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# Avoiding the Problem of the Commons in a Communist Society: The Role of Water Rights in the Enforcement of Environmental Law in China

Sonja Schiller\*

## INTRODUCTION

Since the initiation of Deng Xiaoping's policy of "reform and opening" (*gaige kaifang*) over twenty years ago, extraordinary rates of urbanization and industrialization have dramatically impacted China's gross domestic product ("GDP") and demographics. Between 1978 and 2005, China's GDP grew an average of 9.4% annually, boosting the economy from the forty-eighth to the fourth largest in the world behind the United States, Japan, and Germany.<sup>1</sup> Nearly concurrently, China reduced the percentage of its population living in poverty<sup>2</sup> from 53% to 8%, decreasing the world population living in extreme poverty<sup>3</sup> by 400 million people.<sup>4</sup>

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\* J.D. (2009), Washington University in St. Louis School of Law; A.B. (2004), Washington University in St. Louis. For their encouragement and support, I thank my parents Baerbel and Arthur Schiller, my sisters Sandra and Sabina Schiller, and my partner, Mark Schwarz. I also thank Frances Foster, Beth Kinne, Maxine Lipeles, Wei Luo, Carl Minzner, A. Dan Tarlock, Jennifer Turner, and Zhao Yuhong for their insight and guidance. For their inspiration, special thanks to my wonderful friends and to Lynne Breakstone, Laura Rosenbury, Leila Nadya Sadat, Michelle Shoresman, and Karen Tokarz. Additional thanks to the staff of the *Washington University Journal of Law & Policy*.

1. Alex Wang, *The Role of Law in Environmental Protection in China: Recent Developments*, 8 VT. J. ENVTL. L. 195, 199 (2006–2007) (citing Keith Bradsher, *China Reports Another Year of Strong (or Even Better) Growth*, N.Y. TIMES, Jan. 26, 2006, at C5).

2. The World Bank has defined the poverty line as living on less than US\$2.00 per day. The World Bank, Overview: Understanding Poverty, <http://go.worldbank.org/RQBDCUXW0> (last visited Dec. 29, 2008).

3. The World Bank defines "extreme poverty" as living on less than US\$1.00 per day. *Id.*

4. The World Bank, *Fighting Poverty: Findings and Lessons from China's Success*, <http://go.worldbank.org/QXOQI9MP30> (last visited Dec. 29, 2008) (discussing the research of Martin Ravallion and Shaohua Chen); *see also* Wang, *supra* note 1, at 199.

With its “pollute first, control later” (*xian wuran, hou zhili*) model of development, China’s exceptional growth has come at an immense environmental cost.<sup>5</sup> China’s model of development threatens a sufficient supply of potable fresh water. With only 6% of the world’s fresh water resources to provide water to 22% of the world’s population, China confronts severe water shortages.<sup>6</sup> China’s annual per capita water supply (2200m<sup>3</sup>) is only 25% of the global average; by 2030, China’s per capita water supply is predicted to fall to 1700m<sup>3</sup>.<sup>7</sup> Of 668 cities in China, 400 currently experience water shortages.<sup>8</sup> Water pollution endangers China’s already scarce water resources: hazardous waste, pesticides, fertilizers, and polluted surface water contaminate China’s groundwater.<sup>9</sup> Eighty percent of China’s major rivers are too polluted to support fish.<sup>10</sup> Water

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5. By some estimates, accounting for the costs of environmental pollution negates China’s exponential economic growth: environmental pollution costs China between 3–8% of its annual gross domestic product (“GDP”). THE WORLD BANK, CLEAR WATER, BLUE SKIES: CHINA’S ENVIRONMENT IN THE NEW CENTURY 23 (1997) (noting that the conservative estimate for air and water pollution clean up is 8% of the country’s total GDP); *see also* ELIZABETH C. ECONOMY, THE RIVER RUNS BLACK: THE ENVIRONMENTAL CHALLENGE TO CHINA’S FUTURE 25 (2004). Some analysts predict that as China’s demand for fresh water outstrips supply, the Chinese economy could collapse, even by 2015. John Vidal, *Costs of Water Shortage: Civil Unrest, Mass Migration and Economic Collapse*, THE GUARDIAN, Aug. 17, 2006, at 25.

6. Per capita, China’s water resources in river basins are only 35% of the global average. Dajun Shen, *The 2002 Water Law: Its Impacts on River Basin Management in China*, 6 WATER POL’Y 345, 346 (2004).

7. *China’s Environmental Challenge: Hearing on Major Challenges Facing Chinese Leadership Before the U.S.-China Economic and Security Review Commission*, 109th Cong. 52 (2006) (statement of Elizabeth C. Economy, C.V. Starr Senior Fellow and Dir., Asia Studies, Council on Foreign Relations), available at <http://www.uscc.gov/hearings/hearingsarchive.php#hearings2006> (follow “Major Internal Challenges Facing the Chinese Leadership” hyperlink).

8. Figure according to the Chinese Ministry of Water Resources. Beth E. Kinne, *Developing Property Rights in Water in Modern China* (Dec. 2005) (unpublished LL.M. thesis, University of Washington) (on file with author). Water scarcity is exacerbated in China’s arid—but heavily populated—northern regions, which have 65.4% of the cultivated land and 46.1% of the population, but only 19% of water resources. Regional water disparities have led to the ambitious North-South water transfer plan in which large scale water transfers from the water-rich southern provinces to the water-poor northern provinces will help offset water scarcity. *See China’s Multi-Billion-Dollar North-South Water Project Facing Delays*, AM. FREE PRESS, Nov. 21, 2007, available at <http://afp.google.com/article/ALegM5h5bR1tPlYyfgdWS3H4JRO7k0gVH>.

9. Elizabeth C. Economy, *The Great Leap Backward?*, FOREIGN AFFAIRS, Sept./Oct. 2007, at 3, 42–43.

10. Maude Barlow, *Water Incorporated: The Commodification of the World’s Water*, 17 EARTH ISLAND J. 30 (Spring 2002), available at <http://www.earthisland.org> (follow “Earth Island Journal” hyperlink; then follow “Archives” hyperlink).

scarcity—as exacerbated by endemic pollution—has left an estimated 500 million Chinese without access to clean drinking water.<sup>11</sup> Polluted water accounts for increasing rates of cancer and other pollution-related diseases.<sup>12</sup> Aggressive economic development and related water pollution have diminished China’s already scarce water resources.

China’s water scarcity has global repercussions:<sup>13</sup> with food resources strained by the pressures of increased consumer demand<sup>14</sup> and diminishing freshwater resources, China will be forced to import grain more frequently to compensate for a shrinking food supply.<sup>15</sup> Aggravated by endemic water pollution, water scarcity has fueled internal social unrest:<sup>16</sup> recent reports estimate that nearly one

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11. See Joseph Kahn & Jim Yardley, *As China Roars, Pollution Reaches Deadly Extremes*, N.Y. TIMES, Aug. 26, 2007, at A1; see also Wang Mingyuan, *China’s Pollutant Discharge System Evolves Behind Its Economic Expansion*, 19 VILL. ENVTL. L.J. 95, 97 (2008). Ninety percent of urban watersheds are polluted to some degree. Kinne, *supra* note 8, at 5. Some official statistics indicate this number might be even higher: in a SEPA survey of 118 cities, 97% of the underground water was contaminated. Li Lifeng & Zou Lan, *China’s Water Crisis*, in THE CHINA ENVIRONMENT YEARBOOK (2005) 155, 161 (Liang Congjie & Yang Dongping eds., 2007).

12. According to The World Bank, China’s failure to provide piped water to two-thirds of the rural population accounts for nearly 11% of cases of gastrointestinal cancer in China and is a leading cause of death among children under the age of five. Economy, *supra* note 9, at 43. The heavy metals, chemicals, and other pollutants that contaminate surface and groundwater may result in “malignancies, birth defects, and impair[ed] immune systems.” Shun Yong Yeh, *Is China’s Development Path Sustainable? An Overview on the Legal and Policy Framework in Relation to Environmental Protection in China*, 2 ASIAN J. WTO & INT’L HEALTH L. & POL’Y 399, 414 (2007) (citing STOCKHOLM ENVIRONMENTAL INSTITUTE, CHINA HUMAN DEVELOPMENT REPORT 2002: MAKING GREEN DEVELOPMENT A CHOICE 32 (2002), available at <http://www.undp.org.cn> (follow “Building Knowledge” hyperlink; then follow “Publications” hyperlink)).

13. Over the past one hundred years, water usage has increased by six times and will double again by 2050. Vidal, *supra* note 5 (statistics cited from the article’s interview of Frank Rijsberman, Director of the International Water Management Institute).

14. Along with increased food consumption, wealthier Chinese will also use more water: from 1980 to 2001, domestic water use increased nearly 100%; by 2050, the total water use is estimated to reach 730 km<sup>3</sup>. Dajun Shen, *supra* note 6, at 349.

15. In China, where approximately 70% of agriculture relies on irrigation, dwindling water tables will lead to rising food prices. Water scarcity will not only impact water supply, but food supply as well, likely affecting food prices globally as China is forced to import food. Michael Dorgan, *China’s Water Supply Drying Up*, PHILA. INQUIRER, July 8, 2000, at A01 (quoting Sheri Liao); see also Lester R. Brown & Brian Halweil, *China’s Water Shortage Could Shake World Food Security*, WORLD WATCH, July/Aug. 1998, at 10, 10.

16. Local governments have been under increased pressure to respond to social unrest over pollution since the devastating benzene contamination of the Songhua River in 2005 and

thousand pollution-related protests occur in China every week.<sup>17</sup> China's urban centers and industrial sectors are disproportionately responsible for growing water shortages, heightening tension within rural areas.<sup>18</sup> Without an effective system of transferable water permits, China will confront increasingly scarce water resources and incompletely enforced environmental laws. If unaddressed, China's growing water scarcity will undermine social stability and devastate the economy.

Part I of this Note examines the development of China's modern legal system—including the recent unprecedented recognition of private property as a form of ownership—and describes challenges to systematic enforcement of environmental laws and regulations. Part I also discusses the history of water rights in China and the recent emergence of property interests in water vis-à-vis the sale and transfer of water permits. Part II analyzes how China's 2007 Real Right Law gives legal protection to usufructuary rights in water permits and encourages the sustainable use of water, and the investment therein, that is fundamental to continued economic development. Parts III and IV propose that legal recognition of property interests in water will heighten enforcement of environmental laws by providing water pollution victims an alternate ground for standing to bring environmental litigation.

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the subsequent increase in publicity of rural protests. Yingling Liu, *Villagers Attack Factories Over Pollution in Eastern China*, WORLDWATCH INST., Apr. 13, 2006, <http://www.worldwatch.org/node/3911>.

17. Economy, *supra* note 9, at 47–48. Indicative of the growing violence in protest of unenforced pollution standards, in 2005, “30,000 to 40,000 villagers from Zhejiang Province swarmed 13 chemical plants, broke windows and overturned buses, attacked government officials, and torched police cars.” *Id.* at 48. The Chinese government sent ten thousand members of the People's Armed Police to respond to the violence and later ordered the plants closed. *Id.*

18. From 1980 to 2005, agricultural water use decreased from 85% to 65%, while urban and industrial demand increased 100% and 150%, respectively. Kinne, *supra* note 8, at 5 (citing Wang Shucheng, Minister of Ministry of Water Res., P.R.C., Speech on Managing Water Resources and Ensuring Food Security in China (Mar. 2, 2005), *available at* <http://www.mwr.gov.cn/english/20050307/48331.asp>); *see also* Dajun Shen, *supra* note 6, at 349–50.

## I. HISTORY

### A. China's Legal and Regulatory Framework

Understanding the complexities of China's system of environmental law explains the seriousness of China's environmental problems. "[T]he National People's Congress (NPC) is the highest-level legislative body[,] . . . empowered . . . to enact and amend 'fundamental' national statutes, including [those specifying the] establishment and organization of government institutions . . ."<sup>19</sup> Within the NPC, the Standing Committee enacts and amends all national laws, including environmental protection statutes. The Standing Committee may also amend and supplement laws enacted by the NPC, insofar as the amendments do not contravene the laws' "fundamental principles."<sup>20</sup> Specialized advisory committees within the NPC draft national laws and oversee their implementation.<sup>21</sup> For example, the "Environmental Protection and Natural Resources Conservation Committee" drafts legislation and implements laws relating to natural resource management and environmental protection.<sup>22</sup>

Immediately under the NPC is the State Council, China's highest-level administrative body and the executive authority of the NPC. The State Council "approve[s] and promulgate[s] national administrative regulations [and] issue[s] decisions in orders in accordance with the Constitution and other laws."<sup>23</sup> Below the State Council, numerous administrative departments, including the State Environmental Protection Agency ("SEPA"), are responsible for

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19. Richard J. Ferris, Jr. & Hongjun Zhang, *Reaching Out to the Rule of Law: China's Continuing Efforts to Develop an Effective Environmental Law Regime*, 11 WM. & MARY BILL RTS. J. 569, 576 (2003). "Fundamental" national statutes include those that concern the "establishment, organization and responsibilities of the NPC, people's governments, people's courts, civil and criminal liabilities, government prosecutory functions, and issues related to special administrative and autonomous regions." *Id.* at 576 n.27.

20. *Id.* at 576.

21. The specialized advisory committees are comprised of experienced congressional representatives with backgrounds in the respective subject matters. *Id.* at 577.

22. *Id.*

23. *Id.* at 577-78. In addition, the State Council "review[s] legislative proposals for referral to the NPC or its Standing Committee . . . and . . . oversee[s] the work of its underlying ministries and commissions." *Id.* at 578.

environmental protection and issue “ministerial regulations”<sup>24</sup> within their areas of competence.<sup>25</sup> Inferior administrative departments may also propose national legislation, which may become law if approved by the State Council and adopted by the NPC.<sup>26</sup>

Provincial people’s congresses (and their associated standing committees) may also issue provincial-level regulations, provided that they do not contravene the Constitution or national laws and regulations.<sup>27</sup> At the local level, municipal people’s congresses may also draft and issue local regulations, subject to the same restrictions as at the provincial level, with the additional limitation that the local regulations may not contravene the provincial-level regulations. To ensure that municipal-level regulations do not contravene provincial regulations, municipal people’s congresses must receive approval of draft regulations from their provincial people’s congress before promulgating the regulations.<sup>28</sup>

### *B. Market Reform, Resource Allocation, and the Emergence of Environmental Law*

Intergovernmental power dynamics and top-down centralized authority have hindered the enforcement of environmental law in China. Following the foundation of the People’s Republic of China in 1949, the central government gained a prominent role through its creation of a centralized, planned economy. Reinforced through the

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24. Typically, it is not necessary for the State Council to review ministerial regulations before they are promulgated by the drafting ministries or administrative departments. *Id.* at 579.

25. *Id.* Article 7 of the Law on Environmental Protection of the People’s Republic of China grants SEPA the authority to supervise and administer environmental protection works. Huan jing bao hu fa [Environmental Protection Law] (promulgated by the President, Dec. 26, 1989, effective Dec. 26, 1989), art. 7, *translated in* LAWINFOCHINA (last visited Dec. 29, 2008) (P.R.C.) [hereinafter EPL].

26. Ferris & Hungjun Zhang, *supra* note 19, at 579.

27. Four of China’s municipalities—including Chongqing, Beijing, Tianjin, and Shanghai—and China’s autonomous regions—Inner Mongolia, Xizang (Tibet), Ningxia, Guangxi, and Xinjiang—possess law-making powers similar to those at the provincial level. *See id.*

28. With respect to the development of influential laws—particularly in the area of environmental protection—local governments are increasingly the “trend setters” in China. *Id.* at 580.

remnants of Confucian ideology,<sup>29</sup> the powerful, “fatherly” centralized state allocated resources among provincial “sons,” who competed for resources under the planned economy.<sup>30</sup> As reinforced by China’s Confucian and Communist ideological roots, ownership of natural resources by the “fatherly” state<sup>31</sup> posed few problems. A value for the community over the individual discouraged over-consumption of public goods for personal gain. Prior to China’s 1979 market reforms, Confucian norms of “other-regarding preferences . . . ‘internalize[d]’ what would otherwise be external costs and benefits . . . achiev[ing] better outcomes, in terms of both individual and aggregate social welfare.”<sup>32</sup>

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29. As one of the primary ethical and philosophical ideologies of ancient China, Confucianism emphasizes the hierarchical relationships between things, with the ruler at the axis of the sky, humans, and the Earth. Confucianism also premised that rites—not laws—should govern behavior. The Chinese Legal Tradition: A Three-Part Discussion of the Chinese Legal Tradition, Rule of Law: The Story of Human Rights in World History, 2004 ORIAS Summer Teacher’s Inst., Univ. of Cal. at Berkeley Office of Res. for Int’l & Area Studies (July 26–30, 2004), <http://orias.berkeley.edu/summer2004/summer2004Chinalegal.htm>. As opposed to uniform laws, *li*, “those precepts of propriety and ritual, differentiated by reference to one’s place in the family and in society,” governed rules and punishments, which varied according to personal relationships. John W. Head, *Codes, Cultures, Chaos, and Champions: Common Features of Legal Codification Experiences in China, Europe, and North America*, 13 DUKE J. COMP. & INT’L L. 1, 37 (2003). Accordingly:

[T]he *li* were not positive rules; indeed, in a sense they were not rules at all. They lacked the quality of positiveness because they were not understood, formulated, or obeyed as something apart from the concrete relationships that established an individual’s identity and social place. No one made the *li*; they were the living, spontaneous order of society, an order that human will, though capable of disturbing, was powerless to create.

*Id.* (quoting ROBERTO MANGABEIRA UNGER, *LAW IN MODERN SOCIETY* 94 (1976)). Influenced by Confucianism’s deference to *li*, which were largely unwritten, Chinese society considered written law an ineffective means of structuring society. As a result, legal codification was slow to achieve. *Id.* For further discussion of the rule of law in China before 1949, see Qiang Fang & Roger Des Forges, *Were Chinese Rulers Above the Law? Toward a Theory of the Rule of Law in China from Early Times to 1949 CE*, 44 STAN. J. INT’L L. 101 (2008).

30. Wang Yahua, Commentary, *Water Dispute in the Yellow River Basin: Challenges to a Centralized System*, 6 CHINA ENV’T SERIES 94, 95 (2003).

31. One could view water resource management “through a Confucian lens—the strong ‘fatherly’ central government doling out resources . . . under the centralized planning system [in which] the provincial ‘sons’ strived to gain more resources.” Subsequent to the 1978 market reforms, economic and administrative authority became more decentralized. *Id.*

32. Lynn A. Stout, *Social Norms and Other-Regarding Preferences*, in *NORMS AND THE LAW*, 13, 15 (John N. Drobak ed., 2006).



Subsequent to its market reforms, China has officially embraced the “rule of law,” resulting in the unprecedented creation of legal frameworks to allocate resources.<sup>33</sup> In 1979, the Standing Committee enacted China’s first prominent environmental statute, the Environmental Protection Law (“EPL”).<sup>34</sup> The EPL established concepts fundamental to environmental protection, including: (1) the right of individuals to bring claims against polluters, and (2) the ability of provincial and local governments to establish local pollutant discharge standards<sup>35</sup> (for those activities not specified in the national standards) and to specify more stringent standards than those already set at the national level.<sup>36</sup>

### *C. Shifting Cultural Norms and Challenges to the Enforcement of Environmental Laws*

Since 1979, market reforms have made personal economic gain viable for the first time, producing the problem of the commons in unbounded access to natural resources.<sup>37</sup> Increasing per capita incomes and changing cultural values have shifted focus away from the community to the individual, discouraging universal cooperation

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33. Patricia Wouters, Desheng Hu, Jiebin Zhang, A. Dan Tarlock & Philip Andrews-Speed, *The New Development of Water Law in China*, 7 U. DENV. WATER L. REV. 243, 247–48 (2004).

34. EPL, *supra* note 25.

35. Article 10 of the Rules for the Implementation of the Law on Prevention and Control of Water Pollution states that the local governments’ environmental protection departments shall issue pollutant discharge permits. Detailed Rules for the Implementation of the Law on the Prevention and Control of Water Pollution (promulgated by the State Council, Mar. 20, 2000, effective Mar. 20, 2000), art. 10, *translated in* LAWINFOCHINA (last visited Dec. 29, 2008) (P.R.C.). For a discussion of China’s water pollutant discharge permit system, see Wang Mingyuan, *supra* note 11, at 108–11.

36. While the EPL focuses on pollution control, it does not address natural resource management. Ferris & Hongjun Zhang, *supra* note 19, at 582–83.

37. Ostrom and Ostrom define common-pool resources as “natural or man-made resources for which exclusion is difficult and costly to achieve, and use is subtractable.” Edella Schlager, *Getting the Relationships Right in Water Property Rights*, in WATER RIGHTS REFORM: LESSONS FOR INSTITUTIONAL DESIGN 27, 37 (Bryan Randolph Bruns, Claudia Ringler & Ruth Meinzen-Dick eds., 2005) (citing Vincent Ostrom & Elinor Ostrom, *Public Goods and Public Choices*, in ALTERNATIVES FOR DELIVERING PUBLIC SERVICES: TOWARD IMPROVED PERFORMANCE (E.S. Savas ed., 1977), *reprinted in* POLYCENTRICITY AND LOCAL PUBLIC ECONOMIES 75 (Michael D. McGinnis ed., 1999)); *see also* Gary D. Libecap, *Open-Access Losses and Delay in the Assignment of Property Rights*, 50 ARIZ. L. REV. 379 (2008).

among users of open-access resources such as water.<sup>38</sup> The development of the market economy has gradually decentralized economic and administrative authority, improved the transparency of laws and regulations, and increased the autonomy of provincial and local governments.<sup>39</sup> However, increased autonomy has led more provinces to compete for natural resources.<sup>40</sup> Rather than consistently enforce national laws and regulations, provincial and local governments prioritize self-interest and local economic growth<sup>41</sup> over national objectives.<sup>42</sup>

A complex institutional framework of ministries and administrative departments with authority to administer environmental protection laws and regulations further complicates the enforcement of environmental law. Several factors aggravate

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38. See Juan-Camilo Cárdenas & Elinor Ostrom, *How Norms Help Reduce the Tragedy of the Commons: A Multi-Layer Framework for Analyzing Field Experiments*, in *NORMS AND THE LAW* 105, 109–10 (John N. Drobak ed., 2006) (discussing how non-self regarding game strategy achieves the Pareto-optimal solution under norms that encourage universal cooperation).

39. Wang Yahua, *supra* note 30, at 95.

40. Indicative of the growing recognition of the tension implicit between China's environment and its model of economic development, the 2006 State Council report on the environment stated that "[t]he conflict between environment and development is becoming ever more prominent." STATE COUNCIL INFORMATION OFFICE, ENVIRONMENTAL PROTECTION IN CHINA 1996–2005 (2006), [http://English.peopledaily.com.cn/200606/05/eng20060605\\_271168.html](http://English.peopledaily.com.cn/200606/05/eng20060605_271168.html).

41. Since China's 2001 accession to the World Trade Organization, "local governments' blind pursuit of quick and short-term economic gain without regard to environmental consequences" led foreign investors to relocate "heavy-polluting and resource-intensive industries" to China on a large scale. Yuhong Zhao, *Trade and Environment: Challenges After China's WTO Accession*, 32 *COLUM. J. ENVTL. L.* 41, 47–49 (2007). In an effort to alleviate poverty, rural regions have emphasized economic development and offered incentives to encourage (heavily polluting) factories to relocate from cities to the countryside; accordingly, water quality in rural regions is worse than in urban areas. See Li Zhiping, *Protection of Peasants' Environmental Rights During Social Transition: Rural Regions in Guangdong Province*, 8 *VT. J. ENVTL. L.* 337, 338 (2007); see also Shun Yong Yeh, *supra* note 12, at 423–26 (discussing how officials pressured to maintain employment levels often accommodate local enterprises); Patti Goldman, *Public Interest Environmental Litigation in China: Lessons Learned from the U.S. Experience*, 8 *VT. J. ENVTL. L.* 251, 253 n.9 (2006–2007) (citing William P. Alford & Yuanyuan Shen, *Limits of the Law in Addressing China's Environmental Dilemma*, 16 *STAN. ENVTL. L.J.* 125, 142–43 (1997) (noting that the main source of revenue for local governments is industry)).

42. See U.S. EMBASSY BEIJING, CLEARING MUDDY WATERS: CHINA CENTRALIZING WATER MANAGEMENT AUTHORITY (2002), <http://beijing.usembassy-china.org.cn/report0702water.html> (discussing how in the past, provincial and municipal governments have disregarded water quality standards and ignored water allocation to promote economic development).

weak enforcement and implementation of laws in China, including: (1) local government protectionism;<sup>43</sup> (2) barriers to public participation in law implementation; (3) high information costs;<sup>44</sup> (4) scarcity of Chinese lawyers; and (5) overly complex legal texts.<sup>45</sup> Numerous unharmonized guidelines, standards, regulations, and laws also frustrate any coordinated environmental protection regime.<sup>46</sup> In addition, bureaucracy obscures the collecting and reporting of consistent statistics on the environment, further complicating the development of effective environmental law in China.<sup>47</sup> Changing cultural norms, localism, and complex and conflicting laws and regulations result in incomplete enforcement of environmental laws.

#### *D. Water Resource Management and Water Law in China*

Historically, Chinese water law has evolved in accordance with social and political norms.<sup>48</sup> If adjudged by the elements of “exclusiveness, duration, divisibility, and transferability,” the quality of water rights increased between the Qin-Han dynasties (221 B.C. to 220 A.D.) and the Ming-Qing dynasties (1368 to 1911).<sup>49</sup> While the Qin-Han legal codes did not formally recognize water rights, during the Tang-Song period (618 to 1279), the introduction of water permits for irrigation purposes increased the exclusivity of water rights.<sup>50</sup> Subsequently, the Ming-Qing dynasties further strengthened

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43. Official government policies—including the system of performance assessment, which prioritizes economic growth as the primary standard by which to adjudge official performance—reflect the myopic emphasis on economic development above environmental protection. Wang, *supra* note 1, at 199.

44. Information is both difficult (costly) to access and non-transparent. See Ferris & Hongjun Zhang, *supra* note 19, at 596–97. For a discussion of information costs associated with monitoring and enforcing property rights in water use, see Henry E. Smith, *Governing Water: The Semicommons of Fluid Property Rights*, 50 ARIZ. L. REV. 445 (2008).

45. Ferris & Hongjun Zhang, *supra* note 19, at 595–601.

46. As of January 15, 2004, there were 28 laws, 50 administrative regulations, 170 ministerial rules, and 546 environmental standards, as well as 1,552 environmental rules and regulations promulgated by provincial and local-level governments. Shun Yong Yeh, *supra* note 12, at 426–27.

47. See generally *id.*

48. For a discussion of the interplay between cultural norms and the law, see generally NORMS AND THE LAW (John Drobak ed., 2006).

49. Kinne, *supra* note 8, at 9.

50. *Id.*

legal recognition of property dimensions to water rights, which were made both transferable and inheritable.<sup>51</sup> However, with the Communist takeover in 1949, rights to water—along with rights to all other natural resources—became “state rights.”<sup>52</sup>

In recent years, the increasing marketization of the economy has again transformed water rights. In 2002, the Water Law was amended to recognize the transfer of water resources,<sup>53</sup> to increase local governments’ autonomy to regulate water resources on a regional level, and to structure water resource management along a system of river basin management.<sup>54</sup> Recent response to major water shortages has centralized water resource management into seven River Commissions, which rank as bureaus under the Ministry of Water Resources (“MWR”).<sup>55</sup> However, water policy in China is fragmented and uncoordinated: along with the River Commissions, SEPA,<sup>56</sup> the Ministry of Construction, the Ministry of Agriculture,

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51. *Id.*

52. *Id.*

53. The 2002 Law amended the 1988 Water Law, which defined a system of water management wherein “[t]he state shall, with respect to water resources, adopt a system which combines unified administration with administration at various levels and by various departments.” *Zhongguo Shuifa yu* [Water Law] (promulgated by the Standing Comm. Nat’l People’s Cong., Jan. 21, 1988, effective July 1, 1988), art. 9, *translated in* LAWINFOCHINA (last visited Dec. 29, 2008) (P.R.C.). While river basin management has a lengthy history in China, not until the 2002 Water Law was river basin management intricately detailed with a system for efficient water allocation for economic development, sustainable water utilization for social use, and prevention and control of water disasters. River basin management of water resources originated as early as the Xia Dynasty (2200 BC), where the Great Emperor Yu harnessed rivers and united the state. In the 1930s, the central government in China instituted modern river basin management organizations, and in 1949, the Chinese state instituted the Yellow Water Resources Commission under the auspices of the Ministry of Water Resources. Dajun Shen, *supra* note 6, at 350. The 2002 Water Law sets up a water resource management system controlled by the State, split into “comprehensive plans” by watershed and by region. *Zhongguo Shuifa yu* [Water Law] (promulgated by the Standing Comm. Nat’l People’s Cong., Aug. 29, 2002, effective Oct. 1, 2002), art. 14, *translated in* LAWINFOCHINA (last visited Dec. 29, 2008) (P.R.C.) [hereinafter 2002 Water Law].

54. An impetus for amending the system of water resource management, between 1972 and 1998, the Yellow River dried up during twenty-one years. Dajun Shen, *supra* note 6, at 350; *see also* 2002 Water Law, *supra* note 53, art. 14.

55. The River Commissions manage China’s principal watersheds and coordinate water use between upstream and downstream users to improve management of scarce water resources. U.S. EMBASSY BEIJING, *supra* note 42.

56. The fact that SEPA is understaffed certainly contributes to its ineffectiveness. Compared to the United States Environmental Protection Agency, which has 9,000 staff members in its Washington, D.C., office alone, SEPA has only 300 employees in Beijing and

and the Ministry of Mines and Minerals also coordinate water management.<sup>57</sup>

Building on the 1988 Water Law, the 2002 Law established a system of water use permits, in which water price was determined according to “compensation for cost, reasonable profits, quality, and equitable burden of price by all water users.”<sup>58</sup> China’s Water Law was further amended in 2004 to reinforce allocation of water through a system of permits;<sup>59</sup> however, the 2004 Water Law failed to give legal recognition to compensation earned from trading water permits,<sup>60</sup> resulting in incompletely enforced water rights. A 2006 regulation further supports the system of water use permits by requiring water users to apply for such permits and pay usage fees for water taken directly from rivers, lakes, or underground sources.<sup>61</sup> While the state maintains ownership of water resources under the Chinese Constitution,<sup>62</sup> recently the state has begun to acknowledge lesser property interests in water resources.<sup>63</sup>

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only several hundred additional staff spread throughout the entire country. Economy, *supra* note 9, at 51.

57. SEPA regulates water quality; the Ministry of Construction monitors municipal water supply; the Ministry of Agriculture manages irrigation; and the Ministry of Mines and Minerals is responsible for groundwater supplies. U.S. EMBASSY BEIJING, *supra* note 42.

58. See 2002 Water Law, *supra* note 53, art. 7 & art. 55; Wouters et al., *supra* note 33, at 282.

59. Kinne, *supra* note 8, at 10.

60. Although drafts of prior water laws—including the 2002 Water Law—indicate legislative support for water trading to promote water conservation, deletion of water trading provisions from the final laws implies reluctance to accept trading as a tool of water resource management. In deliberations for drafts of the 2002 amendment, paid water rights transfers were contemplated, but ultimately rejected as too controversial. Nonetheless, water trading has played a significant—if informal role in recent water disputes. Wang Yahua, *supra* note 30, at 98.

61. See Regulation on the Administration of the License for Water Drawing and the Levy of Water Resource Fees (promulgated by the State Council, Feb. 21, 2006, effective Apr. 15, 2006), art. 2, translated in LAWINFOCHINA (last visited Dec. 29, 2008) (P.R.C.); see also Zijun Li, *China Issues New Regulation on Water Management, Sets Fees for Usage*, WORLDWATCH INST., Mar. 14, 2006, <http://www.worldwatch.org/node/3892>.

62. XIAN FA art. 9, § 1 (1982), translated in LAWINFOCHINA (last visited Dec. 29, 2008) (P.R.C.).

63. Several notable water transfers and sales have improved the development of a water rights regime. In 2000, Dongyang City and Yiwu City negotiated an agreement for the annual transfer of fifty million cubic meters of water from Dongyang City’s Hengjin Reservoir to Yiwu City in exchange for US\$24 million. Under the Dongyang-Yiwu agreement, Yiwu City pays for the water use right of a specified annual quantity of water at a stated water quality (Class I); although the water use rights are transferred, the ownership of the water does not

*E. China's Accession to the World Trade Organization and Official Commitment to the Rule of Law: The Significance of Property Rights in Improving Access to the Courts*

China's decision to liberalize its economy and to integrate itself into the World Trade Organization<sup>64</sup> ("WTO") produced "a break with China's long history of Confucian and Socialist traditions of subordinating law to the exercise of State power."<sup>65</sup> Concurrent with accession to the WTO in 2001, China made a commitment to improve citizens' access to the courts, the transparency of the legal system, and the consistency of the application of the laws.<sup>66</sup> China's WTO commitment to provide adequate legal remedies to pollution victims is of particular significance to improving compliance with environmental law.

Implicit in improving citizens' access to the courts<sup>67</sup> is the need to

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change. Bin Liu, *Institutional Design Considerations for Water Rights Development in China*, in *WATER RIGHTS REFORM: LESSONS FOR INSTITUTIONAL DESIGN* 261, 267 (Bryan Randolph Bruns, Claudia Ringler & Ruth Meinzen-Dick eds., 2005). However, while the Dongyang-Yiwu water transfer is considered China's first water use rights transfer, the absence of legal support for the transfer risks undermining its future stability. Additional transfers of water for compensation have occurred since the Dongyang-Yiwu agreement, among which the most interesting occur between private individuals and corporate actors. Between 2002 and 2003, the local government in the lower Zhanghe River provided US\$90,000 to the local government in the upper regions of the river to transfer thirty million cubic meters of water from five reservoirs. Legal rights from the water distribution scheme were clearly delineated in documents supporting the sale, improving and defining the status of related water rights. *Id.* at 265.

64. On December 11, 2001, China became a member of the World Trade Organization. World Trade Organization, Member Information: China and the WTO, [http://www.wto.org/English/thewto\\_e/countries\\_e/china\\_e.htm](http://www.wto.org/English/thewto_e/countries_e/china_e.htm) (last visited Dec. 29, 2008).

65. Wouters et al., *supra* note 33, at 247.

66. China's accession to the WTO will hopefully encourage continued reform towards the "uniform, impartial, and reasonable" legal system mandated by the WTO. Eric W. Orts, *The Rule of Law in China*, 34 *VAND. J. TRANSNAT'L L.* 43, 45 (2001) (citation omitted); *see also* Eric W. Orts, *Environmental Law with Chinese Characteristics*, 11 *WM. & MARY BILL RTS. J.* 545, 557 (2003).

67. While administrative license laws emphasize the importance of public contribution in conferring licenses, including water-withdrawal permits, effective public participation may only be achieved within holistic provisions, including those that provide access to the courts. *See* Xingzheng xuke fa [Administrative License Law] (promulgated by the Standing Comm. Nat'l People's Cong., Aug. 27, 2003, effective July 1, 2004), *translated in* *LAWINFOCHINA* (last visited Dec. 29, 2008) (P.R.C.); Wouters et al., *supra* note 33, at 307–08. Complete enforcement of environmental laws in China may only be achieved with greater public participation. *See* Christine J. Lee, "Pollute First, Control Later" *No More: Combating*

broaden and clarify the doctrine of standing to bring claims. Particularly when compared to the United States,<sup>68</sup> standing to bring environmental litigation in China has been narrowly construed:<sup>69</sup> to have standing to bring a claim, a petitioner must show injury to person or to property.<sup>70</sup> Despite defining injury to property as grounds for standing, the General Principles of the Civil Law (“GPCL”) largely neglects to address different types of property rights.<sup>71</sup> Notably, however, the GPCL does allude to several “quasi-

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*Environmental Degradation in China Through an Approach Based in Public Interest Litigation and Public Participation*, 17 PAC. RIM L. & POL’Y J. 795, 809–22 (2008).

68. In the United States, standing to bring environmental litigation has been increasingly broadened. See *Massachusetts v. E.P.A.*, 549 U.S. 497, 517–18 (2007) (finding that there is a sufficiently concrete interest affected in a state’s quasi-sovereign interest in “the earth and air within its domain,” to have standing to bring an environmental suit); see also *Friends of the Earth, Inc. v. Laidlaw Envtl. Servs. (TOC)*, 528 U.S. 167, 187–88 (2000) (holding that an environmental group had standing to bring a citizen suit against a holder of a pollution discharge permit). Aligning the environmental law enforcement regime in China with that in the United States discounts each country’s unique challenges, history, and culture; however, a comparison is worthwhile to reveal superior, as well as deficient, aspects of both systems. In the United States, enforcement of environmental laws relies on extensive agency support, as well as significant public participation. Among those reforms necessary to improve equal representation and equal access to justice in China’s environmental law regime, revising existing laws to support public participation through litigation and other means has taken central importance. Michael Eng & Ma Jun, *Building Sustainable Solutions to Water Conflict in the United States and China*, 8 CHINA ENV’T SERIES 155, 179 (2006).

69. While standing to bring environmental lawsuits has been difficult to obtain, Chinese law creates no-fault liability for plaintiffs who can prove that “(1) the defendant caused the pollution; and (2) the plaintiff suffered harm that is associated with that type of pollution.” Goldman, *supra* note 41, at 256–57; see also EPL, *supra* note 25, art. 41 (“[A] unit that has caused an environmental pollution hazard shall have the obligation to eliminate it and make compensation to the unit or individual that suffered direct losses.”). To avoid liability, a defendant may show that the pollution was caused by the plaintiff, a third party, an act of nature or another cause. Under the General Principles of the Civil Law, “[c]ivil liability shall not be borne for failure to perform a contract or damage to a third party if it is caused by force majeure, except as otherwise provided by law.” Ming fa tong ze [General Principles of the Civil Law of the People’s Republic of China] (promulgated by the Standing Comm. Nat’l People’s Cong., Apr. 12, 1986, effective Jan. 1, 1987), art. 107, translated in LAWINFOCHINA (last visited Dec. 29, 2008) (P.R.C.) [hereinafter GPCL].

70. “Citizens and legal persons who through their fault encroach upon state or collective property or the property or person of other people shall bear civil liability.” GPCL, *supra* note 69, art. 106; see also *id.* art. 124. For further discussion of standing in Chinese Civil Procedure, see Goldman, *supra* note 41, at 256–57.

71. See Yin-Ching Chen, *Civil Law Development: China and Taiwan*, 2 STAN. J.E. ASIAN AFF. 8, 10 (2002) (concluding that China’s General Principles of Civil Law fails to elaborate on the types and contents of various forms of property ownership due to the deeply rooted socialist ideology of state ownership).

property rights,” including the right to use and obtain benefits from state-owned land and other natural resources.<sup>72</sup> When compounded with China’s historic lack of legal recognition of private property and lesser ownership interests, standing has been difficult to obtain.<sup>73</sup>

China’s diversified, explosive economic growth has revealed the deficiencies inherent in the inflexible, static civil law definition of property ownership as an indivisible whole. In contrast to common law systems, which describe ownership as a “bundle of sticks” from which lesser ownership interests may emerge, China’s civil law system conventionally perceived ownership as an indivisible, absolute whole.<sup>74</sup> However, subsequent to China’s liberal market reforms in 1979, a decentralized economy started to “transfer” incidents of ownership to various economic agents. Proponents of changing China’s property rights regime argued a more precise yet flexible definition of property rights was needed to respond adequately to the changed social and economic conditions precipitated by the 1979 market reforms and to continue to encourage economic development.<sup>75</sup>

To respond to the changing dynamics in China’s economy, the National People’s Congress promulgated the new Real Right Law on March 16, 2007,<sup>76</sup> enlarging the scope of protected property interests and giving unprecedented recognition to private property ownership.<sup>77</sup> As an indication of its significance, the Real Right Law

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72. *Id.*

73. See generally Goldman, *supra* note 41.

74. In Chinese law, the conception of the totality of ownership arose from Soviet civil law jurisprudence, in which ownership was understood as an indivisible, absolute whole and *jura in re aliena* was not permitted. Frank Xianfeng Huang, *The Path to Clarity: Development of Property Rights in China*, 17 COLUM. J. ASIAN L. 191, 207 (2004).

75. To give legal protection to the various property interests emerging from the liberalized Chinese economy, civil law scholars promoted recognition of decentralized, lesser “usufruct” rights (*yongyi wuquan*). Andrew C. Mertha, From “Rustless Screws” to “Nail Houses:” The Evolution of Property Rights in China 12 (2007) (unpublished article, available at <http://artsci.wustl.edu/~amertha/pdf/Screws&Nails.pdf>).

76. “An individual’s legal property shall be under the protection of law, no entity or individual may encroach, plunder or destroy” Wuquan fa [Real Right Law of the People’s Republic of China] (promulgated by the Standing Comm. Nat’l People’s Cong., Mar. 16, 2007, effective Oct. 1, 2007), art. 66, translated in LAWINFOCHINA (last visited Dec. 29, 2008) (P.R.C.) [hereinafter Real Right Law].

77. Completeness of property rights may be determined according to whether the rights are (1) “legally recognizable,” (2) “socially recognizable [in accordance with social norms],” or



was enacted by the National People's Congress with the longest time from introduction to passage in Chinese history: after thirteen years and eight rounds of formal deliberation,<sup>78</sup> the Law was enacted to give unprecedented legal recognition to various forms of property ownership. The new Real Right Law gives legal protection to private property ownership, in addition to lesser, usufructuary interests ensuing from the decentralization of the economy.<sup>79</sup>

## II. ANALYSIS

Clear delineation and regular enforcement of water rights incentivizes efficient water use and encourages investment in improving water quality.<sup>80</sup> Successful water resource management requires both security and flexibility,<sup>81</sup> a balance achieved through the combination of administrative involvement in water allocation and market control of efficient water use. Worldwide,<sup>82</sup> the transition from fragmented to integrated, systemic water management has

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(3) "enforceable by external authorities." ASIAN DEVELOPMENT BANK, COMPENSATION AND VALUATION IN RESETTLEMENT: CAMBODIA, PEOPLE'S REPUBLIC OF CHINA, AND INDIA 30 (2007), available at <http://www.adb.org/Documents/Reports/Capacity-Building-Compensation-Valuation/Compensation-Valuation.pdf> (citing Rekha Mehra, *Women, Land, and Sustainable Development* 4 (Int'l Ctr. for Research on Women, Working Paper No. 1, 1995)).

78. Zhu Keliang & Li Ping, *Rural Land Rights Under the PRC Property Law*, CHINA L. & PRAC., Nov. 2007, at 23, 23.

79. Real Right Law, *supra* note 76, art. 39.

80. Development of "exclusive property rights which reward the owners provide[s] a direct incentive to improve efficiency and productivity." DOUGLASS C. NORTH, STRUCTURE AND CHANGE IN ECONOMIC HISTORY 89 (1981).

81. M.L. Livingston, *Designing Water Institutions: Market Failures and Institutional Response*, 9 WATER RESOURCES MGMT. 203, 204 (1995).

82. In the twenty-first century global economy, water will become as scarce, as contested, and as valued a resource as oil was in the twentieth century. Shawn Tully, *Water, Water Everywhere*, FORTUNE MAGAZINE, May 15, 2000, at 342, 344. The United States National Intelligence Council, which reports to the Central Intelligence Agency, warns that by 2015, water will become the main resource-scarcity problem, and that the social instability created by water shortages "will increasingly affect the national security of the United States." Elaine Sciolino, *2015 Outlook: Enough Food, Scarce Water, Porous Borders*, N.Y. TIMES, Dec. 18, 2000, at A6. In its *Human Development Report 2006*, the United Nations Development Program warned that intensifying competition for water is now one of the gravest threats to sustained human development worldwide. UNITED NATIONS DEVELOPMENT PROGRAM, HUMAN DEVELOPMENT REPORT 2006: BEYOND SCARCITY: POWER, POVERTY, AND THE GLOBAL WATER CRISIS 41-48 (2006), available at <http://hdr.undp.org/en/reports/global/hdr2006/>.

fostered the development of new institutions<sup>83</sup> and regulatory frameworks that emphasize resource demand management<sup>84</sup> and public participation.<sup>85</sup>

Water resource management endeavors to achieve economically efficient and equitable allocation of water resources for society as a whole,<sup>86</sup> while considering equitable and political interests in the just distribution of water.<sup>87</sup> Water policy in industrialized countries has

83. Political and economic organizations (institutions) entail “[1] the establishment of a set of constraints on behavior in the form of rules and regulations; [2] a set of procedures designed to detect deviations from and enforce compliance with the rules and regulations; and [3] the articulation of a set of moral and ethical behavioral norms to reduce enforcement costs.” NORTH, *supra* note 80, at 18.

84. Pursuant to the recognition that “[f]resh water is a finite and valuable resource,” the International Conference on Water and the Environment declared that “[w]ater has an economic value in all its competing uses and should be recognized as an economic good.” International Conference on Water and the Environment, Dublin, Ir., Jan. 26–31, 1992, *The Dublin Statement on Water and Sustainable Development*, Principles 1 & 4, U.N. Doc. A/CONF.151/PC/112, available at <http://www.inpim.org/files/Documents/DublinStatmt.pdf>.

85. Promulgated by the European Commission in 2000, Water Framework Directive establishes an organizational framework of mutual objectives and principles for water resource management in European countries. Council Directive 2000/60, 2000 O.J. (L 327) 1 (EC), available at [http://ec.europa.eu/environment/water/water-framework/index\\_en.html](http://ec.europa.eu/environment/water/water-framework/index_en.html) [hereinafter WFD]. The WFD concluded that “control of [water] quantity is an ancillary element in securing good water quality and therefore measures on quantity, serving the objective of ensuring good quality, should also be established.” *Id.* at 2. See also Y.S. CAO, THE WORLD BANK ANALYTICAL & ADVISORY ASSISTANCE (AAA) PROGRAM CHINA: ADDRESSING WATER SCARCITY, EVOLUTION OF INTEGRATED APPROACHES TO WATER RESOURCE MANAGEMENT IN EUROPE AND THE UNITED STATES 3 (Apr. 2006), available at [http://siteresources.worldbank.org/INTEAPREGTOPENVIRONMENT/Resources/WRM\\_US\\_EU\\_experience\\_EN.pdf](http://siteresources.worldbank.org/INTEAPREGTOPENVIRONMENT/Resources/WRM_US_EU_experience_EN.pdf).

86. Drafting regulations ultimately involves opportunity cost analysis and considerations of how resources can be optimally managed. Economic analysis of integrated water management considers the social, economic, and other associated costs and benefits of water allocation. In *The Problem of Social Cost*, Coase concluded that “in devising social arrangements, we should have a regard for total effect.” R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1, 44 (1960). For further discussion, see R.H. Coase, *The Nature of the Firm*, 4 ECONOMICA 386 (1937) (arguing that firms result from allocations of authority where the costs of private transactions would otherwise be prohibitively high).

87. With the growing scarcity of potable fresh water resources, corporations are competing over the right to control and profit from limited water resources, while concurrently portraying their efforts to improve public access to water. In distributing water rights, equitable interests and “cultural and ethical issues are essential to be addressed when dealing with limited water resources. Imbalances between availability and demand, the degradation of groundwater and surface water quality [through pollution], inter-sector competition, [and] interregional and international disputes all center around the question of how to cope with scarce water resources.” Bobby Ramakant, *Fight to Keep Water a Right Not a Commodity for Future Profit*, CHINA DAILY, Mar. 22, 2007, [http://www.chinadaily.com.cn/opinion/2007-03/22/content\\_833658.htm](http://www.chinadaily.com.cn/opinion/2007-03/22/content_833658.htm) (quoting Dr. Sandeep Pandey, recipient of the 2002 Ramon Magsaysay Award).

evolved parallel to these objectives.<sup>88</sup> Water-poor areas, including the Western United States, allocate water use rights through the doctrine of appropriation, which considers historical water use in allocating water rights and allows for water permits to be bought and sold like other market commodities.<sup>89</sup> In recognition of the importance of efficient water allocation, “[d]espite the fact that water is a public resource, water rights are private property, and can be bought and sold much like any other commodity”<sup>90</sup> in water markets. Water trading improves the regulation of water distribution and the efficiency of water use.<sup>91</sup>

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88. According to Western legal tradition, state ownership of natural resources has often been asserted to confirm that

(1) . . . water rights are usufructuary rights rather than ownership of possessory rights[]; (2) access to water requires State permission in the form of a permit, license, or court decree; (3) access can be denied if the State determines that a higher or more efficient alternative use of water exists; and (4) reallocations are subject to State review.

Wouters et al., *supra* note 33, at 280. In the United States, the federal government creates the general policies and regulations for water resource management, while states implement the federal directives. CAO, *supra* note 85, at 10. Under constitutional law, states hold the primary authority “to allocate water, apply water rights, trade water, ensure and protect water quality” within their jurisdiction. *Id.* at 12. Given the absence of federal water laws, state laws and codes determine allocation of water rights, which vary according to the geographic location of the water and whether the water in question is groundwater or surface water. *Id.* at 17. In the thirty-one eastern states, surface water rights are riparian rights (determined by land ownership rights): any landowner whose real property physically touches a surface water source has a usufructuary right—but not a property right—to use the water. *Id.* Under a riparian system of water rights, the riparian right comes from ownership of the riparian land and is non-transferable to other lands. *Id.* In contrast, in the nineteen western states, water rights are allocated through appropriation, which considers historic entitlements to use of surface water (“first in time, first in right”). *Id.* Unlike riparian rights, water rights acquired through appropriation may be sold and transferred through permits; however, appropriative rights subsist on continued use and without continued use of the water right, it may be lost. *Id.* at 17–18; see also Douglas S. Kenney, *Prior Appropriation and Water Rights Reform in the Western United States*, in *WATER RIGHTS REFORM: LESSONS FOR INSTITUTIONAL DESIGN* 167, 171 (Bryan Randolph Bruns, Claudia Ringler & Ruth Meinzen-Dick eds., 2005).

89. Kenney, *supra* note 88, at 169, 172; see also CAO, *supra* note 85, at 17.

90. Kenney, *supra* note 88, at 172. To adequately consider third party interests in water regulation, institutions often integrate a “public interest” standard when evaluating and approving water transfers. *Id.* at 174–75. To prevent possible abuses associated with unrestricted trading, state governments reserve the right to intervene in the trading. CAO, *supra* note 85, at 19.

91. Equitable distribution of transferable water permits improves the efficiency of water resource allocation and ensures the security of water rights. Well-established, active trading markets achieve numerous objectives, including “[1] encourag[ing] the highest beneficial use of

Given China's growing economy and rapidly rising per capita incomes, interests in water rights are unbundled, with many individuals, corporations, and organizations invested in efficient and sustainable water rights allocation.<sup>92</sup> As a result, water resource allocation should consider balancing relations among interested people and organizations<sup>93</sup> and limiting the opportunities for opportunism and free riding among differently situated actors.<sup>94</sup> By giving legal recognition to the lesser, usufruct property interests in water, the 2007 Real Right Law acknowledges the diverse interests invested in sustainable water resource allocation.<sup>95</sup>

Research on and discussion surrounding the establishment of water rights has emphasized that usufructuary rights include both the right to use and the right to derive profit from water resources.<sup>96</sup> While the 2002<sup>97</sup> and 2004 Water Laws addressed many concerns associated with water scarcity and irregular enforcement of national environmental laws and regulations, the Laws did not significantly clarify water rights. Without the legal recognition of clearly

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water; [2] provid[ing] a source of adequate water supplies to beneficial new and supplemental water users[;] and [3] . . . funding for improve[d] water user facilities." CAO, *supra* note 85, at 18.

92. Property rights "define differing relationships among persons depending on the bundles of rights that people hold." Schlager, *supra* note 37, at 29. See generally JOHN R. COMMONS, *LEGAL FOUNDATIONS OF CAPITALISM* (1957) (developing ideas of institutional economics through an analysis of collective action by the state and other institutions). According to Schlager and Ostrom, five types of distinct property rights may be bundled in various ways among owners: right to access; right to withdraw; right to manage; right to exclude; and right to transfer. See Edella Schlager & Elinor Ostrom, *Property-Rights Regimes and Natural Resources: A Conceptual Analysis*, 68 *LAND ECON.* 249, 249–52 (1992).

93. Oran Young, *Institutional Interplay: The Environmental Consequences of Cross-Scale Interactions*, in *THE DRAMA OF THE COMMONS* 263, 265–66 (E. Ostrom et al. eds., 2002)

94. ELINOR OSTROM, *CRAFTING INSTITUTIONS FOR SELF-GOVERNING IRRIGATION SYSTEMS* 52–55 (1992).

95. Real Right Law, *supra* note 76, art. 39.

96. Wang Rong, *Conceptualizing the Development of Water Rights in China*, 4 *US-CHINA L. REV.* 25, 29, 114–15 (2007).

97. Among other provisions, the 2002 Water Law recognized the concept of matching water demand with water supply ("demand management") and the need to create pricing mechanisms in accordance with the theory of demand management. See 2002 Water Law, *supra* note 53, art. 8. "[T]he 2002 Water Law of the People's Republic of China for the first time defines river basin management institutions and functions, the legal status of river basin management organizations in China, and strengthens the administrative rights of river basin management organizations." Dajun Shen, *supra* note 6, at 345. See also U.S. EMBASSY BEIJING, *supra* note 42.

delineated water rights,<sup>98</sup> there effectively can be no market for the economic and otherwise efficient trading of such rights.<sup>99</sup> Although the draft of the 2002 amendment to the Water Law<sup>100</sup> included provisions for the transfer of water rights, the controversial provision was ultimately deleted. Noted as one of the Water Law's major deficiencies, failure to provide legal mechanisms for the transfer of water use permits discourages optimal resource allocation on the microeconomic level and removes important market mechanisms in the efficient pricing of water resources.<sup>101</sup>

To improve the efficiency of water allocation within a market economy, water rights must be aligned with water market theory to achieve optimal distribution of water resources.<sup>102</sup> Chinese policy-makers and economists have widely recognized the growing importance of improving water quantity and quality to ensure China's continued economic development.<sup>103</sup> Under China's current law,

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98. Clearly established water rights ensure returns on private investment in sustainable water use, thereby encouraging vigilance over property (water usufruct rights) and "impact[ing] both the concepts of 'quantity' and 'quality'" of water. Wang Rong, *supra* note 96, at 33.

99. U.S. EMBASSY BEIJING, *supra* note 42.

100. The 2002 Amendment Draft provided that "[a]ny unit or individual which has obtained the right to draw water, and has saved water . . . within the duration and quantity of the relevant permit, are entitled to transfer the saved water resources after the approval of the authorities which issue the relevant permit." Wouters et al., *supra* note 33, at 306 (quoting 2002 Water Law, *supra* note 53 (Amendment Draft art. 45.2)).

101. Bin Liu, *supra* note 63, at 264.

102. Bin Liu, *China's Agricultural Water Policy Reforms*, in WORKSHOP ON AGRICULTURE AND WATER: SUSTAINABILITY, MARKETS, AND POLICIES (Org. for Econ. Cooperation and Dev. (OECD) ed., 2005), available at [http://www.oecd.org/document/16/9,3343,en\\_2157136134281952\\_35453968\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/16/9,3343,en_2157136134281952_35453968_1_1_1_1,00.html); see generally ORG. FOR ECON. CO-OPERATION AND DEV. (OECD), ENVIRONMENT, WATER RESOURCES AND AGRICULTURAL POLICIES: LESSONS FROM CHINA AND OECD COUNTRIES (2006) (outlining ways and means of better aligning water resource use with societal interests and environmental sustainability).

103. Wang Shu-cheng, *To Construct Water Saving Society and to Secure the Sustainable Development of Economy and Society*, 14 XINHUA WENZHAI 13–14 (2006); see also *A Modest Proposal: China Should Liberalize Water Pricing*, THE ECONOMIST, Oct. 28, 2006, at 50. Credible systems of governance must adapt to social and economic change. According to Guttman and Yaqin, "governance tools are shaped by formal institutions—but are also shaped by powerful underlying forces of competition and cooperation rooted in human nature and culture." Dan Guttman & Song Yaqin, *Making Central-Local Relations Work: Comparing America and China Environmental Governance Systems*, 1 FRONTIERS ENVTL. SCI. & ENGINEERING CHINA 1, 2 (2007). The Chinese government's knowing allowance of recent transfers of water rights confirms the growing recognition of the importance of the transferability of water rights. See Kinne, *supra* note 8, at 6 (noting the implicit governmental support of recent inter-provincial water trading).

water resources are state-owned, and water users have been officially restricted from the right to derive earnings from their usery interests.<sup>104</sup> However, as promoted by numerous scholars and as evidenced by noteworthy water trades and sales that the Chinese government has knowingly permitted,<sup>105</sup> efficient allocation of water rights can only occur in a system that provides for water permit trading mechanisms.<sup>106</sup> Effective market rules that guide the efficient allocation of well-designed, regularly-enforced water rights incentivize cooperation among water users and ensure investment in sustainable use of water resources.

Enactment of the 2007 Real Right Law creates legal protection for water rights. While the new Real Right Law affirms the state's ownership of water,<sup>107</sup> the Law gives legal protection to usufruct ownership rights, arguably protecting the right to use and earn profits from selling usufruct rights to the water.<sup>108</sup> Under the Law, water rights are legally protected usufruct rights in relation to national ownership of natural resources.<sup>109</sup> As reinforced by the 2007 Real Right Law, water rights are usufruct rights (in relation to state ownership of natural resources) that can be considered property rights.<sup>110</sup> Legal recognition of usufructuary interests protects the *profits à prendre* from sale of the usufruct rights,<sup>111</sup> theoretically including the compensation earned through sale and trade of water permits. Balancing the private elements of water rights against the public interest components of water resource allocation ensures water rights are primarily private, while providing the government the right to intervene in improper transfers or uses that violate the public

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104. Purely administrative control over water resources risks uneconomic resource allocation, resulting in a form of "government failure." Bin Liu, *supra* note 63, at 263.

105. *See supra* note 63.

106. Wouters et al., *supra* note 33, at 306.

107. "Mineral deposits, waters and sea areas shall be owned by the state." Real Right Law, *supra* note 76, art. 46.

108. Under Article 39, "[t]he owner of a realty or chattel has the rights to possess, use, seek profits from and dispose of the realty or chattel according to law." *Id.* art. 39.

109. According to some, "the right to use water, as with all newly emerging property rights, [is] usufructuary so long as the State retains formal ownership." Wouters et al., *supra* note 33, at 281.

110. Bin Liu, *supra* note 63, at 270. The private components of water rights entitle the right owner to transfer, inherit, and enforce the right. Bin Liu, *supra* note 63, at 270.

111. Frank Xianfeng Huang, *supra* note 74, at 207–08.

welfare.<sup>112</sup> Localized water management diminishes the high monitoring costs associated with centralized planning<sup>113</sup> and provides individual permit owners incentive to invest in sustainable use of their water rights.

### III. PROPOSAL

Despite China's numerous environmental laws and regulations, the lack of an effective enforcement regime has encouraged noncompliance with the law. Absent an effective administrative approach to enforcement of environmental law, individuals must be given a more significant, meaningful role in enforcing compliance with the law.<sup>114</sup> Market-based reforms of water resource allocation will have an insignificant effect on improving water quality and quantity without broader provisions for public participation through litigation.<sup>115</sup> Parallel with the expansion of China's decentralized economy, the development of localized market-based allocation of water rights, along with improved mechanisms for public participation, will dramatically improve water quantity and quality.<sup>116</sup>

Prior to the development of statutory standing, the basic legal protections inherent in property, contract, and other privately held rights form the foundation of "environmental law." Absent statutory standing, property rights holders may assert claims under tort and nuisance law<sup>117</sup> and seek judicial intervention in cases of interference

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112. Bin Liu, *supra* note 63, at 270.

113. Localized water management concerns the allocation of water permits, regulation of use fees, and creation of water markets. CAO, *supra* note 85, at 17–28.

114. Without an effective centralized, administrative approach to water resource management, "private actors have the potential to advance the level of environmental protection, either by supplementing government action or in lieu of it." Simon SC Tay, *Southeast Asian Fires: The Challenge for International Environmental Law and Sustainable Development*, 11 GEO. INT'L ENVTL. L. REV. 241, 243–44 (1999).

115. For a discussion of broadening standing to protect less directly affected legal interests and to permit citizen suits, see Goldman, *supra* note 41, at 260 (explaining that in the United States, "[s]hifting the focus of environmental litigation away from compensation for specific environmental injuries toward prevention required a broadening of the standing doctrine . . . [to] encompass[] individuals who were less directly and personally impacted by environmental harm.>").

116. Eng & Ma Jun, *supra* note 68, at 155.

117. Orts, *supra* note 66, at 560; see *Boomer v. Atl. Cement Co.*, 257 N.E.2d 870, 871–72 (N.Y. 1970) (granting relief where landowners alleged a nuisance claim because the polluting

with their property.<sup>118</sup> Particularly in a developing legal system, enforcement of private property rights is fundamental to environmental regulation.<sup>119</sup> Increasing in popularity among Chinese lawmakers, attributing rights to water permit holders has been offered as a means, not only of improving the efficiency of water distribution, but also of ensuring the quality of water resources.<sup>120</sup>

Improving the enforcement of environmental laws and regulations requires providing legal protection to protect investments in efficient, environmentally sustainable property use. In the absence of a property rights regime to protect usufructuary interests,<sup>121</sup> environmental plaintiffs have not been able to obtain standing when their asserted injury concerns interference with their property interest in the water itself.<sup>122</sup> Promoting a more effective system of water rights requires participation by interested individuals and organizations.<sup>123</sup> Above all, however, to be effective, water rights trade must provide water rights holders recourse mechanisms to ensure the accountability of violators of the owners' right to use and enjoy their property.<sup>124</sup>

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operations of a neighboring cement plant created substantial injury to their property).

118. Orts, *supra* note 66, at 558.

119. As evidenced in the 2001 desertification law, which grants property rights to citizens who contribute to land improvement and conservation, recent laws have begun to recognize the efficiency and effectiveness of a private rights-based system of environmental protection. U.S. EMBASSY BEIJING, CHINA ADOPTS LAW TO CONTROL DESERTIFICATION (2001), <http://Beijing.usembassy-china.org.cn/report1101desert.html>. The grant of property rights to water (through water permits) will likely improve the private rights approach to environmental law enforcement.

120. Wang Rong, *supra* note 96, at 33–34.

121. For water property rights to be adequately enforced, water rights holders must not only have clearly delineated legal rights in relation to their property, but they must also have access to the courts to effectively enforce their usufruct rights.

122. In the absence of a flexible property rights regime, standing has been narrowly construed to involve injury to person or property and has failed to protect lesser, usufructuary interests. For example, in cases brought by China's Center for Legal Assistance to Pollution Victims on behalf of pollution victims, standing has been obtained by showing loss of duck eggs due to wastewater pollution and by loss of fish due to industrial pollution. Goldman, *supra* note 41, at 257.

123. The water ticket trade between the farmers of Shiyang He River Basin and the Heihe River Basin exemplifies a notable transfer of temporary water rights between interested individuals (as opposed to the long-term rights transferred in the governmental exchanges). Wang Rong, *supra* note 96, at 33.

124. Bin Liu, *supra* note 63, at 274. Although allocation of water rights to individual farmers would not be economical, agricultural water rights could be issued to water users'



Judicial enforcement of privately held rights has a significant role in environmental regulation. Developing a system of property interests in water (water rights) arguably improves water right holders' access to courts under the Chinese doctrine of standing. To establish a claim for injury to or interference with an interest in the use and enjoyment of property, the claimant must first show a legitimate property interest is at stake.<sup>125</sup> The 2007 Real Right Law's recognition of privately held property rights—including water permit holders' usufructuary interests in state-owned water resources—allows water permit holders to bring nuisance claims in cases of interference with their water rights.<sup>126</sup> The prominence and implicit government approval of recent transfers and sales of water further increases water permit holders' property interests in their bundle of rights.

Legal recognition and protection of usufruct rights in water achieves the dual pronged goals of economically efficient and environmentally sustainable water use. Uniform implementation of a market-based system of water licenses and pollutant discharge permits will not only increase efficient allocation and use of water resources, ensure continued economic development, and prevent water conflicts, but will also assure a legally protected property

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associations, permitting class action suits in cases where pollution interferes with the water users' association's right to water use or enjoyment. Telephone Interview with A. Dan Tarlock, Distinguished Professor of Law & Dir. of the Program in Envtl. & Energy Law, Chicago-Kent Coll. of Law, in Chicago, Ill. (Oct. 25, 2007); *see also* Bin Liu, *supra* note 63, at 272. For further discussion of the role of water users' associations in water rights reform, see James E. Nickum, *Uphill Flow of Reform in China's Irrigation Districts*, in *WATER INSTITUTIONS: POLICIES, PERFORMANCE, AND PROSPECTS* 81, 90–91 (Chennat Gopalakrishnan, Cecilia Tortajada & Asit K. Biswas eds., 2005).

125. For further discussion of the use of the private nuisance doctrine in water pollution cases in the United States, see *RESTATEMENT (SECOND) OF TORTS* §§ 821D–821E (1979). Despite the United States' enactment of the Federal Water Pollution Control Act (Clean Water Act), courts were initially reluctant to permit a nascent statutory scheme to replace the common law doctrine of nuisance as applied to water pollution claims. Ken Alex, *A Period of Consequences: Global Warming as Public Nuisance*, 43A *STAN. J. INT'L L.* 77, 87 (2007). In *Illinois v. Milwaukee*, 406 U.S. 91, 102–03, 106–07 (1972), the Court concluded that the federal statutory regime was insufficient to displace the federal common law nuisance claim as applied to interstate water pollution and permitted Illinois to proceed with its claim. Alex, *supra* at 87.

126. Real Right Law, *supra* note 76, art. 37.

interest in water, securing private citizens' standing in environmental litigation.<sup>127</sup>

### CONCLUSION

Pursuant to a policy of “pollute first, control later,” China’s extraordinary economic development has resulted in equally unprecedented environmental decline.<sup>128</sup> In addition to the tremendous burden on human and ecological health, environmental pollution has arguably negated recent economic growth and threatens continued market development.<sup>129</sup> Degraded water quality and inadequate water supplies endanger not only China’s—but also the world’s—domestic social and environmental stability.<sup>130</sup> Encouraging the continued development of water rights will improve optimal water consumption and encourage efficient, environmentally sustainable use of water essential to China’s continued economic growth and social development.

The 2007 Real Right Law gives unprecedented legal recognition to alternate forms of ownership—including private property ownership and usufructuary interests.<sup>131</sup> Legal recognition and protection of the property interests in water provide water permit holders an incentive to invest in sustainable water use and to enforce their legal rights to the amount of water stipulated in and protected by the water permit.

Clear delineation of water rights will improve water conservation and encourage investment in sustainable water use. In addition, legal recognition of the water permit holders’ usufructuary rights in water arguably gives standing to the environmental pollution victims. Uniform implementation of a market-based system of water rights will not only increase efficient allocation and use of water resources,

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127. In parts of the United States, active water-trading markets help ensure efficient allocation of water resources, and when on a large-scale, water trading contributes to economic development. To diminish the impact of unrestricted water trading on water use, state governments maintain the right to intervene in water trading. CAO, *supra* note 85, at 18–19.

128. THE WORLD BANK, *supra* note 5, at 23.

129. *Id.*

130. See Vidal, *supra* note 5; see also Yingeling Liu, *supra* note 16; Economy, *supra* note 9, at 48.

131. Real Right Law, *supra* note 76, art. 2.

ensure continued economic development, and prevent water conflicts, but legal protection of water permit holders' property rights will secure private citizens' access to the courts, improving the enforcement of environmental laws and regulations through litigation.