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# THE EMERGING WATER CRISIS ALONG THE U.S.-MEXICO BORDER

Lane Arnold\*

IN addition to the surface waters of the Rio Grande, the United States and Mexico share seventeen groundwater basins.<sup>1</sup> Without institutions to control groundwater pumping or international agreements to protect aquifers and regulate shared use, factors such as border-region population growth and inconsistent legal frameworks converge to create a situation in which nothing prevents either the United States or Mexico from overusing or polluting shared water resources.<sup>2</sup> Paul Ganster, chairman of the Good Neighbor Environmental Board (GNEB), recently described the United States and Mexico as “sitting at a table in the hot sun with a glass of water between us with two straws. . . . It’s a race to the bottom.”<sup>3</sup>

## I. LEGAL FRAMEWORK AND INSTITUTIONS

Water management along the U.S.-Mexico border is complicated by vastly differing water-management legal frameworks in Mexico and the United States.<sup>4</sup> Bilateral attempts at management through organizations like the International Boundary and Water Commission have been unsuccessful partly due to external factors like drought.<sup>5</sup> Despite the difficulties, institutions like the GNEB diligently strive to implement workable management strategies.<sup>6</sup>

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1. Marilyn C. O’Leary, *The Bellagio Draft Treaty as a Tool for Solving Border Groundwater Issues*, 11 U.S.-MEX. L.J. 57, 57 (2003).
2. Robert E. Hall, Note, *Transboundary Groundwater Management: Opportunities Under International Law for Groundwater Management in the United States-Mexico Border Region*, 21 ARIZ. J. INT’L & COMP. L. 873, 877 (2004).
3. Phil Magers, *Analysis: U.S.-Mexico Water Plan Needed*, UNITED PRESS INT’L, Mar. 9, 2005.
4. Hall, *supra* note 2, at 876.
5. Carlos Marin, *Bi-National Border Water Supply Issues from the Perspective of the IBWC*, 11 U.S.-MEX. L.J. 35, 39 (2003).
6. See generally GOOD NEIGHBOR ENVTL. BD., WATER RESOURCES MANAGEMENT ON THE U.S.-MEXICO BORDER: EIGHTH REPORT TO THE PRESIDENT AND THE CONGRESS OF THE UNITED STATES (2005), available at [http://www.epa.gov/ocem/gneb/gneb\\_president\\_reports.htm](http://www.epa.gov/ocem/gneb/gneb_president_reports.htm) (select “GNEB 8th Report”).

## A. THE MEXICAN LEGAL FRAMEWORK

Mexico's centralized water management system considers water a national resource, subject to allocation by the federal government.<sup>7</sup> The fifth paragraph of the Mexican Constitution of 1917 defines virtually all water as "national waters," and the sixth paragraph specifies that national waters can only be utilized by private individuals or corporate entities through concessions of the Mexican federal government.<sup>8</sup> The issuance of national water law through federal legislation is enabled by section XVII of constitutional article 73, and constitutional article 115 grants municipalities the authority and responsibility to provide potable water.<sup>9</sup> Mexico's current National Waters Law<sup>10</sup> (NWL) confirms the Mexican government's domain over national waters and preserves the principle set forth in the Mexican Constitution that national waters can only be used by concession of the federal government.<sup>11</sup> The NWL permits the use of water for public urban use, agricultural use, power generation, and other productive activities.<sup>12</sup> Each of these four categories uses water through concessions to private entities or allotments, which are essentially concessions to governmental agencies.<sup>13</sup>

## B. THE U.S. LEGAL FRAMEWORK

In contrast to Mexico's centralized federal system of water management, the U.S. system involves federal, tribal, regional, and local governments, which include irrigation districts, publicly regulated utilities, and domestic water users.<sup>14</sup> Management of ground water and surface water generally falls within the jurisdiction of individual states, and each of the four U.S. states bordering Mexico has a water management system that differs somewhat from each of the other three.<sup>15</sup> This result is not surprising given that the water management systems of the different states are built upon differing legal frameworks. For example, in New Mexico, under the prior appropriation doctrine, "all ground and surface waters belong to the public and are subject to appropriation" by the State engineer's office.<sup>16</sup> But in Texas, groundwater belongs to landowners under the rule of capture doctrine, and surface water belongs to the state under

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7. Hall, *supra* note 2, at 876.

8. See Abdon Hernandez, *Water Law in the Republic of Mexico*, 11 U.S.-MEX. L.J. 15, 18-19 (2003) (quoting Constitución Política de los Estados Unidos Mexicanos [Const.], 5 de Febrero de 1917 (Mex.)).

9. *Id.* at 19.

10. Ley de Aguas Nacionales [L.A.N.] [National Water Law], Diario Oficial de la Federación [D.O.], 1 de Diciembre de 1992 (Mex.).

11. Hernandez, *supra* note 8, at 20.

12. *Id.*

13. *Id.* at 21-23.

14. GOOD NEIGHBOR ENVTL. BD., *supra* note 6, at 3.

15. *Id.*

16. John Romero, Water Resources Allocation Program (WRAP) Division Director, New Mexico Office of the State Engineer, Water Information, [http://www.ose.state.nm.us/water\\_info\\_index.html](http://www.ose.state.nm.us/water_info_index.html) (last visited Apr. 2, 2007).

a merger of the prior appropriation and riparian doctrines.<sup>17</sup> The net result of such differences is that in the United States, responsibilities of supply planning and regulation often overlap among various governmental authorities, and numerous gaps in management responsibilities exist between the groups.<sup>18</sup> These gaps, caused by the lack of a unified U.S. legal framework and disparate state-level rules, substantially hinder the development of a comprehensive U.S.-Mexico cross-border water management solution.<sup>19</sup>

### C. THE INTERNATIONAL BOUNDARY AND WATER COMMISSION

The International Boundary and Water Commission, United States and Mexico (IBWC), initially established by treaty in 1944,<sup>20</sup> applies the boundary and water treaties between the United States and Mexico and settles disputes that arise in the application thereof.<sup>21</sup> Water supply issues tend to occupy the IBWC because drought plagues most of the border region.<sup>22</sup> With respect to the Rio Grande, the 1944 Treaty mandates that the IBWC monitors and records water flows that enter the river system from Fort Quitman, Texas, to the Gulf of Mexico.<sup>23</sup> The United States receives one-third of the water flow from six major tributaries entering the Rio Grande from Mexico and 100 percent of the flow from the tributaries on the U.S. side.<sup>24</sup> Water flow not otherwise allotted in the treaty, known as fifty-fifty water, are distributed among the United States and Mexico at a rate of 50 percent each.<sup>25</sup> Water for each country is stored in the Amistad and Falcon international reservoirs, which are located on the Rio Grande.<sup>26</sup>

### D. MEXICO'S DEFICIT

According to the U.S. section of the IBWC, Mexico has accrued a sizeable water deficit to the United States, owing nearly 1.5 million acre-feet through the delivery cycle ending October 2, 2002.<sup>27</sup> While the United States has remained current in its treaty obligations to release waters to Mexico, Mexico's debt comes from a failure to allocate at least 350,000 acre-feet per year to the United States from the Rio Conchos.<sup>28</sup> In an

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17. Texas Water Resource Education, Texas A&M University, Texas Water Law, <http://texaswater.tamu.edu/waterlaw.texas.htm> (last visited Apr. 2, 2007).

18. GOOD NEIGHBOR ENVTL. BD., *supra* note 6, at 3.

19. See Hall, *supra* note 2, at 876.

20. Treaty Relating to the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, U.S.-Mex., Feb. 3, 1944, 59 Stat. 1219, art. 2, [hereinafter 1944 Treaty], available at <http://www.usbr.gov/lc/region/pao/pdf/files/mextrety.pdf>.

21. Marin, *supra* note 5, at 35.

22. *Id.*

23. 1944 Treaty, *supra* note 20, art. 4.

24. *Id.* arts. 4(B)(a), (c).

25. Marin, *supra* note 5, at 35.

26. *Id.*

27. *Id.* at 36.

28. Jill Warren, *Mexico's Compliance with the 1944 Water Treaty Between the United States and Mexico: A Texas Perspective*, 11 U.S.-MEX. L.J. 41, 42 (2003).

effort to alleviate the deficit, Minute 307 was adopted in 2001, requiring Mexico to deliver 600,000 acre-feet of water and develop additional measures to cover the deficit of outstanding water cycles.<sup>29</sup> But Mexico had only paid 427,000 acre-feet five months after the date that the 600,000 acre-feet payment was due.<sup>30</sup> Heavy rains have allowed Mexico to cut its 1.5 million acre-feet debt in half in recent years.<sup>31</sup>

One study indicates evidence that factors other than drought may be at play.<sup>32</sup> At least one commentator alleges that Mexico's deficit is willful, arguing, "[t]here is hard evidence that instead of paying the United States the water it owes, Mexico is expanding its irrigated acreage and planting more water-intensive crops."<sup>33</sup> These types of allegations have culminated in a high-stakes legal claim.<sup>34</sup> In 2004, Texas farmers and irrigation officials filed a claim for \$500 million in damages against Mexico for violating the 1944 Treaty.<sup>35</sup> This claim, filed under provisions of the North American Free Trade Agreement (NAFTA), seeks damages for economic losses suffered during the drought of 1992-2002, a time period during which the claimants allege that Mexico was not sharing enough water pursuant to the 1944 Treaty.<sup>36</sup> The two NAFTA provisions under which the claim was filed forbid a nation from (1) expropriating the property of citizens of another nation without fair compensation, and (2) discriminating against the citizens of another nation in favor of one's own citizens.<sup>37</sup>

#### E. THE GOOD NEIGHBOR ENVIRONMENTAL BOARD

The GNEB is a diverse U.S. presidential advisory committee composed of representatives from several U.S. federal government agencies, representatives from each of the four border-states, and representatives from the tribal, local government, non-profit, ranching and grazing, business, and academic sectors.<sup>38</sup> Each year, the GNEB publishes a report to the President and Congress as a concerned observer addressing problems and noting opportunities in the border region.<sup>39</sup> The GNEB's eighth report, published in 2005, concerns the management of the U.S.-Mexico border's

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29. *Id.* at 43-44.

30. *Id.* at 44.

31. Phil Magers, *Analysis: Angry Texas Farmers Sue Mexico*, UNITED PRESS INT'L, Aug. 30, 2004.

32. C. PARR ROSSON, III, AARON HOBBS & FLYNN ADCOCK, A PRELIMINARY ASSESSMENT OF CROP PRODUCTION AND ESTIMATED IRRIGATION WATER USE FOR CHIHUAHUA, MEXICO, 2, 8 (Center for North American Studies, Texas A&M University, May 2, 2002), available at <http://cnas.tamu.edu/publications/ChiWater.pdf> VERIFY SOURCE.

33. Warren, *supra* note 28, at 43.

34. Magers, *Angry Texas Farmers*, *supra* note 31.

35. *Id.*

36. *Id.*

37. *Id.*

38. See generally GOOD NEIGHBOR ENVTL. BD., *supra* note 6.

39. *Id.* at 1.

water resources.<sup>40</sup>

The GNEB notes barriers to trans-boundary water resources management including the lack of a management framework for groundwater, bi-national funding challenges, and different legal and institutional frameworks in the United States and Mexico.<sup>41</sup> The GNEB urges that the United States and Mexico:

Clarify current responsibilities held by U.S.-Mexico border-region institutions responsible for managing its water resources. Identify jurisdictional gaps and overlaps, interpret missions to reflect changing circumstances, and leverage opportunities for stronger cross-institutional collaboration. . . . Develop and sign formal U.S.-Mexico border-region water resources data agreements. Such agreements should support the collection, analysis and sharing of compatible data across a wide range of uses so that border-region water resources can be more effectively managed. . . . Implement a 5-year U.S.-Mexico border-region integrated water resources planning process. Using a stakeholder-driven watershed approach, address immediate concerns in the critical areas while pursuing collaborative longer-term strategies.<sup>42</sup>

Two days after the GNEB's eighth report was submitted, U.S. Secretary of State Condoleezza Rice and Mexican Foreign Minister Luis Ernesto Derbez expressed support for increased collaboration on water management.<sup>43</sup> Two ten-year, \$50 million legislative proposals working their way through Congress, S. 1957, 108th Cong. (2003) and H.R. 469, 109th Cong. (2005), would provide the funding and groundwork necessary to carry out the GNEB's recommendations.<sup>44</sup>

## II. GROUNDWATER ISSUES AND POSSIBLE SOLUTIONS

The United States and Mexico share seventeen ground water basins.<sup>45</sup> History has shown that when national parties share a water resource, formal agreements provide the only authoritative basis for allocating the rights and responsibilities between them.<sup>46</sup> But shared groundwater is not amenable to global agreements because the characteristics of trans-boundary groundwater vary from basin to basin.<sup>47</sup> Territorial links further complicate international trans-boundary water law as nations assert extreme territorial sovereignty in response to perceived threats to water

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40. *Id.*

41. *Id.* at 15-17.

42. *Id.* at ii.

43. RACHEL MCHUGH, INTERNATIONAL RELATIONS CENTER (IRC) AMERICAS PROGRAM, FEDERAL AQUIFER BILL WOULD HELP CALM TROUBLED U.S.-MEXICO BORDER WATERS, (Talli Nauman, ed., IRC, Mar. 21, 2005), available at <http://americas.irc-online.org/articles/2005/0503waterbill.html>.

44. *Id.*

45. O'Leary, *supra* note 1, at 57.

46. Marin, *supra* note 5, at 877.

47. *Id.*

resources.<sup>48</sup> For example, before recognizing legitimate Mexican claims in bilateral treaties, the United States asserted its absolute sovereignty over the waters of the Rio Grande in Colorado, New Mexico, and Texas under the so-called Harmon Doctrine.<sup>49</sup> While bi-national agreements have diminished U.S.-Mexico claims of absolute sovereignty, they “do not address water issues such as impairment, pollution, or subsidence.”<sup>50</sup> Fortunately, local institutions like the Paso del Norte Water Task Force are making strides in water resource management.<sup>51</sup> Additionally, the Bellagio Draft Treaty may represent a viable solution to the problems of existing treaties and protocols.<sup>52</sup>

#### A. BARRIERS IN WATER MANAGEMENT

The GNEB identifies barriers in water management, including a “[l]imited number of programs promoting water efficiency [and] conservation,” a “lack of information on best practices, or prioritization systems, to resolve conflicting values and demands,” and “[p]iecemeal implementation of watershed projects.”<sup>53</sup> The GNEB takes the position that much progress in these areas can be made with the current regime of institutions already addressing water issues along the border area.<sup>54</sup> In this respect, the GNEB identifies the Paso del Norte Water Task Force as one bi-national partnership making good headway in the areas of strategic planning and sustainable approaches to conservation and watershed management.<sup>55</sup>

#### B. THE PASO DEL NORTE WATER TASK FORCE

The GNEB notes that “strategic planning and binational collaboration . . . must be the foundation of water resources management work across the entire border region.”<sup>56</sup> The Paso del Norte Water Task Force is making great strides in trans-boundary water resources management in the Las Cruces-El Paso-Ciudad Juarez areas of New Mexico, Texas, and Chihuahua through strategic bi-national collaboration.<sup>57</sup> Citizen participation and diversity of membership are characteristics of the Paso del Norte Water Task Force, which is a small, organized non-governmental

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48. Hall, *supra* note 2, at 880 (citing A. Dan Tarlock, *International Water Law and the Protection of River System Ecosystem Integrity*, 10 *BYU J. PUB. L.* 181, 190-91 (1996)).

49. *Id.*

50. O’Leary, *supra* note 1, at 58.

51. See generally RACHEL MCHUGH, INTERNATIONAL RELATIONS CENTER (IRC) AMERICAS PROGRAM, PASO DEL NORTE WATER TASK FORCE FILLS VOID, (Talli Nauman, ed., IRC, Aug. 15, 2005), available at <http://americas.irc-online.org/am/284>.

52. See generally Robert D. Hayton & Albert E. Utton, *Transboundary Groundwaters: The Bellagio Draft Treaty*, 29 *NAT. RESOURCES J.* 663 (1989).

53. GOOD NEIGHBOR ENVTL. BD., *supra* note 6, at 35-38.

54. *Id.* at 1.

55. *Id.* at 31.

56. *Id.* at ii.

57. MCHUGH, PASO DEL NORTE *supra* note 51.

group.<sup>58</sup> The task force is comprised of three co-chairs, one each from New Mexico, Texas, and Chihuahua, who take turns presiding for six-month periods, and involves participation from all levels (city, county, and irrigation district) of water managers in the three states.<sup>59</sup> The task force, which involves those making management decisions, focuses on an identified area, providing joint studies, outreach activities, and direct policy recommendations.<sup>60</sup> Inter-jurisdictional consistency in local water planning, mediation of conflict over inconsistent water management procedures, and more holistic consideration of water resources, including both surface and groundwater, potable and brackish, are among the Paso del Norte Water Task Force's accomplishments.<sup>61</sup>

### C. THE BELLAGIO DRAFT TREATY

In response to the perceived deficiency of current bi-national treaties and protocols, Professor Albert E. Utton and Mexican Ambassador Cesar Sepulveda put forth the Bellagio Draft Treaty, which "outlines mechanisms for the management of international aquifers by mutual agreement [because] continued unilateral taking of these waters . . . is not a sustainable solution."<sup>62</sup> The Bellagio Draft Treaty creates a joint commission charged with carefully managing aquifers and associated surface waters to achieve optimum utilization and conservation, as determined on a reasonable and equitable basis.<sup>63</sup> The commission would collect, analyze, and store scientific data about water resources in databases relating to relevant hydrologic parameters like aquifer geometry, recharge rates, related surface waters, water quality, and ground water levels.<sup>64</sup> Based on these data, the commission would be authorized to declare trans-boundary water conservation areas, drought alerts and emergencies, and public health emergencies.<sup>65</sup>

The commission established by the Bellagio Draft Treaty has limited independent authority, serving as a common bilateral medium through which each party can pursue shared objectives.<sup>66</sup> The commission cannot permanently alter the rights and obligations set out in prior agreements, and the Bellagio Draft Treaty does not impose upon the sovereignty of the parties because it allows differences of opinion to be resolved by the governments or, if that fails, through mediation or arbitration.<sup>67</sup> The Bellagio Draft Treaty drafters identified the IBWC as a likely candidate for the responsibilities of the commission along the U.S.-Mexico border.<sup>68</sup>

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58. *Id.*

59. *Id.*

60. *Id.*

61. *Id.*

62. O'Leary, *supra* note 1, at 58.

63. *Id.* at 59 (citing Hayton & Utton, *supra* note 52, at 682).

64. *Id.*

65. *Id.*

66. Hall, *supra* note 2, at 891 (citing Hayton & Utton, *supra* note 52, at 688-97).

67. O'Leary, *supra* note 1, at 60 (citing Hayton & Utton, *supra* note 52, at 718).

68. Hayton & Utton, *supra* note 52, at 684-85.

## III. CONCLUSION

Given that the population along the United States-Mexico border is expected to double in the next fifteen years, cooperation and long-range planning are crucial in avoiding possible water shortages.<sup>69</sup> One commentator notes that “[t]he technical appropriateness and political palatability of the proposed solutions depend on the wide availability and accessibility of comprehensive data among all the parties that depend upon the shared resource.”<sup>70</sup> By establishing a bi-national commission responsible for data collection and aquifer management, the Bellagio Draft Treaty may present adequate and appropriate protocols for water resource management along the U.S.-Mexico border region. The GNEB also recognizes the importance of data collection and cooperation, calling for a region-wide water resources planning process that uses a stakeholder-driven watershed approach.<sup>71</sup> Under this proposed stakeholder-driven approach, parties with a vested interest in water-related decisions will meet to address immediate concerns in critical areas and pursue long term remedial strategies.<sup>72</sup> The Paso del Norte Water Task Force is one example of interested parties making tangible strides in water resource management under the stakeholder approach. Though there is still much to be done, bi-national recognition of the need for water resource management along the border could be the first step in averting the emerging water crisis.

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69. Magers, *Water Plan*, *supra* note 3.

70. Hall, *supra* note 2, at 911.

71. GOOD NEIGHBOR ENVTL. BD., *supra* note 6, at 1.

72. *See id.* at ii.