

# WATER FOR WHOM? IMPROVING WATER GOVERNANCE IN YUNNAN CHINA THROUGH ENVIRONMENTAL CUSTOMARY LAW

*By Carissa Michelle Wong<sup>\*</sup> and Wu Guo<sup>\*\*</sup>*

Executive Summary .....	65
Overview .....	66
I. Challenges in Water Allocation.....	67
A. Water Rights .....	68
i. State Ownership .....	68
ii. Water Rights: Poorly Defined, Insecure, and Irrelevant.....	69
B. Allocation Plans .....	70
i. Lack of Public Consultation Results in Weak Compliance .....	70
ii. Lack of Understanding of Environmental Flow Realities Leads to Weak Direction .....	72
C. Dispute Settlement .....	74
i. Water Shortages .....	74
ii. Mediation: Does Not Resolve Ambiguity in Rights, Allocation, or Access.....	76
II. How Can Environmental Customary Law Improve Water Allocation? 79	
A. An Overview of Customary Law.....	79
B. Strengthening Water Rights, Allocation Plans, and Dispute Resolution.....	82
i. Equilibrium .....	82
ii. Reciprocity .....	86
iii. Duality.....	88

---

<sup>\*</sup> Carissa Wong is an Associate Fellow with the Centre for International Sustainable Development Law and conducts water governance programming for the International Development Law Organization. She holds a Master's degree in Environmental Management from Duke University, a Common Law degree from the University of Ottawa, and a Bachelor of Science in Zoology from the University of Toronto.

<sup>\*\*</sup> Guo Wu is an Associate Professor and PhD of Environmental Law in Gansu Institute of Political Science and Law, China. He is also Vice Dean of Civil, Commercial, and Economic Law. He is predominantly engaged in the basic theory of environmental law and environmental customary law.

III. Statutory Support for Customary Law in China .....	94
Conclusion .....	95

## EXECUTIVE SUMMARY

It is hard to overstate the importance of water. It is vital to human development and its movement sustains all life. The natural water regime in a river, lake, wetland, or coastal zone constitutes the “environmental flows” that ensure the right quality, quantity, and patterns of flow for human and ecological health.<sup>1</sup> These environmental flows maintain the capacity of watersheds to purify water, regulate floods, maintain biodiversity and meet diverse human needs.<sup>2</sup> The availability of water in China, as one of the most populous countries, has a profound effect on the world’s human and ecological health. China is a water-scarce country with a highly uneven distribution of naturally occurring rainfall, surface water and groundwater.<sup>3</sup> By 2030, China’s Ministry of Water Resources predicts that per capita water resources in the country will fall below the World Bank’s level of “water scarcity” (i.e., 1000 cubic meters per person per year).<sup>4</sup>

In light of serious concerns over water availability, China’s 12<sup>th</sup> Five-Year Plan is the first to enunciate the goal of improving water management.<sup>5</sup> Although it aims to reduce the water intensity of China’s Gross Domestic Product (GDP), it does not clarify how the allocation and distribution of residual water would be improved.<sup>6</sup> Using less water per unit GDP, while laudable, does not ensure that water serves diverse human uses and in-stream environmental flows. In contrast, environmental customary law, which has governed water resources for centuries in China, provides insights to practically improve the equitable, efficient, and ecologically sustainable management of water.

This paper explores the ways in which ethnic customary and ancient Han law provide a framework for improving the implementation of modern

---

1. Dajun Shen & Robert Speed, *Water Resources Allocation in the People's Republic of China*, 25 INT’L J. OF WATER RES. DEV. 2, 222 (2009).

2. INT’L UNION FOR THE CONSERVATION OF NATURE, FLOW: THE ESSENTIALS OF ENVIRONMENTAL FLOWS 17, 19 (M. Dyson, G. Bergkamp & J. Scalon, eds., 2003), available at [http://moderncms.ecosystemmarketplace.com/repository/moderncms\\_documents/iucn\\_the-essentials-of-environmental-flows.pdf](http://moderncms.ecosystemmarketplace.com/repository/moderncms_documents/iucn_the-essentials-of-environmental-flows.pdf).

3. PETER GLEICK ET AL., THE WORLD’S WATER 2008–2009: THE BIENNIAL REPORT ON FRESHWATER RESOURCES 84 (2009).

4. Elizabeth Economy, *China’s Growing Water Crisis*, WORLD POL. REV. (Aug. 9, 2011), <http://www.worldpoliticsreview.com/articles/9684/chinas-growing-water-crisis?page=1>.

5. *Key Targets of China’s 12th Five-year Plan*, NEWS.XINHUANET.COM (Mar. 5, 2011, 9:50 AM), [http://news.xinhuanet.com/english2010/china/2011-03/05/c\\_13762230.htm](http://news.xinhuanet.com/english2010/china/2011-03/05/c_13762230.htm).

6. *Id.*

water law in China, with particular focus on Yunnan Province. In Yunnan, the principles of equilibrium, reciprocity, and duality in Chinese customary law would improve the equity and efficiency of water rights distribution, allocation, and dispute resolution. Currently, under China's Constitution and 2002 Water Law, the lack of defined rights, poor implementation of rights, lack of system-wide coordination and consistency, and inadequate understanding of natural environmental flow regimes plague China's water governance. In addition, China's Water Law relies on a dispute settlement procedure that does not resolve the large degree of ambiguity and insecurity in water rights. Modern-day water allocation problems in Yunnan, as well as the region's rich ethnic diversity and customary laws, offer an opportunity to apply customary law to strengthen the local relevancy, consistency, and validity of water governance. In addition, the customary law of ethnic minorities in Yunnan is consistent with the Han majority's traditional approaches to water management. Further, China's autonomous regions and ethnic minorities hold modest statutory authority over resource management. This provides an opportunity to investigate the role of customary environmental law in improving the equitable and environmentally sound distribution of water resources. In general, ethnic environmental customary law provides a counterweight to the heavy top-down approach to water management and to a political dialogue that devalues local knowledge and ecological needs. Overall, it affords a framework for public participation in water allocation planning and supports the development of a pluralist approach to living within the ecological limits of a river.

#### OVERVIEW

This paper begins, in Section I, by presenting the intense exploitation of water resources for economic development, and the challenges to equitable, effective, and ecologically beneficial water allocation. It identifies, in Part A, the lack of definition for water rights, in Part B, the lack of attention paid to local conditions and environmental flows leading to inconsistency within and poor implementation of allocation plans, and in Part C, a dispute settlement institution that is insufficient to reduce ambiguity and insecurity in water "rights." Section II illustrates how the core concepts of environmental customary law, namely equilibrium, reciprocity, and duality, complement existing statutes in addressing these challenges. Section III demonstrates that China's national laws governing autonomous regions provide opportunities for greater participation of ethnic minorities in water resources management. Section IV concludes that environmental customary

law, particularly in Yunnan Province, offers principles that could improve the equitable, efficient, and ecologically sound allocation of water in China.

### I. CHALLENGES IN WATER ALLOCATION

China has a naturally low per capita water supply that is exacerbated by industrial consumption and pollution.<sup>7</sup> China's per capita renewable water resources are 2,139 cubic meters per year, per person.<sup>8</sup> This is roughly a fifth of that of the United States,<sup>9</sup> and twenty-eight percent of the global average.<sup>10</sup> In China, one-quarter of the population, or roughly 320 million people, lacks access to safe drinking water,<sup>11</sup> and two-thirds of cities face increasing water scarcity.<sup>12</sup> The country currently faces a water shortage of 40 billion cubic meters annually.<sup>13</sup>

Industry accounts for roughly one-quarter of China's total water consumption and takes between four to ten times more water per unit GDP than other comparably competitive national economies.<sup>14</sup> Water intensive mining, coal processing, and hydropower development account for the largest proportion of industrial water consumption.<sup>15</sup> According to its recent 12th Five-Year Plan, the Chinese government plans to expand installed hydropower capacity from 200 Gigawatts in 2010 to 420 Gigawatts by 2020,<sup>16</sup> which would likely stop the flow of many of the country's rivers.<sup>17</sup>

Further, pollution from agriculture, industrial, and domestic sources has exacerbated the unavailability of water. From 2000–2009, the amount of accessible water in China decreased by thirteen percent.<sup>18</sup> In the first half of 2010, almost one-quarter of China's surface water was so polluted that it was not useable for even industrial purposes, and less than half of the total water supplies were drinkable.<sup>19</sup>

---

7. GLEICK ET AL., *supra* note 3, at 84.

8. *Id.*

9. *Id.*

10. *Climate change threatens our water*, CHINA DAILY (Apr. 23, 2011), [http://www.china.org.cn/china/2011-04/23/content\\_22424112.htm](http://www.china.org.cn/china/2011-04/23/content_22424112.htm).

11. Economy, *supra* note 4.

12. *Id.*

13. *Id.*

14. *Id.* at 1.

15. *Id.*

16. DI ZHOU & ANAIS DELBOSC, THE ECONOMIC TOOLS OF CHINESE CLIMATE AND ENERGY POLICY AT THE TIME OF THE 12TH FIVE-YEAR PLAN 14 (2013), *available at* [http://www.ens.dk/sites/ens.dk/files/politik/vedvarende-energisamarbejde-kina/economic\\_tools\\_of\\_chinese\\_climate-energy\\_policies.pdf](http://www.ens.dk/sites/ens.dk/files/politik/vedvarende-energisamarbejde-kina/economic_tools_of_chinese_climate-energy_policies.pdf).

17. Economy, *supra* note 4.

18. *Id.*

19. *Id.*

With its large population and highly polluted water system, China is facing increasingly inadequate access to water.<sup>20</sup> This places a heavy burden on China's water governance system to effectively allocate water to meet diverse human and ecological needs. Under its Constitution, Basic Laws, and 2002 Water Law, however, China's centralized control of water resources has led to a general loss of local legitimacy, as a result of insecure and poorly-defined rights, vague and irrelevant allocation plans that do not recognize environmental flows, and poor dispute resolution mechanisms. The following sections describe these problems in more detail.

### A. *Water Rights*

China's laws give ownership of all water resources to the State.<sup>21</sup> When distributed at a local level, however, these rights become arbitrary and inconsequential.

#### i. State Ownership

China's statutory framework gives primary authority over water resources to the central government. Under the Constitution, the highest law in China,<sup>22</sup> the current 2002 Water Law establishes hierarchical water governance.<sup>23</sup> Article 9 of the Constitution outlines the system for natural resources management in China, including ownership, utilization, and protection of water resources.<sup>24</sup>

China's Water Law centralizes ownership and the system of granting water rights. The 1988 Water Law contained two categories of water ownership, State and collective; the 2002 Water Law replaced these categories with one category of ownership.<sup>25</sup> The State exercises ownership

---

20. *China*, WORLD WATER ORG. (2010), [http://www.theworldwater.org/world\\_water.php?Id=china](http://www.theworldwater.org/world_water.php?Id=china).

21. Water Law of the People's Republic of China [hereinafter Water Law] (promulgated by Standing Comm. of the Ninth Nat'l People's Cong., Aug. 29, 2002, effective Oct. 1, 2002), art. 3, [http://english.gov.cn/laws/2005-10/09/content\\_75313.htm](http://english.gov.cn/laws/2005-10/09/content_75313.htm) (adopted at the 24th Meeting of the Standing Committee of the Sixth National People's Congress on Jan. 21, 1988 and revised at the 29th Meeting of the Standing Committee of the Ninth National People's Congress on Aug. 29, 2002).

22. Constitution of the People's Republic of China (promulgated by the Proclamation of the Nat'l People's Cong., Dec. 4, 1982, and amended in accordance with the amendments to the Constitution of the People's Republic of China adopted at the First Session of the Seventh Nat'l People's Cong., on Apr. 12, 1988, at the First Session of the Eighth Nat'l People's Cong., on Mar. 29, 1993, at the Second Session of the Ninth Nat'l People's Cong., on Mar. 15, 1999, and at the Second Session of the 10th Nat'l People's Cong., on Mar. 14, 2004), [http://english.gov.cn/2005-08/05/content\\_20813.htm](http://english.gov.cn/2005-08/05/content_20813.htm).

23. Water Law, *supra* note 21.

24. *Id.*, at art. 10.

25. *Id.*, at art. 3.

over water resources for the purposes of development and use<sup>26</sup> notwithstanding any departmental rules from the Ministry of Water Resources or local rules from cities and provinces.<sup>27</sup> The central government permits the use of State-owned water by approving allocation schemes and total quotas of water for abstraction by region.<sup>28</sup> Based on these schemes, sub-regional governments formulate annual water use quotas.<sup>29</sup> In addition, the National People's Congress (NPC) enacts "Basic Laws" that govern criminal, civil, State, and other offenses, some of which relate to water management.<sup>30</sup>

As the executive body of the NPC and its Standing Committee, the State Council enacts administrative regulations to carry out national water law. The State Council controls the way in which either the regional Competent Department of Water Administration (CDWA) or the appropriate Basin Management Institution (BMI) manages permits and payments for the use of water.<sup>31</sup> According to their share of water, the CDWA or BMI grant the right to withdraw water directly from rivers, lakes, and underground aquifers to individuals, farmers, or entities within a district.<sup>32</sup>

#### ii. Water Rights: Poorly Defined, Insecure, and Irrelevant

Unfortunately, water abstraction rights are not clearly defined at any level of governance.<sup>33</sup> At the river basin level, there are discrepancies over return flow requirements (i.e., whether rights afford abstraction pending return or rights to complete consumption) and the duration of rights.<sup>34</sup> At the permit-trading level, confusion exists over who holds water entitlements and what those rights entail.<sup>35</sup> For instance, conditions placed on water entitlements, such as the seasonal sharing of water, are ambiguously defined.<sup>36</sup> In addition, there are few rules against changes to water rights.<sup>37</sup> Moreover, many water abstractors—particularly farmers in water irrigation

---

26. *Id.*, at art. 3.

27. *Id.*, at art. 12.

28. Water Law, *supra* note 21, at art. 47.

29. *Id.*

30. Patricia Wouters et. al., *The New Development of Water Law in China*, 7 U. DENV. WATER L. REV. 243, 255 (2004).

31. Water Law, *supra* note 21, at art. 7.

32. Shen & Speed, *supra* note 1, at 271.

33. Shen & Speed, *supra* note 1, at 220.

34. *Id.*

35. JIAN XIE ET AL., ADDRESSING CHINA'S WATER SCARCITY, 77 (2009).

36. Shen & Speed, *supra* note 1, at 220.

37. XIE ET AL., *supra* note 35, at 78.

districts and rural groundwater users—do not even hold abstraction permits.<sup>38</sup> Ultimately, from regional to farmer levels, despite firm central authority on paper, there is “broad discretion in terms of decisions affecting what water will be available under an entitlement” in any year.<sup>39</sup> The result is poorly defined, insecure, and often irrelevant water rights.

### *B. Allocation Plans*

The State government’s lack of public consultation on water needs and its inadequate recognition and understanding of watershed environmental flow requirements impair the implementation of its regulatory schemes.<sup>40</sup> In addition, the limited publically available information on the process of annual allocations or monitoring of water abstractions exacerbates this problem.<sup>41</sup>

#### *i. Lack of Public Consultation Results in Weak Compliance*

Under the State Council, the National Development and Reform Commission (NDRC), the Ministry of Water Resources (MWR), and the CDWA control the macro-allocation of water and its use through a quota system.<sup>42</sup> These State entities first plan the long- and medium-term supply, demand, and allocation of water in river basins. Then, sub-regional levels of government (i.e., the CDWA at the county level or BMI for designated “major”<sup>43</sup> rivers and lakes) develop mid- and long-range plans for water use, allocation, and in-stream flow that must be consistent with the State basin plans. Based on the State-approved basin allocation scheme and predicted annual income of water, the sub-regional levels of government create annual plans specifying water use.<sup>44</sup> Finally, following the total quantities approved for allocation, provincial departments and industry administrators integrate economic and technological conditions with existing water use quotas to determine annual industrial sector water

---

38. *Id.* at 77.

39. *Id.* at 78.

40. *Id.* at 77; Shen & Speed, *supra* note 1, at 220.

41. XIE ET AL., *supra* note 35, at 78.

42. Water Law, *supra* note 21, at art. 44.

43. See LU XIAOPING & FU ZENGCI, BRIEF INTRODUCTION ON THE MAIN RIVERS IN CHINA (2010) (identifying the Heilongjiang basin, Liaohe basin, Huanghe basin, Huaihe basin, Changjiang basin, and Zhujiang basin).

44. SALMAN M. A. SALMAN & DANIEL D. BRADLOW, REGULATORY FRAMEWORKS FOR WATER RESOURCES MANAGEMENT ix, 39 (2006), available at <https://openknowledge.worldbank.org/bitstream/handle/10986/7054/362160rev0Regulatory0water01PUBLIC1.pdf?sequence=1>.

quotas.<sup>45</sup> The State also authorizes any allocation plans between BMIs and either provinces or autonomous regions.<sup>46</sup> In addition, the Water Law states that at each level of government, departments of environmental protection must develop water function zones that are consistent with the central government's comprehensive plans for designated major rivers and lakes.<sup>47</sup> The administrative department of the relevant BMI and the departments of water administration and environmental protection at the appropriate level of government must draft the functional plans for non-major rivers and lakes for State Council approval. Thus, the result of these plans is a unified system of control for water allocation, as specified under Article 47.<sup>48</sup>

Although China's State institutions provide convenient platforms to define water law and manage increasing demands from competing users, they move authority from local institutions, where much of customary water law is currently embedded, to centralized institutions.<sup>49</sup> As a result, State level decision-makers and local level water users are less likely to identify with, understand, or respect each other's needs.<sup>50</sup> Indeed, the lower the sense of identification between the decision-maker and a group of water users, and the more limited influence a group of users has on the creation of rules, the weaker the compliance and enforcement of these rules.<sup>51</sup>

In Yunnan, public participation in water allocation planning and resource decisions is particularly low. As early as 1000 years ago in the Nu River valley, in what is now Yunnan Province, people developed systems of resource use and economic production that supported evolving human-nature relationships.<sup>52</sup> In this region, however, a history of power relations has limited the participation of ethnic minorities in water management decisions.<sup>53</sup> Within Yunnan Province, the Nu River valley is one of the most ethnically diverse regions of China.<sup>54</sup> Ethnic minorities comprise ninety-two percent of the Nu Prefecture population, while the Han comprise

---

45. Wouters et al., *supra* note 30, at 285–86.

46. *Id.* at 283–84.

47. SALMAN & BRADLOW, *supra* note 44, at 39.

48. Water Law, *supra* note 21, at art. 47.

49. RUTH MEINZEN-DICK & LETICIA NKONYA, COMMUNITY-BASED WATER LAW AND WATER RESOURCE MANAGEMENT REFORM IN DEVELOPING COUNTRIES 22 (B. van Koppen, M Giordano & J. Butterworth eds. 2007).

50. *Id.*

51. *Id.* at 23.

52. Yu Yaojun & Liu Chao, *Demand for Water Resources Dispute Settlement Mechanisms: From the Perspective of Solving Irrigation Water Disputes*, Res. Inst. of Env'tl. L., Wuhan U. (Oct. 20, 2009).

53. *Id.*

54. DARRIN MAGEE & SHAWN KELLY, CONTESTED WATERSCAPES IN THE MEKONG REGION 117 (Francois Molle, Tira Foran & Mira Kakonen eds., 2009).

eight percent.<sup>55</sup> In 1949, with the founding of the People's Republic of China, Chinese leaders frequently viewed indigenous livelihoods and production methods as "backward and inefficient in comparison to mainstream Han culture."<sup>56</sup> In 1954, the valley was named the "Nu River Lisu Ethnic Minority Autonomous Prefecture" and the exploitation of local capacity was coupled with a devaluation of local knowledge and culture that continues to characterize too many development programs in China.<sup>57</sup> Gradually, the ethnic people of the Nu River valley internalized the mainstream perspective that their customs and practices are "backward" and in need of modernization. Subsequently, the central government has applied this rationale to justify its exploitive relations in the management of natural resources.<sup>58</sup>

ii. Lack of Understanding of Environmental Flow Realities Leads to Weak Direction

As a result of i) insufficient understanding of environmental flows and ii) inadequate public participation, not to mention lack of coordination between ministries responsible for legal drafting, the NPC passes water regulations that at worst, conflict with those that other ministry authorities have drafted,<sup>59</sup> or more frequently, create vague rules to follow.

Too often, water resources schemes and allocation plans share little or no connection because they do not reflect a thorough understanding of a river basin's hydrological regime.<sup>60</sup> The 2002 Water Law requires the State to conduct river basin level strategic, multi-purpose planning (Article 14).<sup>61</sup> These strategic plans include both a "comprehensive" and "special" plan. Both special and comprehensive plans regulate flood prevention, irrigation, water supply, hydropower generation, and fisheries (Article 14)<sup>62</sup> while the natural water regimes of rivers, lakes, and wetlands in China "are not well understood."<sup>63</sup> In addition, the rate at which economic development and the

---

55. Kristen Nicole McDonald, *Damming China's Grand Canyon: Pluralization without Democratization in the Nu River Valley* 89 (2007) (Ph.D. dissertation, U. of Cal., Berkeley, Dept. of Env'tl. Science, Pol'y, and Mgmt).

56. *Id.* at 87.

57. *Id.*

58. *Id.*

59. *See, e.g.,* Water Pollution Control and Prevention Law (promulgated by Order No. 12 of the President of the People's Rep. of China on May 11, 1984, effective Nov 1, 1984) (conflicting until recently with Water Law, *supra* note 22); XIE ET AL., *supra* note 35, at 45.

60. *Id.* at 77.

61. Water Law, *supra* note 21, at art. 14.

62. SALMAN & BRADLOW, *supra* note 44, at 39.

63. Shen & Speed, *supra* note 1, at 221.

alteration of watercourses is occurring in China makes it more difficult to determine the hydrological or ecological baseline and environmental flow regime of a watershed.<sup>64</sup> Thus, China's allocation schemes do not reflect the impact of water abstraction or developments, such as hydropower dams, on the total quantity of water available for allocation. Not surprisingly, allocation schemes within a basin often do not agree on the total volume of water available for distribution.<sup>65</sup> Thus, local governments grant individual permits not on the basis of the volume of available water, or in relation to an environmental flow regime,<sup>66</sup> but on an ad hoc, case-by-case basis.<sup>67</sup> Thus, allocation plans are viewed as recommendations or aspirational targets, rather than regulatory requirements, and their true application is limited.<sup>68</sup>

In addition, China's Water Law prioritizes water for both urban and rural domestic use before, in descending order, use in agriculture, industry, and the environment.<sup>69</sup> This ensures that water is not being allocated to support the environmental requirements of a river.<sup>70</sup>

Furthermore, the allocation of water resources to industry and hydropower generation resulting in insufficient environmental flows exists within a "trajectory of local political relations."<sup>71</sup> In Yunnan Province, public participation in water resources management has not been encouraged, but, more accurately, actively denied. During the early years of the People's Republic of China, the central government exercised control over Yunnan's resources and transformed the Nu Valley.<sup>72</sup> From the 1950s to the 1980s, Yunnan faced "[t]he largest period of destruction in the history of China's forests," roughly 27 million cubic meters annually.<sup>73</sup> In addition to the increasing frequency and severity of mudslides in this mountainous region, drought has become an issue. Partly in response to the intensity and duration of droughts, the government has proposed thirteen dams on the Nu River.<sup>74</sup> Today, water allocation for large hydropower dams fosters a paternalistic and non-participatory relationship between local governments and the local people, and an expectation that ethnic

---

64. Interview with Yu Xiaogang (July 15, 2010) (on file with author).

65. Shen & Speed, *supra* note 1, at 220.

66. XIE ET AL., *supra* note 35, at 77.

67. *Id.*

68. Shen & Speed, *supra* note 1, at 221.

69. Water Law, *supra* note 21, at art. 21.

70. Shen & Speed, *supra* note 1, at 221.

71. McDonald, *supra* note 55, at 88.

72. *Id.*

73. MA JUN, CHINA'S WATER CRISIS, 178 (Nancy Yang Liu & Lawrence R. Sullivan trans., 2004).

74. McDonald, *supra* note 55, at 52.

minorities' needs be met through government generosity.<sup>75</sup> There is a saying in Western China, "xidiandongshu" (Western power goes East), in which the political and economic centers of the East siphon resources and decision-making capacity from the West.<sup>76</sup> Centralized authority in China provides the power to manage water resources without committees and inquiries.<sup>77</sup> Clearly, the 2002 Water Law is limited in its ability to ensure in-stream flows and promote stability in water use, and does not acknowledge the diverse interests in water or the importance of local environmental flows.

### C. Dispute Settlement

In Yunnan, inadequate access to water has led to disputes of various forms. Frequently, rural water disputes involve many people with different interests; they arise among farmers, as well as between farmers and water administration authorities.<sup>78</sup> For example, conflicts arise between the water management units that maintain water "conservancies" (storage) and the water users who pay conservancies for entitlements.<sup>79</sup> Such tension is exacerbated by an attitude held by farmers that water for irrigation is a naturally occurring resource and one for which they do not feel obliged to pay the real price.<sup>80</sup> Systemic problems in dispute resolution incapacitate mechanisms to address adverse effects on water entitlements and compound already insecure water rights.<sup>81</sup>

#### i. Water Shortages

Despite being an area of historical water abundance, in 2012, Yunnan faced its third consecutive year of drought, which since December 2011 had damaged or destroyed 157,400 hectares of crops,<sup>82</sup> costing the central government 120 million Yuan (19 million USD).<sup>83</sup> Nine rivers dried up and thirty reservoirs ran empty, leaving 8.67 million people and at least 1.5

---

75. *Id.* at 117.

76. XU JIANCHU & DAVID MELICK, TOWARDS COMMUNITY-DRIVEN CONSERVATION IN SOUTHWEST CHINA: RECONCILING STATE AND LOCAL PERCEPTIONS 24 (2007).

77. *Id.*

78. Yu & Liu, *supra* note 52.

79. *Id.*

80. *Id.*

81. XIE ET AL., *supra* note 35, at 78.

82. Jiang, *Severe Drought Destroys Crops in Yunnan*, CRIENGLISH.COM (Feb. 19, 2012), <http://english.cri.cn/6909/2012/02/19/189s681990.htm>.

83. *China Allocates 120M Yuan to Drought-hit Southwestern Province*, XINHUA CHINA DAILY (Feb. 22, 2012), [http://news.xinhuanet.com/english/china/2012-02/22/c\\_131425559.htm](http://news.xinhuanet.com/english/china/2012-02/22/c_131425559.htm)

million livestock short of drinking water.<sup>84</sup> Although the accumulated effects of three successive years of drought have decreased water flows,<sup>85</sup> one water expert stated that the current drought would not be a problem under sound water management throughout the country.<sup>86</sup> This expert stresses that drought is a problem because of the low priority placed on the public interest in water management, because it does not generate revenue.<sup>87</sup> To address the drought, however, the province plans to invest 100 billion Yuan (16 billion USD) in the construction of water conservancy infrastructure by the end of 2015.<sup>88</sup> Also, the national government plans to “invest 4 trillion Yuan (\$612 billion) in water conservancy projects over the next 10 years.”<sup>89</sup> Large engineering projects and water storage efforts designed to solve water shortages have frequently led to conflicts over how the water should be used.<sup>90</sup> Project-initiated forced resettlement has also resulted in conflicts.<sup>91</sup> Such conflicts are likely to increase with greater plans for engineered water conservancy infrastructure.

As well, in Yunnan’s Lancang/Mekong River Basin, there is a conflation of investment and development,<sup>92</sup> where “[n]egotiated development benefits rarely trickle down to local communities or conservation.”<sup>93</sup> In China, resettlement is generally considered to be a “development opportunity” rather than a cost of hydropower development.<sup>94</sup> This has caused tensions. Some scholars argue that resource control in Yunnan is a means to “repress communities that threaten government power” and that “dams are a means to advance paternalistic and nationalistic development agendas.”<sup>95</sup> Researchers have found that indigenous people in Yunnan face challenges similar to those faced by indigenous people in other parts of the world. These challenges include a reduced land base, which results in the disruption of land-use cycles, un-

---

84. *Leaders Discuss Work Report with Deputies*, XINHUA CHINA DAILY (Mar. 8, 2012), [http://www.chinadaily.com.cn/m/hubei/2012-03/08/content\\_14822862.htm](http://www.chinadaily.com.cn/m/hubei/2012-03/08/content_14822862.htm).

85. Jiang, *supra* note 82.

86. *China Yunnan Drought Severity Increases*, NTDTV (Mar. 30, 2013), [http://english.ntdtv.com/ntdtv\\_en/news\\_china/2012-03-30/china-yunnan-drought-severity-increases.html](http://english.ntdtv.com/ntdtv_en/news_china/2012-03-30/china-yunnan-drought-severity-increases.html).

87. *Id.*

88. *China Allocates 120M Yuan*, *supra* note 83.

89. *Climate Change Threatens Our Water*, CHINA DAILY (Apr. 23, 2011), [http://www.china.org.cn/china/2011-04/23/content\\_22424112.htm](http://www.china.org.cn/china/2011-04/23/content_22424112.htm).

90. WORLD WATER ORG., *supra* note 20.

91. *Id.*

92. JOHN DORE ET. AL., *IMPROVING MEKONG WATER RESOURCES INVESTMENT AND ALLOCATION CHOICES* 70 (2010).

93. XU & MELICK, *supra* note 76 at 20.

94. David Takacs, *Water Sector Reforms and Principles of International Environmental Law*, in *WATER LAW FOR THE TWENTY-FIRST CENTURY* 260, 278 (P. Cullet et al. eds. 2010).

95. McDonald, *supra* note 55, at 123.

restituted dispossession of natural resources, and uneven terms of economic exchange with the ethnic majority.<sup>96</sup>

In addition to recent water shortages, disputes arising in Yuanmou and Nanhua Counties have frequently required the Chuxiong Water Conservancy in Yunnan to mediate. Over the past three years, dry weather has led to many disputes in Chuxiong City over the use and maintenance of water.<sup>97</sup> In the half a year from January to May 2012, twenty-two water disputes arose in thirteen villages and towns.<sup>98</sup> Of these, seven disputes are currently being mediated and fifteen were resolved through mediation.<sup>99</sup> Further, in June 2007, the Water Conservancy Bureau of Nanhua County mediated an agreement between the town of Zheng Shaoyu and the villagers of Zheng Shaoke, Zheng Shaokuan, Zheng Shaohong, and Zheng Kaijin over the sharing and protection of the source of drinking water.<sup>100</sup> Even though the mediation took more than a year,<sup>101</sup> Yuanmou and Nanhua Counties still face a lack of water for agriculture and domestic use during the annual dry season.<sup>102</sup>

ii. Mediation: Does Not Resolve Ambiguity In Rights, Allocation, or Access

Despite authority in the Water Law to support water rights and address adverse impacts on water entitlements and environmental flows, the dispute settlement process on which the Water Law relies is inadequate to deal with the potential magnitude of problems. The 2002 Water Law uses a standard process of alternative dispute resolution in China to address conflicts in water allocation. Article 56 states that any dispute concerning water that

96. Benedict Kingsbury, "Indigenous Peoples" in *International Law: A Constructivist Approach to the Asian Controversy*, 92 AM. J. INT'L L. 3, 449 (1998).

97. Water Administration Supervisory Team, *Nanhua Water Authorities' Active Administration to the Resolution of Water Disputes* (Nov. 7 2008), <http://www.ynszjc.com/Listxx.aspx?ID=1271&SID%20>.

98. Xu Zigu, *Chuxiong Water Authorities' Active Administration to the Resolution of Water Use Disputes*, CHUXIONG ONLINE (June 28, 2012), [http://www.cxs.gov.cn/file\\_read.aspx?Id=58988](http://www.cxs.gov.cn/file_read.aspx?Id=58988).

99. *Id.*

100. Yunnan Water Administration and Monitoring Corps, *Chuxiong South County Water Conservancy Bureau actively mediate water disputes* (Nov. 7, 2011), [www.ynszjc.com/Listxx.aspx?ID=1271&SID](http://www.ynszjc.com/Listxx.aspx?ID=1271&SID).

101. *Id.*

102. See generally, X. X. Lu, *Spatial Variability and Temporal Change of Water Discharge and Sediment Flux in the Lower Jinsha Tributary: Impact of Environmental Changes*, 21 RIVER RES. APPLIC. 229-43 (2005) available at [http://wenku.baidu.com/link?url=fvlu-s7YiURJT5gPR\\_MJmbWmoimeIV\\_PMBfbdPR7xpJAbP2hZ11s84FAWUUh2KkKb7mVvAKVowIJRQal0-qC-ZqkYrhvWa6c4P3tkgX5QmD8C](http://wenku.baidu.com/link?url=fvlu-s7YiURJT5gPR_MJmbWmoimeIV_PMBfbdPR7xpJAbP2hZ11s84FAWUUh2KkKb7mVvAKVowIJRQal0-qC-ZqkYrhvWa6c4P3tkgX5QmD8C) (explaining water use and availability during annual cycles in Yuanmou and Nanhua).

arises between different administrative offices must be resolved through consultation, and if not, by the next level of government.<sup>103</sup> According to Article 57, disputes between individuals and organizations must also be resolved through consultation. Failing this, resolution must be sought through mediation by the local government at or above the county level.<sup>104</sup> If the parties are unable to resolve the matter at this level, either party may initiate civil legal proceedings.<sup>105</sup> In all cases, until the dispute is resolved, no party may unilaterally alter the existing water regime.<sup>106</sup>

Although alternative dispute resolution and mediation have a long history in China and are more rooted in Chinese tradition than litigation, systemic challenges limit the effectiveness of Articles 56 and 57 to resolve water allocation conflicts through mediation.<sup>107</sup> These challenges include the quality and authority of mediators, the settlement process, and the unequal power of disputing parties. The first main problem with “people’s mediation” is the quality of mediators. The majority are retired workers or housewives who mediate on a part-time basis and receive meager allowances.<sup>108</sup> There is also no incentive for mediators to perform well.<sup>109</sup> Although mediators work under the supervision of judicial assistants of the local level people’s courts, many judicial assistants have limited training themselves, and may not provide sufficient guidance to mediators.<sup>110</sup> The scarce time for judicial assistants to handle the court cases before them further limits the capacity of judicial assistants and mediators to perform their roles competently.<sup>111</sup> In response, the State Ministry of Justice recently promulgated a rule that emphasizes the training of mediators, reward mechanisms to improve the quality of mediation, and a commitment of more financial resources for people’s mediation committees.<sup>112</sup> The increasing likelihood of conflicts resulting from water allocation, however, will require an even greater commitment to mediation to keep up with the demand.

---

103. Water Law, *supra* note 21, at art. 56; SALMAN & BRADLOW, *supra* note 44, at 45.

104. Water Law, *supra* note 21, at art. 57.

105. *Id.*

106. *Id.*

107. Bobby K. Y. Wong, *Traditional Chinese Philosophy and Dispute Resolution* 30 HONG KONG L.J. 165, 304 (2000), available at <http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/honkon30&div=31&Id=&page>.

108. Yuhong Zhao, *Environmental Dispute Resolution in China*, 16 J. ENVTL. L. 157, 1633 (2004).

109. *Id.*

110. *Id.* at 162.

111. *Id.* at 4.

112. *Id.*

The second problem with people's mediation of disputes over water is that mediators often create "muddled settlements" that do not reflect a clear understanding of the facts or the law.<sup>113</sup> They tend to over-emphasize compromise, while not ensuring the proper remedies to those whose rights have been infringed.<sup>114</sup> Improved public participation in water planning would help to avoid disputes and alleviate the reliance on mediators whose capacity and understanding of the natural resource, and of people's legal rights, are limited.

Finally, people's mediators lack the substantive authority to enforce mediated agreements. Despite the considerable time and energy expended to help disputants reach an agreement, parties can simply refuse to comply with a mediated agreement.<sup>115</sup> To address this, the Supreme People's Court recently issued provisions that expressly provide that settlement agreements reached through people's mediation committees bearing the chops of the disputing parties be treated as civil contracts.<sup>116</sup> In addition, all new environmental legislation in China passed or amended since the 1990s includes provisions for "settlement by mediation" ("tiaojie chuli"), thus ensuring that bodies carrying out environmental mediation are protected from judicial review under administrative law.<sup>117</sup> Due to the capacity issues aforementioned, however, the length of time for disputes to be resolved remains lengthy and still rather uncertain. For those suffering adverse impacts from water allocations as well as those whose water rights are in question, justice delayed is often justice denied.

The Water Law states that the development of hydropower "shall" protect the ecological environment and obliges the State to compensate people who are involuntarily resettled as a result of state-constructed water projects.<sup>118</sup> The capacity of mediation is insufficient to deal with problems associated with water entitlements affected by hydropower development.

---

113. *Id.* at 164.

114. *Id.*

115. *Id.*

116. *Id.*

117. *Id.* at 166.

118. Water Law, *supra* note 21, at art. 31.

## II. HOW CAN ENVIRONMENTAL CUSTOMARY LAW IMPROVE WATER ALLOCATION?

### A. An Overview of Customary Law

Customary law in China has historically influenced water allocation. This influence is readily apparent in Yunnan Province, where the tradition dates back centuries. Customary law derives its binding force not through written agreements, but through sustained, established conduct that arises over time and which parties (states, in the case of international law, or individuals, in the case of domestic law) follow out of a sense of legal obligation or *opinio juris*.<sup>119</sup> Customary law is a source of law that exists distinct from agreements, recognized principles of law, and the academic literature on international law.<sup>120</sup> It is persuasive “not because it is backed by the power of some strong individual or institution, but because each individual recognizes the benefits of behaving in accordance with other individuals' expectations [given] that others also behave as [s/]he expects.”<sup>121</sup>

This contrasts to the term for law in China, which has two distinct meanings: more broadly, a “legal norm enacted or administered by the State,” and more narrowly, the written normative document that the National People’s Congress has adopted.<sup>122</sup> However, indigenous or ethnic groups in China have customary rights “based on tradition or culture, rather than written law, regardless of whether they are practiced by recognized indigenous people or not.”<sup>123</sup>

Environmental customary law deals specifically with the natural environment. Its connection to statute is depicted in the international context. International environmental treaties are a form of statute that not only codify customary law, but also contribute to the development of new customary law.<sup>124</sup> In general, customary and statutory laws inform one

---

119. See, e.g., Charter of the United Nations and Statute of the International Court of Justice, Jun. 26, 1945, 59 Stat. 1031, 3 Bevans 1153 (drawing on general principles of law shared by nations); JOHN CURRIE, PUBLIC INTERNATIONAL LAW 100 (2nd ed. 2008).

120. See, e.g., Charter of the United Nations, *supra* note 119, at art. 38(1)(b) (describing international customary law as a general practice accepted as law).

121. BRUCE BENSON, THE ENTERPRISE OF LAW: JUSTICE WITHOUT THE STATE 12 (The Independent Institute 2011) (1990).

122. Wouters et al., *supra* note 30, at 254.

123. JAMES KHO & EUNICE AGSAOAY-SAÑO, COUNTRY STUDY ON CUSTOMARY WATER LAWS AND PRACTICES: PHILIPPINES (2005), available at [http://www.fao.org/fileadmin/templates/legal/docs/CaseStudy\\_Philippines.pdf](http://www.fao.org/fileadmin/templates/legal/docs/CaseStudy_Philippines.pdf).

124. PATRICIA BIRNIE ET AL., INTERNATIONAL LAW & THE ENVIRONMENT xi, 22 (3rd ed. 2009).

another. The “precautionary approach,” also called the precautionary principle, is arguably an environmental rule that has reached the status of customary international environmental law.<sup>125</sup> Though not binding, the Rio Declaration first asserted precaution as a principle of international environmental law, and strengthened its stature as a normative principle of international customary law.<sup>126</sup>

Although there is a growing body of research that customary systems may be a source of wise resource management policies, to assume that customary law will produce sustainable development is blindly naïve.<sup>127</sup> Michael Soule asserts that the myth of moral superiority of indigenous non-western traditions is misguided, and “has led guilt-ridden Westerners to glorify the environmental ethics of non-western traditions.”<sup>128</sup> He continues: “[s]ome indigenous people can provide excellent guidance, some not.”<sup>129</sup> In addition, customary law may reflect unequal power relations, for example, the way water is distributed and managed between genders.<sup>130</sup> Environmental customary law of the indigenous ethnic minorities in China encompasses three principles: (i) equilibrium, (ii) reciprocity, and (iii) duality. It views human beings as part of the living ecosystem, such that “intangible knowledge, practices and innovations,” and tangible biological genetic resources are interconnected.<sup>131</sup>

#### *Customary law in Yunnan Province*

Although not representative of all areas in China, Yunnan Province affords a unique opportunity to examine the potential for environmental customary law to inform and promote more effective and equitable water governance in China. In contrast to regions such as Xingjiang Province’s Tarim Basin, the massive Yellow River in the North, the Karst formations in the Southeast, and the heavily urbanized areas along the East coast, Yunnan Province is historically a water-rich area in China and water allocation has received much less attention. Yunnan has not only a rich

---

125. *Id.* at 160.

126. Rio Declaration on Environment and Development 15, Jun. 14 1992.

127. PETER ØREBECH ET AL., THE ROLE OF CUSTOMARY LAW IN SUSTAINABLE DEVELOPMENT 12, 435 (2005).

128. *Id.*

129. *Id.*

130. Meinzen-Dick & Nkonya, *supra* note 49, at 23.

131. JINGSONG LI & YICHING SONG, CTR. FOR CHINESE AGRIC. POL’Y, USE IT OR LOSE IT: PROTECTING THE TRADITIONAL KNOWLEDGE, GENETIC RESOURCES AND CUSTOMARY LAWS OF MARGINAL FARMERS IN SOUTHWEST CHINA 1, 10 (2010), available at <http://pubs.iied.org/pdfs/G02787.pdf>.

history of customary law, but immense existing and potential hydropower exploitation, and recently, extreme water scarcity.

The Yungui Plateau and the Tibetan Plateau have the highest concentration of both ethnic minorities and environmental customary law in China.<sup>132</sup> Yunnan Province, whose name translates to “South of the Clouds,” sits on the Yungui Plateau. Yunnan is known for its mild climate and rich biodiversity, which includes ninety-one percent of China’s 981 edible fungi species, and 18,000 different plant species, representing sixty percent of the country’s recorded varieties.<sup>133</sup> Within this rich biodiversity, Yunnan is home to twenty-four ethnic minorities, which comprise roughly thirty-one percent of the population,<sup>134</sup> including significant populations of Yi, Naxi, Bai, Dai, and Zang (Tibetan).<sup>135</sup> The water system of Yunnan province is “perhaps the most complex in all of China,” including the headwaters of five major river systems: the Pearl, the Jinshua/Yangtze, the Lancang/Mekong, the Nu/Salween, and the Irrawaddy.<sup>136</sup> Yunnan contains over 600 tributaries and 221 billion cubic meters of water.<sup>137</sup>

#### *Ancient Han Chinese water law*

Finally, ancient philosophical traditions in the Han Dynasty (206 BC–220 AD) have guided water management. These traditions are consistent with the general principles found in China’s indigenous or ethnic customary law. Similarly, consistent with Confucian tradition, Han water governance traditions repeatedly refer to the need to respect and internalize customs rather than follow laws.<sup>138</sup>

---

132. Guo Wu, *Environmental Conventional Law Culture of Zang Nationality and Tibet Region's Environmental Protection*, 81 J. OF GANSU POL. SCI. & L. INST. 33, 33–37 (Sept. 2005).

133. Guang-Ya Zhang, *Present Situation of Wild Edible Fungi Industry and its Trade in Yunnan*, AGRIC TRADE 88, 46–48 (2004), available at <http://zs.mushroom.org.cn/html/articles/machinings/expert/2006620253-1.htm>.

134. Jianchu Xu & Jesse C. Ribot, *Decentralization and Accountability in Forest Management: A Case from Yunnan, Southwest China*, in DEMOCRATIC DECENTRALIZATION THROUGH A NATURAL RESOURCES LENS 155 (Jesse Ribot & Anne Larson eds. 2005).

135. MAGEE & KELLY, *supra* note 54, at 117.

136. MA, *supra* note 73, at 178.

137. *Id.*

138. Dante A. Caponera, *Water Law Principles in the Chinese Legal System*, 1 INDIAN J. OF INT'L L. 239 (1960).

*B. Strengthening Water Rights, Allocation Plans and Dispute Resolution*

## i. Equilibrium

The environmental customary law principle of equilibrium holds that the supreme state of human existence is in “equilibrium”, balance, and harmony with nature.<sup>139</sup> Similar to environmental customary law, ancient Chinese legal thought is founded on the understanding of a “close interconnection between the human social order and the natural cosmic order.”<sup>140</sup> This understanding was particularly important in influencing water ownership, distribution, utilization and administration.<sup>141</sup>

*Water Rights*

If water governance were rooted in the ethnic tradition of equilibrium, the allocation of water rights would ensure that human water needs are in balance with those of nature. Applying this principle, a standard abstraction right would be temporary and require that water be returned at sufficient levels of flow to ensure local river integrity and health. Asserting that both human and natural water requirements are of equal importance would not only promote in-stream flows, but also clarify existing uncertainty in China over whether water rights are indefinitely long or allow complete consumption.

In addition to environmental customary law, ancient Confucian philosophy dictates that harmony and unity must be maintained throughout the universe. In contrast with the competing Legalist tradition, Confucian philosophy emphasizes conduct guided by a sense of internal morality that respects this harmony, rather than by a set of external laws.

Ancient Han traditions also supported the protection of environmental flows. According to Confucianism in the Han Dynasty, the actions of the ruler in administering water resources must be “in harmony with the behaviour of nature and with the seasons.”<sup>142</sup> Further, the upkeep and cleaning of waterways required laborers to maintain the “natural seasonal variations and requirements according to the natural order,”<sup>143</sup> which in modern parlance would refer to environmental flows. In particular, with the expansion of Confucianism, the Emperor enacted an ordinance of waters in

---

139. LI & SONG, *supra* note 131, at 10.

140. Caponera, *supra* note 138, at 240.

141. *Id.* at 239.

142. *Id.* at 246.

143. DANTE A. CAPONERA, PRINCIPLES OF WATER LAW AND ADMINISTRATION: NATIONAL AND INTERNATIONAL 19 (Marcella Nanni, ed., 2nd ed. 2007).

111 BC, establishing the principle of “water equalization”.<sup>144</sup> Under the water codes, ordinances and regulations, offenses were punishable.<sup>145</sup> One such water offense, “causing of inundations,” classified as a “Pu-ching,” was seen as a disrespectful action directed against established authority, whether family, clan, guild or Emperor.<sup>146</sup> Seen as an offense against the harmonious established order of the community, this category of crime brought heavy punishment and shame.<sup>147</sup> The gravity of the offense of causing inundations of water is thus evidence of the importance that ancient China placed on “equalization” or equitable distribution of waters.

According to this principle, upper riparian water users would be prohibited from blocking or monopolizing the resource. It would be possible to dam a minor branch canal for irrigation purposes for a short time where the land “is high and the water low.” One general regulation of the Tang Dynasty stated, “[w]henver there is a major canal used for irrigation, where the water itself is low and the land is high, dams may not be constructed in the canal itself.”<sup>148</sup> Applying this principle to modern governance, water allocation schemes would need to consider dam construction plans (with the goal of sustaining rivers), which they currently do not. Today, China is in the business of causing inundations that store and modify the flow of rivers. Although these inundations are authorized by the Central government, there is some irony that it may be acting against the harmony of nature, which the ancient rulers forbade.

#### *Allocation Plans*

The principle of equilibrium emphasizes harmony between different human interests. If centrally planned water allocation schemes incorporate the needs of diverse user groups, greater compliance with water laws and strategies is likely.<sup>149</sup> Customary law is, by definition, an inductive rather than deductive source of law. Rooted in what parties “believe and do,” rather than “agree to do,”<sup>150</sup> customary law circumvents the problems of implementation and enforcement that plague statutory law. This phenomenon has been described as follows: “if a minority coercively imposes law from above, then that law will require much more force to maintain social order than is required when law develops from the bottom

---

144. *Id.*

145. *Id.*

146. Caponera, *supra* note 138, at 250.

147. *Id.*

148. *Id.* at 255.

149. MEINZEN-DICK & NKONYA, *supra* note 49, at 23.

150. CURRIE, *supra* note 119, at 100.

through mutual recognition and acceptance.”<sup>151</sup> By incorporating user customs into resources management, lawmakers would increase the level of cooperation within, implementation of, and compliance with a management system.<sup>152</sup> Thus, environmental customary law would fortify the internal coherence and consistency of water law in practice.

Since customary law is rooted in what parties actually do or have done over a long period of time, it gives legal structure to a group’s customs and reinforces a group’s sense of responsibility and law-making power.<sup>153</sup> This is empowering.<sup>154</sup> If resource user groups apply traditional customs as a source of power within the dominant culture, they benefit from this reinforced sense of self.<sup>155</sup> In Canada and Australia, for instance, occupational groups involved in fishing and grazing seek the power that comes with their ability to interpret their own customs.<sup>156</sup> Recognizing customary law empowers users to take responsibility for a resource. Consequently, although multi-stakeholder platforms that assert equilibrium between user groups may increase the time required to create laws and regulations, they pay off with increased legitimacy, higher compliance, and lower enforcement costs.<sup>157</sup>

In Yunnan’s Yungui Plateau, despite the weakening of ethnic customary laws, norms, and traditional values beginning in the 1950s, these still exist in remote ethnic group dwellings.<sup>158</sup> In addition, despite the effect of the Cultural Revolution from 1966 to 1976 on the practice of religious rituals, most indigenous communities adhere to their earlier norms of forest management.<sup>159</sup> Most of Yunnan’s natural resources exist on territory that is governed by a range of customary institutions and rules and monitored and enforced by village chiefs, elders, and governors.<sup>160</sup> Although the effectiveness of these customary institutions depends on the “cultural identity and local resilience to external influences,”<sup>161</sup> these institutions shape villagers’ social relationships, attitudes, and technologies, which ensure the sustainability and collaborative management of natural resources. Ethnic communities with place-based spiritual practices use location to define their sense of identity, livelihood, and culture. Thus,

- 
151. BENSON, *supra* note 121, at 12.
  152. ØREBECH ET AL., *supra* note 127, at 436.
  153. *Id.* at 435.
  154. *Id.*
  155. *Id.*
  156. *Id.*
  157. MEINZEN-DICK & NKONYA, *supra* note 49, at 23.
  158. LI & SONG, *supra* note 131, at 10.
  159. Xu & Ribot, *supra* note 134, at 155.
  160. *Id.*
  161. *Id.*

environmental customary law in local communities in Yunnan is more deeply integrated into local community practice than statutory laws that protect the environment.<sup>162</sup>

In addition, according to ancient Confucian China, authorities had a duty to ensure that water is spread equitably everywhere, without partiality.<sup>163</sup> Applying this to modern water management would support greater clarification of and equity in water rights. Today, the Chinese Supreme Court upholds this notion:

It is a principle that all riparians possess an equal right to use flowing waters. Therefore, if one [riparian] utilizes [flowing water] in such a way as to subtract [from] the [water] that [another] needs, [the former] must pay compensation in order to . . . undertake the works which [allow him/her to] enjoy his [her] right to . . . water.<sup>164</sup>

Thus, the Confucian principle of equilibrium and harmony is consistent with modern Supreme Court jurisprudence in China.

#### *Dispute Resolution*

Through its emphasis on equilibrium, environmental customary law creates the ethic of the precautionary principle. The precautionary principle states that when faced with “threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”<sup>165</sup> Although not universal as a core element of international environmental law, the customary norm of precaution serves to prevent disputes such as those over scarce water.

By emphasizing the ideal of equilibrium between people and nature, environmental customary law in China supports values that prevent the loss of ecosystem integrity resulting in disputes. In addition, by focusing on the harmony between people rather than on individual rights, environmental customary law emphasizes personal liability and responsibility for the greater good. For example, it states that people must protect holy forests from being cut, not tread on grasslands in the spring, and, in order to preserve water for religious or worship purposes, not pollute plateau

---

162. M.A. Cenye, *The Roles of the Hani's Common Law Playing in the Forest Protection*, 18 J. HONGHE U. 1, 1–5 (2010).

163. *Id.*

164. *Id.* at 269.

165. ØREBECH ET AL., *supra* note 127, at 390.

lakes.<sup>166</sup> By avoiding the privatization of rights and responsibilities,<sup>167</sup> which lead to litigation and dispute settlement, customary law depends on an internalized sense of obligation and responsibility, in this case, for the environment.

In addition, by basing legal requirements on the traditional cultures of local communities, reflecting their natural history, customs, and culture, environmental customary law improves the implementation of mediated agreements, particularly in areas dominated by minority groups. The pervasive failure of implementing mediation agreements in China suggests that the role that formal dispute resolution plays is to confirm the dispute rather than to solve it. Better application of customary law, however, would not only avoid water disputes in the first place but also improve the enforcement of mediation agreements. Although the mediation mechanisms to resolve water disputes under the 2002 Water Law are not sufficient, with guidance from the laws and traditions of ethnic minorities, this statute can be applied as a legal framework to improve water allocation and the maintenance of in-stream water flows.

## ii. Reciprocity

The principle of reciprocity dictates that an exchange exists between humans and nature, and such an exchange must be respected.<sup>168</sup> Although statutory legal systems are rigid and favor predictability, they must incorporate flexibility and resilience to respond to the changing, unpredictable nature of the natural environment.<sup>169</sup> Environmental customary law offers this resilience, flexibility, and embeddedness, for example, to statutory allocations in the management of water.<sup>170</sup> It also supports adaptive management, which is particularly appropriate for the unpredictable and unstable characteristics of water.<sup>171</sup> Customary law has

---

166. Nan Wenyuan, *The Taboos in Tibetan Areas and the Role They Have Played in Environmental Protection*, 3 N.W. MINORITIES RES. 21, 21–29 (2001).

167. ØREBECH ET AL., *supra* note 127, at 253.

168. LI & SONG, *supra* note 131, at 10.

169. ØREBECH ET AL., *supra* note 127, at 249.

170. See Susan Hanna & Svein Jentoft, *Human Use of the Natural Environment: An Overview of Social and Economic Dimensions*, in RIGHTS TO NATURE: ECOLOGICAL, ECONOMIC, CULTURAL, AND POLITICAL PRINCIPLES OF INSTITUTIONS FOR THE ENVIRONMENT 35, 35–50 (Susan S. Hanna et al. eds., 1996) (discussing the property-rights regimes humans use to control their use of the natural environment according to their values, goals, and objectives, and the adaptations they make to an uncertain environment).

171. See D.R. Nelson, W.N. Adger & K. Brown, *Adaptation to Environmental Change: Contributions of a Resilience Framework*, ANNUAL REV. ENVTL. RES. 395, 409–410 (2007) (discussing how adaptive management decisions can be altered to meet changing parameters); ØREBECH ET AL., *supra* note 127, at 246.

the advantage over statutory law of not depending on codification or legislation.<sup>172</sup> Further, customary law applies the knowledge and adaptive capacity in interacting with nature<sup>173</sup> that traditional societies have applied throughout history, and informs the implementation of modern water law.<sup>174</sup>

### *Water Rights*

Environmental customary law is adaptive in nature because it anticipates potential fluctuations in water supply and expressly mandates more conservative use of resources. This reduces ambiguity, enforcement problems, and future conflict. Specifically, customary law is helpful in regulating not “how much” (e.g., of fish or forest resource) a community should harvest, but “how.”<sup>175</sup> It also offers “fine-grained” rules that facilitate modification and allow for feedback mechanisms to inform future practice.<sup>176</sup>

### *Allocation Plans*

The advantage of customary law to ensure environmental flows lies in the extent to which it supports resilience.<sup>177</sup> Resilience is defined as a system’s ability to adapt to changing conditions, and is increasingly the subject of study in management, law, ecology, and economics.<sup>178</sup> Like the process of adaptive management, resilient environmental customary law incorporates lessons from nature through a cycle of intervention, assessment, and adoption.<sup>179</sup> For example, recognizing that cyclones are an unpredictable reality in the South Pacific Ocean, the Samoan people adopted the custom of planting multiple crops with the expectation that some would be destroyed by cyclone damage.<sup>180</sup> This redundancy is similar to the custom of maintaining large forested areas, and provides resiliency: security against potential damage, adaptive capacity, and sustainability over the long-term. Despite being continuously amended, China’s statutory law does not offer this resilience and responsiveness to natural unpredictability,

---

172. BIRNIE ET AL., *supra* note 124, at 22.

173. Interview with Glenn W. Sheen (Oct. 21, 2011) (on file with author).

174. ØREBECH ET AL., *supra* note 127, at 248.

175. *Id.* at 253.

176. *Id.* at 253.

177. *Id.* at 245.

178. *Id.*

179. HANNA J. CORTNER & MARGARET A. MOOTE, *THE POLITICS OF ECOSYSTEM MANAGEMENT* 37 (1999).

180. ØREBECH ET AL., *supra* note 127, at 252.

nor does it incorporate long-term knowledge of local natural conditions. By asserting the reciprocity between nature and people, environmental customary law offers responsiveness to changes in water resource availability and promotes adaptive management<sup>181</sup> in its allocation.

Resilience is not a feature of all customary law, and some well-functioning customary law systems collapsed when circumstance changed; however, having evolved over time with changes, the surviving ones exhibit resilience.<sup>182</sup> Since the world's ecological, technological, and social structures are changing at different and often increasing rates, water allocation that meets the needs of current and future generations must be capable of adapting to a wide range of future scenarios and conditions.<sup>183</sup> Generally, the customary law systems that are most likely to support resilience in management and meet increasing change have the following characteristics:

- (i) A good historical record, oral or written, of the way the system has worked in the past under different environmental conditions,
- (ii) An effective procedural mechanism for making rule changes built into the system,
- (iii) A process that feeds information on current operations back into the rule modification process,
- (iv) Sufficiently finely-detailed rules that can be 'tweaked' without wholesale revision, and,
- (v) Rules that provide for a balance of rights and responsibilities relating to a wide range of ecosystem functions and thus that facilitate the negotiation of meaningful modifications.<sup>184</sup>

Thus, careful application of the reciprocity principle in environmental customary law would improve the resilience of statutory water law, maintain environmental flows, and support water allocation planning in China.

### iii. Duality

Environmental customary law asserts "duality," that everything has a complementary opposite. This means that decision-makers can combine

---

181. CORTNER & MOOTE, *supra* note 179, at 43–44.

182. ØREBECH ET AL., *supra* note 127, at 246.

183. *Id.* at 245.

184. *Id.* at 245–46.

both traditional and modern approaches to water rights and allocation.<sup>185</sup> Environmental customary law houses traditional knowledge that supports viable ecosystems, which can improve and animate statutory law. In addition, recognizing customary law serves to protect this knowledge about ecosystems. In Canada and Australia, for example, attaching power to indigenous knowledge is the only incentive to ensure that this knowledge survives.<sup>186</sup>

### *Water Rights*

Environmental customary law in China would support statutory law by overcoming limitations in hydrologic and place-based knowledge that confuse the current regime. Customary law is viewed “like a scrapbook containing useful knowledge that can be incorporated into management systems.”<sup>187</sup> Empirically derived indigenous knowledge for protecting water flows and water resources would thus inform the determination of hydrological limits to a river basin. Indigenous knowledge of a river basin over a long period of time prior to development, the protection of sacred sites, and an understanding of land-water interactions would establish a baseline from which water entitlements could be created to protect the ecology of the river. In addition, although environmental customary law is place-based, it is flexible and allows one specific environmental customary law to be applied in different places. Thus, customary principles in law would help define practices that affect both ownership and access rights to water.<sup>188</sup>

Yunnan province is rich with traditional knowledge and place-based customary law that would support the definition of water rights in China. The natural history, geography, lifestyle, and religion of different ethnic groups in China’s Southwest, including Yunnan, as well as those of Guizhou, Sichuan, Guangxi, and Chongqing, have generated distinct customs that inform farming practices and interactions with land and water.<sup>189</sup> Customary law not only applies to river basin protection, but also to forests, arable land, and community environmental protection.<sup>190</sup> In Yungui Plateau, where Yunnan is located, it provides place-specific clarification of the general principles of environmental customary law. In

---

185. LI & SONG, *supra* note 131, at 10.

186. ØREBECH ET AL., *supra* note 127, at 436.

187. *Id.*

188. LI & SONG, *supra* note 131, at 17.

189. *Id.* at 4.

190. Guo, *supra* note 132.

Yungui, environmental customary law takes the form of villager regulations or word of mouth.<sup>191</sup> Environmental customary law is applied in small areas and usually each minority has its own religious or village regulations.<sup>192</sup> Being place-based, it focuses on sacred places for worship that are in a convenient location, such as “at home, in the family garden, on a tree, at the family water well, on a rock nearby, or a small community sacred hill within easy walking distance.”<sup>193</sup> The more localized the worship site, the closer the relationship it bears with the wellbeing of the individual or household.<sup>194</sup> Environmental customary law also forms around village sacred sites, of which there are at least ten major ones in Yunnan Province. For example, a sacred site in Humugu-napa in Jiantang Township, Shangrila partially overlaps with a Ramsar-protected wetland and provincially protected area.<sup>195</sup> The sacred site in Yubeng Natural village, Yuling Township is the most important regional sacred mountain in southwest China.<sup>196</sup> Customary law involves at least a dozen other sacred sites in Yunnan.<sup>197</sup> Customary protection of sacred sites and river features would improve the effectiveness of the definition of water rights and entitlements.

#### *Allocation Plans*

Environmental customary law also supports an approach to water allocation that modern statutory law would readily absorb. Specifically, customary law is applicable to the water allocation and transfer framework of the 2002 Water Law. The Water Law framework establishes a hierarchy of water rights: (i) regional rights, (ii) abstractor rights, and (iii) user-level rights.<sup>198</sup> In a regional allocation plan, the central government grants water rights to an administrative region that allocates its share among water abstractors or to a sub-region.<sup>199</sup> This provides long-term goals for water use and theoretically creates water reliability for different classes of users.

At the regional level, environmental customary law would be a source of information to determine long-term goals for water allocation and

---

191. Liu Yan-ling, *On the Environment in Guizhou Miao Customary Law*, 28 *Guizhou Ethnic Studies* 122, 7–11 (2008); Yang Shi-jie, *On the Ways of Production and the Eco-protection of Yunnan Minority Nationalities*, 23 *J. OF YUNNAN NAT. U.* 5, 119–122 (2006); Guo, *supra* note 132.

192. Li Ke, *On Villagers' Regulation*, 4 *FOLKLORE STUDIES* 16, 16–28 (2005).

193. LI BO ET AL., *REV. OF CCA STUDIES IN SW CHINA* 14 (2003).

194. *Id.*

195. *Id.* at 11.

196. *Id.* at 12.

197. *Id.* at 9–13.

198. Shen & Speed, *supra* note 1, at 271.

199. Water Law, *supra* note 21, at art. 44–47.

environmental protection. By applying the principle of duality, basin allocation plans would overcome insufficient attention to the hydrological requirements of rivers. This is accomplished by viewing the ecosystem (and its environmental flows) as a class of user, among industry, agriculture, and other groups of water users. The ecosystem itself, or indigenous users of environmental flows, would represent the ecosystem as a class of user. Further, in light of the fact that customary law may reflect unequal power relations, gender-specific needs would be included as a class of user. Thus, any formalization of water rights to protect traditional livelihoods and environmental flows would incorporate a mechanism for bringing in new users.<sup>200</sup> In this way, the allocation process at the regional or basin level would more accurately “identify . . . out of stream water requirements, including both volumes and reliabilities for supplying this need.”<sup>201</sup> Thus, the general planning step to determine the appropriate scale of human water allocations would observe the hydrological and ecological regimes of a river basin (or aquifer) and occur before the distribution of water licenses or permits for human use and trading.<sup>202</sup> In this model, governments would determine the requirements for environmental flows prior to granting consumptive water uses and the associated conditions of these rights.

In considering the possible contents of water law, scholars have suggested that hydropower development corporations, which radically affect environmental flows and use public waters, be treated as users and, as such, subject to the provisions of the Water Law.<sup>203</sup> Thus under the 2002 Water Law, the allocation scheme would include abstraction permits and conditions for hydroelectric power production and water distribution. This would improve the coordination of water allocation for industrial uses, including electricity generation, with traditional uses such as agriculture, navigation, and fisheries.

Thus, the duality and flexibility of environmental customary law would support its use in developing the State’s strategy for water allocation.

### *Dispute Resolution*

In conjunction with the concepts of equilibrium and reciprocity, applying the principle of duality would reduce conflict over scarce water. Due to the high costs of enforcing water (compared to land) rights and the limitations in government agency capacity in rural areas, which still cover

---

200. MEINZEN-DICK & NKONYA, *supra* note 49, at 23.

201. Shen & Speed, *supra* note 1, at 271.

202. *Id.* at 270.

203. Caponera, *supra* note 138, at 148.

much of Asia, customary law has authority to be “as effective as State law as a basis for claiming water rights.”<sup>204</sup> Based on local norms and community sanctions, customary law has higher internal consistency and authority. In countries with development conditions similar to those of China, such as Nepal and India, attempts to formalize rights over the use of water have often triggered conflict.<sup>205</sup> Theories of and experience with land-based property rights suggest that the use of defined property rights creates shared expectations and reduces conflict over resources.<sup>206</sup> Water, unlike land, however, is a fluctuating resource, and creating fixed expectations for it through property “rights” disregards the fundamental characteristics of the resource.<sup>207</sup> Instead, using local norms and principles, rather than rules, as a basis for claiming water rights would create greater flexibility in tenure arrangements and enable more peaceful water management. Customary law provides adaptive or flexible rules that unambiguously represent the required management practices and allocations required by local conditions, particularly where the resource is very variable.<sup>208</sup>

Although using customary law can be more effective than the application of land-based property rights to water, in Yunnan, customary law for water and forest resources are closely tied. One example of environmental customary law protecting the headwater forests of Ana Village in Chuxiong Prefecture, central Yunnan, has been famously immortalized in stone. From the year 1714 in the Qing Dynasty, it reads:

A man with a beard is respected (indicative of his seasoned age and rich experience). . . . A person with a beard and hair is like a mountain covered with forest and grass. . . . A mountain sheltered in forest and grass is like a person well clothed. A barren mountain is no different from a naked person, exposing its flesh and bone. An unsheltered mountain with poor soil painfully bears great resemblance to a penniless and rugged man. Even a pine tree or single bamboo grows thousands of leaves and branches, how can a mountain tolerate a treeless state? Yes, indeed, no one does not enjoy being amongst clean streams and green mountains. Everyone understands that only healthy green forest and fertile soil can nurture ever-flowing springs.

---

204. MEINZEN-DICK & NKONYA, *supra* note 49, at 15.

205. *Id.* at 21.

206. *Id.*

207. *Id.*

208. *Id.*

None doubts the significance of those fundamental elements of nature such as soil, water, and fire. Yet, do we know it is the root of trees and forest that brings us water? It is for our benefit and fortune. Meanwhile, upon the order of the officials, our village has established a tradition of electing village forest guard since the time of Chi'ien-lung Emperor [Qing Dynasty]. Alas there have been so many generations of the old who have conscientiously protected our village's forests till today. Let us dare not to discontinue this tradition...<sup>209</sup>

Thus, applying the customary law for forests and water would directly protect water resources. Being a holistic approach to land and water management, environmental customary law in Yunnan would thus reduce conflicts over water without clashing with forest management.

In addition to combined forest-water customary law, the southwest mountain region of China in Yunnan province is home to a "rich set of customary laws to protect water resources."<sup>210</sup> For instance, the Dai ethnic group in Nu Prefecture of Yunnan is closely related to the Thai from Thailand and practices a form of Buddhism that includes the protection of sacred forests and springs. The Dai are accustomed to living in hot valleys rather than in the mountains, and possess a long tradition of living near the water. In particular, they live in interconnected human-ecological systems of paddy-rice agriculture that hold irrigation as the centerpiece of their culture.<sup>211</sup> Recognizing this traditional form of water management would reduce conflicts in the area.

Further, by facilitating greater access to indigenous leaders, elders, and village committees familiar with mediation and negotiation over natural resources, the use of environmental customary law would improve the capacity, quality and expertise of mediators.<sup>212</sup> Not only would it support the acquisition of factual evidence, but it would also employ mediators who are familiar with the legal tradition of customary law. It would impose

---

209. XU & MELICK, *supra* note 76, at 17.

210. Yang Yanping et al., *On the Customary Law of Water Resources Protection of Minorities in Southwest Mountain*, ECOLOGICAL ECON. (2010), available at [http://en.cnki.com.cn/Article\\_en/CJFDTOTAL-STJJ201005046.htm](http://en.cnki.com.cn/Article_en/CJFDTOTAL-STJJ201005046.htm).

211. McDonald, *supra* note 55, at 95.

212. Wei-dong Hu & Da-hua Wu, *On the Customary Law on Forest Property Rights of the Miao Ethnic Group in Taijiang County, Guizhou Province-Taking Yangfang Village for Example*, 33 J. GUANGXI U. FOR NATIONALITIES (Philosophy and Social Science Edition) 1, 135-141 (2011); Li Jian & Yang Ling, *Analysis About Construction of the ADR System In Chinese Concentrated Area Of Nationalities*, 8 J. JURIS. 127, 127-30 (2011).

decisions under a clearer, more consistent framework, relevant to modern dispute resolution.<sup>213</sup> Thus, the principle of duality provides a basis for applying both customary and statutory law in dispute resolution.

### III. STATUTORY SUPPORT FOR CUSTOMARY LAW IN CHINA

Despite its centralized authority over water resources, China gives autonomous regions and ethnic minorities some discretion in the management of natural resources. The Constitution allows China's Autonomous Areas, under the guidance of State plans, to independently arrange and administer local economic development, including the exploitation of natural resources, including water.<sup>214</sup>

In addition, the Law of the People's Republic of China on Regional National Autonomy<sup>215</sup> gives authority, under State leadership, to minority nationalities to "practise regional autonomy in areas where they live in concentrated communities and set up organs of self-government for the exercise of the power of autonomy."<sup>216</sup> These nationalities have the legal authority to enact separate regulations that recognize their region's unique political, economic, and cultural characteristics.<sup>217</sup> Subject to review and approval of the Standing Committee of the NPC, these regulations become effective.<sup>218</sup> This gives minority nationalities the statutory authority to manage water resources according to their own organs of government and exercise of autonomy.

The Constitution also protects the rights and interests of ethnic minorities, including their language, and "own ways and customs."<sup>219</sup> With the approval of State authorities, if a national resolution does not suit an autonomous minority area, local authorities may either implement it with alterations, or cease implementation.<sup>220</sup> This offers a unique legislative opportunity for greater participation of autonomous regions and ethnic

---

213. Xie Hui, *On Folk Law and Dispute Resolution*, 6 *Sci. of L.* 35, 35-45 (2011).

214. Constitution of the People's Republic of China, *supra* note 22, at art. 118.

215. Law of the People's Republic of China on Regional National Autonomy (promulgated by Order No.13 of the President of the People's Republic of China Nat'l People's Cong., May 31, 1984, effective Oct. 1, 1984) available at [http://www.china.org.cn/government/laws/2007-04/13/content\\_1207139.htm](http://www.china.org.cn/government/laws/2007-04/13/content_1207139.htm).

216. *Id.*

217. Wouters et al., *supra* note 30, at 255.

218. *Id.*

219. Constitution of the People's Republic of China, *supra* note 22, at art. 4.

220. Law of the People's Republic of China on Regional National Autonomy, *supra* note 215, at art. 20.

minorities in water management. Thus, China's Constitution and the Law of the People's Republic of China on Regional National Autonomy provide a framework in which the use of customary indigenous law may be applied to balance the top-down governance of water resources with stronger bottom-up integration under the 2002 Water Law.

An analysis of environmental customary law in Yunnan and of ancient Han culture demonstrates that these traditions are place-based and contain a relatively good historical record for functioning forest and water ecosystems, are detailed but could be tweaked without wholesale revision, and provide responsibilities over a range of ecosystem functions (including headwater protection and environmental flows). What is less clear is how those rights and responsibilities are maintained, internally, through a "sense of duty" by the local resource users, and possibly, as a last resort, by the penal code. It is also not clear from our understanding of the environmental customary law what the process for incorporating new information into rulemaking is and what the mechanism of changing the rules is. Despite these uncertainties in promoting resilience, environmental customary law provides a foundation for equilibrium, reciprocity and duality that would improve water allocation in modern China.

#### CONCLUSION

As a result of its large population, its uneven distribution of water resources, extensive pollution from industrial, domestic, and agricultural sources, and mounting industrial energy demands, China is facing increasing water scarcity. Indigenous and customary environmental law provides a basis for the first step of planning in the allocation of water rights according to the ecological limits of a river. China's water governance faces water rights that are poorly defined, insecure and irrelevant, allocation plans that lack recognition of local conditions and environmental flow regimes, which impair coordination and implementation, and dispute settlement that is unequipped to deal with water disputes effectively. The 2002 Water Law provides ample opportunity for this through incorporation of indigenous and customary environmental principles into the regional planning step of water allocations.

In particular, environmental customary law offers three general principles that statutory law may use to improve implementation: harmony or equilibrium, reciprocity, and duality. These three principles of customary law would help respectively reduce (i) water disputes, (ii) improve adaptive capacity and (iii) expand our understanding of the natural systems. In addition, incorporating indigenous knowledge and understandings of local

systems would improve the planning for environmental flows which is needed as a first step before water rights allocations. Ancient traditions of the Han majority are consistent with these fundamental ethnic customary principles.

With its history of natural resource exploitation in the service of the central government, as well as its rich environmental customary traditions, Yunnan has the potential to benefit from the greater incorporation of customary water law. Though the theoretical feasibility and practicality of these options is persuasive, the politics necessary to bring about these changes may present a formidable challenge. Ultimately, strengthening the pluralist recognition of customary and traditional legal approaches in China would improve the equity, efficiency, and ecological sustainability of water management in regions where, too often, plans lack local validity.