CLIMATE DISRUPTION, THE WASHINGTON CONSENSUS, AND WATER LAW REFORM

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I. INTRODUCTION

The planet today is undergoing disruptive climate change. 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. For some years, farmers have experienced measurably longer growing seasons in the Northern Hemisphere. These changes—which now seem indisputably to result from human activity—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).


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. 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. Those changes in turn will have drastic effects on innumerable aspects of the lives of humans and other living things. Water, in


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).


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 Rübsamen, 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

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); Brenda 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, Onchorhynchus 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 Rosenberg, 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.

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. 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. 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. 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. 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.
intervening years have only somewhat reduced such uncertainty about particular basins. 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. That climate disruption forced humans to invent agriculture and gave birth to what we call civilization and various forms of ever-larger scale social organizations.

Given the speed with which the present climate disruption is happening, our responses will have to be similarly accelerated. Precipitation patterns are changing, ranging from significant declines in overall precipitation to a change from snow to rain. Over the coming century, arid regions will become wider, while the infrastructure we have built for managing water resources will become obsolete. 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. The accelerated melting of glaciers will actually

15. IPCC, Impacts, Adaptation and Vulnerability, supra note 6, at 180–86.
19. See Halweil, supra note 17.
20. IPCC, Impacts, Adaptation and Vulnerability, supra note 6, at 177, 183, 187, 190, 192–93.
22. Id. at 175, 178–79, 185, 193–95.
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


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 Smead, Snowmelt Surge Starting, DESERET MORNING NEWS (Salt Lake City, Utah), May 19, 2005, at B1.


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.


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


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. 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. Some go so far as to argue that personal liberty is impossible without such complete devotion to markets.

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 and the International Monetary Fund. While the


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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\(^{40}\) See generally ORG. FOR ECON. CO-OPERATION AND DEV., *REGULATORY REFORM, PRIVATISATION AND COMPETITION POLICY* (1992); DIETER BÖS, *PRIVATEIZATION: 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
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


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).


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. Private security firms, employing thousands of armed personnel, seriously compromised political and military operations in Iraq. 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. Apparently, they were there to set a precedent for the privatization of military activity—fulfilling 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).


the dreams of market fundamentalists. 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. 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. Debate continues over school vouchers and charter schools (both means of privatizing public education), the privatization of prisons, and

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); 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).


58. See generally JONAS N. ALTIDOR, SCHOOL VOUCHERS AND PARENTS IN CLEVELAND,
over whether to rely on markets to provide medical care or financial support for retirees. 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? Why not do it then?


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, 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, 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. In The Problem of Social Cost, 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.

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).


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. 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. The most important simplifying assumption that most such economists make is to assume a “frictionless market”—a market without transaction costs. 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


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. 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.

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


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).


76. Steven Mufson, *Europe’s Problems Color U.S. Plans to Curb Carbon Gases*, WASH. POST,
in creating wealth for certain corporations. Proponents of such mechanisms continue to focus on the theory of trading and do not discuss how such markets work in practice. Looking objectively at the evidence for the success or limitations of such programs, of course, is not what the market fundamentalistsApr. 9, 2007, at A1; see also Ruth Greenspan Bell, Market Failure, ENVT'L. 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?, ENVT'L 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 ENVT'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. ENVT'L. 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 ENVT'L. 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. ENVT'L. 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. ENVT'L. 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 CO2 emissions in the [Union]”).


would be appropriate. 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. Such proposals were a particular favorite of those working for the Washington Consensus. Markets can and do


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. As with the trading of 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.

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. Even today public bodies provide ninety percent of water utility services in the

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developing world. 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. 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. Proponents of
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

87. E.g., Mark Dumol, The Manila Water Concession: A Key Government Official’s
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);
(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 IIs 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 Bredaart, 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
and private water utilities).

91. Rosa Maria Formiga-Johnsson, Lori Kumler & Maria Carmen Lemos, The Politics of Bulk
in Cochabamba, Bolivia in 2000, where the World Bank pressured Bolivia into privatizing water services, but the company (controlled by the Bechtel group) that won the concession to take over the municipal waterworks was forced to abandon the concession. 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. Less dramatic resistance has also succeeded in other countries.

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

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. R OTHFEDER, supra note 11, at 99–114; Glennon, supra note 87, at 1890; Naegele, supra note 80, 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.


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. 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. 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”).

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. At the time, the Atlanta system, under municipal ownership for 123 years, was serving approximately 1,500,000 people in the greater Atlanta area.

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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

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 JDI. 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.
felled upon United Water as lead contractor, an experienced company with a reputation for success—as one commentary put it, “a safe selection.”

United Water partnered with the French company, Suez Lyonnaise (“Suez”)—one of the largest of the several water service companies operating worldwide. 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.

Atlanta officials were so pleased with the arrangement that they expected it to become a model for other municipalities across North America. 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. 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, although promising to make up that increase on savings from water delivery services. 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. 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.


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


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 and the huge capital demands in providing water service to large numbers of people, 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. None of these setbacks have stopped the effort to privatize water utilities nationally and internationally. Market fundamentalists
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


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); Naegle, 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.


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. 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. When there
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. 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. 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 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 Fabrics 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).
and publicness.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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

\textsuperscript{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).


\textsuperscript{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.

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).
139. R. 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.\footnote{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.\footnote{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.\footnote{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.\footnote{144}

\footnote{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).}

\footnote{142. Comm. on W. Water Mgmt. et al., supra note 131, at 117–18; see also Ujijayant Chakrvorty, Ethan 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).}

\footnote{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).}

The case of City and County of Denver v. Fulton Irrigating Ditch Co. 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. 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. 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. 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. 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.” The contract would have been unnecessary to the outcome of the case if the water had not been imported.

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

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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.


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. 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.

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

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154. R ICHARD 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.\textsuperscript{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.\textsuperscript{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,\textsuperscript{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.\textsuperscript{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.\textsuperscript{160} Because I have written at length in other articles about the


\textsuperscript{157} See \textit{ supra} note 130 for sources discussing the prevalence of small-scale markets for water.


\textsuperscript{159} See \textit{ supra} notes 69–72 and accompanying text for a discussion of “blackboard economics.”

\textsuperscript{160} See, e.g., \textit{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 \textit{Saliba & David B. Bush, Water Markets in Theory and Practice: Market Transfers, Water Values, and Public Policy} 56–60 (1987) (same); Chatterton & Chatterton, \textit{supra} note 79,
strengths and weaknesses of the several models for property in water (or in the right to use water), 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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162. See infra note 184 and accompanying text for a discussion of the impact of these transactions on third-party rights.

allocation permits” as the best method for allocating water to particular uses. 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. The three types each correspond closely to the three real world models of water law found today in the United States. 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. Appropriative rights,


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

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: ECOCOLGY 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, 52 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. Markets fail because of the need to protect third-party rights if society is genuinely going to protect private rights to use water. Because of the utter failure of true markets, states have been left to use the admittedly imperfect public property model as best available. I certainly do not deny the utility of economic incentives—including fees, taxes, “water banks,” and other incentive devices—as a management tool. True markets, however, must remain marginal to the management of large quantities of raw water for numerous diverse users.

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. These are the “California Water Bank” and

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).


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).

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. California, a dual system state that still recognizes riparian rights to some extent even while placing dominant emphasis on appropriative rights, did not attempt to enforce the common property principles already in place 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. This gave the state, as buyer or seller, an inestimable advantage over private buyers or sellers.


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).


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).


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. Env'l. L. & Pol’y, Fall 1996, at 63, 66–67 (concluding that potential for market transfers in California “is likely to be small”).


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


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. The District continued to resist the deal and sued Secretary Norton unsuccessfully. The state legislature also threatened to intervene to take the water from the District. In the end, however, the District board surrendered and “accepted” the contract by another 3 to 2 vote. 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. The transaction also promised disaster to the ecosystems dependent on runoff from the farms. Moreover, even the landowners believed they were being short-changed, which is why the District held out against consenting to the transaction.

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. This is hardly a better example of a market, however. After all, with the Imperial Valley


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).

Irrigation District’s experience happening right in front of them, the vote of the Coachella District board hardly seems, in any real sense, voluntary.\footnote{Michael Gardner, \textit{River Entitlement Cut in Region Is Affecting Coachella Valley First}, SAN DIEGO UNION-TRIB., May 10, 2003, at A3.}

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.\footnote{Dellapenna, \textit{Adapting Riparian Rights}, infra note 161, at 574–75; Gray, \textit{ supra} note 160, at 296–308; Wilson G. Barmeyer, \textit{Note, The Problem of Reallocation in a Regulated Riparian System: Examining the Law in Georgia}, 40 GA. L. REV. 207, 238–41 (2005).} 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.\footnote{Gray, \textit{ supra} note 160, at 296–308. \textit{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, \textit{ supra} note 165.} 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.\footnote{\textit{See generally John Krutilla, Conservation Reconsidered}, 57 AM. ECON. REV. 777, 781–83 (1967) (describing the occasionally conflicting values individuals attach to priorities); Sagoff, \textit{ 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 \textit{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, \textit{Determining the Economic Value of Water: Concepts and Methods} (2005); Ikek Ajzen, Thomas C. Brown & Lori H. Rosenthal, \textit{Information Bias in Contingent Valuation: Effects of Personal Relevance, Quality of Information, and Motivational Orientation}, 30 J. ENVTL. ECON. & MGMT. 337 (1996); Brian R. Binger, Robert Coppel & Elizabeth Hoffman, \textit{Contingent Valuation Methodology in the Natural Resource Damage Regulatory Process: Choice Theory and the Embedding Phenomenon}, 35 NAT. RESOURCES J. 443 (1995); Peter Diamond, \textit{Testing the Internal Consistency of Contingent Valuation Surveys}, 99 COLUM. L. REV. 941 (1999); Miriam Montesinos, \textit{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).} 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.\footnote{\textit{See generally Wallace E. Oates, The Economics of Environmental Regulation} (1996); Mona L. Hymel, \textit{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, \textit{Direct Regulation and Economic Instruments: Antagonists or Allies?}, in \textit{ENVIRONMENTAL POLICY BETWEEN REGULATION AND MARKET} 305 (Claude Jeancenaud ed., 1997); Charles D. Patterson, \textit{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).} Beyond these problems, the social consequences of these transactions were regressive. While the transactions did introduce flexibility to
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.\textsuperscript{204} Specifically, the California Water Bank transferred wealth from relatively small, poorer farmers to relatively wealthier middle class suburban dwellers.\textsuperscript{205} Much the same happened in the Imperial Valley “sale,” even for the farmers who were paid.\textsuperscript{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.\textsuperscript{207} And much the same thing happened in other highly touted water markets around the world, such as in Chile.\textsuperscript{208} Market fundamentalists make light of such effects,\textsuperscript{209} which is hardly surprising given how consistently they oversell the purported examples of “actual water markets” in action.\textsuperscript{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.\textsuperscript{211}

\textsuperscript{204} Gray, supra note 160, at 252–71; Harbison, supra note 134, at 553–59; O’Brien & Gunning, supra note 179, at 1078–83.


\textsuperscript{206} See Cline, supra note 197, at 20.

\textsuperscript{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.

\textsuperscript{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).

\textsuperscript{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).

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

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 utterly 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” or “no.” If the second player says “yes,” the money is divided as she chooses; if the second player says “no,” both parties receive nothing. The task of the first player is to design an offer that the second player will accept. As it turns out, the second player generally accepts offers of more than 20% of the sum and rarely accepts offers of less than 50%. The results are not to be explained by calculation or by self-interest, but rather by what is called “fairness.”


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).

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 stabblings 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

217. Lubet, supra note 216, at 1050–51.
218. Id. at 1053–57.
countermovement to neoclassical economics comprised of cognitive psychologists and by certain economists who style their field of studies as “behavioral economics” or “socioeconomics.” 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. 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.


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 nationally227 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

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; WALT, 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; Tregearthen, supra note 133, at 119; Young, supra note 133, at 1144–45, 1149.


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, Swiftnoud 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); Naegle, 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.\textsuperscript{229} It is time to put the Washington Consensus into the past and to move forward without such crippling preconceptions\textsuperscript{230}—not to eliminate markets under all circumstances as a possible choice (remember bottled water),\textsuperscript{231} but to recognize it as an option, and an option that is not very good for raw water.\textsuperscript{232}

\textsuperscript{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.


\textsuperscript{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.