# CLIMATE DISRUPTION, THE WASHINGTON CONSENSUS, AND WATER LAW REFORM

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## I. INTRODUCTION

The planet today is undergoing disruptive climate change.[1] As one study found, after nearly a millennium of a slow but steady cooling trend, the twentieth century has seen a dramatic upsurge in average global temperatures.[2] For some years, farmers have experienced measurably longer growing seasons in the Northern Hemisphere.[3] These changes—which now seem indisputably to result from human activity[4]—will have vastly altered precipitation patterns around the

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1. *See* Dimmock v. Sec'y of State for Educ. & Skills, [2008] All E.R. 367, ¶ 17 (Q.B.) (finding that substantial scientific research supports the conclusion that global temperatures have been steadily rising for last fifty years as result of man-made emissions of carbon dioxide, methane, and nitrous oxide); *Climate Change: Understanding the Degree of the Problem: Hearing Before H. Comm. on Gov't Reform*, 109th Cong. 87–89 (2006) (statement of Thomas Karl, Director, National Climatic Data Center, National Oceanic and Atmospheric Administration) (discussing climate models and noting that human influences affect climate changes, which will include "changes in extremes of temperature and precipitation, decreases in seasonal and perennial snow and ice extent, sea level rise, and increases in hurricane intensity and related heavy and extreme precipitation"); *Climate Change: Hearing Before S. Comm. on Energy & Natural Resources*, 109th Cong. 14–17 (2005) (statement of Ralph J. Cicerone, President, National Academy of Sciences) (discussing climate change and effects such as glacial melting and changes in quantity and location of plants and animals); Intergovernmental Panel on Climate Change [IPCC], *Climate Change 2007 - The Physical Science Basis: Contribution of Working Group I to the Fourth Assessment Report of the IPCC*, at 2–9 (2007) [hereinafter IPCC, *The Physical Science Basis*] (discussing measured changes in, inter alia, methane and nitrous oxide levels, atmospheric water vapor, and deep ocean water temperature).

2. William K. Stevens, *Song of the Millennium: Cool Prelude and a Fiery Coda*, N.Y. TIMES, Mar. 9, 1999, at F5.

3. *See* William K. Stevens, *March May Soon Be Coming in Like a Lamb*, N.Y. TIMES, Mar. 2, 1999, at F3 (stating that global warming caused eleven-day extension of growing season).

4. *See Dimmock*, [2008] All E.R. 367 at ¶ 17 (stating that "the weight of scientific evidence . . . confirms" that global warming is "'very likely' . . . attributable to man-made greenhouse gas emissions"); IPCC, *The Physical Science Basis*, *supra* note 1, at 2–5 (listing human activities such as fossil fuels and agriculture as causes of climate change); WILLIAM R. COTTON & ROGER A. PIELKE, HUMAN IMPACTS ON WEATHER AND CLIMATE (2d ed. 2007) (discussing the climate change effects of human actions such as cloud seeding, irrigation, and deforestation); TIM FLANNERY, THE WEATHER MAKERS: HOW MAN IS CHANGING THE CLIMATE AND WHAT IT MEANS FOR LIFE ON EARTH 28–29,

world.[5] In addition to simple changes in the total availability of water, climate disruption will bring more extreme events—droughts and floods—at more frequent intervals.[6] Those changes in turn will have drastic effects on innumerable aspects of the lives of humans[7] and other living things.[8] Water, in

160–62 (2005); ELIZABETH KOLBERT, FIELD NOTES FROM A CATASTROPHE: MAN, NATURE, AND CLIMATE CHANGE 132–35 (2006) (listing the ways that human activities such as using electricity, driving cars, and pursuing growth contribute to greenhouse warming); JAMES LOVELOCK, THE REVENGE OF GAIA: EARTH'S CLIMATE IN CRISIS & THE FATE OF HUMANITY 66, 106 (2006) (stating that humans are cause of the earth's warming through, among other things, greenhouse gases and rainforest destruction); Lee A. DeHihns, III, *Climate and the Courts*, ENVTL. F., Jan./Feb. 2008, at 25–26 (discussing environmental groups' suits against energy companies for carbon dioxide emissions); Juliet Eilperin, *Carbon Output Must Near Zero to Avert Danger, New Studies Say*, WASH. POST, Mar. 10, 2008, at A1; Juliet Eilperin, *Last Year Among Hottest on Record, Say Scientists*, WASH. POST, Jan. 12, 2008, at A3 (stating 2007 second-warmest year due to greenhouse gas emissions). *See generally* MICHAEL H. GLANTZ, CLIMATE AFFAIRS: A PRIMER (2003) (discussing climate change's importance for politics, society, and globalization). For the skeptics' view of the role of human activities in causing climate change, see THE HEARTLAND INSTITUTE, NATURE, NOT HUMAN ACTIVITY, RULES THE CLIMATE iv (S. Fred Singer ed., 2008), *available at* http://heartland.temp.siteexecutive.com/pdf/22835.pdf; Juliet Eilperin, *Global Warming Skeptics Insist Humans Not at Fault*, WASH. POST, Mar. 4, 2008, at A16; Andrew C. Revkin, *Cool View of Science at Meeting on Warming*, N.Y. TIMES, Mar. 4, 2008, at A20 (stating that an antiwarming physicist believes that global warming is caused by "vagaries in the sun"); Andrew C. Revkin, *Skeptics on Human Climate Impact Seize on Cold Spell*, N.Y. TIMES, Mar. 2, 2008, at A18; John Tierney, *In 2008, a 100 Percent Chance of Alarm*, N.Y. TIMES, Jan. 1, 2008, at F1 (stating that global warming alarm is caused by cyclical weather patterns).

5. *See generally* IMPACTS OF CLIMATE CHANGE AND CLIMATE VARIABILITY ON HYDROLOGICAL REGIMES (Jan C. van Dam ed., 1999) (discussing hydrological changes in South America, North America, Europe, Africa, Asia, and Australia).

6. *See* IPCC, *The Physical Science Basis*, *supra* note 1, at 617–29, 783 (discussing various weather phenomena and patterns affected by warming); IPCC, *Climate Change 2007 – Impacts, Adaptation and Vulnerability: Contribution of Working Group II to the Fourth Assessment Report of the IPCC*, 177–78, 186-87, 193 (2007) [hereinafter IPCC, *Impacts, Adaptation and Vulnerability*] (discussing how warmer climates result in more droughts and floods); JONATHAN NOTT, EXTREME EVENTS: A PHYSICAL RECONSTRUCTION AND RISK ASSESSMENT 18 (2006) (stating jet stream changes may result in "short-term drought and semi-permanent climatic change"); Stanley A. Changnon & Nancy E. Westcott, *Heavy Rainstorms in Chicago: Increasing Frequency, Altered Impacts, and Future Implications*, 38 J. AM. WATER RESOURCES ASS'N 1467, 1474 (2002); M. Monirul Qader Mirza, R. A. Warrick & N. J. Ericksen, *The Implications of Climate Change on Floods of the Ganges, Brahmaputra and Meghna Rivers in Bangladesh*, 57 CLIMATIC CHANGE 287, 299–315 (2003); Paul E. Todhunter, *A Hydroclimatological Analysis of the Red River of the North Snowmelt Flood Catastrophe of 1997*, 37 J. AM. WATER RESOURCES ASS'N 1263, 1274 (2001) (discussing ice jams' role in 1997 Grand Forks flood); Evelyn L. Wright & Jon D. Erickson, *Incorporating Catastrophes into Integrated Assessment: Science, Impacts, and Adaptation*, 57 CLIMATIC CHANGE 265, 270–72 (2003); *Water Rationing Ordered After 4-Year Drought*, INT'L HERALD TRIB., Mar. 25, 2008, at 4.

7. *See, e.g.*, CLIMATE CHANGE AND WATER RESOURCES IN SOUTH ASIA 2–17, 177 (M. Monirul Qader Mirza & Q. K. Ahmad eds., 2005) (listing social impacts of droughts caused by climate change, including decreased agricultural output, falls in industrial production, malnutrition, and migration); MICHAEL COLLIER & ROBERT H. WEBB, FLOODS, DROUGHTS, AND CLIMATE CHANGE 8–32 (2002); Heejun Chang et al., *The Effects of Climate Change on Stream Flow and Nutrient Loading*, 37 J. AM. WATER RESOURCES ASS'N 973, 973–74, 984 (2001) (discussing increase in nutrient loads, leading to increased algae growth, due to climate change); Gilberto C. Gallopín & Frank Rijsberman, *Three Global Water Scenarios*, 1 INT'L J. WATER 16, 30–31 (2000) (discussing predicted effects water use will have on human life by 2025); Brian H. Hurd et al., *Climatic Change and U.S. Water Resources: From*

short, is the most critical resource affected by climate disruption. Without water, we have no food, we have no health, and we have no life.[9]

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*Modeled Watershed Impacts to National Estimates*, 40 J. AM. WATER RESOURCES ASS'N 129, 145–47 (2004) (discussing how climate change may affect water supply); Mike R. Scarsbrook et al., *Effects of Climate Variability on Rivers: Consequences for Long Term Water Quality Analysis*, 39 J. AM. WATER RESOURCES ASS'N 1435, 1446 (2003) (proving a connection between climate change and river water characteristics); Symposium, *Inconvenient Hydrology?*, SW. HYDROLOGY, Jan./Feb. 2007, at 16, 16–28, 35–37 (explaining how winter precipitation and the timing of the spring snowmelt impact the Southwest's water resources); Nicholas D. Kristof, *Extended Forecast: Bloodshed*, N.Y. TIMES, Apr. 13, 2008, § 4, at 15 (discussing the rise of witchcraft killings during periods of strange weather); Doug Struck, *Inuit See Signs in Arctic Thaw*, WASH. POST, Mar. 22, 2006, at A1 (discussing the Inuits' confirmation of climate change effects). Although the general pattern of climate change as resulting from human activities is now well established, establishing that any particular effect is caused by human activity remains highly problematic. *See generally* Myles Allen et al., *Scientific Challenges in the Attribution of Harm to Human Influence on Climate*, 155 U. PA. L. REV. 1353, 1359 (2007).

8. *See* DAVID S. WILCOVE, NO WAY HOME: THE DECLINE OF THE WORLD'S GREAT ANIMAL MIGRATIONS 5–7 (2008) (discussing the cumulative impact of overharvesting, habitat destruction, and climate change on migratory animals); Brendan R. Cummings & Kassie R. Siegel, Ursus Maritimus*: Polar Bears on Thin Ice*, NAT. RESOURCES & ENV'T, Fall 2007, at 3, 3 (discussing a proposal to include polar bears on endangered species list due to melting glacial habitats); Jonathan M. Hanna, Oncorhynchus *spp.: Climate Change, Pacific Northwest Tribes, and Salmon*, NAT. RESOURCES & ENV'T, Fall 2007, at 13, 13 (stating that salmon egg incubation is negatively affected by warmer water temperatures); Wayne Hsiung & Cass R. Sunstein, *Climate Change and Animals*, 155 U. PA. L. REV. 1695, 1696 (2007) (discussing global warming's effects on polar bears, harlequin frogs, and British ring ouzel); Pam Belluck, *Warm Winters Upset Rhythms of Maple Sugar*, N.Y. TIMES, Mar. 3, 2007, at A1; Cynthia Berger, *Winter's Early Birds*, NAT. WILDLIFE, Feb./Mar. 2008, at 47 (discussing a study showing that global warming is harming the natural habitat of the February-nesting gray jay); Lisa W. Drew, *Bering Sea Blues*, NAT. WILDLIFE, Feb./Mar. 2008, at 23 (discussing the consequences of global warming for species whose lives depend on ice); Timothy Egan, *Heat Invades Cool Heights over Arizona Desert*, N.Y. TIMES, Mar. 27, 2007, at A1 (stating that plants and animals found only on isolated "sky island" peaks are negatively affected by warming); Juliet Eilperin, *Many Amphibian Species Face Extinction, Study Says*, DESERET NEWS (Salt Lake City), Oct. 17, 2004, at A12; Juliet Eilperin, *NOAA to Assess Whether Melting Ice Endangers Seals*, WASH. POST, Mar. 27, 2008, at A2 (discussing four types of seals' potential inclusion on the endangered species list); Blaine Harden & Juliet Eilperin, *On the Move to Outrun Climate Change*, WASH. POST, Nov. 26, 2006, at A3 (observing that animal species are migrating in response to warming); Marc Kaufman, *Walrus Calves Stranded in Arctic*, SEATTLE TIMES, Apr. 15, 2006, at A6 (stating that glacial melting separates walrus mothers and children); Rick Lyman, *Rising Ocean Temperatures Threaten Florida's Coral Reef*, N.Y. TIMES, May 22, 2006, at A14; Mort Rosenblum, *The Olive Tree Doesn't Lie*, N.Y. TIMES, Dec. 23, 2007, at WK9 (stating that shifting temperatures have affected olive crops); Antonio Skármeta, *Chile's Rising Waters and Frozen Avocados*, N.Y. TIMES, Dec. 23, 2007, at WK9 (discussing how melting Chilean glaciers have damaged fruit and vegetable crops, including avocados); William Yardley, *With Altered Migratory Patterns, Duck Hunting Season Is in a Blind*, N.Y. TIMES, Dec. 11, 2007, at A30.

9. *See, e.g.*, U.N. Econ. & Soc. Council [ECOSOC], Comm. on Econ., Soc. & Cultural Rights, *Substantive Issues Arising in the Implementation of the International Covenant on Economic, Social and Cultural Rights*, ¶ 3, UN Doc. E/C.12/2002/11 (Jan. 20, 2003), *available at* http://www.unhchr.ch/tbs/doc.nsf/0/a5458d1d1bbd713fc1256cc400389e94/$FILE/G0340229.pdf (explaining how human right to water derives from rights to food, health, and life); *see also* MARQ DE VILLIERS, WATER: THE FATE OF OUR MOST PRECIOUS RESOURCE 8, 63 (2003) (discussing impending water problems due to limited water resources and exploding population growth); FRESH WATER AND INTERNATIONAL ECONOMIC LAW (Edith Brown Weiss et al. eds., 2005); MARK W. ROSEGRANT, XIMING CAI & SARAH A. CLINE, WORLD WATER AND FOOD TO 2025: DEALING WITH SCARCITY (2002); Chad A. West, *For Body, Soul, or Wealth: The Distinction, Evolution, and Policy Implications of a Water Ethic*, 26 STAN. ENVTL. L.J.

The challenge to water management institutions will also be a challenge to water law regimes that create and regulate these institutions. The stresses produced by these challenges are occurring in a world still dominated by the "Washington Consensus." That phrase refers to a view that markets are a superior way of managing resources and the economy, and that markets should be used both to allocate resources and to distribute wealth within society.[10] The pressure for reliance on markets as the primary tool for responding to the growing water crisis has produced intense controversy internationally and within the United States.[11] This controversy at the least raises serious questions about the utility of the Washington Consensus as a tool for resolving the growing global water crisis.

In this Article, I address how national or local water law regimes should respond to the pressures.[12] In Part II of this Article, I briefly survey the likely effects of the climate disruption on water availability. In Part III, I consider the Washington Consensus and whether that Consensus provides an appropriate response to the growing water crisis rooted in climate disruption as well as the other stresses on water resources. In Part IV, I consider the alternatives to the Washington Consensus. In Part V, I suggest certain overall conclusions.

## II. CLIMATE DISRUPTION AND OTHER CAUSES OF THE CRISIS IN WATER AVAILABILITY

Projecting the impact of climate disruption on water resources necessarily involves considerable guesswork. For example, Gene Stakhiv of the U.S. Army Corps of Engineers surveyed six projections of the impact of climate change on the flow of the Nile at Aswan, finding that all but one predicted significant increases over the next century.[13] The forecasted increases ranged from 6% to 137%, with one projection predicting a decline of 15%. He found similarly divergent projections for the river systems in the United States.[14] The

201, 202, 232 (2007) (arguing for adoption of water ethic separate from environmental ethic due to necessity of water for life); Violeta Petrova, Note, *At the Frontiers of the Rush for Blue Gold: Water Privatization and the Human Right to Water*, 31 BROOK. J. INT'L L. 577, 593–601 (2006) (discussing water as a human right).

10. *See, e.g.*, JOSEPH E. STIGLITZ, GLOBALIZATION AND ITS DISCONTENTS 53 (2002) (discussing the "Washington Consensus"); Paul Krugman, *Dutch Tulips and Emerging Markets*, FOREIGN AFF., July/Aug. 1995, at 28, 28–29 (same).

11. *See, e.g.*, Andrew Nickson & Claudia Vargas, *The Limitations of Water Regulation: The Failure of the Cochabamba Concession in Bolivia*, 21 BULL. OF LATIN AM. RES. 99, 99–100 (2002) (discussing popular resistence to governmental transfer of water control to the private sector in Bolivia); D. L. Bennett, *Atlanta Water System: Back in City Hands, Agency Bogged Down*, ATLANTA J.-CONST., June 12, 2003, at JN1 (discussing the failure of Atlanta's transfer of its municipal water system to private operators). *See generally* JEFFREY ROTHFEDER, EVERY DROP FOR SALE: OUR DESPERATE BATTLE OVER WATER IN A WORLD ABOUT TO RUN OUT (2001).

12. I address the international water law issues in Joseph W. Dellapenna, *International Water Law in a Climate of Disruption*, 17 MICH. ST. J. INT'L L. (forthcoming 2009).

13. E.Z. Stakhiv, *Policy Implications of Climate Change Impacts on Water Resources Management*, 1 WATER POL'Y 159, 169–70 (1998).

14. *Id.* at 170–73.

intervening years have only somewhat reduced such uncertainty about particular basins.[15] Yet we are not without a basis for projecting some potentially dire consequences. I have written elsewhere on how the impact of the end of the most recent Ice Age is suggestive of the challenges we face.[16] That climate disruption forced humans to invent agriculture[17] and gave birth to what we call civilization and various forms of ever-larger scale social organizations.[18]

Given the speed with which the present climate disruption is happening, our responses will have to be similarly accelerated.[19] Precipitation patterns are changing, ranging from significant declines in overall precipitation to a change from snow to rain.[20] Over the coming century, arid regions will become wider,[21] while the infrastructure we have built for managing water resources will become obsolete.[22] The melting of glaciers and of the mountain snowpack will destroy these immense reservoirs of fresh water that provide the base flows of innumerable rivers during the dry months of the year, depriving vast regions of their summer water supplies.[23] The accelerated melting of glaciers will actually

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15. IPCC, *Impacts, Adaptation and Vulnerability*, *supra* note 6, at 180–86.

16. *See* Joseph W. Dellapenna, *The Two Rivers and the Lands Between: Mesopotamia and the International Law of Transboundary Waters*, 10 BYU J. PUB. L. 213, 214–16 (1996).

17. *See* WILLIAM J. BURROUGHS, CLIMATE CHANGE IN PREHISTORY: THE END OF THE REIGN OF CHAOS 1 (2005) (concluding that climate change affected human diasporas); DANIEL HILLEL, RIVERS OF EDEN: THE STRUGGLE FOR WATER AND THE QUEST FOR PEACE IN THE MIDDLE EAST 42–45, 51–54 (1994) (noting that Fertile Crescent crops allowed hunter-gatherers to settle and begin agriculture-based subsistence at the end of the last ice age); ARIE S. ISSAR, CLIMATE CHANGES DURING THE HOLOCENE AND THEIR IMPACT ON HYDROLOGICAL SYSTEMS 12–13 (2003) (concluding that irrigation enabled agriculture as a respone to climate changes reflecting the end of the last ice age); ARIE S. ISSAR, WATER SHALL FLOW FROM THE ROCK: HYDROGEOLOGY AND CLIMATE IN THE LANDS OF THE BIBLE (1990); Brian Halweil, *The Irony of Climate*, WORLD WATCH, Mar./Apr., 2005, at 18, 19, *available at* http://www.worldwatch.org/system/files/EP182A.pdf (concluding that agriculture started after Ice Age due to "warmer, wetter, and more stable climate"). *See generally* JANE JACOBS, THE ECONOMY OF CITIES 18–48 (1969) (concluding that cities preceded, and then promoted, agriculture).

18. *See* ROBERT ADAMS, LAND BEHIND BAGHDAD: A HISTORY OF SETTLEMENT ON THE DIYALA PLAINS 33–45 (1965) (noting that early village settlements occurred near natural water and, over time, communities expanded and residents altered water flow to fit changing needs); IRRIGATION'S IMPACT ON SOCIETY (T.E. Downing & McGuire Gibson eds., 1974); KARL A. WITTFOGEL, ORIENTAL DESPOTISM: A COMPARATIVE STUDY OF TOTAL POWER (1957) (asserting that sedentary farming in dry climates led to society and, ultimately, government); Yahia Bakour & John Kolars, *The Arab Mashrek: Hydrologic History, Problems and Perspectives*, *in* WATER IN THE ARAB WORLD: PERSPECTIVES AND PROGNOSES 121, 123–27 (Peter Rogers & Peter Lydon eds., 1994); Vujica Yevjevich, *Water and Civilization*, 17 WATER INT'L 163 (1992).

19. *See* Halweil, *supra* note 17.

20. IPCC, *Impacts, Adaptation and Vulnerability*, *supra* note 6, at 177, 183, 187, 190, 192–93.

21. *Id.* at 223, 435, 439, 447–49, 451, 472, 477-78, 583, 585, 590, 596, 606–07.

22. *Id.* at 175, 178–79, 185, 193–95.

23. IPCC, *The Physical Science Basis*, *supra* note 1, at 175–77, 179, 184, 187, 194, 337–83, 814–22; Press Release, UN Env't Programme, Meltdown in the Mountains (Mar. 16, 2008), *available at* http://unep.org/Documents.Multilingual/Default.asp?DocumentID=530&ArticleID=5760&l=en; *see also* Norman L. Miller, Kathy E. Bashford & Eric Strem, *Potential Impacts of Climate Change on California Hydrology*, 39 J. AM. WATER RESOURCES ASS'N 771, 783 (2003) (concluding that global

increase the runoff to the benefit of water-short areas in the short run, but in the long run water flows will decrease dramatically.[24] Hotter temperatures and drier air also means higher rates of evapotranspiration, and hence drier soils less supportive of plant life without irrigation.[25]

These changes render obsolete the existing arrangements for water management even in regions where water has historically been plentiful. Thus the states in the relatively humid southeastern region of the United States struggled over their shared water resources for nearly two decades,[26] prompted in large measure by a series of unprecedented droughts, each worse than the record-setting drought that preceded it, with brief interruptions of only a few wet years.[27] The declining quantities of water will seriously impair water's ability to assimilate pollutants[28] and could pose national security problems.[29]

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warming may cause a fifty percent decrease in snow by the end of the twenty-first century, resulting in less available water); Charles J. Hanley, *On Africa's Great Peaks, Glaciers Are in Retreat*, WASH. POST, Dec. 31, 2006, at A18 (discussing the disappearance of glaciers on tropical peaks, such as Mount Kilimanjaro and Mount Kenya, resulting in a future lack of water for human settlements); Jay Landers, *Climate Change to Alter California's Water Supplies, Study Says*, CIVIL ENGINEERING, Aug. 2002, at 16; Mark Landler, *Global Warming Poses Threat to Ski Resorts in the Alps*, N.Y. TIMES, Dec. 16, 2006, at A3; Somini Sengupta, *Glaciers in Retreat*, N.Y. TIMES, July 17, 2007, at F1. Snowpack, of course, varies up and down from year to year. *See, e.g.*, Warren Cornwall, *Snowpack Makes Water Supply Look Solid*, SEATTLE TIMES, Feb. 12, 2008, at B1; Laura Florez, *Sierra Snowpack to Keep Valley Watered*, TULARE ADVANCE-REGISTER, Feb. 24, 2005, at A2; Don Thompson, *Snowpack Survey Finds State Awash in Plenty of Runoff*, CONTRA COSTA TIMES (Walnut Creek, Cal.), Apr. 2, 2005, at F4. *See generally* Marc Kaufman, *Perennial Arctic Ice Cover Diminishing, Officials Say*, WASH. POST, Mar. 19, 2008, at A3.

24. *See, e.g.*, Felicity Barringer, *Lake Mead Could Be Within a Few Years of Growing Dry, Study Finds*, N.Y. TIMES, Feb. 13, 2008, at A18. *See generally* IPCC, *Impacts, Adaptation and Vulnerability*, *supra* note 6, at 183–84 (noting that global climate change causes changes in water available from melting snow); R. Edward Beighley et al., *Impacts of California's Climatic Regimes and Coastal Land Use Change on Streamflow Characteristics*, 39 J. AM. WATER RESOURCES ASS'N 1419 (2003); Katharine L. Jacobs et al., *Climate Science and Drought Planning: The Arizona Experience*, 41 J. AM. WATER RESOURCES ASS'N 437 (2005); Miller, Bashford & Strem, *supra* note 23, at 783 (predicting a substantial decrease in snowfall and a resulting decrease in water availability); Cornelia Dean, *That "Drought" in Southwest May Be Normal, Report Says*, N.Y. TIMES, Feb. 22, 2007, at A16 (suggesting that the Colorado River Basin's climate is changing, resulting in severe undercutting of the water available for residents of the basin); Marc Kaufman, *Southwest May Get Even Hotter, Drier*, WASH. POST, Apr. 6, 2007, at A3 (reporting that annual rainfall in the southwest may decrease by twenty percent); Robert Kunzig, *Drying of the West*, NAT'L GEOGRAPHIC, Feb. 2008, at 90 (describing tree ring research findings showing that the Colorado River historically provided less water than during the twentieth century and asserting that the problem could be worse with global climate disruption); Landers, *supra* note 23, at 78 (explaining that increased water runoff due to less snow and more rain will overwhelm California's current water infrastructure); Doug Smeath, *Snowmelt Surge Starting*, DESERET MORNING NEWS (Salt Lake City, Utah), May 19, 2005, at B1.

25. IPCC, *Impacts, Adaptation and Vulnerability*, *supra* note 6, at 176–77, 180, 184–87, 189–90, 192–93.

26. Joseph W. Dellapenna, *Interstate Struggles Over Rivers: The Southeastern States and the Struggle over the 'Hooch*, 12 N.Y.U. ENVTL. L.J. 828, 828–30 (2005); Jeffrey L. Jordan, *Conflict Comes to the Humid East: The Tri-state Water Wars*, *in* INTERSTATE WATER ALLOCATION IN ALABAMA, FLORIDA, AND GEORGIA: NEW ISSUES, NEW METHODS, NEW MODELS 20, 20–22 (Jeffrey L. Jordan & Aaron T. Wolf eds., 2006).

27. *See, e.g.*, Will Anderson, *Waking up—to Water*, ATLANTA J.-CONST., June 15, 2000, at B1

Even before climate disruption became manifest, pressures for water law reform at the national and international levels were already felt in many parts of the world because of the growth in water demand fueled by population growth and changing patterns of use.[30] In such societies, the existing legal regimes for water management are already obsolete if they are too inflexible.[31] Finding the right level of legal reform, however, will not be easy. Too much legal response can produce as much social turmoil as inadequate legal response. In light of such concerns, Gene Stakhiv argues for adaptive management rather than an anticipatory strategy.[32] By this, Stakhiv means that we should apply existing legal regimes with little or no change, counting on the flexibility he assumes is already built into such regimes to adapt gradually to the pressures induced by a combination of population growth, climate change, and technological innovation. Stakhiv argues against major changes in legal regimes to anticipate climate disruptions when the extent (and sometimes the precise nature) of the disruption is not known for certain. Others have suggested a turn to markets as a solution to adaptation to climate disruption in the face of massive uncertainty.

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(describing Atlanta's ban on watering lawns, instituted because of "relentless" drought); Alan Judd, *Metro Water Restrictions: Crying a River Won't Lift Limits*, ATLANTA J.-CONST., June 3, 2000, at E1 (discussing the struggle to recover from two-year long drought); Eliott Minor, *Drought in Southeast Threatens Rare Wildlife Species*, ASSOCIATED PRESS, June 5, 2000; Charles Seabrook, *Atlanta to Get More Water from Lanier*, ATLANTA CONST., June 10, 1988, at A1 (discussing Atlanta's plans to recover from long term drought); Maurice Tamman, *Georgia Clay Taking After Sahara Sand*, ATLANTA J.-CONST., June 3, 2000, at E6 (describing Georgia as desert-life after years of drought). *See generally* Ashutosh S. Limaye et al., *Macroscale Hydrologic Modeling for Regional Climate Assessment Studies in the Southeastern United States*, 37 J. AM. WATER RESOURCES ASS'N 709 (2001).

28. IPCC, *Impacts, Adaptation and Vulnerability*, *supra* note 6, at 178–79, 188–89, 196.

29. *See, e.g.*, Janos Bogardi & Hans Günter Brauch, *Global Environmental Change: A Challenge for Human Security—Defining and Conceptualising the Environmental Dimension of Human Security*, *in* UNEO—TOWARDS AN INTERNATIONAL ENVIRONMENT ORGANIZATION: APPROACHES TO A SUSTAINABLE REFORM OF GLOBAL ENVIRONMENTAL GOVERNANCE 85, 85 (Andreas Rechkemmer ed., 2005) (explaining that climate change is a security threat because it will cause state relations problems, hinder human development, cause population redistribution, and increase adaptation difficulty for poor populations); Thomas Homer-Dixon, Op-Ed., *Terror in the Weather Forecast*, N.Y. TIMES, Apr. 24, 2007, at A25 (suggesting severe drought threatens international peace); Andrew C. Revkin & Timothy Williams, *Global Warming Called Security Threat*, N.Y. TIMES, Apr. 15, 2007, at A25.

30. Joseph W. Dellapenna, *Population and Water in the Middle East: The Challenge and Opportunity for Law*, 7 INT'L J. ENV'T & POLLUTION 72 (1997). *See generally* IPCC, *Impacts, Adaptation and Vulnerability*, *supra* note 6, at 191–95 (describing water use patterns today and predicting water use habits for future); MAUDE BARLOW & TONY CLARKE, BLUE GOLD: THE FIGHT TO STOP THE CORPORATE THEFT OF THE WORLD'S WATER (2002); SANDRA POSTEL, PILLAR OF SAND: CAN THE IRRIGATION MIRACLE LAST? (1999); Otto I. Helweg, *Water for a Growing Population: Water Supply and Groundwater Issues in Developing Countries*, 25 WATER INT'L 33 (2000) (observing that urban population growth in developing countries places a heavy burden on water infrastructure).

31. *See generally* Joseph W. Dellapenna, *Adapting the Law of Water Management to Global Climate Change and Other Hydropolitical Stresses*, 35 J. AM. WATER RESOURCES ASS'N 1301 (1999).

32. *See* Harry F. Lins & Eugene Z. Stakhiv, *Managing the Nation's Water in a Changing Climate*, 34 J. AM. WATER RESOURCES ASS'N 1255 (1998).

## III. THE WASHINGTON CONSENSUS

The election of Ronald Reagan as president of the United States brought to power in Washington a group of people committed to the primacy of markets as the mechanism of social organization and with the willingness to pursue that philosophy aggressively across the planet.[33] I refer to the most extreme of this group as "market fundamentalists." They exhibited an unreasoning devotion to the utility of markets comparable to the blind faith of religious fundamentalists of every stripe, advocating markets as the solution to all problems of social organization and management.[34] Some go so far as to argue that personal liberty is impossible without such complete devotion to markets.[35]

The dogmas of the market fundamentalists became the "Washington Consensus" because those dogmas were embraced not only by the U.S. Department of Treasury (and other branches of the U.S. government), but also by the World Bank Group[36] and the International Monetary Fund. While the

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33. *See, e.g.*, ROWLAND EVANS & ROBERT NOVAK, THE REAGAN REVOLUTION 2, 112–36 (1981) (describing President Reagan's economic policy); James Tobin, *Reaganomics in Retrospect*, *in* THE REAGAN REVOLUTION? 85 (B.B. Kymlicka & Jean V. Matthews eds., 1988) (noting Reagan's free-market ideology and radical departure from economic policies of his predecessors).

34. *See* DAVID OSBORNE & TED GAEBLER, REINVENTING GOVERNMENT: HOW THE ENTREPRENEURIAL SPIRIT IS TRANSFORMING THE PUBLIC SECTOR (1992) (advocating use of market mechanisms instead of administrative mechanisms in government); PRESIDENT'S COMM'N ON PRIVATIZATION, PRIVATIZATION: TOWARD MORE EFFECTIVE GOVERNMENT (1988) (suggesting government services, including federal housing, loans, and transit, would be more effectively provided through private sector); Peter F. Drucker, *The Sickness of Government*, 14 PUB. INT. 3 (1969) (arguing for delegation of government run programs to private institutions); Jody Freeman, *The Private Role in Public Governance*, 75 N.Y.U. L. REV. 543 (2000) (advocating for decentralized decision making and a pervasive role for private players in governance); Sidney A. Shapiro, *Outsourcing Government Regulation*, 53 DUKE L.J. 389 (2003) (arguing that privatized government increases efficiency). *See generally* ROBERT H. NELSON, ECONOMICS AS RELIGION: FROM SAMUELSON TO CHICAGO AND BEYOND (2001); Symposium, *New Forms of Governance: Ceding Power to Private Actors*, 49 UCLA L. REV. 1687 (2002). This approach is called "neo-liberalism" outside the United States. *See, e.g.*, Joel M. Ngugi, *Policing Neo-Liberal Reforms: The Rule of Law as an Enabling and Restrictive Discourse*, 26 U. PA. J. INT'L ECON. L. 513, 527 (2005).

35. *See, e.g.*, TOM BETHELL, THE NOBLEST TRIUMPH: PROPERTY AND PROSPERITY THROUGH THE AGES 179 (1998) (observing that all other rights are tied to property rights); Francesco Parisi, *Freedom of Contract and the Laws of Entropy*, 10 SUP. CT. ECON. REV. 65, 66 (2003) (arguing that market freedom creates more ideal social arrangements); O. Lee Reed, *Nationbuilding 101: Reductionism in Property, Liberty, and Corporate Governance*, 36 VAND. J. TRANSNAT'L L. 673, 674 (2003) (equating property rights and the ability to participate in market system with liberty); O. Lee Reed & Florian A. Stamm, *The Connection Between a Property-Based Legal System and National Prosperity: Example from a Divided Germany Reunified*, 33 GA. J. INT'L & COMP. L. 573, 603 (2005) (arguing that a strong market-based system is essential for national prosperity); Bernard H. Siegan, *Protecting Economic Liberties*, 6 CHAP. L. REV. 43, 120–21 (2003) (arguing that protecting economic liberty safeguards personal liberty); Peter S. Goodman, *A Fresh Look at the Apostle of Free Markets*, N.Y. TIMES, Apr. 13, 2008, § 4, at 3 (describing market advocates' belief that "economic and political freedom [are] one and the same").

36. The World Bank consists of five institutions: the International Bank for Reconstruction and Development, the International Development Association, the International Finance Corporation, the Multilateral Investment Guarantee Agency, and the International Centre for Settlement of

latter two institutions are international organizations, they have always been dominated by the United States through voting weighted according to the financial contributions to the two institutions—and the United States has always been by far the largest contributor.[37] The World Bank and the International Monetary Fund are located directly across the street from each other in downtown Washington, D.C., only a few blocks from the U.S. Treasury. From the 1980s onward, they have collaborated in proselytizing for, and in pressuring countries to adopt, market systems.[38]

I do not mean to suggest that markets are generally a bad idea. I have lived in a command (planned) economy—the People's Republic of China before the market reforms—and know first hand how bad such a system can be. My point is more modest—namely, that markets do not always work best and need to be carefully considered before being adopted as the mechanism for social ordering in a particular field of activity rather than reflexively instituted in the belief that markets always work best.

To test this view, consider the actual working of the Washington Consensus in practice. The Washington Consensus got its first big test with the collapse of communism across Eastern Europe between 1989 and 1991. With the advice of numerous American economists, and funded by the Washington institutions,[39] the newly freed countries underwent a "shock treatment" intended to convert them in the shortest possible time from nearly totally planned economies to nearly totally free market systems.[40] The results not only exhibited a great deal

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Investment Disputes. The World Bank Group, http://www.worldbankgroup.org (last visited Mar. 9, 2009).

37. Nico Krisch, *International Law in Times of Hegemony: Unequal Power and the Shaping of the International Legal Order*, 16 EUR. J. INT'L L. 369, 398–99 (2005). *See generally* Rolf H. Weber & Douglas W. Arner, *Toward a New Design for International Financial Regulation*, 29 U. PA. J. INT'L L. 391, 391–94, 408 (2007) (noting that the United States dominates the development of the world economy in various ways, including through the World Bank).

38. *See* Mark B. Baker, *No Country Left Behind: The Exporting of U.S. Legal Norms Under the Guise of Economic Integration*, 19 EMORY INT'L L. REV. 1322 (2005) (describing the U.S. imposition of economic policies on Central American countries, analogous to imposition of such demands through the International Monetary Fund); John K.M. Ohnesorge, *Developing Development Theory: Law and Development Orthodoxies and the Northeast Asian Experience*, 28 U. PA. J. INT'L ECON. L. 219, 243 (2007) (describing how U.S.-influenced institutions impose market systems on developing nations); Namita Wahi, *Human Rights Accountability of the IMF and the World Bank: A Critique of Existing Mechanisms and Articulation of a Theory of Horizontal Accountability*, 12 U.C. DAVIS J. INT'L L. & POL'Y 331, 343–44 (2006) (noting the use of conditionality by the Internatiaonl Monetary Fund and the World Bank to promote free market mechanisms in developing countries).

39. *See* Kim Reisman, Note, *The World Bank and the IMF: At the Forefront of World Transformation*, 60 FORDHAM L. REV. S349, S359–72 (1992) (describing the economic advice given to eastern European nations after the decline of Communism). *See generally* François Gianviti, *The IMF and the Liberalization of Capital Markets*, 19 HOUS. J. INT'L L. 773 (1997); Matthew J. Hagopian, *The Engines of Privatization: Investment Funds and Fund Legislation in Privatizing Economies*, 15 NW. J. INT'L L. & BUS. 75 (1994); Mary M. Shirley, *The What, Why, and How of Privatization: A World Bank Perspective*, 60 FORDHAM L. REV. S23 (1992).

40. *See generally* ORG. FOR ECON. CO-OPERATION AND DEV., REGULATORY REFORM, PRIVATISATION AND COMPETITION POLICY (1992); DIETER BÖS, PRIVATIZATION: A THEORETICAL

of corruption in which a favored few became fabulously wealthy virtually overnight, but also produced a great deal of impoverishment, especially for retirees on fixed incomes, increased social unrest, and the resurgence of left-wing political movements.[41] There were real benefits to the move towards markets, despite the social costs, and given time most of the problems were worked out or at least ameliorated.[42] And even states such as the People's Republic of China, in which the Communist Party remained in power, moved along the road to free market economies, sometimes with spectacular results but often also with spectacular social dislocations.[43]

Such was the depth of the beliefs of the market fundamentalists, however, that whatever the problems and however deep the crisis, they had only one response—let the market take its course.[44] Thus, when economies across East

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TREATMENT (1991) (discussing theories of privatization as they relate to the sale of public assets in capitalistic economies and noting their applicability to formerly communist Eastern European countries); ROMAN FRYDMAN & ANDRZEJ RAPACZYNSKI, PRIVATIZATION IN EASTERN EUROPE: IS THE STATE WITHERING AWAY? (1994); NAOMI KLEIN, THE SHOCK DOCTRINE: THE RISE OF DISASTER CAPITALISM (2007); PRIVATIZATION AND DEREGULATION IN GLOBAL PERSPECTIVE (Dennis J. Gayle & Jonathan N. Goodrich eds., 1990) (describing experiences of privatization and deregulation in seventeen countries); Project, *Privatization: The Global Scale-Back of Government Involvement in National Economies*, 48 ADMIN. L. REV. 435 (1996) (offering various academic analyses of privatization); Symposium, *A Recipe for Effecting Institutional Changes to Achieve Privatization*, 13 B.U. INT'L L.J. 295 (1995) (discussing institutional changes necessary for privatization).

41. For a general discussion of the problems with imposing market systems on developing nations, see A FOURTH WAY?: PRIVATIZATION, PROPERTY, AND THE EMERGENCE OF NEW MARKET ECONOMIES (Gregory S. Alexander & Gra yna Sk pska eds., 1994); ALICE H. AMSDEN ET AL., THE MARKET MEETS ITS MATCH: RESTRUCTURING THE ECONOMIES OF EASTERN EUROPE (1994); FROM SOCIALISM TO MARKET ECONOMY: THE TRANSITION PROBLEM (William S. Kern ed., 1992); PIERRE GUISLAIN, THE PRIVATIZATION CHALLENGE: A STRATEGIC, LEGAL, AND INSTITUTIONAL ANALYSIS OF INTERNATIONAL EXPERIENCE (1997); THE ECONOMICS OF TRANSFORMATION: THEORY AND PRACTICE IN THE NEW MARKET ECONOMIES (Alfred Schipke & Alan M. Taylor eds., 1994); Bernard Black et al., *Russian Privatization and Corporate Governance: What Went Wrong?*, 52 STAN. L. REV. 1731 (2000); Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621 (1998); Karla W. Simon, *Privatization of Social and Cultural Services in Central and Eastern Europe: Comparative Experiences*, 13 B.U. INT'L L.J. 383 (1995).

42. *See* DANIEL YERGIN & JOSEPH STANISLAW, *Playing by the Rules: The New Game in Latin America*, *in* THE COMMANDING HEIGHTS: THE BATTLE BETWEEN GOVERNMENT AND THE MARKETPLACE THAT IS REMAKING THE MODERN WORLD 230, 230–33 (1998) (discussing the benefits of the market system in Bolivia, Chile, Peru, Mexico, and Brazil).

43. Miron Mushkat & Roda Mushkat, *Economic Growth, Democracy, the Rule of Law, and China's Future*, 29 FORDHAM INT'L L.J. 229, 247–50 (2005). The move to "market socialism" began before the collapse of Communism, but accelerated greatly after that event. *See* Richard J. Arneson, *Is Socialism Dead? A Comment on Market Socialism and Basic Income Capitalism*, 102 ETHICS 485 (1992); Amy L. Chua, *The Privatization-Nationalization Cycle: The Link Between Markets and Ethnicity in Developing Countries*, 95 COLUM. L. REV. 223, 227–56 (1995) (describing fluctuations between market socialism and privatization in several different nations); Andrew Xuefeng Qian, *Riding Two Horses: Corporatizing Enterprises and the Emerging Securities Regulatory Regime in China*, 12 UCLA PAC. BASIN L.J. 62, 64 (1993) (establishing that China had tokens of market socialism, like securities, before collapse of communism).

44. *See* Gianviti, *supra* note 39, at 777 (discussing Mexican reliance on the market required to access International Monetary Fund reserves to solve capital outflow problems, rather than

Asia melted down in the late 1990s, the Washington institutions insisted that the market be allowed free play, only deepening the crises.[45] This pattern continued as similar meltdowns occurred in other countries on other continents.[46] Of course, market fundamentalists have been ready enough to abandon this approach when it was their own pocketbooks at risk.[47]

The apogee of market fundamentalism within the United States came when an official in the Department of Defense proposed a "futures market" on wars, terrorist attacks, or assassinations as a means for predicting such future troubles. The Department dropped the plan with some embarrassment as soon as it was made public.[48] The responsible official resigned.[49] Commentators pointed out the severe problems, even in terms of economic theory, of attempting such a market.[50] Still, some market fundamentalists continued to defend the proposal even after it was abandoned.[51]

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introduction of limitations on capital flows). For discussions of possible alternatives to markets, see Patrick Bolton & David A. Skeel, Jr., *Redesigning the International Lender of Last Resort*, 6 CHI. J. INT'L L. 177 (2005); Zanny Minton-Beddoes, *Why the IMF Needs Reform*, FOREIGN AFF., May/June 1995, at 123; Agasha Mugasha, *Solutions for Developing-Country External Debt: Insolvency or Forgiveness?*, 13 LAW & BUS. REV. AM. 859, 866–81 (2007); Weber & Arner, *supra* note 37, at 438–53.

45. *E.g.*, Takashi Kiuchi, *The Asian Crisis and Its Implications*, *in* SHAPING A NEW INTERNATIONAL FINANCIAL SYSTEM: CHALLENGES OF GOVERNANCE IN A GLOBALIZING WORLD 37 (Karl Kaiser, John J. Kirton & Joseph P. Daniels eds., 2000) (discussing the U.S. refusal to back interventionist responses to the Asian crisis); Ohnesorge, *supra* note 38, at 247–52 (discussing implementation of market-oriented laws driven by Washington orthodoxy); Weber & Arner, *supra* note 37, at 394, 400–401, 432–38 (suggesting that financial liberalization can contribute to financial crises).

46. *See, e.g.*, Mugasha, *supra* note 44, at 860–62, 866–67 (discussing studies that identify the link between financial liberalization and financial crisis); Robert Chote, *Mexico "Showed IMF Flaws,"* FIN. TIMES, Apr. 25, 1995, at 4 (discussing the global distribution of international debt crisis and the International Monetary Fund's flawed interventions).

47. *See, e.g.*, Paul Krugman, *The B Word*, N.Y. TIMES, Mar. 17, 2008, at A19 (discussing the bailout of Wall Street investors while allowing homeowners to suffer massive numbers of foreclosures because to do otherwise for homeowners would interfere with proper working of market, although somehow this was not concern for bailing out Wall Street).

48. Carl Hulse, *Swiftly, Plan for Terrorism Futures Market Slips into Dustbin of Idea* [sic] *Without a Future*, N.Y. TIMES, July 30, 2003, at A10; Shailagh Murray, *Pentagon Retreats from Terror Futures in Face of Criticism*, WALL ST. J., July 30, 2003, at C1.

49. Bradley Graham, *Poindexter to Leave Pentagon Research Job*, WASH. POST, Aug. 1, 2003, at A1.

50. *E.g.*, Richard Adams, *The Dark Side of Futures Trading*, GUARDIAN (London), Aug. 4, 2003, at 23; Julia Baird, *The Nerds Who Want to Punt on Our Future*, SYDNEY MORNING HERALD, Aug. 2, 2003, at 37; Todd G. Buchholz, Op-Ed., *All Bets Are Off*, N.Y. TIMES, July 31, 2003, at A25; Editorial, *Terrorism? Don't Bet on It*, CHI. TRIB., Aug. 1, 2003, at 26; David Ignatius, *Back in the Safe Zone*, WASH. POST, Aug. 1, 2003, at A19 (commending the market concept as "interesting" while recognizing its undesirability); Steven Pearlstein, *Misplacing Trust in the Markets*, WASH. POST, July 30, 2003, at E1; Richard Siklos, *Poindexter Was Thinking out of the Box—Pandora's Box*, SUNDAY TELEGRAPH (London), Aug. 3, 2003, at 6; *You Bet Your Life: Futures Markets Won't Solve a Real Intelligence Problem*, FIN. TIMES, Aug. 4, 2003, at 10. Consider the ease with which a heavy "investor" in such a market could manipulate it, for example by staging a terrorist event at the right place and time.

51. *E.g.*, Peter Coy, *Betting on Terror: PR Disaster, Intriguing Idea*, BUS. WK., Aug. 25, 2003, at 41 (defending the terror market as good device for predicting future that may have "made us

Despite the failure of the proposed futures market on military and political issues, market fundamentalists have had considerable success in marketizing military activities. Private contractors hired to interrogate prisoners in Iraq figured prominently in the scandalous abuse of prisoners in Abu Ghraib prison.[52] Private security firms, employing thousands of armed personnel, seriously compromised political and military operations in Iraq.[53] Such private contractors were hardly useful in Iraq given that they were too few to form a significant increase in the U.S. personnel in Iraq, too expensive to justify as a cost-saving measure, and too troublesome to be seen as solving problems.[54] Apparently, they were there to set a precedent for the privatization of military activity—fulfilling

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smarter"); Lou Dobbs, *Deep-Sixing a Bright Idea*, U.S. NEWS & WORLD REP., Aug. 11, 2003 at 32 (arguing that the market may have been "the most accurate predictor of terrorist activity"); Rana Foroohar & Michael Hastings, *Reading the Tea Leaves*, NEWSWEEK, Aug. 11, 2003, at 39 (defending the market as good predictor of future terrorist activity); Hal R. Varian, *Economic Scene: A Market in Terrorism Indicators Was a Good Idea; It Just Got Bad Publicity*, N.Y. TIMES, July 31, 2003, at C2 (same); Justin Wolfers & Eric Zitzewitz, *The Furor over "Terrorism Futures,"* WASH. POST, July 31, 2003, at A19 (same).

52. *See* Kathleen Cahill, *Outside Contractors, Outside Military Law*, WASH. POST, May 9, 2004, at B5 (discussing the consequences of using private contractors in war zones and in interrogations at Abu Ghraib); Ariana Eunjung Cha & Renae Merle, *Line Increasingly Blurred Between Soldiers and Civilian Contractors*, WASH. POST, May 13, 2004, at A1 (discussing the importance of private contractors in war generally); Sewell Chan & Michael Amon, *Prisoner Abuse Probe Widened*, WASH. POST, May 2, 2004, at A1 (discussing interrogations at Abu Ghraib); R. Robin McDonald, *Lawsuit Against Abu Ghraib Contractor Proceeds*, LEGAL INTELLIGENCER, Nov. 14, 2007, at 4 (describing a lawsuit against CACI International, Inc., a government contractor that provided interrogators at the Iraqi prison); Renae Merle, *Prisoner-Abuse Report Adds to Titan's Troubles*, WASH. POST, May 7, 2004, at E3 (describing private contractors' involvement with abuses at Abu Ghraib); Walter Pincus, *Increase in Contracting Intelligence Jobs Raises Concerns*, WASH. POST, Mar. 20, 2006, at A3 (noting that private contracting jobs in military are growing); Anitha Reddy & Ellen McCarthy, *CACI in the Dark on Reports of Abuse*, WASH. POST, May 6, 2004, at E1 (describing complaints about private contractors involved in interrogations). For more general information about the private contractors at Abu Ghraib, see Steven L. Schooner, *Contractor Atrocities at Abu Ghraib: Compromised Accountability in a Streamlined, Outsourced Government*, 16 STAN. L. & POL'Y REV. 549 (2005).

53. *See* Cara Buckley, *43 in Contractor's Convoy Held After Baghdad Shooting*, N.Y. TIMES, Nov. 20, 2007, at A10 (reporting the arrest of private contractors after civilian were shot); Op-Ed., *The Lawless Blackwater*, PALM BEACH POST, Nov. 21, 2007, at 10A (reporting that private contractors kill without justification); James Risen, *'05 Use of Gas by Blackwater Leaves Questions*, N.Y. TIMES, Jan. 10, 2008, at A1 (describing an incident in which Blackwater contractors impaired U.S. soldiers); James Risen, *For U.S. Women Alleging Rape in Iraq, a Legal Limbo*, INT'L HERALD TRIB., Feb. 14, 2008, at 2 (discussing incidents of contractors sexually assaulting American women in Iraq); Bill Sizemore, *For Blackwater, a Year in Uncomfortable Spotlight*, VIRGINIAN-PILOT (Norfolk), Dec. 30, 2007, at A1 (describing political unrest caused by a private contractor's actions); Ginger Thompson, *From Texas to Iraq, and Center of Blackwater Case*, N.Y. TIMES, Jan. 19, 2008, at A4 (indicating that private contractors shoot innocent people more willingly than military personnel). *See generally* P.W. Singer, *War, Profits, and the Vacuum of Law: Privatized Military Firms and International Law*, 42 COLUM. J. TRANSNAT'L L. 521 (2004) (discussing legal and regulatory issues surrounding private firms in Iraq); Nathaniel Stinnett, Note, *Regulating the Privatization of War: How to Stop Private Military Firms from Committing Human Rights Abuses*, 28 B.C. INT'L & COMP. L. REV. 211 (2005) (same).

54. Paul Krugman, *Battlefield of Dreams*, N.Y. TIMES, May 4, 2004, at A29; *see also* Cha & Merle, *supra* note 52 (noting that contractors in Iraq "have become a flashpoint for the troubles of the U.S.-led occupation").

the dreams of market fundamentalists.[55] Similar reliance on private contractors at Walter Reed Army Hospital in Washington, D.C., contributed to the scandalous treatment of soldiers grievously wounded in Iraq.[56] Perhaps the military is not suitable for markets, but market fundamentalists seem unable to grasp this possibility.

Numerous other public functions are also being privatized. Thus states sell or lease (or propose to sell or lease) turnpikes and public roads to private, profit-seeking firms.[57] Debate continues over school vouchers and charter schools (both means of privatizing public education),[58] the privatization of prisons,[59] and

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55. Cha & Merle, *supra* note 52 (noting that the presence of contractors results from "passion for outsourcing" (quoting Danielle Brian, Executive Director, Project on Government Oversight)); Krugman, *supra* note 54 (identifying the conservatives' "fetish" for privatization); Rafael Enrique Valero, *Hired Guns*, NAT'L. J., Jan. 5, 2008, at 22, 23; *see also* Dale Eisman, *Bush Backs away from Contractor Investigation*, VIRGINIAN-PILOT (Norfolk), Jan. 30, 2008, at A1 (reporting President Bush's decision to shield Blackwater, a major contractor in Iraq, from criminal investigation). *See generally* DEBORAH D. AVANT, THE MARKET FOR FORCE: THE CONSEQUENCES OF PRIVATIZING SECURITY (2005) (questioning whether the privatization of the military leads to decreased control over state-sanctioned violence); P.W. SINGER, CORPORATE WARRIORS: THE RISE OF THE PRIVATIZED MILITARY INDUSTRY 230–33 (2003) (arguing that private military units will continue to be used because of gaps in military forces); Amy Goldstein, *The Private Arm of the Law*, WASH. POST, Jan. 2, 2007, at A4 (arguing that the rise in private police and security is detrimental); Scott Shane & Ron Nixon, *In Washington, Contractors Take on Biggest Role Ever*, N.Y. TIMES, Feb. 4, 2007, at A1 (concluding that the U.S. government's reliance on contractors is too expensive).

56. Paul D. Eaton, Op-Ed., *Casualties of the Budget Wars*, N.Y. TIMES, Mar. 6, 2007, at A21.

57. *See* Ken Belson, *Work Is Afoot to Take the Free out of Freeway*, N.Y. TIMES, Jan. 19, 2008, at A10 (reporting that the governor of Pennsylvania wants to lease its turnpike to private investors); Mickey Ciokajlo, *City Finance Boss Taking It to Bank*, CHI. TRIB., Mar. 17, 2007, at 12 (reporting that Illinois plans to privatize its "skyway"); Elisa Crouch, *Leasing Highways Is Gaining Traction*, ST. LOUIS POST-DISPATCH, July 24, 2006, at A1; Mitch Daniels, Op-Ed., *For Whom the Road Tolls*, N.Y. TIMES, May 27, 2006, at A13 (lauding the benefits that privatization of its turnpike will bring to Indiana); Michael A. Fletcher, *Bush Seeks Public-Private Funding Boost for Parks*, WASH. POST, Feb. 8, 2007, at A6; Charles E. Greenawalt II, Op-Ed., *Tolls Can Fix Highways Better than Gas Tax*, MORNING CALL (Allentown, Pa.), Feb. 14, 2008, at A11 (contending that governments may need to look beyond gas taxes and highway privatization to solve long-term transportation funding problems); Jay Hancock, *Del. Might Pick Your Pocket with I-95 Lease*, BALT. SUN, Jan. 17, 2007, at 1D (discussing privatization of Interstate 95); Barbara Kiviat, *They Really Do Own the Road*, TIME, Oct. 29, 2007, at 36, 36–38 (discussing the pros and cons of highway privatization); Lyndsey Layton & Spencer S. Hsu, *Letting the Market Drive Transportation*, WASH. POST, Mar. 17, 2008, at A1 (reporting the Bush administration's tendency to "shrink the federal role in road-building"); Paul Nussbaum, *Bigger Cast in Play for Pa. Turnpike*, PHILA. INQUIRER, Jan. 20, 2008, at B1 (discussing proposals to privatize the Pennsylvania Turnpike); Paul Nussbaum, *Spinning Toll Roads' Asphalt into Gold*, PHILA. INQUIRER, Feb. 25, 2007, at B1 (same); Paul Nussbaum, *Study: Rendell's Plan to Lease Turnpike Unwise*, PHILA. INQUIRER, Mar. 4, 2008, at B1 (same); Daniel Schulman & James Ridgeway, *The Highwaymen*, MOTHER JONES, Jan./Feb. 2007, at 48 (discussing proposals to privatize highways); Geoffrey Segal, *Bottom-Line View of Privatizing the Toll Road*, FT. WAYNE J. GAZETTE (Indiana), July 5, 2006, at 13A (discussing the privatization of the Indiana Turnpike); *Texas Governor Has Funding Idea: Sell the Lottery*, WASH. POST, Feb. 7, 2007, at A7 (reporting that Texas will privatize the state lottery); George F. Will, *Daley's Art of the Lease*, WASH. POST, Feb. 8, 2007, at A21 (same). *See generally* MANAGING GOVERNMENT PROPERTY ASSETS: INTERNATIONAL EXPERIENCES (Olga Kaganova & James McKellar eds., 2006).

58. *See generally* JONAS N. ALTIDOR, SCHOOL VOUCHERS AND PARENTS IN CLEVELAND,

over whether to rely on markets to provide medical care[60] or financial support for retirees.[61] The list goes on and on.

Finally, consider a hypothetical example. Americans treasure Gettysburg National Park as a repository of our collective memory, the site of great events marking the national trauma of the Civil War. Couldn't we maximize its economic value by privatizing it, just like the turnpikes?[62] Why not do it then?

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MILWAUKEE, AND LOS ANGELES (2005); CHARTER SCHOOLS (Diane Andrews Henningfeld ed., 2007); CHARTER SCHOOLS (Thomas Murphy ed., 2002); CHARTER SCHOOLS AGAINST THE ODDS (Paul T. Hill ed., 2006); PAUL T. HILL ET AL., CHARTER SCHOOLS AND ACCOUNTABILITY IN PUBLIC EDUCATION (2002); KATHRYN KOLBERT & ZAK METTGER, SCHOOL VOUCHERS (2001); JOAN NORDQUIST, PRIVATIZATION OF PUBLIC EDUCATION: CHARTER SCHOOLS AND VOUCHERS: A BIBLIOGRAPHY (2000); DANNY WEIL, SCHOOL VOUCHERS AND PRIVATIZATION (2002).

59. *See generally* BRUCE L. BENSON, TO SERVE AND PROTECT: PRIVATIZATION AND COMMUNITY IN CRIMINAL JUSTICE (1998); Clifford J. Rosky, *Force, Inc.: The Privatization of Punishment, Policing, and Military Force in Liberal States*, 36 CONN. L. REV. 879 (2004); David J. DelFiandra, Comment, *The Growth of Prison Privatization and the Threat Posed by 42 U.S.C. § 1983*, 38 DUQ. L. REV. 591 (2000); Mark N. Ohrenberger, Note, *Prison Privatization and the Development of "Good Faith" Defense for Private-Party Defendants to 42 U.S.C. § 1983 Actions*, 13 WM. & MARY BILL RTS. J. 1035 (2005).

60. *See Health Care: Six Prescriptions for Change*, CONSUMER REP., Mar. 2008, at 14 (arguing that health care markets are not efficient because people focus on the bills that insurance does not cover instead of the cost of overall care); Paul Krugman, *Voodoo Health Economics*, N.Y. TIMES, Apr. 4, 2008, at A23 (arguing that market forces will never produce cheap health care); Antonia Maioni, Op-Ed., *Highly Political Diagnoses*, TORONTO STAR, Mar. 3, 2008, at 8 (noting that that the Republican candidates in the presidential primary support free market health care systems). *See generally* DAN E. BEAUCHAMP, HEALTH CARE REFORM AND THE BATTLE FOR THE BODY POLITIC (1996); GEORGE C. HALVORSON, HEALTH CARE REFORM NOW!: A PRESCRIPTION FOR CHANGE (2007); HEALTH CARE REFORM: ETHICS AND POLITICS (Timothy H. Engström & Wade L. Robison eds., 2006); Andrew C. Twaddle, *International Comparison of Health Care System Reforms*, *in* HEALTH CARE REFORM AROUND THE WORLD 3 (Andrew C. Twaddle ed., 2002).

61. *See, e.g.*, NANCY J. ALTMAN, THE BATTLE FOR SOCIAL SECURITY: FROM FDR'S VISION TO BUSH'S GAMBLE 311–17 (2005) (describing President George W. Bush's characterization of Social Security as flawed and unworkable, and his continuation of ideological war between privatization and progressivism); Stephen F. Befort, *The Perfect Storm of Retirement Insecurity: Fixing the Three-Legged Stool of Social Security, Pensions, and Personal Savings*, 91 MINN. L. REV. 938, 963–64 (2007) (describing Social Security reform as being "the subject of a long-running and contentious debate" between those who would privatize and those who disagree that privatization would be helpful); Theodore R. Marmor & Jerry L. Mashaw, *Understanding Social Insurance: Fairness, Affordability, and the "Modernization" of Social Security and Medicare*, 15 ELDER L.J. 123, 124 (2007) (contending that those who propose choice, competition, and individual ownership of Social Security are "either ignorant of or hostile to the fundamental logic of social insurance"); John Burritt McArthur, *Private Pensions and the Justification for Social Security*, 48 S. TEX. L. REV. 1, 5 (2006) (arguing that privatizing Social Security "would subvert the program's most important accomplishment . . . in putting retirement security beyond marketplace risks"); Kathryn L. Moore, *Social Security Reform: Fundamental Restructuring or Incremental Change?*, 11 LEWIS & CLARK L. REV. 341, 346 (2007) (arguing that "[o]wnership and individual control play no role in social insurance"); Elizabeth D. Tedrow, *Social Security Privatization in Other Countries—What Lessons Can Be Learned for the United States?*, 14 ELDER L.J. 35, 38–40, 54–59 (2006) (considering the privatization of social insurance in foreign countries and discussing political attention given to topic in United States).

62. *See* Commonwealth v. Nat'l Gettysburg Battlefield Tower, Inc., 311 A.2d 588, 594–95 (Pa. 1973) (rejecting the argument, in a suit regarding construction by private company of an observation tower in the national park, that the environmental protection amendment to the state's constitution

The answer is that for most of us, this would largely destroy its significance as a revered site, not to mention the likelihood that much of the land would be developed for uses ranging from a "historic" amusement park to homes, shops, and factories, all of which would further depreciate the site as unworthy of veneration. Yet it would be impossible to organize voluntary contributions from millions of concerned people in order to buy the park to prevent unsightly development and other actions they would find offensive. Unless we disregard our collective sense of historical significance as mere sentimentality of no real value,[63] public property would seem to have significant advantages over either common or private property in such a setting.

Markets thus are not always satisfactory for managing certain aspects of economic or social activity. This should hardly be surprising to anyone who actually examines the empirical evidence—something that market fundamentalists seem unable to do. The work of Ronald Coase, winner of the Nobel Prize in economics,[64] provides a framework for understanding why this is so. Coase is considered the guru of the primacy of markets and the founder of law and economics as a discipline.[65] In *The Problem of Social Cost*,[66] Coase famously demonstrated that private property markets are the most efficient mechanism for allocating resources to particular uses when it works and that the particular rules of law applied to disputes over resources will not affect how those resources are allocated to particular uses so long as markets work.[67] Coase,

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authorized the state attorney general to sue to protect scenic or historic areas without implementing legislation); *Much-Derided Gettysburg Observation Tower Is Felled*, N.Y. TIMES, July 4, 2000, at A8 (describing the demolition of the foregoing observation tower, which provided the only vantage point for seeing the entire battlefield but had been described as an eyesore and an intrusion on a historic setting).

63. *See* Mark Sagoff, *At the Monument to General Meade,* or *On the Difference Between Beliefs and Benefits*, 42 ARIZ. L. REV. 433 (2000) (discussing the desecration of the Gettysburg battlefield by commercial development). *See generally* JAMES BOYD WHITE, JUSTICE AS TRANSLATION: AN ESSAY IN CULTURAL AND LEGAL CRITICISM 48–53, 58–59, 66–67, 71–72, 84–85 (1990) (discussing how considering everything solely in economic terms devalues communitarian, spiritual, and other nonmonetizable values); Laurence H. Tribe, *Ways Not to Think About Plastic Trees: New Foundations for Environmental Law*, 83 YALE L.J. 1315, 1329–30 (1974) (discussing how analyzing everything in terms of costs and benefits—from a "[h]omocentric, [w]ant-oriented [p]erspective"—flattens values and demeans the impulse to value nature and nonhuman beings for their own sake).

64. Peter Passell, *For a Common-Sense Economist, A Nobel - and an Impact in the Law*, N.Y. TIMES, Oct. 20, 1991, at E2.

65. *See* Edmund W. Kitch, *The Fire of Truth: A Remembrance of Law and Economics at Chicago, 1932–1970*, 26 J. LAW & ECON. 163, 221 (1983) (describing how Ronald H. Coase won over extremely hostile audience at faculty seminar at University of Chicago in defending the piece eventually published as *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960)).

66. Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960). The Coase article is "widely believed to be the most frequently cited article in all of economics." RICHARD A. POSNER, OVERCOMING LAW 406 (1995); Daniel A. Farber, *Parody Lost/Pragmatism Regained: The Ironic History of the Coase Theorem*, 83 VA. L. REV. 397, 399–401 (1997).

67. There is a vast and growing literature regarding the so-called Coase theorem—that legal rules are largely irrelevant to how resources are actually used because market transactions will correct for legal mistakes. *See, e.g.*, Kenneth S. Abraham, *The Relation Between Civil Liability and Environmental Regulation: An Analytical Overview*, 41 WASHBURN L.J. 379 (2002); Terry L. Anderson, *Viewing Land*

however, went on to stress in the article that markets fail when there are significant barriers to their functioning.[68] Coase would later note that economists who ignore basic concerns about why markets succeed or fail are practicing the typical "blackboard economics" that is the bane of most academic economists.[69] The most important simplifying assumption that most such economists make is to assume a "frictionless market"—a market without transaction costs.[70] Lawyers, on the other hand, focus precisely on the frictions of the marketplace, for while economists focus on how successful markets work, the lawyer's role is

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*Conservation Through Coase-Colored Glasses*, 44 NAT. RESOURCES J. 361 (2004); Ian Ayres & Paul M. Goldbart, *Optimal Delegation and Decoupling in the Design of Liability Rules*, 100 MICH. L. REV. 1 (2001); Douglas G. Baird, *In Coase's Footsteps*, 70 U. CHI. L. REV. 23 (2003); Walter Block, *Private Property Rights, Economic Freedom, and Professor Coase: A Critique of Friedman, McCloskey, Medema, and Zorn*, 26 HARV. J.L. & PUB. POL'Y 923 (2003); Stephen Calkins, *Do Pigs Need Wings? Introductory Thoughts on Law Reviews, Errors, and the Coase Theorem*, 38 WAYNE L. REV. 1 (1991); David Campbell, *Of Coase and Corn: A (Sort of) Defence of Private Nuisance*, 63 MOD. L. REV. 197 (2000); Daniel H. Cole, *Taking Coase Seriously: Neil Komesar on Law's Limits*, 29 LAW & SOC. INQUIRY 261 (2004); Robert Cooter, *The Cost of Coase*, 11 J. LEGAL STUD. 1 (1982); Rachel Croson & Jason Scott Johnston, *Experimental Results on Bargaining Under Alternative Property Rights Regimes*, 16 J.L. ECON. & ORG. 50 (2000); David de Meza, *Coase Theorem*, *in* 1 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW 270 (Peter Newman ed., 2002); Wayne Eastman, *"Everything's up for Grabs": The Coasean Story in Game-Theoretic Terms*, 31 NEW ENG. L. REV. 1 (1996); Wayne Eastman, *How Coasean Bargaining Entails a Prisoners' Dilemma*, 72 NOTRE DAME L. REV. 89 (1996); Farber, *supra* note 66; Thomas W. Hazlett, *The Wireless Craze, the Unlimited Bandwidth Myth, the Spectrum Auction Faux Pas, and the Punchline to Ronald Coase's "Big Joke": An Essay on Airwave Allocation Policy*, 14 HARV. J.L. & TECH. 335 (2001); Marianne M. Jennings & Stephen Happel, *The Post-Enron Era for Stakeholder Theory: A New Look at Corporate Governance and the Coase Theorem*, 54 MERCER L. REV. 873 (2003); Chulho Jung et al., *The Coase Theorem in a Rent-Seeking Society*, 15 INT'L REV. L. & ECON. 259 (1995); Russell B. Korobkin & Thomas S. Ulen, *Efficiency and Equity: What Can Be Gained by Combining Coase and Rawls?*, 73 WASH. L. REV. 329 (1998); Robert T. Miller, *The Coase Theorem and the Preferential Option for the Poor*, 5 J. CATHOLIC SOC. THOUGHT 65 (2008); Francesco Parisi, *Political Coase Theorem*, 115 PUB. CHOICE 1 (2003); Daniel Q. Posin, *The Coase Theorem: If Pigs Could Fly*, 37 WAYNE L. REV. 89 (1990); Daniel Q. Posin, *The Coase Theorem: Through a Glass Darkly*, 61 TENN. L. REV. 797 (1994); C. Carter Ruml, *The Coase Theorem and Western U.S. Appropriative Water Rights*, 45 NAT. RESOURCES J. 169 (2005); A. W. Brian Simpson, Coase v. Pigou *Reexamined*, 25 J. LEGAL STUD. 53 (1996); Michael I. Swygert & Katherine Earle Yanes, *A Primer on the Coase Theorem: Making Law in a World of Zero Transaction Costs*, 11 DEPAUL BUS. L.J. 1 (1998); Kathleen Wallman, *The Tension Between Privacy and Security: An Analysis Based on Coase and Pigou*, 3 J. TELECOMM. & HIGH TECH. L. 397 (2005); Alfred C. Yen, *A Preliminary Economic Analysis of Napster: Internet Technology, Copyright Liability, and the Possibility of Coasean Bargaining*, 26 U. DAYTON L. REV. 247 (2001).

68. Coase, *supra* note 66, at 15–19; *see also* Farber, *supra* note 66, at 398 (noting that "[i]nstead of the reductionist modeling typified by the Coase Theorem, [Coase's] own approach was robustly empirical and pragmatic").

69. R.H. COASE, THE FIRM, THE MARKET, AND THE LAW 1–20 (1988). Another comment perhaps best sums up his attitude towards his fellow economists: "In my youth it was said that what was too silly to be said may be sung. In modern economics it may be put into mathematics." *Id.* at 185. No wonder Coase has concluded that, "My point of view has not in general commanded assent, nor has my argument, for the most part, been understood." *Id.* at 1.

70. *Id.* at 13–15, 174; *see also* Block, *supra* note 67 (stressing the importance of transaction costs); Swygert & Yanes, *supra* note 67 (discussing the relation of transaction costs to "negative externalities"); Wallman, *supra* note 67 (using Coase and Pigou to analyze noncommercial externalities in privacy and security).

to minimize, accommodate, or overcome such problems.[71] No wonder Coase himself has said that he is not a "Coasean"—in the sense of espousing the extreme view of the utility of markets generally associated with his name.[72]

For the past three decades or so, markets have been put forward as the solution to achieving environmental goals.[73] Today, a fairly elaborate system for the trading of emission permits for air pollutants is in place for the United States[74] and carbon trading is touted as the best solution for reducing the greenhouse gas emissions that drive global warming.[75] Yet these programs have had at best limited success in clearing the air,[76] whatever success they have had

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71. Stewart Schwab, *Coase Defends Coase: Why Lawyers Listen and Economists Do Not*, 87 MICH. L. REV. 1171, 1188–98 (1989) (reviewing COASE, *supra* note 69). *See generally* David M. Driesen & Shubha Ghosh, *The Functions of Transaction Costs: Rethinking Transaction Cost Minimization in a World of Friction*, 47 ARIZ. L. REV. 61 (2005); Robert P. Merges, *A Transactional View of Property Rights*, 20 BERKELEY TECH. L.J. 1477 (2005).

72. Coase seems to have responded directly to such extreme views only twice. *See* COASE, *supra* note 69, at 174 (arguing against a world of no transaction costs now known as Coasean); R.H. Coase, *Law and Economics and A. W. Brian Simpson*, 25 J. LEGAL STUD. 103, 106–08 (1996) (explaining that other economists' view of him (Coase) as being against government regulation was wrong and misleading).

73. *See, e.g.*, TERRY L. ANDERSON & DONALD R. LEAL, FREE MARKET ENVIRONMENTALISM (rev. ed. 2001); DANIEL H. COLE, POLLUTION & PROPERTY: COMPARING OWNERSHIP INSTITUTIONS FOR ENVIRONMENTAL PROTECTION (2002); HERMAN E. DALY & JOSHUA FARLEY, ECOLOGICAL ECONOMICS: PRINCIPLES AND APPLICATIONS (2004); BRENT M. HAGLUND & THOMAS W. STILL, HANDS-ON ENVIRONMENTALISM (2005); PAUL HAWKEN, AMORY LOVINS & L. HUNTER LOVINS, NATURAL CAPITALISM: CREATING THE NEXT INDUSTRIAL REVOLUTION (1999); WILLIAM K. JAEGER, ENVIRONMENTAL ECONOMICS FOR TREE HUGGERS AND OTHER SKEPTICS (2005); NATHANIEL O. KEOHANE & SHEILA M. OLMSTEAD, MARKETS AND THE ENVIRONMENT (2007); Bonnie G. Colby & Tamra Pearson d'Estrée, *Evaluating Market Transactions, Litigation, and Regulation as Tools for Implementing Environmental Restoration*, 42 ARIZ. L. REV. 381 (2000); Jason Scott Johnston, *On the Market for Ecosystem Control*, 21 VA. ENVTL. L.J. 129 (2002); Dennis M. King & Peter J. Kuch, *Will Nutrient Credit Trading Ever Work? An Assessment of Supply and Demand Problems and Institutional Obstacles*, 33 ENVTL. L. REP. 10352 (2003); Jonathan Remy Nash & Richard L. Revesz, *Markets and Geography: Designing Marketable Permit Schemes to Control Local and Regional Pollutants*, 28 ECOLOGY L.Q. 569 (2001); James C. Nicholas & Julian Conrad Juergensmeyer, *Market Based Approaches to Environmental Preservation: To Environmental Mitigation Fees and Beyond*, 43 NAT. RESOURCES J. 837 (2003); James Salzman, *Creating Markets for Ecosystem Services: Notes from the Field*, 80 N.Y.U. L. REV. 870 (2005); Barton H. Thompson, Jr., *Tragically Difficult: The Obstacles to Governing the Commons*, 30 ENVTL. L. 241 (2000); David G. Alderson, Essay, *Buyouts and Conservation Permits: A Market Approach to Address the Federal Public Land Grazing Problem*, 12 N.Y.U. ENVTL. L.J. 903, 930 (2005) (proposing buy-out process by which environmental groups facilitate government buying of grazing permits on land where grazing is not suitable land use).

74. 42 U.S.C. § 7651b(b) (2006); *cf.* CAL. HEALTH & SAFETY CODE §§ 38570–38574 (West Supp. 2008) (authorizing "market-based compliance mechanisms" for reducing greenhouse gas emissions).

75. *See* Carol M. Browner, *Global Climate Change: Threats and Solutions*, 13 J. LAND USE & ENVTL. L. 273, 277 (1998) (arguing that the best means for encouraging industries to create technology to reduce pollution is through emissions trading and market); Kirsten H. Engel, *Harmonizing Regulatory and Litigation Approaches to Climate Change Mitigation: Incorporating Tradable Emissions Offsets into Common Law Remedies*, 155 U. PA. L. REV. 1563, 1584 (2007) (reporting that emissions trading is preferred in United Sates due to its alleged cost advantages).

76. Steven Mufson, *Europe's Problems Color U.S. Plans to Curb Carbon Gases*, WASH. POST,

in creating wealth for certain corporations.[77] Proponents of such mechanisms continue to focus on the theory of trading and do not discuss how such markets work in practice.[78] Looking objectively at the evidence for the success or limitations of such programs, of course, is not what the market fundamentalists

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Apr. 9, 2007, at A1; *see also* Ruth Greenspan Bell, *Market Failure*, ENVTL. F., Mar./Apr. 2006, at 28, 28–29 (arguing that emissions trading is too unproven to be more than simply part of solution to climate change); Leslie Carothers, *Fairness, Effectiveness, Efficiency—But in What Balance?*, ENVTL. F., Mar./Apr. 2005, at 52 (arguing that trading programs have rewarded entities for failing to meet existing emission control requirements); Richard Toshiyuki Drury et al., *Pollution Trading and Environmental Injustice: Los Angeles' Failed Experiment in Air Quality Policy*, 9 DUKE ENVTL. L. & POL'Y F. 231, 235 (1999) (reporting that "[t]he promises of pollution trading advocates have not come to pass"); Kirk W. Junker, *Ethical Emissions Trading and the Law*, 13 U. BALT. J. ENVTL. L. 149, 173 (2006) (concluding that even supporters of emissions trading must recognize that only cap-and-trade systems have succeeded); Clare Langley-Hawthorne, *An International Market for Transferable Gas Emission Permits to Promote Climate Change*, 9 FORDHAM ENVTL. L.J. 261, 298 (1998) ("A theoretical assessment of a tradable emission permit system requires a number of assumptions and an examination of the market mechanism that should operate, given these assumptions, to produce an environmentally and economically efficient result."); Jonathan Remy Nash, *Too Much Market? Conflict Between Tradable Pollution Allowances and the "Polluter Pays" Principle*, 24 HARV. ENVTL. L. REV. 465, 488 (2000) (attributing the failure of early emission trading programs to high transaction costs and the lack of intercompany trading); Lorna Jaynes, Comment, *Emissions Trading: Pollution Panacea or Environmental Injustice?*, 39 SANTA CLARA L. REV. 207, 212 (1998) (reporting that the South Coast Air Quality Management District emissions trading program "cause[d] substantial and unjustifiable, disparate, adverse impacts on [a] predominantly minority community"); Susan J. Kurkowski, Note, *Distributing the Right to Pollute in the European Union: Efficiency, Equity, and the Environment*, 14 N.Y.U. ENVTL. L.J. 698, 702 (2006) (arguing that "the [European Union's] failure (or perhaps inability) to set an overall cap and allocation methodology for the [emissions trading system] raises serious concerns about whether the [emissions trading system] will realize its promise of actual reductions of $CO_2$ emissions in the [Union]").

77. *Cf.* Michael J. Zimmer, *Global Carbon Change Creates a New Carbon Business for U.S. Companies*, SUSTAINABLE DEV. L. & POL'Y, Winter 2007, at 64 (reporting that sustainable carbon policy creates high returns and lowers cost); Jennifer P. Morgan, Note, *Carbon Trading Under the Kyoto Protocol: Risks and Opportunities for Investors*, 18 FORDHAM ENVTL. L. REV. 151 (2006) (noting that carbon trading creates additional financing and return opportunities).

78. *See, e.g.*, Peter Berck & Gloria E. Helfand, *The Case of Markets Versus Standards for Pollution Policy*, 45 NAT. RESOURCES J. 345 (2005); Erik B. Bluemel, *Unraveling the Global Warming Regime Complex: Competitive Entropy in the Regulation of the Global Public Good*, 155 U. PA. L. REV. 1981 (2007); Gary C. Bryner, *Carbon Markets: Reducing Greenhouse Gas Emissions Through Emissions Trading*, 17 TUL. ENVTL. L.J. 267 (2004); Inho Choi, *Global Climate Change and the Use of Economic Approaches: The Ideal Design Features of Domestic Greenhouse Gas Emissions Trading with an Analysis of the European Union's $CO_2$ Emissions Trading Directive and the Climate Stewardship Act*, 45 NAT. RESOURCES J. 865 (2005); David M. Driesen, *The Economic Dynamics of Environmental Law: Cost-Benefit Analysis, Emissions Trading, and Priority-Setting*, 31 B.C. ENVTL. AFF. L. REV. 501 (2004); Norimichi Matsueda et al., *Environmental Transfers Against Global Warming: A Credit-Based Program*, 6 INT'L J. GLOBAL ENVTL. ISSUES 47 (2006); Robert R. Nordhaus & Kyle W. Danish, *Assessing the Options for Designing a Mandatory U.S. Greenhouse Gas Reduction Program*, 32 B.C. ENVTL. AFF. L. REV. 97 (2005); Adam Rose, Thomas D. Peterson & Zhong Xiang Zhang, *Regional Carbon Dioxide Permit Trading in the United States: Coalition Choices for Pennsylvania*, 14 PENN ST. ENVTL. L. REV. 203 (2006); Sonya Dewan, Note, *Emissions Trading: A Cost-Effective Approach to Reducing Nonpoint Source Pollution*, 15 FORDHAM ENVTL. L. REV. 233 (2004); Eric Shaffner, Comment, *Repudiation and Regret: Is the United States Sitting out the Kyoto Protocol to Its Economic Detriment?*, 37 ENVTL. L. 441 (2007).

are able to do, and yet they drove, and continue to drive, the Washington Consensus. A closer look at the attempt to apply the Washington Consensus to water management will serve to explore whether markets would be an appropriate water management tool. This closer look will also provide an opportunity to consider the failings of the Washington Consensus generally.

## IV. ARE MARKETS THE ANSWER FOR ADAPTING WATER MANAGEMENT TO CLIMATE DISRUPTION?

For decades, market fundamentalists have preached that markets are the best means for managing water resources.[79] Such proposals were a particular favorite of those working for the Washington Consensus.[80] Markets can and do

79. *See, e.g.*, TERRY L. ANDERSON & PAMELA SNYDER, WATER MARKETS: PRIMING THE INVISIBLE PUMP (1997); RONALD C. GRIFFIN, WATER RESOURCE ECONOMICS: THE ANALYSIS OF SCARCITY, POLICIES, AND PROJECTS (2006); CLAY LANDRY, SAVING OUR STREAMS THROUGH WATER MARKETS: A PRACTICAL GUIDE (1998); TERENCE RICHARD LEE, WATER MANAGEMENT IN THE 21ST CENTURY: THE ALLOCATION IMPERATIVE (1999); STEPHEN MERRET, INTRODUCTION TO THE ECONOMICS OF WATER RESOURCES: AN INTERNATIONAL PERSPECTIVE (1997); Jedidiah Brewer et al., *Transferring Water in the American West: 1987–2005*, 40 U. MICH. J.L. REFORM 1021 (2007); Brian Chatterton & Lynne Chatterton, *The Australian Water Market Experiment*, 26 WATER INT'L 62 (2001); Brian E. Gray, *The Shape of Transfers to Come: A Model Water Transfer Act for California*, HASTINGS W.-NW. J. ENVTL. L. & POL'Y, Fall 1996, at 23; David J. Guy, *A Model Water Transfer Act for California: An Agricultural Perspective*, HASTINGS W.-NW. J. ENVTL. L. & POL'Y, Fall 1996, at 75; M. Dinesh Kumar & O. P. Singh, *Market Instruments for Demand Management in the Face of Scarcity and Overuse of Water in Gujarat, Western India*, 3 WATER POL'Y 387 (2001); Andrew P. Morriss, *Lessons from the Development of Western Water Law for Emerging Water Markets: Common Law vs. Central Planning*, 80 OR. L. REV. 861 (2001); Janet C. Neuman, *The Good, the Bad, and the Ugly: The First Ten Years of the Oregon Water Trust*, 83 NEB. L. REV. 432 (2004); Timothy H. Quinn, *Wheeling Provisions of the Model Water Transfer Act*, HASTINGS W.-NW. J. ENVTL. L. & POL'Y, Fall 1996, at 83; Thomas K. Ruppert, *Water Quality Trading and Agricultural Nonpoint Source Pollution: An Analysis of the Effectiveness and Fairness of EPA's Policy on Water Quality Trading*, 15 VILL. ENVTL. L.J. 1 (2004); Andrew P. Tauriainen, *California's Evolving Water Law: The Water Rights Protection and Expedited Short-Term Water Transfer Act of 1999*, 31 MCGEORGE L. REV. 411 (2000); Gregory A. Thomas & Tara L. Mueller, *Reflections on the "Model Water Transfer Act" by the Natural Heritage Institute*, HASTINGS W.-NW. J. ENVTL. L. & POL'Y, Fall 1996, at 91; David W. Yoskowitz, *Markets, Mechanisms, Institutions, and the Future of Water*, 31 ENVTL. L. REP. 10237 (2001); Michael D. Young & Darla Hatton MacDonald, *An Opportunity to Improve Water Trading in the South East Catchment of South Australia*, 5 WATER POL'Y 127 (2003); William Finnegan, *Leasing the Rain*, NEW YORKER, Apr. 8, 2002, at 43.

80. *See, e.g.*, JOHN R. TEERINK & MASAHIRO NAKASHIMA, WATER ALLOCATION, RIGHTS, AND PRICING: EXAMPLES FROM JAPAN AND THE UNITED STATES (World Bank Technical Paper No. 198, 1993); Ariel Dinar & J. Letey, *Agricultural Water Marketing, Allocative Efficiency, and Drainage Reduction*, 20 J. ENVTL. ECON. & MGMT. 210 (1991); Ariel Dinar, *Political Economy of Water Pricing Reforms*, *in* THE POLITICAL ECONOMY OF WATER PRICING REFORMS 1 (Ariel Dinar ed., 2000); Mark W. Rosegrant & Hans P. Binswanger, *Markets in Tradable Water Rights: Potential for Efficiency Gains in Developing Country Water Resource Allocation*, 22 WORLD DEV. 1613 (1994). For surveys of these policies and the pressures on governments that resulted, see Jennifer Naegele, *What Is Wrong with Full-Fledged Water Privatization?*, 6 J.L. & SOC. CHALLENGES 99, 108–12 (2004); Rachel Welch, Comment, *And Not a Drop to Drink: Water Privatization, Pseudo-Sovereignty, and the Female Burden*, 15 TUL. J. INT'L & COMP. L. 311, 312–13, 315–16, 320 (2006). *See* Finnegan, *supra* note 79, at 43 (describing violent protests stemming from foreign-controlled private water market).

play a role in the exploitation of water resources in the real world, but in a much more limited way and on a much smaller scale than the champions of markets as a management tool for water resources would have one believe. Even fairly dramatic legal reforms meant to facilitate the emergence of markets for water have had remarkably little impact in fact.[81] As with the trading of emissions permits for air pollutants, the proponents of such market systems prefer to discuss the activity of markets in theory rather than to consider their actual working in practice. Perhaps the clearest study of this disconnect between theory and practice is found in the work of Carl Bauer of the Water Resources Research Center of the University of Arizona. Bauer's book *Siren Song* has documented not only the negligible effect of the neoliberal water law enacted in Chile in 1980, but also how economists and others have sung its praises around the world without even bothering to ask what effect that law has had on the ground or in the rivers and lakes.[82]

This Part explores on three different levels the problems in using markets to manage water resources. First is a brief examination of the problems encountered in the privatization of water utilities over the last decade. Then follows consideration of the disutility of markets for raw water—water in its natural state. Finally, I briefly analyze two of the better known putative examples of markets in the United States to discover their true nature and effects.

### *A. The Privatization of Water Utilities*

Since the late nineteenth century, water delivery within municipalities, both within the United States and abroad, has been a public service, usually provided by entities operated under public ownership or close public supervision.[83] Even today public bodies provide ninety percent of water utility services in the

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81. *See* JOSEPH W. DELLAPENNA & STEPHEN E. DRAPER, WATER MARKETS AND MISINFORMATION (2004).

82. CARL J. BAUER, SIREN SONG: CHILEAN WATER LAW AS A MODEL FOR INTERNATIONAL REFORM 80, 96 (2004); *see also* Carl Bauer, *In the Image of the Market: The Chilean Model of Water Resources Management*, 3 INT'L J. WATER 146 (2005). For an example of such "blackboard economics" applied to Chile, see generally Renato Gazmuri Schleyer, *Chile's Market-Oriented Water Policy: Institutional Aspects and Achievements*, *in* WATER POLICY AND WATER MARKETS: SELECTED PAPERS AND PROCEEDINGS FROM THE WORLD BANK'S NINTH ANNUAL IRRIGATION AND DRAINAGE SEMINAR 65 (Guy Le Moigne et al. eds., 1994).

83. *See, e.g.*, PETER H. GLEICK ET AL., THE NEW ECONOMY OF WATER: THE RISKS AND BENEFITS OF GLOBALIZATION AND PRIVATIZATION OF FRESH WATER 29 (2002) (describing the mid-nineteenth-century shift from private to public water providers); Isabelle Fauconnier, *The Privatization of Residential Water Supply and Sanitation Services: Social Equity Issues in California and International Contexts*, 13 BERKELEY PLAN. J. 37, 37–46 (1999) (explaining that the public sector was considered best source for public goods and basic needs such as water); Werner Troesken & Rick Geddes, *Municipalizing American Waterworks, 1897–1915*, 19 J.L. ECON. & ORG. 373 (2003) (discussing the rise of municipally owned water companies after 1880); *cf.* David B. Schorr, *The First Water-Privatization Debate: Colorado Water Corporations in the Gilded Age*, 33 ECOLOGY L.Q. 313, 331–34 (2006) (discussing the creation of mutual ditch companies to provide irrigation water to Colorado farmers).

developing world.[84] To the extent that these entities relied on public funding, they often undercharged for their services and found it increasingly difficult to make up the financial shortfall as the public became increasingly resistant to paying taxes.[85] Beginning in the 1990s, municipalities in the United States and abroad turned to privatization, often seeing it as the only mechanism available for securing new capital in this era of tight public budgets.[86] Proponents of

84. Petrova, *supra* note 9, at 577.

85. *See, e.g.*, Jessica Budds & Gordon McGranahan, *Are the Debates on Water Privatization Missing the Point? Experiences from Africa, Asia and Latin America*, 15 ENV'T & URBANIZATION 87 (2003); Fauconnier, *supra* note 83, at 37–38; Robert Glennon, *The Price of Water*, 24 J. LAND RESOURCES & ENVTL. L. 337 (2004); Sheila M. Olmstead, *What's Price Got to Do with It?*, ENV'T, Dec. 1, 2003, at 22; Indira Rajaraman, *Fiscal Perspective on Irrigation Water Pricing: A Case Study of Karnataka, India*, 8 WATER POL'Y 171 (2006); Melina Williams, Note, *Privatization and the Human Right to Water: Challenges for the New Century*, 28 MICH. J. INT'L L. 469 (2007); *Bogged Down*, ECONOMIST, Mar. 20, 2003, at 15 (describing water price protests in Bolivia).

86. *See, e.g.*, *Excerpts: "This Is a Bold Initiative,"* ATLANTA J.-CONST., Aug. 20, 1998, at C2 [hereinafter *Excerpts*] (reporting excerpts from Atlanta's Mayor's speech about the city's plans to privatize its water systems in order to make improvements to infrastructure without onerous rate increases); Brian Skoloff, *Stockton Water Deal Stirs Privatization Ire*, CONTRA COSTA TIMES (Walnut Creek, Cal.), Mar. 30, 2003, at 4 (describing a mayor's controversial attempt to privatize the city's water supply); Tom Zoellner, *Phoenix Partially Privatizes Its Water*, ARIZ. REPUBLIC, June 2, 2003, at B1 (reporting the decision in Phoenix to turn over part of its water system to a private company to save tax money and to obtain top-tier technology). *See generally* GLEICK ET AL., *supra* note 83, at 23–24 (discussing history of private involvement in water supply); Aldo Davila & Andrew Whitford, *Water, Water, Everywhere? Legal Structures for the Contracting and Privatization of Public Water Resources*, 15 MO. ENVTL. L. & POL'Y REV. 49 (2007) (discussing the large growth in water privatization from 1990 to 2002); Martha Carr, *Water Woes in Atlanta a Cautionary Tale for N.O.*, TIMES-PICAYUNE (New Orleans, La.), June 29, 2003, at 1; Eric Neff, *Panel Pushed to OK Nevada Water Deal*, LAS VEGAS SUN, May 13, 2003, at 1B (reporting concerns about high water rates if a Senate Bill authorizing counties to enter into public-private agreement on water rights is enacted). The situation often is similar outside the United States. *See, e.g.*, Karen Bakker & David Cameron, *Governance, Business Models and Restructuring Water Supply Utilities: Recent Developments in Ontario, Canada*, 7 WATER POL'Y 485 (2005); Casey Brown & Arthur Holcombe, *In Pursuit of the Millennium Development Goals in Water and Sanitation*, 6 WATER POL'Y 263, 264 (2004) (concluding that public and private sectors will have to cover much of costs of expanding services to poorer areas in developing countries); Jonathan Chenoweth, *Changing Ownership Structures in the Water Supply and Sanitation Sector*, 29 WATER INT'L 138 (2004) (discussing case studies of water privatization in England and Wales, Argentina, Côte d' Ivoire, and Israel); Letizia Danesi et al., *Water Services Reform in Italy: Its Impacts on Regulation, Investment and Affordability*, 9 WATER POL'Y 33 (2007); Fauconnier, *supra* note 83, at 37–38, 44 (discussing the history of infrastructure services privatization); Rose Francis, *Water Justice in South Africa: Natural Resources Policy at the Intersection of Human Rights, Economics, and Political Power*, 18 GEO. INT'L ENVTL. L. REV. 149, 176–78 (2005); Sharon A. Jones & Catriona Mhairi Duncanson, *Implications of the World Bank's Privatization Policy for South Africa*, 6 WATER POL'Y 473 (2004); Thomas M. Kerr, *Supplying Water Infrastructure to Developing Countries via Private Sector Project Financing*, 8 GEO. INT'L ENVTL. L. REV. 91, 94–95 (1995) (concluding that demand for water infrastructure exceeds the capacity of traditional financing in developing countries); Petrova, *supra* note 9, at 581–82, 586–88 (stating that water infrastructure funding needs outstrip available aid and public funding in developing countries); Sarah I. Hale, Comment, *Water Privatization in the Philippines: The Need to Implement the Human Right to Water*, 15 PAC. RIM L. & POL'Y J. 765, 778–79 (2006) (asserting that high costs make publicly owned water systems unfeasible in developing countries); Welch, *supra* note 80, at 319–22 (discussing water

privatization argued that private operators would be more efficient and thereby would improve the quality of service even while reducing costs.[87] The World Bank is so convinced of this that between 1996 and 2002 it conditioned about one-third of its water-related loans on the privatization of water utility services.[88]

These efforts have proven to be more problematic than the champions of privatization have either predicted or acknowledged.[89] Most importantly, privatized water utilities simply did not perform better than the publicly owned utilities they replaced.[90] Often prices rose precipitously immediately after privatization, sparking public riots and other forms of resistance that blocked efforts at privatization in many parts of the world.[91] This occurred most famously

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privatization in South Africa); Williams, *supra* note 85, at 494–95 (concluding that privatization potentially reduces the financial burden on the state).

87. *E.g.*, MARK DUMOL, THE MANILA WATER CONCESSION: A KEY GOVERNMENT OFFICIAL'S DIARY OF THE WORLD'S LARGEST WATER PRIVATIZATION 16–20 (2000) (explaining the benefits of privatization relating to procurement, personnel, and financing); Budds & McGranahan, *supra* note 85, at 97 (stating that private companies are considered more efficient than public organizations); Robert Glennon, *Water Scarcity, Marketing, and Privatization*, 83 TEX. L. REV. 1873, 1892 (2005) (explaining the benefits of privatization); Hale, *supra* note 86, at 770, 774 (noting that proponents of privatization argue that private companies are better suited to manage water utilities because government-owned water utilities suffer from inefficiency and bureaucracy); Kerr, *supra* note 86, at 92 (arguing that the private sector is uniquely positioned to provide cost-effective water infrastructure in developing countries); Petrova, *supra* note 9, at 587 (conceding that privatization may enhance efficiency, financing, and infrastructure as compared to government-operated water utilities); Williams, *supra* note 85, at 494, 500 (discussing the potential benefits of privatization, include improved efficiency).

88. Petrova, *supra* note 9, at 578 n.7; *see also* Mark Baker, *Privatization in the Developing World: Panacea for the Economic Ills of the Third World or Prescription Overused?*, 18 N.Y.L. SCH. J. INT'L & COMP. L. 233, 234 (1999) (asserting that privatization programs are promoted as an essential part of economic reform in the developing world); Petrova, *supra* note 9, at 583–85 (discussing the historical trend toward water privatization).

89. *See generally* J.J. HUKKA & T.S. KATKO, WATER PRIVATISATION REVISITED: PANACEA OR PANCAKE? (2003); TROUBLED WATER: SAINTS, SINNERS, TRUTHS AND LIES ABOUT THE GLOBAL WATER CRISIS (Anita Roddick & Brooke Shelby Biggs eds., 2004); VANDANA SHIVA, WATER WARS: PRIVATIZATION, POLLUTION, AND PROFIT (2002); Okke Braadbaart, *Privatizing Water and Wastewater in Developing Countries: Assessing the 1990s' Experiments*, 7 WATER POL'Y 329 (2005); Jean G. Chatila, *Water Tariffs in Lebanon: A Review and Perspective*, 7 WATER POL'Y 215 (2005); Hale, *supra* note 86 (describing water privatization in Manila, the Philippines).

90. *See* HUKKA & KATKO, *supra* note 89, at 84–86 (describing the problems with water privatization in Vietnam); Davila & Whitford, *supra* note 86, at 57–58 (noting that little evidence exists that private utilities are more efficient than public utilities); Antonio Estache & Martín A. Rossi, *How Different Is the Efficiency of Public and Private Water Companies in Asia?*, 16 WORLD BANK ECON. REV. 139 (2002) (concluding that the theoretical efficiencies of public and private models are similar); Hale, *supra* note 86, at 772–73 (describing the deterioration of affordability, quality, and accessibility in the Philippines after privatization); Welch, *supra* note 80, at 312–13, 316–22 (describing the disproportionate impact of privatization on the poor and recounting water privatization protests in Bolivia); George R. G. Clarke et al., *Has Private Participation in Water and Sewerage Improved Coverage? Empirical Evidence from Latin America* 3–11 (World Bank Pol'y Research Working Paper Series, Paper No. 3445, 2004) (discussing empirical evidence of the comparative efficiency of public and private water utilities).

91. Rosa Maria Formiga-Johnsson, Lori Kumler & Maria Carmen Lemos, *The Politics of Bulk Water Pricing in Brazil: Lessons from the Paraíba do Sul Basin*, 9 WATER POL'Y 87, 92 (2007).

in Cochabamba, Bolivia in 2000, where the World Bank pressured Bolivia into privatizing water services,[92] but the company (controlled by the Bechtel group) that won the concession to take over the municipal waterworks was forced to abandon the concession.[93] The leader of the antiprivatization riots at Cochabamba, Evo Morales, went from a leader of coca growers (coca being the source of cocaine) to anti-American President of the country in 2006.[94] Less dramatic resistance has also succeeded in other countries.[95]

In the United States, the market fundamentalists had their way for about a decade[96] until a backlash set in against higher prices and lessening service.[97] As a

92. Glennon, *supra* note 87, at 1890; Naegele, *supra* note 80, at 124–26; Welch, *supra* note 80, at 316–19; Williams, *supra* note 85, at 496–98. Remember that pressure for privatization was routine procedure for the World Bank at the time. *See* Petrova, *supra* note 9, at 578 n.7 (referencing a study of World Bank loans between 1996 and 2002 that found that about one-third of water services loans were conditioned on privatization); Welch, *supra* note 80, at 312–13, 315–16 (describing World Bank pressure toward privatization).

93. ROTHFEDER, *supra* note 11, at 99–114; Glennon, *supra* note 87, at 1890; Naegele, *supra* note 80, at 124-26; Nickson & Vargas, *supra* note 11, at 108; Petrova, *supra* note 9, at 579; Welch, *supra* note 80, at 316–19; Williams, *supra* note 85, at 496–501; Erik J. Woodhouse, Note, *The "Guerra del Agua" and the Cochabamba Concession: Social Risk and Foreign Direct Investment in Public Infrastructure*, 39 STAN. J. INT'L L. 295, 295 (2003); *Bolivian Water Plan Dropped After Protests Turn into Melees*, N.Y. TIMES, Apr. 11, 2000, at A12.

94. James Dunkerley, *Evo Morales, the "Two Bolivias," and the Third Bolivian Revolution*, 39 J. LATIN AM. STUD. 133, 133 (2007); Stuart Alexander Rockefeller, *Dual Power in Bolivia: Movement and Government Since the Election of 2005*, URB. ANTHROPOLOGY & STUDY OF CULTURAL SYSTEMS & WORLD ECON. DEV., Fall 2007, at 161, 161; Monte Reel, *In Bolivia, a Political Landscape Shaped by Protests*, WASH. POST, Apr. 4, 2005, at A18.

95. *See, e.g.*, HUKKA & KATKO, *supra* note 89, at 35, 55–65 (describing resistance to privatization in Palmira City, Colombia); Douglas A. Kysar, *Sustainable Development and Private Global Governance*, 83 TEX. L. REV. 2109, 2109–13 (2005) (describing resistance to privatization in India); Stefan M. M. Kuks, *The Privatisation Debate on Water Services in the Netherlands: Public Performance of the Water Sector and the Implications of Market Forces*, 8 WATER POL'Y 147, 147–48 (2006) (discussing opposition to water privatization in the Netherlands); Jason Astle, Comment, *Between the Market and the Commons: Ensuring The Right to Water in Rural Communities*, 33 DENV. J. INT'L L. & POL'Y 585, 596–98 (2005) (discussing criticisms of water system privatization); Petrova, *supra* note 9, at 579–80 (describing resistance to privatization in Uruguay); Katherine Griffiths, *Row Brews over £2bn Plan to Float Scots Water*, DAILY TELEGRAPH (London), Mar. 20, 2006, at 1; Nick Mathiason, *UK Water Giant to Sue Debt-Laden Tanzania*, OBSERVER (UK), May 22, 2005, at 1. *See generally* Amy Hardberger, *Whose Job Is it Anyway?: Governmental Obligations Created by the Human Right to Water*, 41 TEX. INT'L L.J. 533 (2006); Symposium, *Water Institutional Reforms*, 7 WATER POL'Y 1 (2005).

96. Glennon, *supra* note 87, at 337–38.

97. *DEQ Watching over Water Deal*, GRAND RAPIDS PRESS (Mich.), Apr. 19, 2005, at B2; Michael A. Hiltzik, *MWD's Vote Endangers Cadiz's Future*, L.A. TIMES, Oct. 9, 2002, at C1; *Judge Disallows Stockton Water Contract Plans*, CONTRA COSTA TIMES (Walnut Creek, Cal.), Dec. 7, 2003, at 4; *Judge Nixes Town's Spring Water Deal with Nestle*, MONTREAL GAZETTE, Mar. 25, 2005, at B6; *Mexico Water Profits Inspire Protests at Forum*, MIAMI HERALD, Mar. 17, 2006, at A15; Molly Parker, *Public Split on Possible Water Company Deal*, PEORIA J. STAR, Mar. 31, 2005, at B; Molly Parker, *Voters to Weigh in on Water Buyout*, PEORIA J. STAR, Apr. 4, 2005, at B; Joseph Sapia, *Brick to Buy Parkway Water Co. Assets*, ASBURY PARK PRESS (N.J.), Jan. 9, 2005, at AA1; John Sharp, *Pekin Applauds Peoria Water Referendum*, PEORIA J. STAR, Feb. 1, 2005, at B; John Sharp, *Pekin Denied Buyout Request*, PEORIA J. STAR, Mar. 15, 2005, at B; Mark Stevenson, *Activists Pledge to Fight as*

result of the backlash, some parts of the United States now have laws and regulations to block the possibility of market transactions for the bulk of public water services.[98] More dramatically, some communities have bought back water utilities that were privatized about a decade earlier because of the inability of the private utility to provide satisfactory service at a reasonable cost.[99] Such utilities were privatized on "favorable terms" in order to attract a buyer, but when bought back commanded prices that reflected the full value of plant and equipment as well as the capitalized value of the business enterprise ("goodwill").[100]

The most prominent example of a failed privatization is found in Atlanta, Georgia. The city was in serious financial difficulties in 1998, when it decided to privatize its municipal water and sewer service as a means to resolve its financial crisis.[101] At the time, the Atlanta system, under municipal ownership for 123 years, was serving approximately 1,500,000 people in the greater Atlanta area.[102]

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*Water Shortage Looms*, CHARLOTTE OBSERVER, Mar. 18, 2006, at 18A. *See generally* Naegele, *supra* note 80, at 106–114 (discussing global trend towards water privatization); Matthew S. Tisdale, Note, *The Price of Thirst: The Trend Towards the Privatization of Water and Its Effect on Private Water Rights*, 37 SUFFOLK U. L. REV. 535 (2004).

98. Craig Anthony (Tony) Arnold, *Privatization of Public Water Services: The States' Role in Ensuring Public Accountability*, 32 PEPP. L. REV. 561, 577–78 (2005); Shelley Ross Saxer, *Eminent Domain, Municipalization, and the Dormant Commerce Clause*, 38 U.C. DAVIS L. REV. 1505, 1511–12 (2005); *see also* Martha Carr, *S&WB Sell-Off Is Sunk, Nagin Says*, TIMES-PICAYUNE (New Orleans, La.), Apr. 20, 2004, at 1 (describing a law that requires voter approval to privatize); Julia Ferrante, *Swiftmud Says Selling Water Doesn't Comply with Permits*, TAMPA TRIB., Feb. 12, 2003, at 2 (explaining that selling water must comply with local permit restriction); Jim Kehl, *Large Water Lease Could Leave Residents Footing the Bill*, AURORA SUN SENTINEL (Colo.), Feb. 19, 2004, at A5 (describing the need to get a permit); Cy Ryan, *Leaders Scuttle Lincoln County-Vidler Water Deal*, LAS VEGAS SUN, May 27, 2003, at 5; William C. Singleton III, *Water Works to Save Money by Refinancing*, BIRMINGHAM NEWS (Ala.), Feb. 16, 2007, at 3C (describing how a city vote stopped privatization).

99. *See, e.g.*, Kevin P. Connolly, *Deltona Has Go-Ahead to Purchase Utilities*, ORLANDO SENTINEL, Aug. 8, 2003, at G1; Noelle Haner-Dorr, *Osceola Buys Chunk of Private Water Utility*, ORLANDO BUS. J., Aug. 1, 2003; Robert King & Archana Pyati, *Sale Signals End of Utility Battle*, ST. PETERSBURG TIMES, July 25, 2003, at 1; *Puerto Rican Water Authority Cancels Second O&M Deal*, ENGINEERING NEWS-REC., Jan. 19, 2004, at 7; Alan Snitow & Deborah Kaufman, *Taking Back Our Water*, USA TODAY, Aug. 21, 2007, at 11A. *See generally* Saul Levmore, *Two Stories About the Evolution of Property Rights*, 31 J. LEGAL STUD. S421 (2002) (discussing explanations for the movement toward and away from privatization).

100. John Stamper, *Water Firm Files Lawsuit Against City*, LEXINGTON HERALD-LEADER (Ky.), July 18, 2003, at A1; Laura Yuen, *Lexington Asks Judge to Get Off Water Case*, LEXINGTON HERALD-LEADER (Ky.), Aug. 9, 2003, at A1.

101. *A Guide to Water Privatization*, ATLANTA J.-CONST., Aug. 27, 1998, at JD2; Colin Campbell, *Atlanta Seems to Be Traveling in a Handbasket*, ATLANTA J.-CONST., Aug. 9, 1998, at B1; *Excerpts*, *supra* note 86.

102. Carlos Campos, *Not a Drop of Interest in Privatizing Water*, ATLANTA J.-CONST., June 27, 1998, at F1.

The water system was the largest to be privatized in the United States and one of the largest in the world.[103]

There was little public opposition to the proposal, with scant attendance at eight public meetings called to solicit public input.[104] Other sorts of public input, such as letters or telephone calls, were overwhelmingly supportive.[105] Opposition to the privatization was discouraged both by the city guaranteeing that water department employees would have their jobs protected and by threatening the public with substantial rate increases if the city had to fund the necessary repairs and upgrades to the water facilities.[106] Even the attempt of City Council President Robb Pitts to rally opposition to the plan failed to spark a more general resistance to the privatization.[107] Until just before the contract was signed, the only real questions that were asked were whether the bidding process was being handled properly and about certain terms in the proposed contract.[108]

Mayor Bill Campbell was able to overcome even these few problems to push the contract through to an award to his preferred contractor.[109] The choice

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103. Julie B. Hairston, *Campaign Fever Hits Rivals on Water Bid Swaying the Public*, ATLANTA J.-CONST., Aug. 8, 1998, at B1; Mary Buckner Powers, *Charges, Countercharges Fly in Atlanta Water O&M Bidding*, ENGINEERING NEWS-REC., Aug. 24, 1998, at 16.

104. Campos, *supra* note 102.

105. *Id.*

106. *Id.*; Carlos Campos, *Atlanta Decision to Show if Water, Politics Can Mix*, ATLANTA J.-CONST., Aug. 23, 1998, at D1. Municipal workers at the water facilities nonetheless did come out against the privatization plan, but only after the winning bidder was announced. Julie B. Hairston, *City Workers Air Water Worries*, ATLANTA J.-CONST., Sept. 24, 1998, at JD1. The workers even attempted to block the contract by legal action, to no avail. Jay Croft, *Water Workers Take City to Court*, ATLANTA J.-CONST., Oct. 9, 1998, at 5C.

107. Campos, *supra* note 102; Julie B. Hairston, *Pitts Opposes Privatization Plan*, ATLANTA J.-CONST., July 9, 1998, at D1.

108. *See* Carlos Campos & Julie Hairston, *Privatization Process Meets with Confusion*, ATLANTA J.-CONST., July 29, 1998, at B1 (describing confusion over the bid-evaluating process, including undervaluing the cost of the contracts); Julie B. Hairston & Carlos Campos, *Criteria for Water Contract Is Disputed*, ATLANTA J.-CONST., Aug. 12, 1998, at D1 (describing opposition by the "Metro Group" to possible changes in the evaluation process); Julie B. Hairston, *Privatizing Blueprint Draws Fire*, ATLANTA J.-CONST., Aug. 6, 1998, at A1 (reporting concern by the "Metro Group" that the subjective nature of evaluating bids is open to corruption); Powers, *supra* note 103 (describing accusations that the bidding selection process is open to cronyism). The questions were raised by a group styling itself the "Metro Group." Julie B. Hairston, *Critics Aside, Metro Group Raises Profile*, ATLANTA J.-CONST., Aug. 22, 1999, at B1. The group continued to supervise the city's operations for some time after the privatization process was completed. Julie B. Hairston, *Water Plant Bungling Costly, Group Says*, ATLANTA J.-CONST., July 16, 1999, at C1.

109. *See* Carlos Campos & Julie B. Hairston, *Council Approval Next Step for Low Bidder's Contract*, ATLANTA J.-CONST., Aug. 28, 1998, at D1; *Excerpts*, *supra* note 86 (reporting comments by the mayor addressing accusations of cronyism in bid evaluation); Julie B. Hairston, *Atlanta Water Contract Signed Today*, ATLANTA J.-CONST., Nov. 10, 1998, at C1; Julie B. Hairston & Carlos Campos, *Campbell Vows "Fair" Selection Process*, ATLANTA J.-CONST., Aug. 20, 1998, at C1; Julie B. Hairston & Carlos Campos, *Council OKs Water System Privatization*, ATLANTA J.-CONST., Oct. 15, 1998, at A1; Julie B. Hairston, *Water Contract Again Disputed*, ATLANTA J.-CONST., Sept. 30, 1998, at B1 (reporting the city council's decision to postpone voting on the contract due to unanswered questions regarding the city's budget).

fell upon United Water as lead contractor, an experienced company with a reputation for success—as one commentary put it, "a safe selection."[110] United Water partnered with the French company, Suez Lyonnaise ("Suez")—one of the largest of the several water service companies operating worldwide.[111] Initially, the Atlanta papers did not note the French company's participation along with United Water, but they did note when Suez bought United Water to become sole operator of the Atlanta facilities less than a year after the privatization contract was awarded.[112]

Atlanta officials were so pleased with the arrangement that they expected it to become a model for other municipalities across North America.[113] The winning bidder faced trying to collect on as much as $30 million in unpaid water bills, the need to catch up on neglected maintenance, and an obligation to undertake major upgrades to the system.[114] Not surprisingly under the circumstances, the winning bidder announced sewer rate increases nearly equal to those threatened by the city in order to promote the privatization process,[115] although promising to make up that increase on savings from water delivery services.[116] Soon after the contract was signed, problems began to emerge, costs of water delivery began to rise, and the illusion of improved service at lower cost began to vanish.[117] Less than five years after Atlanta privatized its water system, the city was compelled to buy it back in the hope of being able to improve service and reign in costs—at a considerable financial loss.[118]

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110. Carlos Campos & Julie B. Hairston, *United Water "A Safe Selection,"* ATLANTA J.-CONST., Aug. 28, 1998, at D1. United Water's largest other operation at the time was the water system for Jersey City, New Jersey. *Id.*; Anthony S. Twyman, *Atlanta Taps United Water*, STAR-LEDGER (Newark, N.J.), Oct. 16, 1998, at 41.

111. Suez operates in about forty-one countries and serves about 115 million people. Petrova, *supra* note 9, at 578 n.9.

112. Matthew C. Quinn, *French Firm to Buy All of Water Provider*, ATLANTA J.-CONST., Aug. 25, 1999, at D3.

113. Carlos Campos & Julie B. Hairston, *Privatization Lessons Learned*, ATLANTA J.-CONST., Oct. 8, 1998, at JD1; Carlos Campos, *Privatization Taught Lesson*, ATLANTA J.-CONST., Aug. 30, 1998, at G1; Carlos Campos, *Water Privatization Spurs Flood of Big Jobs*, ATLANTA J.-CONST., Dec. 4, 1998, at D1; Steve Everly, *Taking Water Services Private Would Set a National Standard*, KAN. CITY STAR, June 13, 1999, at A16.

114. Julie B. Hairston, *Water Privatization: Winning Bidder Will Face Debt, Backlog, Major Upgrade*, ATLANTA J.-CONST., Aug. 23, 1998, at D1.

115. Hairston, *supra* note 106; Julie B. Hairston, *Water Works: Sewer Rates to Rise, Even with Privatization*, ATLANTA J.-CONST., Sept. 10, 1998, at B1.

116. Carlos Campos, *Water Firm Vows Solid Job but Details Won't Be Aired Until Contract OK'd*, ATLANTA J.-CONST., Sept. 20, 1998, at C1; S. A. Reid, *Fee Cut Would Help Those Outside City*, ATLANTA J.-CONST., Sept. 24, 1998, at JD2. *See generally* Naegele, *supra* note 80, at 112–14 (describing general problems with water system privatization, including increased costs and decreased quality).

117. Ann Hardie, *Backlog Damming Water Company's Tries at Timeliness*, ATLANTA J.-CONST., Aug. 30, 1999, at B1; Ann Hardie, *City, Firm up to Their Necks in Complaints*, ATLANTA J.-CONST., Sept. 6, 1999, at B1. *See generally* Petrova, *supra* note 9, at 588–91 (arguing that multinational water companies use their power disparity to raise rates without improving efficiency).

118. Bennett, *supra* note 11; Milo Ippolito, *Atlanta Takes over Water System*, ATLANTA J.-

The problem is not simply that a city like Atlanta made a poor contract, something that better negotiating could solve the next time. The simple fact is that, with an obligation to provide water even to those who cannot pay the full cost of the service[119] and the huge capital demands in providing water service to large numbers of people,[120] the overall rate of return on investment is not high enough to attract the capital necessary to accomplish the goal of providing improved service at lower cost to those who are expected to pay full price for their water services.[121] None of these setbacks have stopped the effort to privatize water utilities nationally and internationally.[122] Market fundamentalists

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CONST., Apr. 30, 2003, at B5; Douglas Jehl, *As Cities Move to Privatize Water, Atlanta Steps Back*, N.Y. TIMES, Feb. 10, 2003, at A14; Jay Landers, *Drinking Water: Atlanta to Reclaim Its Water System*, CIVIL ENGINEERING, Apr. 2003, at 33.

119. GLEICK ET AL., *supra* note 83, at 29–40; Glennon, *supra* note 87, at 341; Hale, *supra* note 86, at 786–95; Petrova, *supra* note 9, at 588; Williams, *supra* note 85, at 492–505; *Bogged down*, *supra* note 85; *see also* Fauconnier, *supra* note 83, at 68 (describing the need to the protect poor); Naegele, *supra* note 80, at 107 (discussing public subsidies for water).

120. JAMES WINPENNY, REPORT OF THE WORLD PANEL ON FINANCING WATER INFRASTRUCTURE: FINANCING WATER FOR ALL, EXECUTIVE SUMMARY 2 (2003), http://www.gwpforum.org/gwp/library/ExecSum030703.pdf; Petrova, *supra* note 9, at 585 n.46.

121. HUKKA & KATKO, *supra* note 89, at 89–98; Naegele, *supra* note 80, at 108; Williams, *supra* note 85, at 500; G. Jeffrey MacDonald, *Investors Thirst for Water Profit*, CHRISTIAN SCI. MONITOR, June 25, 2007, at 14; Elisabeth Malkin, *At World Forum, Support Erodes for Private Management of Water*, N.Y. TIMES, Mar. 20, 2006, at A11; *RWE to Sell U.S., British Water Businesses*, GLOBE & MAIL (Toronto, Can.), Nov. 5, 2005, at B8; Gerard Wynn, *Investors Put Their Liquidity into Clean Water*, INT'L HERALD TRIB., Mar. 20, 2008, at 14 (reporting that investors favor sellers of water-treatment equipment rather than water utilities); Sebastian Hacher, *Argentina Water Privatization Scheme Runs Dry*, CORPWATCH, Feb. 26, 2004, http://www.corpwatch.org/article/php?id=10088. Analyses that focus on growth in revenues rather than rate of return miss the crucial question. *See, e.g.*, Petrova, *supra* note 9, at 578 n.10 (stating that the revenue of multinational companies Vivendi Universal and REW have greatly improved over past twelve years, but failing to address the companies' rate of return).

122. *See, e.g.*, MIKE MAGEE, HEALTHY WATERS: WHAT EVERY HEALTH PROFESSIONAL SHOULD KNOW ABOUT WATER 91–106 (2005); RECLAIMING PUBLIC WATER: ACHIEVEMENTS, STRUGGLES AND VISIONS FROM AROUND THE WORLD (Belén Balanyá et al. eds., 2005); FREDRIK SEGERFELDT, WATER FOR SALE: HOW BUSINESS AND THE MARKET CAN RESOLVE THE WORLD'S WATER CRISIS (2005); WORLD BANK, WATER—A PRIORITY FOR RESPONSIBLE GROWTH AND POVERTY REDUCTION: AN AGENDA FOR INVESTMENT AND POLICY CHANGE (2003); Antonio Estache & Lourdes Trujillo, *Efficiency Effects of "Privatization" in Argentina's Water and Sanitation Services*, 5 WATER POL'Y 369 (2003); David J. Hayes, *Privatization and Control of U.S. Water Supplies*, NAT. RESOURCES & ENV'T, Fall 2003, at 19; O.A. K'Akumu, *Privatization Model for Water Enterprise in Kenya*, 8 WATER POL'Y 539 (2006); O.A. K'Akumu & P. O. Appida, *Privatization of Urban Water Service Provision: The Kenyan Experiment*, 8 WATER POL'Y 313 (2006); Afamia C. Nakat & Charles D. Turner, *Water Use and Transfer Scenarios in El Paso County, Texas, USA*, 29 WATER INT'L 338 (2004); Bob Downing, *Group Criticizes Privatization Plan*, AKRON BEACON J., Feb. 8, 2008, at A3; Peter Y. Hong, *Stockton Puts Water Services in Private Hands*, L.A. TIMES, Feb. 21, 2003, at B6; Andy Mead, *Vote Puts Likely End to Water Debate*, LEXINGTON HERALD-LEADER (Ky.), Nov. 8, 2006, at A1; Ben Neary, *State Lacks Funds for Pecos Water, Land Rights*, SANTA FE NEW MEXICAN, Feb. 18, 2004, at A7; Mike Patty, *Aurora Close to Water Deal*, ROCKY MT. NEWS, Feb. 20, 2004, at 24A; Tom Searls, *Water Bill Receives Minor Changes*, CHARLESTON GAZETTE (W. Va.), Jan. 30, 2004, at P11A; *Third-World Water and the Private Sector: How Not to Help Those in Need*, ECONOMIST, Aug. 26, 2004, at 54. *See generally* WINPENNY, *supra* note 120, at 1–2 (discussing need for financing of global water supply).

also are pressing for privatizing water quality management.[123] Given the level of resistance to markets, however, some proponents of a larger private role in water management have turned to "public-private partnerships" as the next best alternative.[124] The greater public involvement might make these partnerships work better, but there are no guarantees.

### B. *Do Markets for Raw Water Work?*

Market fundamentalists not only argue for the privatization of water utilities, but also for the marketization of raw water—water in its natural state as rivers, lakes, aquifers, and so on.[125] The first step in such a program is the creation of definite property rights.[126] Elsewhere, I have written at length about the available models of property in water and the attempts to marketize raw water.[127] Here I will only briefly summarize why markets do not work for raw water.

The first thing to note about proposals to marketize raw water is that such markets have always been extremely rare in practice.[128] Indeed, when markets

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123. *See* CY JONES ET AL., WATER-QUALITY TRADING: A GUIDE FOR THE WASTEWATER COMMUNITY (2006); Ami M. Grace-Tardy, Karen Hansen & Richard Davis, *Issues at the Forefront of Water Quality Pollution Trading: How Agriculture, Regulation, and Market Factors Will Drive Future Trades*, 1 E. WATER L. & POL'Y REP. 255 (2006); Clay J. Landry, *Overview: The New Economy of Water*, WATER RESOURCES IMPACT, Jan. 2002, at 2, 21 (discussing active water trading markets burgeoning as result of "new economy of water"); Charlotta Windahl, *Suppliers in the Privatised UK Wastewater Market and Their Possible Moves Towards Integrated Solutions*, 8 WATER POL'Y 559, 563 (2006); Williams, *supra* note 85, at 503 (noting that the privatization of water supply may also include sanitation services).

124. *See, e.g.*, HUKKA & KATKO, *supra* note 89, at 26–30, 37–50, 55–74; Budds & McGranahan, *supra* note 85, at 88–90 (arguing that complete privatization of water services is not solution to world's water supply and sanitation problems); Fauconnier, *supra* note 83, at 43–44 (noting that it is more common to have private participation short of full privatization, and examining varying degrees of public-private partnerships); Martha Minow, *Public and Private Partnerships: Accounting for the New Religion*, 116 HARV. L. REV. 1229 (2003); Naegele, *supra* note 80, at 107 (noting the success of public-private partnerships in France and California); Petrova, *supra* note 9, at 585–86 (noting that international institutions increasingly call for public-private partnerships); Williams, *supra* note 85, at 493 (analyzing different degrees of the privatization of water services).

125. See *supra* note 79 for a collection of authorities that argue for privatization of raw water.

126. TEERINK & NAKASHIMA, *supra* note 80, at 10–24; Michael A. Heller, *The Boundaries of Private Property*, 108 YALE L.J. 1163, 1189–90 (1999); Clifford G. Holderness, *Joint Ownership and Alienability*, 23 INT'L REV. L. & ECON. 75, 77 (2003); Joseph Makwata Wambia, *The Political Economy of Water Resources Institutional Reform in Pakistan*, *in* THE POLITICAL ECONOMY OF WATER PRICING REFORMS, *supra* note 80, at 359, 373–74.

127. Joseph W. Dellapenna, *The Importance of Getting Names Right: The Myth of Markets for Water*, 25 WM. & MARY ENVTL. L. & POL'Y REV. 317, 336–42 (2000).

128. LEE, *supra* note 79, at 78 ("The idea of treating water as an economic good . . . is so novel that using markets, rather than bureaucratic decision, for water allocation makes almost everyone responsible for water policy very nervous."); *see also* LEGISLATIVE ANALYST'S OFFICE, THE ROLE OF WATER TRANSFERS IN MEETING CALIFORNIA'S WATER NEEDS (1999) (describing lack of private long-term water transfers); BAUER, *supra* note 82, at 1 (noting that although the Chilean water market is often praised as the paradigm example of free-market reform, no other country has duplicated it and it hardly operates at all in practice); RODNEY T. SMITH, TRADING WATER: AN ECONOMIC AND LEGAL

for water become a subject of public concern, the debate often becomes highly emotional, with a good deal of the emotion going against markets.[129] Water markets have seldom been used to accomplish significant changes in the ways water is used; such markets as do exist tend to involve relatively small amounts of water sold among similar users in a fairly small geographic setting, often simply among shareholders of a mutual ditch company or the like.[130] When there

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FRAMEWORK FOR WATER MARKETING 28–52 (1988) (discussing the limited sales of surface water in irrigation districts and sale of groundwater in Arizona); RICHARD WAHL, WATER MARKETING IN CALIFORNIA: PAST EXPERIENCE, FUTURE PROSPECTS 197–289 (1993) (noting the rarity of water sales in California); Michael C. Blumm, *Seven Myths of Northwest Water Law and Associated Stories*, 26 ENVTL. L. 141, 145–46 (1996) (noting that water market transactions are rare in west); Bonnie Colby, *Water Reallocation and Valuation: Voluntary and Involuntary Transfers in the Western United States*, *in* WATER LAW: TRENDS, POLICIES, AND PRACTICE 112, 112–19 (Kathleen Marion Carr & James D. Crammond eds., 1995) [hereinafter WATER LAW] (summarizing water reallocation arrangements and detailing five existing water markets in United States); Caitlin S. Dyckman, *A Dynastic Disruption: The Use Efficiency and Conservation Legacy of the Governor's Commission to Review California Water Rights Law Recommendations*, 36 MCGEORGE L. REV. 175, 185–86 (2005) (discussing California's focus on a market approach to increase water supply efficiency and noting that such an approach was uncommon); Santos Gomez & Penn Loh, *Communities and Water Markets: A Review of the Model Water Transfer Act*, 4 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 63, 63–69 (1996) (noting that despite years of market reform strategies in California, few long-term, market-like transfers of water rights have occurred); Morris Israel & Jay R. Lund, *Recent California Water Transfers: Implications for Water Management*, 35 NAT. RESOURCES J. 1, 21–29 (1995) (noting that while state-funded water transfers receive much attention, these transfers rarely occur); John F. Klein-Robbenhaar, *Balancing Efficiency with Equity: Determining the Public Welfare in Surface Water Transfers from Acequia Communities*, 36 NAT. RESOURCES J. 37, 40–58 (1996) (debating whether water transfers will benefit New Mexico communities); Anthony Scott & Georgina Coustalin, *The Evolution of Water Rights*, 35 NAT. RESOURCES J. 821, 921 (1995) (noting that sales are less frequent than "the sale of used cars"); Thomas & Mueller, *supra* note 79, at 745–48 (noting much of California's groundwater is ineligible for transfer); Barton H. Thompson, Jr., *Institutional Perspectives on Water Policy and Markets*, 81 CAL. L. REV. 671, 723–39 (1993) (noting that local agricultural institutions often become obstacles to trade in agro-urban water transfers).

129. *See* Gregory S. Weber, *The Role of Environmental Law in the California Water Allocation and Use System: An Overview*, 25 PAC. L.J. 907 (1994) (describing the often highly emotional controversies that beset water allocation in California); Anthony DePalma, *Free Trade in Fresh Water? Canada Says No and Halts Exports*, N.Y. TIMES, Mar. 8, 1999, at A9 (reporting that fresh water is "one subject that leaves a broad range of . . . normally clear-eyed and level-headed Canadians looking for American subterfuge"). See also *supra* notes 90–94 and accompanying text for a discussion of the antiprivatization movements in Bolivia.

130. Charles W. Howe & Christopher Goemans, *Water Transfers and Their Impacts: Lessons from Three Colorado Water Markets*, 39 J. AM. WATER RESOURCES ASS'N 1055, 1055 (2003) (stating that changes to water ownership occur primarily through informal and local water markets in western United States); Wim H. Kloezen, *Water Markets Between Mexican Water User Associations*, 1 WATER POL'Y 437, 437–38 (1998); Ruml, *supra* note 67, at 199–200 (noting that the prior appropriation system, as whole, fails to achieve a "Coase Equilibrium," although arguing that such a market equilibrium exists inside water institutions). *See, e.g.*, Westlands Water Dist. v. United States, 100 F.3d 94 (9th Cir. 1996) (challenging changes in water allocations made by the federal Bureau of Reclamation); ISG, LLC v. Ark. Valley Ditch Ass'n, 120 P.3d 724 (Colo. 2005) (en banc) (upholding the dismissal of a petition by a small group of shareholders in a mutual ditch company seeking to change their water rights); *see also* Brewer et al., *supra* note 79 (discussing the patterns of water transfers within particular states); Dana Sebren Cooper & D. Michael Harvey, *An Upstream Swim: The Crafting and Passage of the Central Valley Project Improvement Act*, *in* WATER LAW, *supra* note 128, at 253, 258–61 (discussing

have been so-called markets intended to bring about major changes in the time, place, or manner of use, they functioned only through the rather heavy-handed intervention of the state.[131] Such arrangements hardly qualify as a market at all.[132] The dearth of real markets gives rise to an all too obvious question: If markets for raw water are so good, why are they so seldom used? Supporters of markets seldom address this question except to denigrate their critics as holding cultural, religious, or even mystical prejudices about water that prevent water from being treated as it should—just like any other commodity.[133] This attitude, however, overlooks that water is not like other resources.

Water, like air, is not only essential to life; it is also the quintessential "public good." A "public good" is a good that shares two qualities: indivisibility

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the Central Valley Project Restoration Fund in California and the extent of market or market-like water transfers in California); Thomas M. Fullerton, Jr., *Water Transfers in El Paso County, Texas*, 8 WATER POL'Y 255, 260–62 (2006); Todd G. Glass, *The 1992 Omnibus Water Act: Three Rubrics of Reclamation Reform*, 22 ECOLOGY L.Q. 143, 145 (1995) (discussing California water transfers); Brian E. Gray, *The Shape of Things to Come: A Model Water Transfer Act for California*, 14 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 623, 624, 629–30 (2008); Thompson, *supra* note 128, at 708–23 (discussing the use of institutions in water pricing and transfer markets, and corresponding limits in practical size of such institutions); Asif M. Zaman, Brian Davidson & Hector M. Malano, *Temporary Water Trading Trends in Northern Victoria, Australia*, 7 WATER POL'Y 429, 429 (2005) (noting that water trading is concentrated among small farmers in areas of New South Wales and Victoria, Australia).

131. *See* COMM. ON W. WATER MGMT. ET AL., NAT'L RESEARCH COUNCIL, WATER TRANSFERS IN THE WEST: EFFICIENCY, EQUITY, AND THE ENVIRONMENT 17 (1992) (noting that water policy over past decade has centered on how state and federal governments can incentivize more water transfers); Amy Sinden, *The Tragedy of the Commons and the Myth of a Private Property Solution*, 78 U. COLO. L. REV. 533, 576–84 (2007) (discussing the widespread exaggeration of actual private markets for "public goods").

132. See *infra* Part IV.C for a discussion of the California Water Bank and the Imperial Valley Irrigation District "sale."

133. *See* F. Lee Brown & Charles T. DuMars, *Water Rights and Market Transfers*, *in* WATER SCARCITY: IMPACTS ON WESTERN AGRICULTURE 408, 412–13 (Ernest A. Engelbert & Ann Foley Scheuring eds., 1984) (noting that in certain Indian tribes water is thought to have religious, ritual, and superstitious significance, making it less likely to be seen as commodity); Timothy D. Tregarthen, *Water in Colorado: Fear and Loathing of the Marketplace*, *in* WATER RIGHTS: SCARCE RESOURCE ALLOCATION, BUREAUCRACY, AND THE ENVIRONMENT 119, 119 (Terry Lee Anderson ed., 1983) [hereinafter WATER RIGHTS] ("[A]n economist might be defined as someone who doesn't see anything special about water."); ANDERSON & SNYDER, *supra* note 79, at 17–29, 114–16; KENNETH E. BOULDING, *The Implications of Improved Water Allocation Policy*, *in* WESTERN WATER RESOURCES: COMING PROBLEMS AND THE POLICY ALTERNATIVES 306 (1980); COMM. ON W. WATER MGMT. ET AL., *supra* note 131, at 70–84; SMITH, *supra* note 128, at 10–15; RICHARD W. WAHL, MARKETS FOR FEDERAL WATER: SUBSIDIES, PROPERTY RIGHTS, AND THE BUREAU OF RECLAMATION 147–91 (1989); F. Lee Brown, *Water Markets and Traditional Water Values: Merging Commodity and Community Perspectives*, 22 WATER INT'L 2, 3–5 (1997); Thomas J. Graff & David Yardas, *Reforming Western Water Policy: Markets and Regulation*, 12 NAT. RESOURCES & ENV'T 165, 169, 220–21 (1998); James Huffman, *Instream Water Use: Public and Private Alternatives*, *in* WATER RIGHTS, *supra*, at 249, 268; Ronald A. Kaiser, *Texas Water Marketing in the Next Millennium: A Conceptual and Legal Analysis*, 27 TEX. TECH L. REV. 181, 247–50, 260 (1996); Lawrence J. MacDonnell & Teresa A. Rice, *Moving Agricultural Water to Cities: The Search for Smarter Approaches*, 2 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 27, 52 (1994); Robert A. Young, *Why Are There So Few Transactions Among Water Users?*, 68 AM. J. AGRIC. ECON. 1143, 1144–45, 1149 (1986).

and publicness.[134] Indivisibility, or nonexcludability in economists' terms, means that the good cannot be divided up among its consuming public in a way that excludes other consumers from the resource. Publicness, or open access in economists' terms, means that the resource is shared freely (if not equally) among the group—one cannot keep others from accessing and enjoying the good so long as it is accessible and enjoyable by anyone. In other words, a public good is one that all within the relevant public must enjoy more or less equally, or none will enjoy the good at all. Public goods generally are free goods as far as markets are concerned because, as the definition suggests, consumers cannot realistically be excluded from enjoying the good and thus cannot be made to pay for access to the good.[135] The only costs, if any, associated with a public good are the costs of capture, transportation, and delivery, not costs for the good itself. This becomes an important problem in the efficient management of public goods: If you invest in developing or improving a public good, others who invest or pay nothing will enjoy the benefits of your investment because you cannot exclude them from enjoying the good.[136] The others who enjoy your investment are known as "free riders." They are a serious inhibition to investment unless the government (or some other institution) takes responsibility for ensuring that all (or nearly all) in fact pay for the benefits they receive.

Consider the blue sky. When we look up, we think we are seeing a blue sky, but if we have ever flown on a cloudless day, we notice that whenever we approach a significant town or city, it is shrouded in a gray haze. To people on the ground in the haze, the sky may look blue, but to those in an airplane it is obvious that the sky is not truly blue. There is no way to partition the sky so someone who values having a blue (unpolluted) sky more highly can invest in

134. JOHN RAWLS, A THEORY OF JUSTICE 265–74 (1971); *see also* ANDERSON & SNYDER, *supra* note 79, at 112–13 (describing indivisibility in terms of nonexcludability, and publicness in terms of ability to provide goods to additional users at no extra cost); GLOBAL PUBLIC GOODS: INTERNATIONAL COOPERATION IN THE 21ST CENTURY 3 (Inge Kaul et al. eds., 1999) (defining main properties of public goods as nonrivalry in consumption and nonexcludability); STEPHEN J. K. WALTERS, ENTERPRISE, GOVERNMENT, AND THE PUBLIC 66 (1993) (defining public goods as nondepletable and nonexcludable); Brigham Daniels, *Emerging Commons and Tragic Institutions*, 37 ENVTL. L. 515, 523–24 (2007) (defining "commons" as resource where one person's consumption diminishes the amount of resource available to others yet where it is difficult to exclude others from access to the resource); Niva Elkin-Koren & Eli Salzberger, *Law and Economics in Cyberspace*, 19 INT'L REV. L. & ECON. 553, 559–61 (1999) (identifying nonexcludability and nonrivalry as the main characteristics of public goods); John S. Harbison, *Waist Deep in the Big Muddy: Property Rights, Public Values, and Instream Waters*, 26 LAND & WATER L. REV. 535, 547 (1991) (defining public good as nonrival and nonexclusive).

135. *See generally* PUBLIC GOODS AND MARKET FAILURES: A CRITICAL EXAMINATION (Tyler Cowen ed., 1992).

136. *See* ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION 15, 34–35 (1990) (explaining the inherent uncertainty in allocating and accounting for use of public goods such as water); Daniels, *supra* note 134, at 524–26 (describing the difficulties in restricting others from using a public good, such as water). *See generally* R.H. Coase, *The Lighthouse in Economics*, 17 J.L. & ECON. 357 (1974) (proposing a lighthouse as a model of a public good because it is impossible to secure payment from users who benefit from the lighthouse and therefore it is unprofitable for private firms or individuals to run or maintain them).

clearing the air only over her head while leaving others under the haze. If we leave it to voluntary action, any investment in cleaner air will benefit all within the "airshed"; there is no way we can prevent others from benefiting from our investment. As a result, most people will quickly realize that their own small, voluntary action will not make much difference while they can free ride on the contributions of others. And thus few will make the investment voluntarily, and we will remain in the haze—locked into what Garrett Hardin aptly termed the "tragedy of the commons."[137] The solution, of course, is to compel all to pay to make the air appropriately clean—with the appropriate level being determined collectively. Relying on the market simply will not work; relying on regulation will.

Water, of course, is not indivisible and public in the strictest sense, and some economists therefore deny that it is a public good.[138] But few things are strictly indivisible and public. Just as we bottle water for fear of the quality of public water supplies, we could require that anyone who wants to breathe clean air should buy an air tank—if that is the kind of world we want to live in. What a culture treats as a public good is not determined just by its physical characteristics, but also by its social and economic characteristics. When excluding others from access to the good would be so expensive that it is impractical, or when there are other reasons for not excluding some members of society from access, the good is treated as a public good. Transaction costs are a feature that often compels a society to treat something as a public good: if transaction costs are so high that a market cannot function with even minimal effectiveness, the good in question will be treated as public.[139] A society might also treat something as a public good because social values require that all receive a "fair" share of the resource.[140] Such goods might be termed socially created public goods.

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137. Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968).

138. *See, e.g.*, ANDERSON & SNYDER, *supra* note 79, at 113–14 (suggesting that market solutions are adaptable to instream flows, which have "some public good characteristics"). *But see* Harbison, *supra* note 134, at 546–47 (noting that instream water is a public good because the cost of benefiting one person is same as the cost to benefit more than one and because it is nonrival and nonexclusive). Ronald Coase, remember, chose a lighthouse as an example of a true public good for much the same reasons. Coase, *supra* note 136, at 357.

139. A. MITCHELL POLINSKY, AN INTRODUCTION TO LAW AND ECONOMICS 12–14 (2d ed. 1989); Robert C. Ellickson, *The Case for Coase and Against "Coaseanism,"* 99 YALE L.J. 611, 614–16 (1989); *see also* ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 100–01 (1988) (describing the costs of excluding nonpayers from access to a good as a key determinant of when something is treated as a public good); NEIL KOMESAR, IMPERFECT ALTERNATIVES 19–26 (1994) (indicating that transaction costs for collective goods determine when individuals choose to free ride rather than pay for something they will have anyway); Howard A. Shelanski & Peter G. Klein, *Empirical Research in Transaction Cost Economics: A Review and Assessment*, 11 J.L. ECON. & ORG. 335, 338, 352 (1995).

140. For example, consider the now controversial social commitment to public education, where a long-standing commitment to treating a minimal level of education as a public good has come under sustained assault. *See, e.g.*, SCOTT FRANKLIN ABERNATHY, SCHOOL CHOICE AND THE FUTURE OF AMERICAN DEMOCRACY (2005); CLINT BOLICK, VOUCHER WARS: WAGING THE LEGAL BATTLES OVER SCHOOL CHOICE (2003); LANCE D. FUSARELLI, THE POLITICAL DYNAMICS OF SCHOOL CHOICE (2003); R. KENNETH GODWIN & FRANK R. KEMERER, SCHOOL CHOICE TRADEOFFS: LIBERTY,

At the least, raw water is just such a good, even when it is extracted for private use. While it is easy enough for someone to own and manage water in small amounts (for example, bottled water), a river or the like is an ambulatory resource that can never be fully controlled or fully owned. Even a dam only delays the flow of the water; it cannot stop it altogether. The water I use today is the water that you use tomorrow, or vice versa.[141] Thus, doing something to water on a large scale necessarily affects many others, making it difficult to make contracts with all significantly affected holders of water rights: transaction costs on all but the smallest streams, lakes, or aquifers quickly become prohibitive.[142] This reality underlies the tradition of treating water as a free good—a good available to all at no cost for the water itself, priced only for the cost of capturing, transporting, and using the water.[143] Particularly problematic in light of this reality is the advocacy of private action as the prime means for protecting instream values—an advocacy that misses the point entirely if the advocates really mean to withdraw the water from human use completely.[144]

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EQUITY, AND DIVERSITY (2002); PAUL T. HILL ET AL., CHARTER SCHOOLS AND ACCOUNTABILITY IN PUBLIC EDUCATION (2002); JENNIFER L. HOCHSCHILD & NATHAN SCOVRONICK, THE AMERICAN DREAM AND THE PUBLIC SCHOOLS (2003); RICHARD D. KAHLENBERG, ALL TOGETHER NOW: CREATING MIDDLE-CLASS SCHOOLS THROUGH PUBLIC SCHOOL CHOICE 97 (2001); JOHN MERRIFIELD, THE SCHOOL CHOICE WARS (2001); GARY MIRON & CHRISTOPHER NELSON, WHAT'S PUBLIC ABOUT CHARTER SCHOOLS?: LESSONS LEARNED ABOUT CHOICE AND ACCOUNTABILITY (2002); ALEX MOLNAR, SCHOOL COMMERCIALISM: FROM DEMOCRATIC IDEAL TO MARKET COMMODITY (2005); JOSEPH MURPHY & CATHERINE DUNN SHIFFMAN, UNDERSTANDING AND ASSESSING THE CHARTER SCHOOL MOVEMENT (2002); WILLIAM J. REESE, AMERICA'S PUBLIC SCHOOLS: FROM THE COMMON SCHOOL TO "NO CHILD LEFT BEHIND" (2005); KENNETH J. SALTMAN, THE EDISON SCHOOLS: CORPORATE SCHOOLING AND THE ASSAULT ON PUBLIC EDUCATION (2005); THE ECONOMICS OF SCHOOL CHOICE (Caroline M. Hoxby ed., 2003); Jeffrey R. Henig, *Understanding the Political Conflict over School Choice*, *in* GETTING CHOICE RIGHT: ENSURING EQUITY AND EFFICIENCY IN EDUCATION POLICY 176 (Julian R. Betts & Tom Loveless eds., 2005); Mark Schneider, *Information and Choice in Educational Privatization*, *in* PRIVATIZING EDUCATION 72 (Henry M. Levin ed., 2001).

141. *See, e.g.*, R. Timothy Weston & Joseph R. Gray, *Legal Control of Consumptive Water Use in Pennsylvania Power Plants*, 80 DICK. L. REV. 353, 356 (1976) (reporting that during a severe drought as much as seven times amount of water in Schuylkill River was being withdrawn every day from that river).

142. COMM. ON W. WATER MGMT. ET AL., *supra* note 131, at 117–18; *see also* Uijayant Chakrvorty, Eithan Hochman & David Zilberman, *A Spatial Model of Water Conveyance*, 29 J. ENVTL. ECON. & MGMT. 25 (1995); Harbison, *supra* note 134, at 544–46; Charles W. Howe, Carolyn S. Boggs & Peter Butler, *Transaction Costs as Determinants of Water Transfers*, 61 U. COLO. L. REV. 393, 404 (1990).

143. For the comparable approach in the Islamic legal tradition, see Thomas Naff & Joseph Dellapenna, *Can There Be Confluence? A Comparative Consideration of Western and Islamic Fresh Water Law*, 4 WATER POL'Y 465, 476–77 (2002).

144. ANDERSON & SNYDER, *supra* note 79, at 114–16; CLAY LANDRY, SAVING OUR STREAMS THROUGH WATER MARKETS (1998); James D. Crammond, *Leasing Water Rights for Instream Flow Uses: A Survey of Water Transfer Policy, Practices, and Problems in the Pacific Northwest*, 26 ENVTL. L. 225 (1996); Ronald C. Griffin & Shin-Hsun Hsu, *The Potential for Water Market Efficiency When Instream Flows Have Value*, 75 AM. J. AGRIC. ECON. 292 (1993); Huffman, *supra* note 133, at 268; Ronald A. Kaiser & Shane Binion, *Untying the Gordian Knot: Negotiated Strategies for Protecting Instream Flows in Texas*, 38 NAT. RESOURCES J. 157 (1998); Janet C. Neuman & Cheyenne Chapman,

The case of *City and County of Denver v. Fulton Irrigating Ditch Co.*[145] serves to illustrate the problems that transaction costs pose for the marketing of water rights or the trading of water use permits. In *Fulton,* the Adolph Coors Company agreed to divert the brewery's "clear mountain stream" to the city of Denver for the right to use unlimited amounts of sewage water for the Coors Brewery in Golden, Colorado.[146] The brewery was well known for the high quality of the water used in its brewing, but it was unable to produce enough beer to satisfy the demand for its product without a greatly enlarged supply of water.[147] The fast-growing city of Denver sought new sources of potable water for its residents and businesses. The transaction failed not because of fears of reactions by beer drinkers, but because a group of farmers (organized as the Fulton Irrigating Ditch Co.) obtained an injunction against the trade because it would deprive them of the water on which their water rights depended.[148] The case is all the more remarkable because the City and Coors were dealing with "imported water"—water from outside the watershed—over which the City had even greater rights than it would have as merely a senior appropriator.[149] In an earlier dispute, the farmers had contractually recognized the seniority of Denver's rights over their own in exchange for Denver's promise not to reuse any water, regardless of source, that "shall have been once used through its municipal water system."[150] The contract would have been unnecessary to the outcome of the case if the water had not been imported.[151]

Market fundamentalists sometimes insist that the protection of third-party rights represents an overly rigid legal regime.[152] If only such requirements were

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*Wading into the Water Market: The First Five Years of the Oregon Water Trust*, 14 J. ENVTL. L. & LITIG. 135, 167–72 (1999) (describing the problems encountered in attempting to use market transactions to secure instream flows); Jack Sterne, *Instream Rights & Invisible Hands: Prospects for Private Instream Water Rights in the Northwest*, 27 ENVTL. L. 203 (1997); Gregory A. Thomas, *Conserving Aquatic Biodiversity: A Critical Comparison of Legal Tools for Augmenting Streamflows in California*, 15 STAN. ENVTL. L.J. 3 (1996); Jason S. Wells, *Leasing Water Rights for Instream Flow Protection: The Opportunities and Impediments to Improved Public Interest Involvement in Colorado's Instream Flow Protection Regime*, 7 U. DENV. WATER L. REV. 309 (2004); Paul R. Williams & Stephen J. McHugh, *Water Marketing and Instream Flows: The Next Step in Protecting California's Instream Values*, 9 STAN. ENVTL. L.J. 132 (1990).

145. 506 P.2d 144 (Colo. 1972) (en banc). *See generally* Stephen F. Williams, *Optimizing Water Use: The Return Flow Issue*, 44 U. COLO. L. REV. 301, 311–21 (1973) (analyzing *Fulton* in detail).

146. *Fulton*, 506 P.2d at 151.

147. *Id.* at 151.

148. *Id.* at 151–53.

149. *Id.* at 146–49.

150. *Id.* at 151.

151. Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson, 990 P.2d 46, 55, 59 (Colo. 1999) (en banc); Orr v. Arapahoe Water & Sanitation Dist., 753 P.2d 1217, 1223–25 (Colo. 1988); CF & I Steel Corp. v. Rooks, 495 P.2d 1134, 1136 (Colo. 1972) (en banc).

152. *See, e.g.*, Brewer et al., *supra* note 79, at 1029–30 (arguing that the protection of third-party rights results in higher transaction costs because of the intensive inquiries necessary to ascertain if there is any harm to the third parties); Brown & DuMars, *supra* note 133, at 416–18 (discussing the impact of third-party rights protection); Gomez & Loh, *supra* note 128, at 697 (arguing that the Model Water Transfer Act falls short of resolving the procedural burdens and establishing an adequate

removed, markets would flourish. This assumption mischaracterizes the situation. Protection of third-party rights operates to prevent market-generated externalities from destroying the property rights of third parties. Rather than representing government intervention that prevents or distorts markets, such protections are the minimum that is necessary to ensure that property rights—each person's property rights—are transferred only through markets.[153] Judge Richard Posner fully described why such third-party rights must be protected if society is to ensure that water is used efficiently, even while he attempted to justify a shift to markets as primary water management tools:

> If effects on return flow were ignored, water transfers would often reduce overall value. Suppose A's water right is worth $100 to him and $125 to X, [a] municipality; but whereas A returns one-half of the water he diverted to the stream, where it is used by B, X will return only one-fourth of the water it obtains from A, and at a point far below B, where it will be appropriated by D. And suppose B would not sell his right to A's return flow for less than $50, while D would sell his right in the municipality's return flow for $10. To let A sell his water right to X because it is worth more to X than to A would be inefficient, for the total value of the water would be less in its new uses (X's and D's)—$135—than in its present uses (A's and B's)—$150.
>
> The law deals with this problem by requiring the parties to show that the transfer will not injure other users. In practice this means that A and X in our example, in order to complete their transaction, would have to compensate B for the loss of A's return flow; they would not do so; and the transaction would fall through, as under our assumptions it should.[154]

Things could get even more complex in situations in which the transfer has the effect of increasing return flows.[155] If the water sought to be transferred was acquired through a federal reclamation project, the complexities become even

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protection mechanism for third parties); Kaiser, *supra* note 133, at 214 (noting that protection of third-party rights in form of "no-injury rule" burdens water market transfers); Thomas & Mueller, *supra* note 79, at 754–56 (arguing that the protection of third-party rights is burdensome).

153. *See generally A Model Water Transfer Act for California: Text of Proposed Statute*, 14 HASTINGS W.-NW. J. ENVTL. L. & POL'Y 591, 600 (2008) (proposing, in § 404(a)(1), (b)(1), to protect short- and long-term water transfer agreements provided the transfer would not "result in significant injury to any legal user of water"); Gray, *supra* note 130, at 636–38, 647–48, 651–54 (supporting the long-standing principle that the transfer of water rights cannot harm third parties).

154. RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 77–78 (7th ed. 2007). Note that this does not take into account effects on communities rather than water rights holders or on the environment. *See A Model Water Transfer Act for California*, *supra* note 153, at 600 (proposing, in § 404(a)(2), (b)(2), (c), water transfer regulations accounting for effect upon the environment and the economy); Gomez & Loh, *supra* note 128, at 696 (considering the impact of water transfers upon third-party water rights holders, water recreationists, local communities and economies, and the environment); Guy, *supra* note 79, at 719–22 (discussing the Model Water Transfer Act's protection of community and environmental interests); Jeffrey L. Jordan, *Externalities, Water Prices, and Water Transfers*, 35 J. AM. WATER RESOURCES ASS'N 1007, 1011 (1999) (suggesting a full cost approach to water transfers, which includes community and environmental interests).

155. POSNER, *supra* note 154, at 78.

greater.[156] So long as third-party rights are recognized, however, the reality of transaction costs will prevent the functioning of markets except on a small scale without major changes in where or how water is used.[157]

Market fundamentalists demand an end to our treatment of water as a free good. While economic incentives should be used to force water users to evaluate the social consequences of their conduct more realistically,[158] the use of economic incentives should not be used to obfuscate the fact that water remains the prime example of a public good for which prices realistically cannot be set in a marketplace. Thus to go further, to deny that water is a public good is simply wrong. Consider that even market fundamentalists will use water metaphors to describe the few public goods that they will recognize: "common pool resource," "spillover effects," and so on. Yet market fundamentalists hardly mention the public nature of water at all and barely consider the transaction costs inherent in any attempt to treat water as a private good. Once more, we are back in the land of "blackboard economics" with no connection to social and economic reality.[159] The question then is how to structure water rights in such a way as to ensure a reasonable modicum of efficient use coupled with adequate protection of public values.

Market fundamentalists typically begin their assault on the tradition of water as a free good by arguing that what prevents water from entering robustly into the marketplace is the lack of well-defined property rights in water, or in the right to use water.[160] Because I have written at length in other articles about the

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156. *See* WAHL, *supra* note 133, at 180–85 (discussing the transfer of federally supplied water); Owen L. Anderson & Pauline M. Simmons, *Reallocation*, *in* 2 WATERS AND WATER RIGHTS § 16.03 (Robert E. Beck ed., The Michie Co. 1991) (discussing the Bureau of Reclamation's role in the voluntary reallocation of water rights); Reed D. Benson, *Whose Water Is It? Private Rights and Public Authority over Reclamation Project Water*, 16 VA. ENVTL. L.J. 363 (1997) (discussing the transfer of federally funded water).

157. See *supra* note 130 for sources discussing the prevalence of small-scale markets for water.

158. Jürgen G. Backhaus, *The Law and Economics of Environmental Taxation: When Should the Ecotax Kick In?*, 19 INT'L REV. L. & ECON. 117, 117–18 (1999); D. Damania, *Pollution Taxes and Pollution Abatement in an Oligopoly Supergame*, 30 J. ENVTL. ECON. & MGMT. 323, 323, 333–34 (1996); Don Fullerton & Gilbert E. Metcalf, *Environmental Taxes and the Double-Dividend Hypothesis: Did You Really Expect Something for Nothing?*, 73 CHI.-KENT L. REV. 221, 223 (1998); Richard D. Horan & Marc O. Ribaudo, *Policy Objectives and Economic Incentives for Controlling Agricultural Sources of Nonpoint Pollution*, 35 J. AM. WATER RESOURCES ASS'N 1023, 1026 (1999); Robert Benjamin Naeser & Lynne Lewis Bennett, *The Cost of Noncompliance: The Economic Value of Water in the Middle Arkansas River Valley*, 38 NAT. RESOURCES J. 445, 445–46 (1998); Erin A. O'Hara & William R. Dougan, *Redistribution Through Discriminatory Taxes: A Contractarian Explanation of the Role of the Courts*, 6 GEO. MASON L. REV. 869, 872–73 (1998); Sherry J. Tippett & Craig O'Hare, *Using Price to Limit Water Use: A Case Study of the City of Santa Fe*, 39 NAT. RESOURCES J. 169, 172 (1999); *Water Pricing Experiences: An International Perspective* 105 (World Bank Technical Paper Series, Paper No. 386).

159. See *supra* notes 69–72 and accompanying text for a discussion of "blackboard economics."

160. *See, e.g.*, ANDERSON & SNYDER, *supra* note 79, at 14 (indicating the need to establish well-defined water rights for markets to determine the efficient allocation of water); BONNIE COLBY SALIBA & DAVID B. BUSH, WATER MARKETS IN THEORY AND PRACTICE: MARKET TRANSFERS, WATER VALUES, AND PUBLIC POLICY 56–60 (1987) (same); Chatterton & Chatterton, *supra* note 79,

strengths and weaknesses of the several models for property in water (or in the right to use water),[161] here I will only summarize those possibilities. I will take time merely to suggest that, while changing the definition of property rights will have some effect on how (and how efficiently) water is used, changing the definition by itself will not make markets more of a realistic option so long as the problem of third-party rights remains—and there are, as we shall see in examining the California Water Bank and the Imperial Valley Irrigation District Sale,[162] real problems with ignoring third-party rights in addition to ignoring the very property-rights-focused premises that supposedly activate the market fundamentalists.

The fee simple absolute for land remains the common law paradigm of property. An owner can mark off his land and consider it, for most purposes, his exclusive domain, with little regard for how his conduct might affect other persons or property, despite the law of nuisance and the law of modern zoning. Land does not exceed its boundaries. Such a paradigm does not easily apply to flowing water.[163] Economists have expended much ink trying to devise arrangements that would make markets functional for water resources. While many economists do acknowledge that the inherently public nature of water precludes true markets, they often still end up advocating "transferable

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at 64-65 (stating that the creation of separate water rights logically led to the creation of water markets); Brian E. Gray, *The Modern Era in California Water Law*, 45 HASTINGS L.J. 249, 252–63 (1994) (discussing the effect of California's "reasonable use" doctrine upon water transfers); Guy, *supra* note 79, at 75–76 (noting that the protection of water rights is crucial to water transfers); Nicole L. Johnson, *Property Without Possession*, 24 YALE J. ON REG. 205, 207 (2007) (proposing quantity-measured water rights to facilitate water markets); Ronald A. Kaiser & Laura M. Phillips, *Dividing the Waters: Water Marketing as a Conflict Resolution Strategy in the Edwards Aquifer Region*, 38 NAT. RESOURCES J. 411, 430, 432 (1998) (indicating that defined and enforceable water rights will determine the success of water market); Kaiser, *supra* note 133, at 212–13 (same); Kumar & Singh, *supra* note 79, at 400–01 (suggesting that established tradable water rights will promote water markets); Andrew P. Morriss, Bruce Yandle & Terry L. Anderson, *Principles for Water*, 15 TUL. ENVTL. L.J. 335, 346–48, 353–54 (2002) (arguing that water law reform must recognize and protect explicit and implicit water rights); Bruce Yandle & Andrew P. Morriss, *The Technologies of Property Rights: Choice Among Alternative Solutions to Tragedies of the Commons*, 28 ECOLOGY L.Q. 123, 124–25 (2001) (characterizing the definition of property rights as central to solving the tragedy of the commons); Young & MacDonald, *supra* note 79, at 129–31 (emphasizing the importance of the proper definition of property rights to create an optimal water trading market).

161. *See generally* Joseph W. Dellapenna, *Adapting Riparian Rights to the Twenty-First Century*, 106 W. VA. L. REV. 539, 551–79 (2004) [hereinafter Dellapenna, *Adapting Riparian Rights*] (discussing riparian rights, appropriative rights, and regulated riparianism as systems for property rights in water); Joseph W. Dellapenna, *Special Challenges to Water Markets in Riparian States*, 21 GA. ST. U. L. REV. 305, 314–35 (2004) (same); Dellapenna, *supra* note 127, at 336–58 (same); 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, 11–39 (2002) (same).

162. See *infra* note 184 and accompanying text for a discussion of the impact of these transactions on third-party rights.

163. *See* Samuel C. Wiel, *Natural Communism: Air, Water, Oil, Sea, and Seashore*, 47 HARV. L. REV. 425, 430 (1934) (noting that the natural condition of running water makes dominion and control, and therefore ownership, impossible).

allocation permits" as the best method for allocating water to particular uses.[164] Such economists seem unable, however, to explain how such tradable permits would differ from markets.

Concepts of property in water can be broadly divided into three types: common property, private property, and public property.[165] The three types each correspond closely to the three real world models of water law found today in the United States.[166] Riparian rights are a near perfect embodiment of the model of common property—each riparian owner decides for herself when, where, how, and how much water to use, and outside decision makers become involved only if two riparian owners directly interfere with each other.[167] Appropriative rights,

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164. *See, e.g.*, MARK W. ROSEGRANT & RENATO GAZMURI SCHLEYER, TRADABLE WATER RIGHTS: EXPERIENCES IN REFORMING WATER ALLOCATION POLICY 61 (1994); Rosegrant & Binswanger, *supra* note 80, at 1615; *cf.* Jiahua Pan, *Emissions Rights and Their Transferability: Equity Concerns over Climate Change Mitigation*, 3 INT'L ENVTL. AGREEMENTS 1 (2003). *See generally* Terry Heaps, *The Effects on Welfare of the Imposition of Individual Transferable Quotas on a Heterogeneous Fishing Fleet*, 46 J. ENVTL. ECON. & MGMT. 557 (2003); Shi-Ling Hsu, *A Two-Dimensional Framework for Analyzing Property Rights Regimes*, 36 U.C. DAVIS L. REV. 813, 878–93 (2003) (discussing the benefits of alienable pollution and resource permits); Henry van Egteren & Marian Weber, *Marketable Permits, Market Power, and Cheating*, 30 J. ENVTL. ECON. & MGMT. 161 (1996).

165. This tripartite division was first developed in Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. 347, 354 (1967). *See generally* STEPHEN R. MUNZER, A THEORY OF PROPERTY (1990); CAROL M. ROSE, PROPERTY AND PERSUASION: ESSAYS ON THE HISTORY, THEORY, AND RHETORIC OF OWNERSHIP 163–96 (1994) (tracing the historical evolution of water rights in the common law); Maude Barlow, *The World's Water: A Human Right or a Corporate Good?*, *in* WHOSE WATER IS IT? THE UNQUENCHABLE THIRST OF A WATER-HUNGRY WORLD 25 (Bernadette McDonald & Douglas Jehl eds., 2003); Dellapenna, *supra* note 127, at 336–42 (discussing the correspondence between theories of property and forms of American water law); J. W. Harris, *Private and Non-Private Property: What is the Difference?*, 111 L.Q. REV. 421 (1995); Hsu, *supra* note 164, at 843–59 (discussing common property and private property regimes). An ambitious study of the evolution of the common law of water from 1066 to the present posited that there are two forms of property in water, one based on the ownership of land (riparian rights), and the other on the appropriation of uses (appropriative rights). Anthony Scott & Georgina Coustalin, *The Evolution of Water Rights*, 35 NAT. RESOURCES J. 821, 824–25 (1995). This analysis overlooks the possibility of public management emerging in regulated riparian states. *See generally* Joseph W. Dellapenna, *Regulated Riparianism*, *in* 1 WATERS AND WATER RIGHTS § 9.03–9.03(d) (Robert E. Beck ed., The Michie Co. 1991) [hereinafter Dellapenna, *Regulated Riparianism*] (discussing the displacement of riparian rights with "comprehensive nontemporal permit schemes").

166. Dellapenna, *supra* note 127, at 336–58; *cf.* Keys v. Romley, 412 P.2d 529, 536–37 (1966) (noting that some rules regarding rights to drain diffused surface waters seem like property rights and some seem like tort rules); Eric T. Freyfogle, *Water Justice*, 1986 U. ILL. L. REV. 481, 499–508 (describing what he terms "the shift from water rights to water wrongs" in the adjudication of water disputes). This does not include the dual systems of riparian-appropriative rights found in ten western states. These systems are best understood as variant forms of the system of water rights conceptually dominant in the particular state. *See generally* Joseph W. Dellapenna, *Dual Systems*, *in* 1 WATERS AND WATER RIGHTS, *supra* note 165, § 8.02–8.02(c) [hereinafter Dellapenna, *Dual Systems*].

167. Joseph W. Dellapenna, *The Right to Consume Water Under "Pure" Riparian Rights*, *in* 1 WATERS AND WATER RIGHTS, *supra* note 165, § 7.02, at 218. Riparians rights thus describe an open access system, which has been the touchstone of common property as defined under the common law. *E.g.*, England v. Hing, 459 P.2d 498, 502 (Ariz. 1969). Many economists prefer to distinguish between an "open-access commons" (or simply an "open-access regime") and a collectively managed and controlled commons, ignoring the Demsetzian possibility of public property as a third alternative. *See,*

on the other hand, are as close as we come to the application of a private property model to water rights. This model defines the right to use water as to the timing, location, purpose, and amount of use, as well as according to a strictly enforced temporal priority ranking ("first in time, first in right").[168] And, increasingly, states in the United States are turning to regulated riparianism, an application of a public property model to the right to use water.[169] The right to use water under regulated riparianism depends upon a time-limited permit allowing the state collectively to determine, and periodically to redetermine, the socially best use of the water.[170]

The correspondence between the forms of American water law and the several basic models of property rights enables us to predict with some certainty whether existing forms are adaptable to changing circumstances, or whether an entirely new form must be substituted when circumstances of water demand or supply change dramatically. Treating water as common property leads to the tragedy of the commons[171] as soon as water becomes a scarce commodity in a particular region, and thus state after state in the eastern United States has abandoned traditional riparian rights (the common property model) in favor of regulated riparianism (the public property model)—and not, as the market fundamentalists would have predicted, in favor of a private property model. There are reasons, some highly specific to the situation of the eastern states in the second half of the twentieth century, why the eastern states did not adopt a private property model.[172] At bottom, however, the problem is that markets have simply failed to emerge even if under appropriative rights—the private property

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*e.g.*, DANIEL W. BROMLEY, ENVIRONMENT AND ECONOMY: PROPERTY RIGHTS AND PUBLIC POLICY 22–23 (1991) (criticizing Hardin's tragedy of commons theory for leading to confusion between open access regimes and common property regimes); SUSAN J. BUCK, THE GLOBAL COMMONS: AN INTRODUCTION 34 (1998) (advocating multiple-user commons managed by all participants with congruent boundary, appropriations, and provision rules); COLE, *supra* note 73, at 11; Christopher J. N. Gibbs & Daniel W. Bromley, *Institutional Arrangements for Management of Rural Resources: Common-Property Regimes*, *in* COMMON PROPERTY RESOURCES: ECOLOGY AND COMMUNITY-BASED SUSTAINABLE DEVELOPMENT 22, 25–31 (Fikret Berkes ed., 1989) (analyzing regulatory characteristics of well-functioning "common-property" regimes); Sinden, *supra* note 130, at 547 (noting difference between "common ownership regimes" of jointly-held property rights and "open-access regimes" where property rights are absent). My usage seems to be clearer, is well-founded in the law, and has some support outside the law. *See* HERBERT J. KIESLING, COLLECTIVE GOODS, NEGLECTED GOODS: DEALING WITH METHODOLOGICAL FAILURE IN THE SOCIAL SCIENCES (2000); Demsetz, *supra* note 165; Myrl L. Duncan, *Reconceiving the Bundle of Sticks: Land as a Community-Based Resource*, 32 ENVTL. L. 773 (2002); Harris, *supra* note 165.

168. Robert E. Beck, *Prevalence and Definition*, *in* 2 WATERS AND WATER RIGHTS, *supra* note 156, § 12.03.

169. Dellapenna, *Regulated Riparianism*, *supra* note 165, § 9.03, at 444; *see also* City of Waterbury v. Town of Washington, 800 A.2d 1102, 1155–57 (Conn. 2002) (recognizing that Connecticut has adopted regulated riparian approach to water rights).

170. Dellapenna, *Regulated Riparianism*, *supra* note 165, § 9.03–9.03(d).

171. *See* Hardin, *supra* note 137; Dellapenna, *supra* note 127, at 342–45 (supporting Hardin's description of the tragedy of the commons); Sinden, *supra* note 130, at 544–46 (same).

172. *See* Dellapenna, *Dual Systems*, *supra* note 166, § 8.05–8.05(b) (discussing the lack of viability of appropriative rights in eastern states).

model for water rights.[173] Markets fail because of the need to protect third-party rights if society is genuinely going to protect private rights to use water.[174] Because of the utter failure of true markets,[175] states have been left to use the admittedly imperfect public property model as best available.[176] I certainly do not deny the utility of economic incentives—including fees, taxes, "water banks," and other incentive devices—as a management tool.[177] True markets, however, must remain marginal to the management of large quantities of raw water for numerous diverse users.[178]

### C. *The California Water Bank and the Imperial Valley Water Sale*

Two highly touted examples of supposedly successful water markets in California are particularly instructive illustrations of the exaggerations regarding alleged markets for raw water.[179] These are the "California Water Bank"[180] and

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173. See *supra* note 128 and the accompanying text for a discussion of the scarcity of water markets under the appropriative rights model.

174. See *supra* notes 145–50 and the accompanying text for a discussion of *Fulton Irrigating Ditch Co.*, which illustrates why markets fail.

175. As we shall shortly see, what market fundamentalists so often claim as evidence that markets actually work for raw water always turn out not to be true markets upon close inspection—that is, they do not involve situations in which buyers and sellers seek each other out and negotiate (or at least accept or reject) the terms of the transaction, but rather in fact involve state administration masquerading as a market. *See* Dellapenna, *supra* note 127, at 363; Sinden, *supra* note 130, at 576–84. See *infra* Part IV.C. for an analysis of two specific examples of state-administered water markets.

176. Dellapenna, *Regulated Riparianism*, *supra* note 165, § 9.03(a)(5)(D).

177. *See, e.g.*, RONALDO SEROA DA MOTTA ET AL., ECONOMIC INSTRUMENTS FOR WATER MANAGEMENT: THE CASES OF FRANCE, MEXICO AND BRAZIL (2004); Stephanie Stern, *Encouraging Conservation on Private Lands: A Behavioral Analysis of Financial Incentives*, 48 ARIZ. L. REV. 541, 542, 559 (2006). *See generally* Dennis Wichelns, *Economic Incentives Encourage Farmers to Improve Water Management in California*, 8 WATER POL'Y 269 (2006).

178. Nor does the foregoing analysis deny the massive criticisms possible regarding the federal government's failings in its attempts to manage public property properly. *See, e.g.*, Michael Grunwald, *Corps Speedily Clears Way for 118 Projects*, WASH. POST, May 18, 2002, at A8 (reporting that the Army Corps of Engineers hastily decided to proceed with 118 water projects despite its vow to review them further after mass criticism of Corps' economic analyses).

179. For claims that the California Water Bank proves markets work, see, e.g., LLOYD S. DIXON ET AL., CALIFORNIA'S 1991 DROUGHT WATER BANK: ECONOMIC IMPACTS IN THE SELLING REGIONS xi–xii, 71 (1993); LEE, *supra* note 79, at 71–72; Gray, *supra* note 130, at 650–51; Guy, *supra* note 79, at 75, 77; Richard E. Howitt, *Empirical Analysis of Water Market Institutions: The 1991 California Water Market*, 16 RESOURCE & ENERGY ECON. 357, 357, 361–63 (1994); Israel & Lund, *supra* note 128, at 19–20; Scott A. Jercich, *California's 1995 Water Bank Program: Purchasing Water Supply Options*, 123 J. WATER RESOURCES PLAN. & MGMT. 59, 64 (1997); Kaiser, *supra* note 133, at 201–02; MacDonnell & Rice, *supra* note 133, at 46, 52–53; Kevin M. O'Brien & Robert R. Gunning, *Water Marketing in California Revisited: The Legacy of the 1987–92 Drought*, 25 PAC. L.J. 1053, 1084 (1994). For the Imperial Valley Sale, see, e.g., Jane Maslow Cohen, *Foreword* to Symposium, *Of Waterbanks, Piggybanks, and Bankruptcy: Changing Directions in Water Law*, 83 TEX. L. REV. 1809, 1842 (2005); Gray, *supra* note 130, at 627–28; Brian E. Gray, *The Uncertain Future of Water Rights in California: Reflections on the Governor's Commission Report*, 36 MCGEORGE L. REV. 43, 54 (2005); James L. Huffman, *Water Marketing in Western Prior Appropriation States: A Model for the East*, 21 GA. ST. U. L. REV. 429, 446 (2004); Janet C. Neuman, *Have* We *Got a* Deal *for* You*: Can the East Borrow from the Western Water Marketing Experience?*, 21 GA. ST. U. L. REV. 449, 458 n.43 (2004); Samantha K.

the "sale" of water to San Diego by the Imperial Valley Irrigation District (the "District"). Upon close examination, neither turns out to be a real market.

California created its Water Bank as a reaction to a five-year-long drought in the late 1980s and early 1990s.[181] California, a dual system state that still recognizes riparian rights to some extent even while placing dominant emphasis on appropriative rights,[182] did not attempt to enforce the common property principles already in place[183] or to replace the private property principles embodied in appropriative rights with a common or public property system. Instead, the California Water Bank functioned as a pseudo market for moving water out of agriculture in order to serve the desires of the far more numerous voters in certain northern California cities. California, however, dispensed with the normal constraints that impeded the successful operation of markets even under the private property system of appropriative rights—primarily, the need to concern itself with the effects of its transactions on third parties holding valid water rights.[184] This gave the state, as buyer or seller, an inestimable advantage over private buyers or sellers.

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Olson & Erin K. L. Mahaney, *Searching for Certainty in a State of Flux: How Administrative Procedures Help Provide Stability in Water Rights Law*, 36 MCGEORGE L. REV. 73, 87–88 (2005); Gregory A. Thomas, *The Future of Water Law Reform in California a Quarter Century After the Governor's Commission*, 36 MCGEORGE L. REV. 495, 515 n.113 (2005); Megan Hennessy, Comment, *Colorado River Water Rights: Property Rights in Transition*, 71 U. CHI. L. REV. 1661, 1672–75 (2004); Seth Hettena, *Western Farmers Turn to Water Sales*, CHARLESTON GAZETTE (W. Va.), Dec. 29, 2003, at 2A. Amy Sinden has pointed out that the highly touted emissions trading for air pollutants also are not really a market. Sinden, *supra* note 130, at 572–73.

180. The term "water bank" is used to describe widely different institutions; what one learns from studying the California Water Bank might or might not be relevant to understanding other "water banks." *See* LAWRENCE J. MACDONNELL ET AL., WATER BANKS IN THE WEST (1994); Joseph W. Dellapenna, *Introduction to Riparian Rights*, *in* 1 WATERS AND WATER RIGHTS, *supra* note 165, § 6.01(b)(2).

181. Cal. Exec. Order No. W-3-91 (1991). The governor's executive order creating the Water Bank was validated by legislation in 1992. *See* CAL. WATER CODE §§ 1745.01–.11 (West 1971 & Supp. 2008). On the legislative battles over the Water Bank, see MacDonnell & Rice, *supra* note 133, at 47.

182. *In re* Determination of Rights to Waters of Long Valley Creek Stream Sys., 599 P.2d 656 (Cal. 1979); *see also* Dellapenna, *Dual Systems*, *supra* note 166, § 8.02(a); Mark T. Kanazawa, *Efficiency in Western Water Law: The Development of the California Doctrine, 1850–1911*, 27 J. LEGAL STUD. 159 (1998).

183. *See* Joslin v. Marin Mun. Water Dist., 429 P.2d 889 (Cal. 1967) (applying the reasonable use version of riparian rights to preclude unreasonable uses of water).

184. *See* Gray, *supra* note 130; Martha H. Lennihan, *The California Drought Emergency Water Bank: A Successful Institutional Response to Severe Drought*, *in* WATER LAW, *supra* note 128, at 127, 132–34; MacDonnell & Rice, *supra* note 133, at 47; O'Brien & Gunning, *supra* note 179, at 1075; Richard W. Wahl, *Market Transfers of Water in California*, HASTINGS W.-NW. J. ENVTL. L. & POL'Y, Spring 1994, at 49, 58–60. On the usual need for transactions not to interfere with other valid, even junior, water rights, see *supra* notes 140–54 and the accompanying text. *See generally* O'Brien & Gunning, *supra* note 179, at 1062–74 (discussing California's "no injury rule" and its effect on how much water is available for transfer); Thomas, *supra* note 179, at 522–23 (recommending that water transfers that do not impact third-party rights or adversely affect environment receive expedited approval).

Despite its advantages, the California Water Bank was a small operation (by California standards), involving in its peak year—1991—some 400,000 acre-feet when the state's shortfall alone exceeded six million acre-feet.[185] Beyond that, the California Water Bank was the only legal buyer for the 350 persons who were willing to sell water rights, while it was the only legal seller for the twenty municipalities willing (and allowed) to buy water rights. The California Water Bank's prices ($125 per acre-foot to sellers, as much as $400 per acre-foot to buyers) were set administratively, not from bidding in a market, while the Water Bank also selected the buyers and sellers by administrative fiat.[186] The Water Bank sold seventy percent of the water it made available to just three urban water providers.[187] This simply was not a market in any meaningful sense of the term, but rather it was the government administering water policy with the use of economic incentives and at least a veiled hint of its coercive power, although that power in the end did not prove necessary.

Nearly a decade later, at the turn of the millennium, another five-year drought covering the entire southwest of the United States provoked the transfer of Colorado River water from several large irrigation districts in southern California to a large city in that area. A careful examination of what happened shows that this too was not a market transaction. The city of San Diego asked the Imperial Valley Irrigation District to sell 800,000 acre-feet of water—about eleven percent of its allocation from the Colorado River,[188] but the District board voted 3 to 2 in December 2002 to reject the offer.[189] The federal and state governments then put enormous pressure on the District.[190] Secretary of the

185. Israel & Lund, *supra* note 128, at 6–12; O'Brien & Gunning, *supra* note 179, at 1054. The Water Bank actually contracted to buy over 800,000 acre-feet, but only took "delivery" of about 665,000 acre-feet, and only resold about 400,000 acre-feet, "storing" the rest for future use. RICHARD HOWITT ET AL., A RETROSPECTIVE ON CALIFORNIA'S 1991 EMERGENCY DROUGHT WATER BANK 10 (1992); O'Brien & Gunning, *supra* note 179, at 1075. The following year, it bought another 150,000 acre-feet, most of which went into "storage." Israel & Lund, *supra* note 128, at 15–19; O'Brien & Gunning, *supra* note 179, at 1054; *see also* Santos Gomez & Penn Loh, *Communities and Water Markets: A Review of the Model Water Transfer Act*, HASTINGS W.-NW. J. ENVTL. L. & POL'Y, Fall 1996, at 63, 66–67 (concluding that potential for market transfers in California "is likely to be small").

186. HOWITT ET AL., *supra* note 185, at 5–7; Brian E. Gray, *The Market and the Community: Lessons from California's Drought Water Bank*, HASTINGS W.-NW. J. ENVTL. L. & POL'Y, Spring 1994, at 17, 21, 24; MacDonnell & Rice, *supra* note 133, at 46–47; O'Brien & Gunning, *supra* note 179, at 1075; Wahl, *supra* note 184, at 58–60.

187. MacDonnell & Rice, *supra* note 133, at 47.

188. Michael Gardner, *San Diego County Needs More Water*, SAN DIEGO UNION-TRIB., Dec. 8, 2002, at A1.

189. Michael Gardner, *Imperial Rejects Transfer of Water*, SAN DIEGO UNION-TRIB., Dec. 10, 2002, at A1; Seth Hettena, *Water War? Tiny Imperial County Says No to Big Neighbors*, LONG BEACH PRESS-TELEGRAM (Cal.), Dec. 12, 2002, at A17; Dean E. Murphy, *California Vote Threatens Deal on Colorado River*, N.Y. TIMES, Dec. 11, 2002, at A24; James Sterngold, *U.S. Says Imperial Valley May Lose More Water*, S.F. CHRON., Jan. 17, 2003, at A2; Daniel B. Wood, *In Water Transfer, Farmers vs. Sprawl*, CHRISTIAN SCI. MONITOR, Dec. 11, 2002, at 1.

190. Seth Hettena, *Imperial Farmers Sue Water Board, Accuse Metropolitan of Stealing Their Water*, ASSOCIATED PRESS, Mar. 13, 2003; Steve Hymon, *Surplus Water Losing Appeal, MWD*

Interior Gail Norton even cut the District's allocation of water from the federal works on the Colorado River by eleven percent, indicating she would restore it only if it was sold under the terms of the rejected contract.[191] The District continued to resist the deal and sued Secretary Norton unsuccessfully.[192] The state legislature also threatened to intervene to take the water from the District.[193] In the end, however, the District board surrendered and "accepted" the contract by another 3 to 2 vote.[194] This, of course, was hardly a market transaction, given the heavy government involvement in selecting the buyer and the seller, in setting the terms of the transaction, and in coercing "agreement."

The San Diego-Imperial Valley Water District transaction did provide cash to the owners of the farms served by the district, but it provided nothing but unemployment for the farm workers on the land idled in order to free up water for the transfer to San Diego.[195] The transaction also promised disaster to the ecosystems dependent on runoff from the farms.[196] Moreover, even the landowners believed they were being short-changed, which is why the District held out against consenting to the transaction.[197]

In contrast with the intense struggle with the Imperial Valley Irrigation District over the "sale" of water to San Diego, the nearby Coachella Valley Irrigation District reached a quiet settlement to sell part of its water.[198] This is hardly a better example of a market, however. After all, with the Imperial Valley

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*Suspects*, L.A. TIMES, Feb. 20, 2003, at B8; Don Thompson, *Sides Submerged in Water Talks*, LONG BEACH PRESS-TELEGRAM (Cal.), Jan. 22, 2003, at A15.

191. Jose Luis Jimenez, *Feds Seek Imperial Water Cut*, SAN DIEGO UNION-TRIB., July 4, 2003, at A1.

192. Michael Gardner, *Interior's Powers Upheld*, SAN DIEGO UNION-TRIB., Apr. 19, 2003, at A3.

193. Bettye Wells Miller, *Water Worries Intensify Dispute*, PRESS-ENTERPRISE (Riverside, Cal.), Jan. 23, 2003, at A1.

194. Michael Gardner, *Imperial OKs Historic Water Deal*, SAN DIEGO UNION-TRIB., Oct. 3, 2003, at A1; *see also* Seth Hettena, *Landmark Water Deal Signed by 4 Agencies*, DAILY BREEZE (Torrance, Cal.), Oct. 11, 2003, at A6; Shaun McKinnon, *Interior to Sign Colorado River Water Deal*, ARIZ. REP., Oct. 16, 2003, at B12; *Thirst for Colorado River Water Is Shifted*, WASH. POST, Oct. 17, 2003, at A16.

195. Aaron Ralph, Comment, *Drain the Water and Pull the Plug on the Economy of One Community So that Another Community Can Brim over with Economic Development: Is It Any of the State Water Resource Control Board's Business?*, 34 MCGEORGE L. REV. 903, 915–17 (2003); Michael Gardner, *Farm Workers Fear Water Sale Could Cost Jobs*, SAN DIEGO UNION-TRIB., Dec. 8, 2002, at A10.

196. Kim Delfino, *Salton Sea Restoration: Can There Be Salvation for the Sea?*, 19 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 157, 161–62 (2006); Kathryn Balint, *Appellate Court Rules Imperial Valley Has Serious Air Pollution Problem*, SAN DIEGO UNION-TRIB., Oct. 1, 2003, at A4; Michael Gardner, *Time Runs Short on Salton Sea*, SAN DIEGO UNION-TRIB., Dec. 30, 2002, at A1; *Snub for the Salton Sea*, L.A. TIMES, Feb. 15, 2003, at 26; Benjamin Spillman, *150 Billion Gallon Water Fight*, DESERT SUN (Palm Springs, Cal.), Jan. 23, 2005, at 2B.

197. Harry Cline, *Peace Elusive along Colorado River*, W. FARM PRESS, Dec. 6, 2003, at 9; *see also* Brewer et al., *supra* note 79, at 1023–24 (estimating that San Diego would have paid ten times more than the local farmers to secure water).

198. *Last California District Approves Pact on Colorado River Water*, N.Y. TIMES, Oct. 4, 2003, at A8.

Irrigation District's experience happening right in front of them, the vote of the Coachella District board hardly seems, in any real sense, voluntary.[199]

Rather than touting such transactions as the California Water Bank or the Imperial Valley "sale" as examples of markets, they should be described as state administration hiding behind a facade of a market.[200] The state used economic incentives to encourage private and public actors to comply with the state's policy choices while disregarding the effects of the state's actions on other private or public actors whose claims, if recognized, would have precluded accomplishment of the state's goals.[201] Such a system of economic incentives depends on the generally remarkable premise that economists, or bureaucrats, will do a better job of setting the price than the market will.[202] That might be true when, as with water resources, markets in fact are impossible. Yet the economists (and bureaucrats) are almost certain to get the price wrong—as long as the "right" price is defined any way other than as the price set by economists.[203] Beyond these problems, the social consequences of these transactions were regressive. While the transactions did introduce flexibility to

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199. Michael Gardner, *River Entitlement Cut in Region Is Affecting Coachella Valley First*, SAN DIEGO UNION-TRIB., May 10, 2003, at A3.

200. Dellapenna, *Adapting Riparian Rights*, *supra* note 161, at 574–75; Gray, *supra* note 160, at 296–308; Wilson G. Barmeyer, Note, *The Problem of Reallocation in a Regulated Riparian System: Examining the Law in Georgia*, 40 GA. L. REV. 207, 238–41 (2005).

201. Gray, *supra* note 160, at 296–308. *See generally* John Prather Brown & William Holahan, *Taxes and Legal Rules for the Control of Externalities when There Are Strategic Responses*, 9 J. LEGAL STUD. 165 (1980); Harris, *supra* note 165.

202. *See generally* John Krutilla, *Conservation Reconsidered*, 57 AM. ECON. REV. 777, 781–83 (1967) (describing the occasionally conflicting values individuals attach to priorities); Sagoff, *supra* note 63, at 449–51 (explaining method of "contingent valuation" of natural phenomena). For how economists go about setting prices, and problems resulting from their practices, see generally ECOTAXATION (Timothy O'Riordan ed., 1997); A. MYRICK FREEMAN III, THE MEASUREMENT OF ENVIRONMENTAL AND RESOURCE VALUES: THEORY AND METHODS (2nd ed. 2002); ROBERT A. YOUNG, DETERMINING THE ECONOMIC VALUE OF WATER: CONCEPTS AND METHODS (2005); Icek Ajzen, Thomas C. Brown & Lori H. Rosenthal, *Information Bias in Contingent Valuation: Effects of Personal Relevance, Quality of Information, and Motivational Orientation*, 30 J. ENVTL. ECON. & MGMT. 43 (1996); Brian R. Binger, Robert Copple & Elizabeth Hoffman, *Contingent Valuation Methodology in the Natural Resource Damage Regulatory Process: Choice Theory and the Embedding Phenomenon*, 35 NAT. RESOURCES J. 443 (1995); Peter Diamond, *Testing the Internal Consistency of Contingent Valuation Surveys*, 30 J. ENVTL. ECON. & MGMT. 337 (1996); Paul McMahon & Meg Postle, *Environmental Valuation and Water Resources Planning in England and Wales*, 2 WATER POL'Y 397 (2000); Claire Montgomery et al., *Pricing Biodiversity*, 38 J. ENVTL. ECON. & MGMT. 1 (1999); Naeser & Bennett, *supra* note 158; Richard L. Revesz, *Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives*, 99 COLUM. L. REV. 941 (1999); Miriam Montesinos, Comment, *It May Be Silly, But It's an Answer: The Need to Accept Contingent Valuation Methodology in Natural Resource Damage Assessments*, 26 ECOLOGY L.Q. 48 (1999).

203. *See* WALLACE E. OATES, THE ECONOMICS OF ENVIRONMENTAL REGULATION (1996); Mona L. Hymel, *The Population Crisis: The Stork, the Plow, and the IRS*, 77 N.C. L. REV. 13, 40–43 (1998) (outlining challenges economists face in using tax policy to address overpopulation); Hans Vos, *Direct Regulation and Economic Instruments: Antagonists or Allies?*, *in* ENVIRONMENTAL POLICY BETWEEN REGULATION AND MARKET 305 (Claude Jeanrenaud ed., 1997); Charles D. Patterson, III, Note, *Environmental Taxes and Subsidies: What Is the Appropriate Fiscal Policy for Dealing with Modern Environmental Problems?*, 24 WM. & MARY ENVTL. L. & POL'Y REV. 121 (2000).

make changes to water uses within the state possible, they transferred wealth from those who formerly used water—particularly those who lost their water rights without any compensation or who had no water right to lose but depended on the water nonetheless—to those who thereafter would use water.[204] Specifically, the California Water Bank transferred wealth from relatively small, poorer farmers to relatively wealthier middle class suburban dwellers.[205] Much the same happened in the Imperial Valley "sale," even for the farmers who were paid.[206] As for the farm workers who lost their jobs, not to mention the ecosystems deprived of water, once again we see a transfer of wealth from the poor to the rich, or at least the better off.[207] And much the same thing happened in other highly touted water markets around the world, such as in Chile.[208] Market fundamentalists make light of such effects,[209] which is hardly surprising given how consistently they oversell the purported examples of "actual water markets" in action.[210]

Flexibility, even at the cost of dispossessing those who are already disadvantaged in society, might very well have been a laudable goal in California in the late twentieth century, yet considerable evidence suggests that for water, if not for other resources, equity is more important to society than efficiency.[211]

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204. Gray, *supra* note 160, at 252–71; Harbison, *supra* note 134, at 553–59; O'Brien & Gunning, *supra* note 179, at 1078–83.

205. Gomez & Loh, *supra* note 185, at 69–72; Gray, *supra* note 186, at 36–42; Gray, *supra* note 160, at 252–71; O'Brien & Gunning, *supra* note 179, at 1078–83; Joseph L. Sax, *Understanding Transfers: Community Rights and the Privatization of Water*, HASTINGS W.-NW. J. ENVTL. L. & POL'Y, Spring 1994, at 13, 16.

206. *See* Cline, *supra* note 197, at 20.

207. Elaine Robbins, *Winning the Water Wars*, PLANNING, June 2003, at 28, 28–29. The "sales" agreement did provide modest, but inadequate, funds to ameliorate these effects. *See* Dean E. Murphy, *Agreement in West Will Send Farms' Water to Urban Areas*, N.Y. TIMES, Oct. 17, 2003, at A1.

208. *See* CARL J. BAUER, AGAINST THE CURRENT: PRIVATIZATION, WATER MARKETS, AND THE STATE IN CHILE 72 (1998) (describing mixed impact of Chilean water market, with results that have been "probably negative" for peasants); Carl J. Bauer, *Slippery Property Rights: Multiple Water Uses and the Neoliberal Model in Chile, 1981–95*, 38 NAT. RESOURCES J. 109, 125–27 (1998) (same); Klein-Robbenhaar, *supra* note 128, at 43 (noting serious threats to small communities caused by water transfers in New Mexico); Kenneth R. Weber, *Effects of Water Transfers on Rural Areas: A Response to Shupe, Weatherford, and Checchio*, 30 NAT. RESOURCES J. 13, 14–15 (1990) (criticizing threats to agricultural communities around Crowley County, Colorado); *cf.* Lily N. Chinn, Comment, *Can the Market Be Fair and Efficient? An Environmental Justice Critique of Emissions Trading*, 26 ECOLOGY L.Q. 80, 82–83, 96 (1999) (outlining the effects of "pollution markets" wherein pollution credits are assigned and can be bought and sold).

209. *See, e.g.*, Guy, *supra* note 79, at 77 n.24 (speculating that lessons learned from past water transfers will "hopefully" minimize the number of farmers who "claim[]" to be affected).

210. *See* BAUER, *supra* note 82 (describing how economists laud Chilean water markets without examining how those markets actually work).

211. *See* Victor Brajer & Wade E. Martin, *Allocating a "Scarce" Resource, Water in the West: More Market-Like Incentives Can Extend Supply, but Constraints Demand Equitable Policies*, 48 AM. J. ECON. & SOC'Y 259 (1989); Harrison C. Dunning, *State Equitable Apportionment of Western Water Resources*, 66 NEB. L. REV. 76, 84–85 (1987); David H. Getches, *Colorado River Governance: Sharing Federal Authority as an Incentive to Create a New Institution*, 68 U. COLO. L. REV. 573, 590–607 (1997); Lee Godden, *Water Law Reform in Australia and South Africa: Sustainability, Efficiency and Social*

Nor did the means used to achieve these goals function anything like a true market.[212]

## V. CONCLUSIONS: RATIONAL BEHAVIOR OR SOMETHING ELSE?

The foregoing analysis demonstrates that the attempt to commodify water generates the inequities that follow from markets without, however, bestowing the benefits that markets, when functioning at their best, can provide—the benefits of rational management and efficient use that justify the inequities generated by the use of markets. Indeed, the utter unsuitability of markets for managing raw water—water in bulk in its natural sources—raises questions of why anyone, including market fundamentalists, would insist on treating water solely or even primarily as a market commodity. Blind faith seems a better explanation than the rational (dare I say, "scientific"[213]) application of well-founded economic theory to yet another natural resource.

There is, as I indicated at the beginning of this Article, a deeper problem with market fundamentalism than just that water is a special resource for which markets—true markets, with willing buyers and willing sellers acting without the state's direction and control—cannot realistically be made to work. The supposition that economic theory accurately represents how people think and decide, and therefore allows accurate prediction of how they will behave,[214] has been disproved in numerous experiments. The classic experiment is called the "ultimatum game."

In the "ultimatum game," the experimental subjects are paired off, with one member of each pair being given ten dollars and told to divide it in any fashion that she chooses. The second player's only allowable responses are to say "yes"

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*Justice*, 17 J. ENVTL. L. 181 (2005); Austin Hamre, *Water Banking: Should There Be More Interest?*, 25 COLO. LAW. 97 (1996); Charles W. Howe, *Water Resource Planning in a Federation of States: Equity* Versus *Efficiency*, 36 NAT. RESOURCES J. 29 (1996); Helen Ingram et al., *Replacing Confusion with Equity: Alternatives for Water Policy in the Colorado River Basin*, *in* NEW COURSES FOR THE COLORADO RIVER: MAJOR ISSUES FOR THE NEXT CENTURY 177 (Gary D. Weatherford & F. Lee Brown eds., 1986); Klein-Robbenhaar, *supra* note 128; Naegele, *supra* note 80; David B. Schorr, *The First Water-Privatization Debate: Colorado Water Corporations in the Gilded Age*, 33 ECOLOGY L.Q. 313 (2006) (explaining Colorado's history of favoring individual water rights over "big-business interests"). For an intense and lengthy criticism of this view, not specific to water, see Louis Kaplow & Steven Shavell, *Fairness Versus Welfare*, 114 HARV. L. REV. 961, 999–1010 (2001). *See generally* Shi-Ling Hsu, *Fairness Versus Efficiency in Environmental Law*, 31 ECOLOGY L.Q. 303 (2004).

212. Dellapenna, *supra* note 127, at 324–26; Gray, *supra* note 160, at 296–308. *See generally* Brown & Holahan, *supra* note 201 (describing economic theories underlying social policy decisions that lead to different and occasionally counterintuitive results).

213. On the claims of economics to be scientific and other ways to think about economics, see generally DONALD (DEIDRE) N. MCCLOSKEY, IF YOU'RE SO SMART: THE NARRATIVE OF ECONOMIC EXPERTISE (1990); Donald (Deidre) N. McCloskey, *The Rhetoric of Economics*, 21 J. ECON. LIT. 481 (1983).

214. One of the more systematic examples of such thinking is found in STEVEN D. LEVITT & STEPHEN J. DUBNER, FREAKONOMICS (2005); *see also* Bryan Caplan, *What Makes People Think Like Economists? Evidence on Cognition from the "Survey of Americans and Economists on the Economy,"* 44 J.L. & ECON. 395, 415–20 (2001).

or "no" to the proffered deal. If that second player says "yes," they keep the money as divided by the first player; if the second player says "no," neither gets anything. Standard economics predicts that the second player will say "yes" no matter how uneven the offer because the second player will still be better off than if he says "no." Consider a nine to one split to the disadvantage of the second player. Innumerable iterations of the experiment, however, have shown that the just about everyone will say "no" if the split is too unfair.[215]

If one objects that this is an artificial setting, there are real world examples of precisely the same pattern of behavior. My favorite is a story of the Bedouin who rent horses to ride into or out of the canyon in which the ancient city of Petra sits. Steven Lubet, a noted teacher of law and economics, reports waiting until near the end of the day to leave the city in the confident assumption that as soon as the Bedouin began to lead empty horses out of the canyon, they would accept any price he might offer.[216] To his surprise, he discovered that the Bedouin, who were unwilling to bargain earlier in the day when there plenty of potential customers, were still unwilling to bargain at the end of the day, when refusing to bargain meant no income at all from leading the horses out of the canyon. As Lubet noted, the standard explanation is that the Bedouin valued the psychic income of refusing to bargain more than the actual income foregone by refusing to bargain.[217] Lubet observed, however, that this expands the realm of explanations for human behavior so widely that all you mean when you say that people have chosen one option over another is that they have chosen what they have chosen.[218] To say that people choose what they choose because they choose it is to say precisely nothing about why people make the choices they make. By such a broad reading, economics is stripped of all meaningful content and deprived of all predictive value. And, despite such evasions when pressed to explain what is, in narrowly economic terms, uneconomic behavior, economists routinely focus on monetary values as the proper measure of how and why people choose. No wonder one critic described the law and economics movement in legal academia and in the practice of law as a "cult" which is "done in by the twin stabbings of excessive inaccuracy and trivial accuracy" so that "law and economics now functions mainly as a faculty club with opaque, arbitrary criteria for membership."[219]

These problems are not a recent phenomenon. They have been recognized in some circles for a long time, long enough to have spawned a

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215. *See, e.g.*, Owen D. Jones, *The Evolution of Irrationality*, 41 JURIMETRICS J. 289, 306 (2001).

216. Steven Lubet, *Notes on the Bedouin Horse Trade or "Why Won't the Market Clear, Daddy?,"* 74 TEX. L. REV. 1039, 1041–42 (1996); *see also* Jeanne L. Schroeder, *Rationality in Law and Economics Scholarship*, 79 OR. L. REV. 147, 168–71 (2000) (noting the adjustments to Posnerian economic theory made necessary by irrational behavior).

217. Lubet, *supra* note 216, at 1050–51.

218. *Id.* at 1053–57.

219. Anita Bernstein, *Whatever Happened to Law and Economics?*, 64 MD. L. REV. 303, 307–08 (2005); *see also* William M. Landes, *The Empirical Side of Law & Economics*, 70 U. CHI. L. REV. 167, 176–80 (2003) (explaining that empirical analysis is used less often in law and economics than in economics generally).

countermovement to neoclassical economics comprised of cognitive psychologists[220] and by certain economists who style their field of studies as "behavioral economics" or "socioeconomics."[221] What these studies show us is that irrationality (in economic terms) is built into how people live their lives and make decisions, irrationality that prevents the market models from working in the way that economists assume.[222] Of course, an economist's notion of irrationality often is just another person's idea of taking into account different values than those economists favor—values on which it is impossible to place a price and therefore impossible to appraise or manage through a market.[223] That

220. *See, e.g.*, Christopher S. Elmendorf, *Ideas, Incentives, Gifts, and Governance: Toward Conservation Stewardship of Private Land, in Cultural and Psychological Perspective*, 2003 U. ILL. L. REV. 423 (2003); Chris Guthrie, *Prospect Theory, Risk Preference, and the Law*, 97 NW. U. L. REV. 1115, 1120–55 (2003); Mark Kelman, *Law and Behavioral Science: Conceptual Overviews*, 97 NW. U. L. REV. 1347 (2003); Jeffrey J. Rachlinski, *The Uncertain Psychological Case for Paternalism*, 97 NW. U. L. REV. 1165 (2003); Lee Ross & Donna Shestowsky, *Contemporary Psychology's Challenges to Legal Theory and Practice*, 97 NW. U. L. REV. 1081 (2003).

221. *See, e.g.*, Bernstein, *supra* note 219; William K. Black, *The Imperium Strikes Back: The Need to Teach Socioeconomics to Law Students*, 41 SAN DIEGO L. REV. 231 (2004); Jeremy A. Blumenthal, *Law and the Emotions: The Problems of Affective Forecasting*, 80 IND. L.J. 155 (2005); Stephen J. Choi, *Behavioral Economics and the Regulation of Public Offerings*, 10 LEWIS & CLARK L. REV. 85 (2006); Lynne L. Dallas, *Law and Socioeconomics in Legal Education*, 55 RUTGERS L. REV. 855 (2003); David A. Dana, *A Behavioral Economic Defense of the Precautionary Principle*, 97 NW. U. L. REV. 1315 (2003); Ronald J. Gilson & Reinier Kraakman, *The Mechanisms of Market Efficiency Twenty Years Later: The Hindsight Bias*, 28 J. CORP. L. 715 (2003); Owen D. Jones & Timothy H. Goldsmith, *Law and Behavioral Biology*, 105 COLUM. L. REV. 405 (2005); Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. 1051 (2000); Russell Korobkin, *The Endowment Effect and Legal Analysis*, 97 NW. U. L. REV. 1227 (2003); Robert A. Prentice, *Chicago Man, K-T Man, and the Future of Behavioral Law and Economics*, 56 VAND. L. REV. 1663 (2003); Stephanie Stern, *Encouraging Conservation on Private Lands: A Behavioral Analysis of Financial Incentives*, 48 ARIZ. L. REV. 541 (2006); Symposium, *Homo Economicus, Homo Myopicus, and the Law and Economics of Consumer Choice*, 73 U. CHI. L. REV. 3 (2006).

222. Korobkin & Ulen, *supra* note 221, at 1066–75; *see also* Dana, *supra* note 221 (exploring irrationality in environmental policy making); Elmendorf, *supra* note 220 (noting the impact of irrationality on conservation efforts); Gilson & Kraakman, *supra* note 221 (describing the policy implications of behavioral finance theory in institutional reform and the protection of individual investors); Owen D. Jones, *Time-Shifted Rationality and the Law of Law's Leverage: Behavioral Economics Meets Behavioral Biology*, 95 NW. U. L. REV. 1141 (2001) (raising questions about the efficacy of law in the face of the way people make decisions); Korobkin, *supra* note 221 (applying the "endowment effect" to theories of social decision making); Lubet, *supra* note 216, at 1050–51 (describing the contrasting values that may be associated with particular decisions); Prentice, *supra* note 221, at 1671–77 (presenting issues inherent to legal decision theory); Rachlinski, *supra* note 220, at 1178–95 (noting the effect of irrationality on disparate areas of law); Symposium, *supra* note 221. For more popular expressions of this insight, see Paul Krugman, *The Dilbert Strategy*, N.Y. TIMES, Mar. 31, 2008, at A21 (arguing that the inability to rethink decisions weakened the Bush Administration's response to the faltering economy); Shankar Vedantam, *Hillary Clinton and the Action Bias*, WASH. POST, Mar. 31, 2008, at A2 (discussing the bias in favor of taking action in the face of uncertainty).

223. *See, e.g.*, JAMES BOYD WHITE, JUSTICE AS TRANSLATION 48–85 (1990) (explaining the so-called culture of economics).

is precisely the problem with water that the Washington Consensus chooses to dismiss as irrational and therefore irrelevant.[224]

No one, of course, denies that economics is relevant. This Article merely suggests that it is not the only relevant mode of analysis.[225] The problem is that market fundamentalists—such as those who shaped the Washington Consensus—refuse to recognize that markets are not always the answer, or at least they refuse to consider seriously arguments that markets are not the best technique for managing a particular resource or for solving a particular problem.[226] Today, resistance to markets for raw water is stiffening and has achieved some real successes, both nationally[227] and internationally.[228] Rather than viewing this as a failure of policy makers to persuade or force through necessary market reforms, the reform of water law needs to consider alternatives

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224. *See, e.g.*, ANDERSON & SNYDER, *supra* note 79, at 17–29, 114-16; BOULDING, *supra* note 133, at 306; COMM. ON W. WATER MGMT. ET AL., *supra* note 131, at 70–84; SMITH, *supra* note 128, at 10–15; WAHL, *supra* note 133, at 147–91; Brown, *supra* note 133; Brown & DuMars, *supra* note 133, at 412–13 (noting that "[t]here are values other than total material improvement that are as important, and usually more important, to all societies"); Graff & Yardas, *supra* note 133, at 169, 220–21; Huffman, *supra* note 133, at 249, 268; Kaiser, *supra* note 133, at 247–50, 260; MacDonnell & Rice, *supra* note 133, at 52; Tregarthen, *supra* note 133, at 119; Young, *supra* note 133, at 1144–45, 1149.

225. *See, e.g.*, Theodore A. Feitshans & Kelly Zering, *Federal Regulations of Animal and Poultry Production Under the Clean Water Act: Opportunities for Employing Economic Analysis to Improve Societal Results*, 10 PENN. ST. ENVTL. L. REV. 193 (2002); Guido Pincione, *Market Rights and the Rule of Law: A Case for Procedural Constitutionalism*, 26 HARV. J.L. & PUB. POL'Y 397 (2003); Barton H. Thompson, Jr., *Conservation Options: Toward a Greater Private Role*, 21 VA. ENVTL. L.J. 245 (2002); Jon Christensen, *Fiscal Accountability Concerns Come to Conservation*, N.Y. TIMES, Nov. 5, 2002, at F2.

226. Arnold, *supra* note 98, at 569; Hennessy, *supra* note 179, at 1665–67; Andrew P. Morriss, *Real People, Real Resources, and Real Choices: The Case for Market Valuation of Water*, 38 TEX. TECH L. REV. 973 (2006).

227. *See, e.g.*, Martha Carr, *S&WB Sell-Off Is Sunk, Nagin Says*, TIMES-PICAYUNE (New Orleans, La.), Apr. 20, 2004, at 1 (noting the end of efforts to privatize New Orleans water and sewage systems); Heather Duncan, *Legislators Can't Agree on Water-Permit Sales*, MACON TELEGRAPH (Ga.), Apr. 24, 2003, at 5 (reporting legislative rejection of a proposal to authorize the sale of water rights in Georgia); Julia Ferrante, *Swiftmud Says Selling Water Doesn't Comply with Permits*, TAMPA TRIB., Feb. 12, 2003, at 2 (explaining that plans to sell excess well water were blocked in Florida); Clark Mason, *Bill Would Protect Albion, Gualala Rivers*, PRESS DEMOCRAT (Santa Rosa, Cal.), Apr. 11, 2003, at B1 (reporting a Wild & Scenic Rivers designation to prevent water exports); Ryan, *supra* note 98 (describing the end of a deal to develop privately water resources in Nevada).

228. *See, e.g.*, ROTHFEDER, *supra* note 11, at 129–31 (describing Canadian resistance to North America-wide water-sharing efforts); Naegele, *supra* note 80, at 124–30 (describing problems with privatized water systems in Bolivia and South Africa); Nickson & Vargas, *supra* note 11, at 108–13 (explaining the reasons underlying conflicts over Bolivian water services); Petrova, *supra* note 9, at 588–93 (making an argument against water privatization, given record of such efforts in developing countries); Williams, *supra* note 85, at 497–501 (describing the Bolivian "Water War"); Woodhouse, *supra* note 93, at 324–25 (discussing Bolivian water protests against privatization); *Bolivian Water Plan Dropped After Protests Turn into Melees*, *supra* note 93 (same); Elisabeth Malkin, *At World Forum, Support Erodes for Private Management of Water*, N.Y. Times, Mar. 20, 2006, at A11 (noting that attendees at World Water Forum favored public utilities over privately managed efforts that have not worked well); Price, *supra* note 93, at 1 (describing Latin American conflicts over public access to water).

to markets—alternatives that could include economic incentives, even if not markets—as means for adapting to the global climate disruption.[229] It is time to put the Washington Consensus into the past and to move forward without such crippling preconceptions[230]—not to eliminate markets under all circumstances as a possible choice (remember bottled water),[231] but to recognize it as an option, and an option that is not very good for raw water.[232]

229. This is, after all, the point that Ronald Coase was attempting to make in the article that not only won him the Noble Prize in economics, but also established him in the mind of many as the guru of law and economics and the high priest of free-market economics. Coase, *supra* note 66. See *supra* notes 64–72 and accompanying text for an overview of Coase's famous article.

230. *See* Chris Sagers, *The Myth of "Privatization,"* 59 ADMIN. L. REV. 37, 65–70 (2007).

231. *See* Tara Boldt-Van Rooy, *"Bottling up" Our Natural Resources: The Fight over Bottled Water Extraction in the United States*, 18 J. LAND USE & ENVTL. L. 267, 295–97 (2003).

232. *See, e.g.*, Jennifer Davis & Dale Whittington, *Challenges for Water Sector Reform in Transition Economies*, 6 WATER POL'Y 381 (2004); Dellapenna, *supra* note 127; François Molle, *Defining Water Rights: By Prescription or Negotiation?*, 6 WATER POL'Y 207 (2004); Naegele, *supra* note 80; Welch, *supra* note 80.