*

<sup>164</sup> Idaho Water Resource Board, Idaho Water Supply Bank, <http://www.idwr.idaho.gov/waterboard/water%20bank/waterbank.htm> (last visited May 28, 2008). The bank is designed as an exchange market where individuals can place excess water in storage or maintain it in natural flows and others can purchase or lease this excess water. *Id.*

<sup>165</sup> IDAHO CODE ANN. § 42-1761 (2007).

<sup>166</sup> Janet C. Neuman, *Drought Proofing Water Law*, 7 U. DENV. WATER L. REV. 92, 104 (2003).

<sup>167</sup> IDAHO CODE ANN. § 42-1763B.

In Colorado, water banks are authorized for all of the state's major river basins, but as of 2006 only one pilot water bank existed.<sup>168</sup> A statute that directs the state engineer to "promulgate program rules necessary or convenient for the operation of a water bank within the division in which such district is located" evidently requires specific rules to be adopted before a bank may be established, thereby impeding water banking.<sup>169</sup>

The Oregon Water Trust, a nonprofit organization, has been a leader in preserving instream flows through banking and other innovative approaches. The Trust began buying water for streamflows in 1994, and it currently holds a diverse portfolio of water rights, including permanent purchases, long-term, short-term, and split-season leases, use forbearance agreements, and conserved water projects.<sup>170</sup> Within the first decade of its existence, it protected over 124 cubic feet per second of water in over 300 water rights deals.<sup>171</sup> The Trust is able to accomplish instream flow protection because in 1987 the Oregon legislature recognized instream uses of water to be beneficial uses.<sup>172</sup> It also specified that an existing water right converted to an instream flow right would retain its priority date.<sup>173</sup> According to Professor Janet Neuman, who served as the first director of the Trust, a final key component of the 1987 law that served as a catalyst for water marketing is the conserved water program, which allows water rights holders to improve their efficiency and keep a portion of the water saved.<sup>174</sup> Absent this provision, the appropriator who accomplishes an authorized beneficial use with less water due to increased efficiencies would lose the saved water to junior users or new appropriators.<sup>175</sup>

A related means of protecting instream flows while avoiding forfeiture and anti-speculation constraints comes in the form of a forbearance agreement in which the water user agrees to stop irrigating as of a certain date and to leave the water instream in exchange for a cash payment or some other consideration.<sup>176</sup> Like water banking, forbearance agreements can be used for instream flow maintenance, water transfers, or other purposes.

Forbearance agreements have been used as a tool to address severe water shortages in Nevada and California. During the 1990s, the Metropolitan Water District of Southern California ("MWD") and the State of Nevada agreed to pay the Central Arizona Water Conservancy District to deliver Colorado River water through the Central Arizona Project ("CAP") to Arizona groundwater

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<sup>168</sup> See Reed D. Benson, "Adequate Progress," or Rivers Left Behind? *Developments in Colorado and Wyoming Instream Flow Laws Since 2000*, 36 ENVTL. L. 1283, 1304-05 (2006) (describing pilot water bank in the Arkansas Basin).

<sup>169</sup> *Id.* at 1304 n.154 (quoting COLO. REV. STAT. § 37-80.5-104.5(1)(a) (2005)).

<sup>170</sup> Janet C. Neuman, *The Good, The Bad, and The Ugly: The First Ten Years of the Oregon Water Trust*, 83 NEB. L. REV. 432, 433 (2004).

<sup>171</sup> *Id.* at 441.

<sup>172</sup> OR. REV. STAT. §§ 537.334(1), 537.336(1) (2007).

<sup>173</sup> OR. REV. STAT. § 537.348(1).

<sup>174</sup> Neuman, *supra* note 170, at 439.

<sup>175</sup> *Id.*; see, e.g., ARIZ. REV. STAT. ANN. § 45-188(A) (2007); CAL. WATER CODE § 1241 (West 2007); COLO. REV. STAT. § 37-92-402(11) (2007); IDAHO CODE ANN. § 42-222(2) (2007); N.M. STAT. § 72-5-28(A) (2007); OR. REV. STAT. § 540.610(1) (2007); UTAH CODE ANN. § 73-1-4 (2007); WASH. REV. CODE § 90.14.160 (2007); WYO. STAT. ANN. § 41-3-401 (2007).

<sup>176</sup> Neuman, *supra* note 170, at 454.

irrigators in exchange for rights to that groundwater.<sup>177</sup> In turn, Arizona agreed to forbear from using an equivalent portion of its Colorado River entitlement and to give access to this “in-lieu” storage to Nevada and MWD. This arrangement increased the use and financial feasibility of the CAP, gave Arizona farmers cheaper water than their pumped groundwater, and created a storage bank for Nevada and MWD.<sup>178</sup>

Although negotiations over CAP repayment obligations eventually broke down, the concept of developing a market for Arizona’s unused Colorado River entitlement became an important part of developing Arizona’s groundwater bank. Arizona adopted legislation authorizing a state banking authority to secure long-term supplies through groundwater storage credits, land fallowing, and interim contracts for excess CAP water.<sup>179</sup> The water bank can contract with other states for acquisition and storage, and transfers from the bank can be made through forbearance agreements. Since 1989, the Arizona banking authority has deposited about four million acre-feet of water in its underground bank, but if a shortage is declared, “excess” CAP water uses, including banked water, would be cut first because of CAP’s low priority among Colorado River users.<sup>180</sup>

Negotiations on proposals to address shortages in the basin, California’s chronic overuse, and Arizona’s surplus continued for years. It was not until December 13, 2007, that Secretary of the Interior Dirk Kempthorne finally signed an agreement to implement a new strategy for management of the Colorado River.<sup>181</sup> The decision adopts interim operational guidelines intended to provide a greater degree of certainty with respect to the amount of annual water deliveries in the face of diminished supplies due to continuing or future drought in the basin—particularly in the Lower Division states of Arizona, California, and Nevada—and to encourage and promote water conservation.<sup>182</sup> Conservation measures include an agreement allowing water users to obtain credit for conserving water and leaving it in Lake Mead, forbearance provisions that

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<sup>177</sup> James S. Lochhead, *An Upper Basin Perspective on California’s Claims to Water from the Colorado River Part II: The Development, Implementation and Collapse of California’s Plan to Live Within Its Basic Apportionment*, 6 U. DENV. WATER L. REV. 318, 344-45, 350-51 (2003).

<sup>178</sup> *Id.*

<sup>179</sup> ARIZ. REV. STAT. ANN. §§ 45-105, 45-801.01, 48-3710.

<sup>180</sup> Matt Jenkins, *Arizona Returns to the Desert*, HIGH COUNTRY NEWS, Mar. 21, 2005. The authority can store water on behalf of California or Nevada. Lochhead, *supra* note 177, at 350. In 2004, the CAP Board approved a transfer of 1.25 million acre-feet to southern Nevada in exchange for \$330 million and Nevada’s support in protecting Arizona’s water rights in negotiations between the Colorado River Basin states. Henry Brean, *Colorado River: Transfer of Water Approved*, LAS VEGAS REV.-J., Dec. 4, 2004, at 1A.

<sup>181</sup> Press Release, U.S. Dep’t of the Interior, Secretary Kempthorne Signs Historic Decision for New Colorado River Management Strategies (Dec. 13, 2007), available at [http://www.doi.gov/news/07\\_News\\_Releases/071213.html](http://www.doi.gov/news/07_News_Releases/071213.html).

<sup>182</sup> U.S. DEP’T OF THE INTERIOR, RECORD OF DECISION—COLORADO RIVER INTERIM GUIDELINES FOR LOWER BASIN SHORTAGES AND THE COORDINATED OPERATIONS FOR LAKE POWELL AND LAKE MEAD 1 (Dec. 13, 2007), available at <http://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf>; see Bureau of Reclamation, Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lakes Powell and Mead, <http://www.usbr.gov/lc/region/programs/strategies.html> (last visited May 28, 2008) (providing a summary and links to decision documents).

allow parties to refrain from exercising their rights to Colorado River water, and provisions for cities to contract with farmers to temporarily fallow fields in dry years.<sup>183</sup> Absent this agreement, and a provision of the Decree in *Arizona v. California*,<sup>184</sup> collaborative solutions involving forbearance agreements or water banking may not have been possible under the existing Law of the River.<sup>185</sup>

## V. TRUST-BUSTING: A DIVERSION INTO ANTITRUST PRINCIPLES

In addition to the anti-speculation doctrine, antitrust rules designed to prevent monopolies can also have a chilling effect on water marketing. Theodore Roosevelt is perhaps the most notable trust-buster in American history. During his presidency, he used the antitrust laws expansively to break up railroad trusts and restrain steel magnates and other monopolistic interests.<sup>186</sup> His antitrust campaign extended to water supplies and waterways as well. He fought against the railroads' ability to control ports and waterfronts,<sup>187</sup> and against private

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<sup>183</sup> Press Release, *supra* note 181. The interim guidelines also provide for new operational rules for Lake Powell and Lake Mead to allow the two reservoirs to rise and fall in tandem, thereby better sharing the risk of drought, and specify that, if the basin receives ample runoff at any given time, the Department of the Interior will have rules in place to distribute the extra water. *Id.*

<sup>184</sup> *Arizona v. California*, 376 U.S. 340, 343 (1963). The Decree gives the Secretary some discretion to distribute water among lower division states so long as California does not receive more than 4.4 million acre-feet. *See Arizona v. California*, 373 U.S. 546, 593 (1963) (stating that the Secretary "is free to choose among the recognized methods of apportionment or to devise reasonable methods of his own"); *see also* Robert Glennon & Michael J. Pearce, *Transferring Mainstem Colorado River Water Rights: The Arizona Experience*, 49 ARIZ. L. REV. 235, 252 (2007) (describing the states' proposal for marketing surplus waters created through "extraordinary conservation activities" (dubbed "Intentionally Created Surplus" (ICS)), to be distributed pursuant to the Secretary's article II(B)(2) power and forbearance agreements between the states). For conflicting views about the Secretary's ability to make unused water in one state available for use in another state, *see* Robert Jerome Glennon & Peter W. Culp, *The Last Green Lagoon: How and Why the Bush Administration Should Save the Colorado River Delta*, 28 ECOLOGY L.Q. 903, 922 (2002) ("[T]he Law of the River contains numerous provisions that block transfers of water within the Colorado system and serve to keep the initial, historic allocations intact."); David E. Lindgren, *The Colorado River: Are New Approaches Possible Now That the Reality of Overallocation Is Here?*, 38 ROCKY MTN. MIN. L. INST. 25-1, 25-13 to -19 (1992) (stating that transfers are allowed); Lochhead, *supra* note 33, at 324-29 (arguing that interstate, interbasin transfers are prohibited). For an assessment of the new interim guidelines, *see* Grant, *supra* note 10, at 979-80.

<sup>185</sup> *See* Grant, *supra* note 10, at 979-80 ("The Secretary could not have implemented an ICS program by regulation alone.").

<sup>186</sup> One means of curtailing the power of the big trusts was to do away with railroad rebates. EDMUND MORRIS, *THEODORE REX* 417-18 (2001). The rebates were used to favor certain shippers who paid the established freight rates on their products up front and then received a substantial proportion of the charges back from the railroads. The public became enraged about the practice when the influential publication, *McClure's*, attacked the greed and "secret, underhand" dealings of the trusts, and Roosevelt responded by championing new legislation to empower the Interstate Commerce Commission to establish maximum rates. *Id.* at 418, 427, 433-35, 442-43.

<sup>187</sup> *Col. Roosevelt's Speech: Says Greedy Interests Favor State Control, as Less Effective*, N.Y. TIMES, Sept. 7, 1910, at 2.

companies that attempted to buy up entire watersheds in order to control the water supply of a region.<sup>188</sup>

Although speculation and monopoly are often treated as twin themes, they are not the same thing. A monopoly entails super-concentrated market power, where the monopolist's control of so much of a resource enables it to depress supply or quality and to inflate price.<sup>189</sup> In reality, monopolization of water has not been a significant concern in the West.<sup>190</sup> There is no Wal-Mart, ExxonMobil, or General Electric of the water world; rather, 80% of the water withdrawn from the West's surface water bodies is used for agriculture, and although concentration has grown in recent decades, the majority of agricultural water rights holders are still individuals or small corporations.<sup>191</sup> The remaining 20% of the water being used in the West is spread among millions of people, primarily urban dwellers.<sup>192</sup>

Individual appropriators can and do control large blocks of water—in some cases all of the water of a stream—as long as they hold a senior priority date and are actually using the water. Yet power over localized water resources by one or two farmers is not a monopoly in an economic sense. It does mean, however, that some streams are “held hostage to historic use patterns.”<sup>193</sup>

As interest in water marketing grows, the potential for collusion and, consequently, antitrust concerns grow as well. The Sherman Act prohibits agreements or conspiracies that restrain competition as well as predatory or anticompetitive commercial conduct through attempts to monopolize, or through the acquisition and maintenance of monopoly power.<sup>194</sup> Federal jurisdiction hinges on restraints that have a “not insubstantial” impact on interstate

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<sup>188</sup> WILLIAM ROSCOE THAYER, THEODORE ROOSEVELT 237 (1919). An example of Roosevelt's resistance to water monopolies can be seen in the Reclamation Act of 1902, 43 U.S.C. § 431 (2000), which limits the size of parcels that benefit from water deliveries to 160 acres. MORRIS, *supra* note 186, at 114-15. Roosevelt's concern arose not only from his distaste for monopolies but also from a desire to promote multiple-use management of rivers, using them for navigation, flood control, hydropower, and water supplies. Donald J. Pisani, *Water Planning in the Progressive Era: The Inland Waterways Commission Reconsidered*, 18 J. POL'Y HIST. 389 (2006).

<sup>189</sup> Neuman, *supra* note 15, at 964 (citing VERNON A. MUND, MONOPOLY: A HISTORY AND THEORY 100 (1933)).

<sup>190</sup> *Id.* at 964, 971.

<sup>191</sup> *Id.* at 969 (citing W. WATER POLICY REVIEW ADVISORY COMM'N, WATER IN THE WEST: CHALLENGE FOR THE NEXT CENTURY 2-22 to 2-23 (1998)). As of the 2003 Farm and Ranch Irrigation Survey, there were approximately 220,000 individual agricultural water rights holders. 3 NAT'L AGRIC. STATISTICS SERV., FARM AND RANCH IRRIGATION SURVEY (2003), at ix, xix-xx (2004), available at <http://www.agcensus.usda.gov/Publications/2002/FRIS/fris03.pdf> [hereinafter IRRIGATION SURVEY]. However, incursions by Fortune 500 companies and large agribusinesses continue to grow. Brian M. Riedl, *Still at the Federal Trough: Farm Subsidies for the Rich and Famous Shattered Records in 2001*, HERITAGE FOUND., Apr. 30, 2002, <http://www.heritage.org/Research/Agriculture/BG1542.cfm>.

<sup>192</sup> Neuman, *supra* note 15, at 969 n.358; see IRRIGATION SURVEY, *supra* note 191 (reporting a slight increase in watering efficiency per acre, along with a slight decrease in acres irrigated, which indicates that the balance being used by urban users may have grown somewhat higher than 20%).

<sup>193</sup> Neuman, *supra* note 15, at 969.

<sup>194</sup> 15 U.S.C. §§ 1-2 (2000). The Sherman Act is supplemented by the Clayton Act of 1914, which was intended to prohibit trade practices that were not covered by the Sherman Act or other existing antitrust acts, especially the creation of trusts, conspiracies, and monop-

commerce.<sup>195</sup> In addition, the restraint must injure competition, which typically occurs when an agreement interferes with the setting of prices by market forces.<sup>196</sup> Finally, injury must have resulted from a contract, combination, or conspiracy between separate entities; "unilateral action is not sufficient."<sup>197</sup>

Existing patterns of water ownership may exacerbate the potential for anticompetitive behavior, as coalitions of agricultural sellers and urban buyers each attempt to control the market to their benefit.

[T]he predominant historic use of water has been for agricultural purposes; however, the need has been shifting to uses urban in nature. Thus, the buyers and sellers are grouped in separate camps. The tendency has been for these camps to combine rather than compete. . . . Thus, the would-be sellers join together in an attempt to elevate prices, or the would-be buyers join together to hold prices down. Normal competition among and between buyers and sellers and the fostering of truly free markets is thereby frustrated.<sup>198</sup>

Collusive geographically aligned coalitions might also emerge, as water-rich regions band together to raise prices for sales to water-stressed areas. "[A]reas where water originates often have an advantage of supply over export areas. Again, there appears to be a tendency by those within the respective areas to combine to control the pricing of water."<sup>199</sup>

Antitrust law may forgive collusive water marketing transactions from liability, however, particularly where state or local governments are involved. Three doctrines come into play: state action immunity, *Noerr-Pennington* immunity, and local government immunity.

State action immunity has shielded water transfers from antitrust liability in at least two circuits.<sup>200</sup> In *Kern-Tulare Water District v. City of Bakersfield*, the Ninth Circuit assessed a contract that gave the City a right to veto the District's subsequent sale of water initially purchased from the City.<sup>201</sup> The District brought an antitrust challenge when the City refused to approve the District's sale of surplus water. The court concluded that there was a "clearly articulated and affirmatively expressed state policy to displace competition with regulation in the area of municipal control over water and water rights, so long as the municipality does not engage in waste or unreasonable use."<sup>202</sup> Similarly, the Eleventh Circuit held that state action immunity protected a city

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olies in their incipency. 10A FLETCHER CYCLOPEDIA CORPS. *The Clayton Act* § 4986 (2002).

<sup>195</sup> *Pinhas v. Summit Health, Ltd.*, 894 F.2d 1024, 1031-32 (9th Cir. 1989), *aff'd*, 500 U.S. 322 (1991).

<sup>196</sup> *Nat'l Soc'y of Prof'l Eng'rs v. United States*, 435 U.S. 679 (1978); *see* *FTC v. Ticor Title Ins. Co.*, 504 U.S. 621, 639 (1992) ("No antitrust offense is more pernicious than price fixing.").

<sup>197</sup> Stuart L. Somach & Andrew M. Hitchings, *Antitrust Considerations in Water Marketing*, NAT. RESOURCES & ENV'T, Fall 1996, at 26, 27.

<sup>198</sup> *Id.*; *see* Freyfogle, *supra* note 69, at 1544 n.65 ("Because sellers are few, a perfect market [in water] does not exist and sellers have the power to exert strategic marketing behavior, if not monopolistic control.").

<sup>199</sup> Somach & Hitchings, *supra* note 197, at 27.

<sup>200</sup> *Kern-Tulare Water Dist. v. City of Bakersfield*, 828 F.2d 514 (9th Cir. 1987), *cert. denied*, 486 U.S. 1015 (1988).

<sup>201</sup> *Id.* at 515.

<sup>202</sup> *Id.* at 519. For discussion, *see* Somach & Hitchings, *supra* note 197, at 29.



from antitrust liability for its allegedly anticompetitive operation of waterworks by virtue of Georgia's municipal statutes, which authorized cities to provide waterworks service and to determine areas to be served.<sup>203</sup> This means that state legislatures can impact the scope of the immunity available under the state action doctrine by the legislative decisions they make regarding the degree of state and local regulatory authority over water resources.<sup>204</sup>

*Noerr-Pennington* immunity allows private individuals to seek favorable, albeit anticompetitive, treatment from legislative bodies, administrative agencies, and the courts.<sup>205</sup> This doctrine protects the constitutional right to petition the government, and it permits lobbying efforts that may harm competitors so long as the efforts are expected to result in lawful government action.<sup>206</sup> Thus, landowners, when acting through their water district, are immune from antitrust liability if they lawfully seek to influence their district's decisions, for example, by electing board representatives sympathetic to their position or lobbying board members.<sup>207</sup>

Finally, the Local Government Antitrust Act of 1984 protects "local governments" (a term that would likely include most public water agencies) from antitrust liability.<sup>208</sup> Normally, "any person . . . injured in his business or property by reason of anything forbidden in the antitrust laws" is authorized to "recover threefold the damages by him sustained, and the cost of suit, including a reasonable attorney's fee."<sup>209</sup> The Local Government Act, however, specifically precludes the recovery of damages, costs, or attorney's fees "from any local government, or official or employee thereof acting in an official capacity."<sup>210</sup> The Act also precludes such remedies "in any claim against a person based on any official action directed by a local government, or official or employee thereof acting in an official capacity."<sup>211</sup>

In championing the local government immunity provisions, congressional members argued that government action raises unique considerations. Senator Moynihan believed that antitrust damage suits filed against local governments were having a "paralyzing effect on decisionmaking" so immunity was needed to balance "the need of local governments to provide essential services—without the fear of lawsuits—and the right of aggrieved parties to seek injunctive

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<sup>203</sup> *McCallum v. City of Athens*, 976 F.2d 649, 651 (11th Cir. 1992).

<sup>204</sup> *See id.* (rejecting consumers' claim against city for its allegedly anticompetitive operation of waterworks where Georgia's municipal statutes specifically authorized cities to provide waterworks service and to determine areas to be served); *Somach & Hitchings*, *supra* note 197, at 29 ("The role of antitrust law and policy in water rights marketing, therefore, is likely to follow generally legislative policy on the role of the free market in the transfer of water rights.").

<sup>205</sup> *See Somach & Hitchings*, *supra* note 197, at 29.

<sup>206</sup> *Hedgecock v. Blackwell Land Co.*, No. 93-16604, 1995 WL 161649, at \*3 (9th Cir. Apr. 7, 1995), *cert. denied*, 516 U.S. 862 (1995); *see also Davric Maine Corp. v. Rancourt*, 216 F.3d 143, 147 (1st Cir. 2000) (lobbying for legitimate government purposes is immune from antitrust suits).

<sup>207</sup> *Hedgecock*, 1995 WL 161649, at \*3.

<sup>208</sup> 15 U.S.C. §§ 34-36 (2000).

<sup>209</sup> *Id.* § 15(a).

<sup>210</sup> *Id.* § 35(a).

<sup>211</sup> *Id.* § 36(a).

relief against cities.”<sup>212</sup> Others argued that antitrust concerns were less important when it came to

environmental considerations, health considerations, safety considerations, and a whole panoply of issues that a governmental body must take into consideration in its judgments allocating contracts, access to sewer lines, zoning, and things like that. . . . So the antitrust law is a square peg trying to be forced into a round hole of government operation.<sup>213</sup>

As a result of these immunities, absent outright price-fixing or other serious misconduct, water marketing transactions may evade liability when governmental entities are market participants.<sup>214</sup>

## VI. LIBERATING COLLABORATIVE FORCES WHILE KEEPING WATER BARONS AT BAY

The requirement that water rights be put to an actual, non-speculative beneficial use has served as a universal principle of western and indeed international water law.<sup>215</sup> This principle is being called into question, however, as environmental and social priorities evolve.

Throughout the West, a diverse coalition of urban and Native American users, environmental groups, and local watershed protection organizations are contesting the traditional water allocation regime. These groups have a common complaint: too much cheap water is allocated to agriculture and not enough is allocated to urban users, Native American tribes, instream flow maintenance, and aquatic ecosystem restoration.<sup>216</sup>

It appears, then, that it may be time for western water law to evolve as well to better reflect these new demands. Specifically, has the anti-speculation doctrine outlived its usefulness? Critics have lobbed several meritorious, yet, in the end, unconvincing charges at it. First, the doctrine may have the perverse consequence of fostering covert speculation. In other words, prohibiting water rights holders from reserving water for future use “merely force[s] the would-be speculator to disguise his activity by wasting resources in the construction of diversion works that are either economically unjustifiable regardless of their timing . . . , or are premature.”<sup>217</sup> Although it is difficult if not impossible to trace whether covert speculation is occurring and, if so, how often and on what scale, it seems highly unlikely that a large number of individuals are intentionally pouring water on fallow fields for the purpose of sell-

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<sup>212</sup> 130 CONG. REC. S14367 (1984) (statement of Sen. Moynihan).

<sup>213</sup> 130 CONG. REC. H12183 (1984) (statement of Rep. Hyde). For a detailed assessment of the legislative history, see *Palm Springs Med. Clinic, Inc. v. Desert Hosp.*, 628 F. Supp. 454, 459-64 (C.D. Cal. 1986).

<sup>214</sup> Somach & Hitchings, *supra* note 197, at 29.

<sup>215</sup> MIGUEL SOLANES & FERNANDO GONZALEZ-VILLARREAL, *THE DUBLIN PRINCIPLES FOR WATER AS REFLECTED IN A COMPARATIVE ASSESSMENT OF INSTITUTIONAL AND LEGAL ARRANGEMENTS FOR INTEGRATED WATER RESOURCES MANAGEMENT* ¶ 17 (1999), available at <http://www.africanwater.org/SolanesDublin.html>.

<sup>216</sup> Tarlock, *supra* note 14, at 674-75.

<sup>217</sup> Stephen F. Williams, *The Requirement of Beneficial Use as a Cause of Waste in Water Resource Development*, 23 NAT. RESOURCES J. 7, 13 (1983).

ing off their water rights at a later date.<sup>218</sup> It is true that the prior appropriation system encourages irrigators and other water users to err on the side of using too much because the penalty for nonuse is loss of the water.<sup>219</sup> But that is a far cry from constructing diversion works and applying the water to a use with no economic benefit, such as a crop with no subsistence value and no market, just to hold on to the water in hopes of some lucrative future sale.<sup>220</sup>

It could also be said that anti-speculation rules prevent rational planning for anticipated future growth. But the prevalence of municipal exceptions, described in Part IV above, undermines this argument, as does a recent survey by researchers at the University of Arizona and the Bren School of Environmental Management, which found that nearly half of all transfers in the West occurred in the state with the reputation for having the most stringent anti-speculation laws—Colorado.<sup>221</sup> Most of these transfers involve the Colorado-Big Thompson Project, a mutual water company that facilitates a transbasin diversion of water from the West Slope to the Front Range.<sup>222</sup>

A third group of critics draw on the experiences of South America, which has been moving toward privatization of water resources in the past few decades. Chile stands out as an example. As a component of broad government reforms toward a market-oriented economic policy by the authoritarian government of General Pinochet, Chile's 1981 Water Code did away with its anti-speculation prohibition.<sup>223</sup> The Code granted unconditional private water rights that allowed owners to freely sell or change the type of use without government approval.<sup>224</sup> Water rights holders were not required actually to use the water.<sup>225</sup> The World Bank supported Chile's approach to privatization, reporting that it would improve water delivery, stimulate investment, and reduce conflicts over water.<sup>226</sup>

It was not long before it became apparent that hydropower projects belonging to a single corporation had purchased vast quantities of water rights on a speculative basis, locking new entrepreneurs out of the market and making water unavailable for actual, beneficial uses.<sup>227</sup> Water marketing schemes also spawned confrontations between native people and the government over indig-

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<sup>218</sup> Neuman, *supra* note 15, at 969.

<sup>219</sup> See *supra* note 70 and accompanying text (describing forfeiture rules).

<sup>220</sup> Neuman, *supra* note 15, at 969.

<sup>221</sup> Brewer et al., *supra* note 62, at 1043.

<sup>222</sup> *Id.* As "developed" water, it is subject to the complete control of the company. Another important feature of the Colorado-Big Thompson project involves the use of shares to represent members' interests in water, which in turn allows an active market for the shares by minimizing transaction costs. *Id.*

<sup>223</sup> CARL J. BAUER, SIREN SONG: CHILEAN WATER LAW AS A MODEL FOR INTERNATIONAL REFORM 47-50 (2004).

<sup>224</sup> Draper, *supra* note 63, at 54. Administrative approval is apparently required, however, for changes in location of diversions from natural channels. *Id.*

<sup>225</sup> Rutgerd Boelens & Hugo de Vos, *Water Law and Indigenous Rights in the Andes*, CULTURAL SURVIVAL Q., Winter 2006, 19, 19, available at <http://www.cs.org/publications/Csq/csq-article.cfm?id=1867>.

<sup>226</sup> Draper, *supra* note 63, at 55 (citing World Bank, *Peru: A User-Based Approach to Water Management and Irrigation Development*, World Bank Report No. 13642-PE (1994)).

<sup>227</sup> SOLANES & GONZALEZ-VILLARREAL, *supra* note 215, ¶¶ 18, 110.

enous lands and water resources.<sup>228</sup> An in-depth analysis of the Chilean approach concluded that, contrary to expectations, it was “incapable of handling the complex problems of river basin management, water conflicts, and environmental protection.”<sup>229</sup> Social and environmental ramifications of water marketing had been ignored while the economic benefits turned out to be weaker than anticipated because there were no meaningful, effective mechanisms for resolving conflicts or internalizing externalities arising from water transfers.<sup>230</sup>

Chile amended its Water Code in 2005 and imposed a new annual tax on unused water rights.<sup>231</sup> As a consequence, water rights owners have been induced to sell their unused water rights to avoid paying the tax, thereby stimulating increased activity in water rights transactions.<sup>232</sup> In the end, Chile’s experimentation with rescinding its anti-speculation provision indicates that the doctrine, along with the companion forfeiture rule, has continuing value.

A final argument for opening water markets to speculative transfers relies on the existing “no harm” rule to address potential adverse effects to other appropriators resulting from transfers or changes in use.<sup>233</sup> Hence, market principles should be allowed to take their course, so the argument goes, allowing speculative transfers if the benefits exceed the costs so long as mechanisms are in place to prevent harm to others.

The problem with this argument is twofold. First, when it comes to water, “perfect information is greatly lacking,”<sup>234</sup> making it extremely difficult to foresee and therefore prevent all harm to other appropriators. Second, in most states, the no harm rule does not protect third parties from harm, but only other appropriators.<sup>235</sup> Adverse social and environmental consequences of water marketing go unrectified and, in many cases, unnoticed by the law. Rescinding the anti-speculation rule would not address this problem, but reforming the “no harm” rule might.

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<sup>228</sup> See Lila Barrera-Hernández, *Indigenous Peoples, Human Rights and Natural Resource Development: Chile’s Mapuche Peoples and the Right to Water*, 11 ANN. SURV. INT’L & COMP. L. 1, 13-14 (2005) (describing the Panguel-Ralco Project, a hydro-electric development plan approved by the Chilean government in 1989 on traditional Mapuche lands).

<sup>229</sup> BAUER, *supra* note 223, at 132.

<sup>230</sup> *Id.* at 133. For a description of the domestic and international backlash against privatization of water supplies in Bolivia, see Salzman, *supra* note 8, at 96.

<sup>231</sup> Miriam Grunstein et al., *International Legal Developments in Review: 2006 Energy and Natural Resources*, 41 INT’L LAW. 491, 505 (2007) (citing Title XI of the Chilean Water Code); see STEPHEN HODGSON, U.N FOOD & AGRIC. ORG., MODERN WATER RIGHTS: THEORY AND PRACTICE (2006), available at <ftp://ftp.fao.org/docrep/fao/010/a0864e/a0864e00.pdf>.

<sup>232</sup> Grunstein et al., *supra* note 231, at 505; see Carl Bauer, *Marketing Water, Marketing Reform: Lessons from the Chilean Experience*, RESOURCES, Summer 2003, at 11, 13 (describing Chilean water markets as having “a limited impact on the efficiency of water use and the reallocation of resources . . . due to a variety of constraints and transaction costs”).

<sup>233</sup> See, e.g., *Green v. Chaffee Ditch Co.*, 371 P.2d 775 (Colo. 1962).

<sup>234</sup> Freyfogle, *supra* note 69, at 1544 n.65; see Deborah Moore & Zach Willey, *Water in the American West: Institutional Evolution and Environmental Restoration in the 21st Century*, 62 U. COLO. L. REV. 775, 800 (1991) (arguing “there are many potential impacts from water transfers that need to be better understood if equitable and environmentally-benign transfers are to occur”).

<sup>235</sup> See, e.g., *Green*, 371 P.2d 775.

As for overhauling the anti-speculation doctrine itself, with one caveat described below, major reform seems unnecessary in light of existing exceptions, which temper the doctrine's effects by allowing municipalities to plan for future growth and by allowing human and ecological communities to benefit from instream flow preservation. These exceptions can bring conservation options to light while fostering collaborative decisionmaking by bringing urban and environmental interests to the table and providing a means to satisfy their concerns. Exceptions that enable Indian tribes to benefit from ancient yet long unused reserved water rights are also appropriate. Negotiated water rights settlements have become an important means of effectuating tribal self-determination.<sup>236</sup> In a typical negotiated settlement, the tribe agrees to relinquish its "paper water" claims to reserved rights in exchange for a secure quantity of "wet water" to be delivered through development projects constructed with federal funds.<sup>237</sup> The agreement would be worth far less to the tribe if anti-speculation and forfeiture constraints were imposed on its ability to use, store, and market the water.

Of all the various exceptions to the anti-speculation doctrine, the exception for foreign or developed water is the one most in need of reform.<sup>238</sup> As Professor Christine Klein has observed, calling foreign or developed water "new" is a misnomer with "alchemical overtones."<sup>239</sup> There is no way to create new water within the hydrological cycle, as "[t]here is essentially the same amount of freshwater on the planet today as there was 2,000 years ago."<sup>240</sup> Even desalination plants simply convert salt water to fresh water; the output is not new. Whether the water in question originated in a cloud above the watershed where it is to be used, in a groundwater aquifer, or in another basin, the law should recognize that it is connected to the existing water supply and that its use or sale has implications for other water users and surrounding communities.

## VII. CONCLUSION

Statutory expressions of beneficial use have changed and will continue to evolve over time to reflect changed social values and new scientific under-

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<sup>236</sup> Royster, *supra* note 155, at 381, 395-97.

<sup>237</sup> See McCool, *NATIVE WATERS*, *supra* note 155. Professor Daniel McCool predicts that negotiated water settlements will likely provide considerable benefits to tribes. He examines the features of fourteen negotiated settlements, commenting on the length of time to complete settlements, the quantities of water promised to reservations, the degree to which a more cooperative relationship between tribes and non-Indians has been achieved, and the potential for off-reservation marketing. *Id.*

<sup>238</sup> See *supra* Part IV.B (describing foreign and developed water).

<sup>239</sup> Klein, *supra* note 6, at 14; see Tighe, *supra* note 145, at 1130 ("Allowing speculation rights for reuse [of developed water] may well provide an incentive for importing more Western Slope water instead of fully and efficiently using water naturally present on the Front Range.").

<sup>240</sup> Klein, *supra* note 6, at 14; see Sandra L. Postel, *Water Resources: For Our Thirsty World, Efficiency or Else*, 313 *SCIENCE* 1046, 1046-47 (2006); Earth Observatory, *The Water Cycle: A Multi-Phased Journey*, [http://earthobservatory.nasa.gov/Library/Water/water\\_2.html](http://earthobservatory.nasa.gov/Library/Water/water_2.html) (last visited May 28, 2008) (describing the hydrological cycle).

standing.<sup>241</sup> But the time for rescission of the anti-speculation doctrine has not yet come, and perhaps it never will. There is still a strong sense that speculation in water is just plain wrong. This may be because we continue to be influenced by our ancestors' populist impulses and mistrust of corporate Water Barons, but it may also signify more global concerns about privatization of water.

Water marketing can be a viable tool among an array of collaborative strategies for water management, yet because market forces tend to focus on short planning cycles and fail to prevent the imposition of harmful externalities on non-parties, market transactions have the potential to compromise the needs of current and future generations of water users and to undermine governmental authority over essential water resources. Thus, to the extent that society envisions marketing as a tool to reallocate water, governments must continue to play a significant role in overseeing water transfers to ensure that the interests of affected third parties are protected and the water remains available for beneficial use. More to the point, states must retain oversight and control of speculative transfers, as federal law will rarely serve as an effective curb on water profiteering or monopolistic behavior by water suppliers.<sup>242</sup>

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<sup>241</sup> Neuman, *supra* note 15, at 924; see Eric T. Freyfogle, *Water Rights and the Common Wealth*, 26 ENVTL. L. 27, 42 (1996) ("Beneficial use must expressly come to mean beneficial by the standard of *today's* culture, not by the standards of some culture long-eclipsed by changing values and circumstances.").

<sup>242</sup> See *supra* Part V (assessing federal antitrust law as applied to water).