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## A Line Drawn in Water: Aquifers Beneath the Mexico-United States Border

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## INTERNATIONAL PERSPECTIVES

### A LINE DRAWN IN WATER: AQUIFERS BENEATH THE MEXICO-UNITED STATES BORDER

PAUL STANTON KIBEL\*

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### INTRODUCTION

In 1944, Mexico and the United States of America ("United States") entered into a treaty ("1944 Waters Treaty") to resolve competing claims to the surface waters of the Colorado River.<sup>1</sup> At the time the parties signed the 1944 Waters Treaty, the unpaved All-American Canal in the United States (located just north of and paralleling the Mexico-United States border) already transported Colorado River water to farms and cities in Southern California.<sup>2</sup> Although seepage from the earthen All-American Canal percolated down to replenish the Mexicali Valley-Imperial Valley Aquifer ("Mexicali-Imperial Aquifer") that straddles the Mexico-United States border near the cities of Mexicali (in Northern Baja Mexico) and Calexico (in California),<sup>3</sup> the 1944 Waters Treaty did not directly address the allocation or management of cross-border groundwater resources.

In 2005, the United States Bureau of Reclamation obtained the final approvals for a project to line the All-American Canal ("AAC") to prevent seepage and thereby increase the amount of Colorado River water the canal diverts and delivers to the City of San Diego, farmers in Imperial Valley, and other Southern California water users.<sup>4</sup> Some predict, however, that the prevention of this seepage will reduce the water table in the Mexicali-Imperial Aquifer with adverse impacts on farmers, cities and hydrologically-connected wetlands in Northern Mexico that rely on the groundwater.<sup>5</sup>

Mexican and American non-profit organizations challenged the United States' approval of the lining project in United States federal district court. This litigation in turn prompted the United States Con-

1. Treaty on the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, U.S.-Mex., Feb. 3, 1944, T.S. No. 994 [hereinafter 1944 Waters Treaty].

2. See Maria Rosa Garcia Acevedo, *Looking Across the Canal: Reflections on Visions and Policies on Water Issues in the United States*, in LINING THE ALL-AMERICAN CANAL: COMPETITION OR COOPERATION FOR WATER IN THE U.S.-MEXICAN BORDER? 129, 133-134 (Vicente Sanchez Munguia ed., Sw. Consortium for Env'tl. Research and Policy (SCERP), The U.S.-Mexican Border Env't Monograph Series No. 13, 2006).

3. See Consejo de Desarrollo Economico de Mexicali, A.C. v. United States, 482 F.3d 1157, 1163 (9th Cir. 2007) [hereinafter *Consejo II*]; see also *Introduction* to LINING THE ALL-AMERICAN CANAL: COMPETITION OR COOPERATION FOR WATER IN THE U.S.-MEXICAN BORDER? xix, xxi (Vicente Sanchez Munguia ed., SCERP, The U.S.-Mexican Border Env't Monograph Series No. 13, 2006) [hereinafter *Introduction*].

4. See U.S. BUREAU OF RECLAMATION, ALL-AMERICAN CANAL LINING PROJECT SUPPLEMENTAL INFORMATION REPORT 1-2 to -3 (2006); see generally *Consejo II*, 482 F.3d at 1162-1166 (discussing the history of the All-American Canal).

5. Garcia Acevedo, *supra* note 2, at 130.

gress to adopt a legislative rider in December 2006 to exempt the project from compliance with United States environmental laws.<sup>6</sup>

This article examines the conservation of the bi-national Mexicali-Imperial Aquifer and the litigation and Congressional response to the proposed lining of the All-American Canal from cross-border natural resource and international law vantage points.

## I. MEXICALI-IMPERIAL AQUIFER AND ALL-AMERICAN CANAL

### A. MEXICALI-IMPERIAL AQUIFER

The Southwest Consortium for Environmental Research and Policy ("SCERP") is composed of five universities in Mexico and five universities in the United States, and focuses on cross-border environmental issues.<sup>7</sup> In 2006, SCERP published a monograph entitled *LINING THE ALL-AMERICAN CANAL: COMPETITION OR COOPERATION FOR WATER IN THE U.S.-MEXICAN BORDER?*<sup>8</sup> This 2006 SCERP monograph noted the following regarding the Mexicali-Imperial Aquifer.

First, the Mexicali-Imperial Aquifer is a significant source of drinking water for the city of Mexicali in Mexico. Jose Luis Castro Ruiz of El Colegio de la Frontera Norte reported:

Official estimates for Mexicali foresee a population of 1.1 million inhabitants by 2020, an increase of approximately 100% of the population reported in the 2000 census. With a conservative assumption that the current allocation of 117 gallons of water per day per inhabitant reported by the city is maintained, the population growth will generate an approximate annual demand of 143,500 AF [acre feet]. This requires, independent of the needs of other cities in the state, an annual increase in the urban water supply of 77,000 AF. . . .

....

.... [A] reduction in the recharge volumes as a result of lining the AAC in the area immediately north of the Mesa Arenosa (Sandy

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6. *Consejo II*, 482 F.3d at 1167 (citing Tax Relief and Health Care Act of 2006, Pub. Law No 109-432, 120 Stat. 3046-47).

7. The ten participating SCERP universities are Arizona State University, El Colegio del Frontera Norte, Instituto Tecnológico de Ciudad Juárez, Instituto Tecnológico y de Estudios Superiores de Monterrey, New Mexico State University, San Diego State University, Universidad Autónoma de Baja California, Universidad Autónoma de Ciudad Juárez, University of Texas at El Paso, and University of Utah. SCERP Homepage, <http://www.scerp.org/> (last visited Oct. 18, 2008).

8. *LINING THE ALL-AMERICAN CANAL: COMPETITION OR COOPERATION FOR WATER IN THE U.S.-MEXICAN BORDER?* (Vicente Sanchez Munguia ed., SCERP, The U.S.-Mexican Border Env't Monograph Series No. 13, 2006).

Mesa) could accelerate conflict between urban and agricultural uses in the valley.<sup>9</sup>

Second, the Mexicali-Imperial Aquifer is a significant source of irrigation water for farms and farmers in Northern Baja Mexico. The SCERP monograph, in its chapter titled *Lining the All-American Canal: Its Impact on Aquifer Water Quality and Crop Yield in Mexicali Valley*, anticipates that the proposed canal lining will result in “[a] 14% reduction of the total available water in the Mexicali Valley.”<sup>10</sup> It further notes that “98% of the water used in crop irrigation in the area comes from the aquifer[, a]nd in this area, seepage from the AAC is the most important contribution to the recharge of the aquifer.”<sup>11</sup>

Third, the Mexicali-Imperial Aquifer is hydrologically connected to the Andrade Mesa Wetlands in Northern Mexico.<sup>12</sup> “The Andrade Mesa wetland area consists of approximately 1,921 hectares of wetland habitat and 1,453.2 hectares of terrestrial habitat[.]”<sup>13</sup> According to recent surveys, these wetlands serve as migratory habitat for about 10,000 birds annually, comprising more than 100 different species.<sup>14</sup> The 2006 SCERP monograph explains that “the physical proximity of the wetlands to the AAC, the relative elevation of the AAC in relation to the wetlands, [and] anecdotal evidence derived from the construction of the Mesa Drain in the 1960s strongly suggests [sic] that the AAC [seepage] is a major source of water for these wetlands[.]”<sup>15</sup> and finds “if the AAC lining is implemented, these wetlands will likely disappear absent a significant engineering project to artificially recreate the seepage flow into the area.”<sup>16</sup>

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9. Jose Luis Castro Ruiz, *Beyond the All-American Canal: Future Scenarios of Water Availability in the Mexicali Valley*, in *LINING THE ALL-AMERICAN CANAL: COMPETITION OR COOPERATION FOR WATER IN THE U.S.-MEXICAN BORDER?* 155, 165-67 (Vicente Sanchez Munguia ed., SCERP, The U.S.-Mexican Border Env't Monograph Series No. 13, 2006).

10. Gerardo Garcia Saille, Angel Lopez Lopez & J.A. Navarro Urbina, *Lining the All American Canal: Its Impact on Aquifer Water Quality and Crop Yield in Mexicali Valley*, in *LINING THE ALL-AMERICAN CANAL: COMPETITION OR COOPERATION FOR WATER IN THE U.S.-MEXICAN BORDER?* 77, 78 (Vicente Sanchez Munguia ed., SCERP, The U.S.-Mexican Border Env't Monograph Series No. 13, 2006).

11. Garcia Saille et al., *supra* note 10, at 82.

12. See Francisco Zamora Arroyo, Peter Culp & Osvel Hinojosa Huerta, *Looking Beyond the Border: Environmental Consequences of the All-American Canal Project in Mexico and Potential Binational Solutions*, in *LINING THE ALL-AMERICAN CANAL: COMPETITION OR COOPERATION FOR WATER IN THE U.S.-MEXICAN BORDER?* 21, 28 (Vicente Sanchez Munguia ed., SCERP, The U.S.-Mexican Border Env't Monograph Series No. 13, 2006).

13. *Id.* at 29.

14. *Id.* at 32, 35.

15. *Id.* at 29.

16. *Id.* at 35.

## B. ALL-AMERICAN CANAL

The All-American Canal is located entirely in the United States, and delivers water from the Colorado River to Imperial Valley and Coachella Valleys, where its primary use is for agriculture.<sup>17</sup> The United States Congress approved the Canal in 1928 as part of the legislation authorizing construction of Hoover Dam.<sup>18</sup> Construction of the All-American Canal took place in the 1930s and early 1940s, and the Canal became operational in 1940.<sup>19</sup>

Most of the All-American Canal is now earthen, and water moving through the canal percolates through its bed to recharge and replenish the Mexicali-Imperial Aquifer.<sup>20</sup> The 2006 SCERP estimates that recharge along the All-American Canal presently accounts for approximately 12% of the aquifer's total recharge.<sup>21</sup>

In 1988, the United States Congress authorized the United States Bureau of Reclamation (a sub-agency of the United States Department of the Interior) to line a significant portion of the All-American Canal with concrete.<sup>22</sup> The purpose of this lining project was presented as a water conservation effort: that is, to prevent water traveling through the Canal from seeping down into the ground and thus being lost.<sup>23</sup>

Although the United States Congress approved the project in 1988,<sup>24</sup> the agency did not issue its formal "Record of Decision," setting forth the details of the canal-lining project, until 1994.<sup>25</sup> Funding for the project took several years to pull together and the United States Fish and Wildlife Service did not issue final regulatory approval until late 2004.<sup>26</sup> One of the reasons the agency finally secured project funding was to help facilitate a water transfer deal between the Imperial Irrigation District ("IID") and the San Diego County Water Authority.<sup>27</sup>

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17. *Introduction*, *supra* note 3, at xxi; Zamora Arroyo et al., *supra* note 12, at 23.

18. Boulder Canyon Project Act of 1928, Pub. L. No. 642, 45 Stat. 1057 (codified at 43 U.S.C. § 617 (2000)); *see also* Fernando A. Medina Robles, *The Colorado River and the All-American Canal: The Historical and Cultural Perspective of Water in the U.S. Southwest*, in *LINING THE ALL-AMERICAN CANAL: COMPETITION OR COOPERATION FOR WATER IN THE U.S.-MEXICAN BORDER?* 101, 121 (Vicente Sanchez Munguia ed., SCERP, The U.S.-Mexican Border Env't Monograph Series No. 13, 2006).

19. *See* Eric A. Stene, *Boulder Canyon Project – All-American Canal System (Second Draft)*, <http://www.usbr.gov/dataweb/html/allamer1.d2.html#Construction> (last visited Oct. 18, 2008).

20. *Introduction*, *supra* note 3, at xxi.

21. Zamora Arroyo et al., *supra* note 12, at 28.

22. *See* Consejo de Desarrollo Economico de Mexicali, A.C. v. United States, 438 F. Supp. 2d 1207, 1217 (D. Nev. 2006) [hereinafter *Consejo I*].

23. García Acevedo, *supra* note 2, at 137.

24. *Consejo II*, *supra* note 3, 482 F.3d at 1164.

25. *Id.*

26. *See id.* at 1165.

27. *See* Garcia Acevedo, *supra* note 2, at 139-40.

Under this deal, IID was to convey water it previously used for agriculture to the San Diego area for urban use.<sup>28</sup>

As noted above, because the United States' lining of the All-American Canal would reduce recharge of the Mexicali-Imperial Aquifer,<sup>29</sup> it is anticipated that this lining would have adverse impacts on urban drinking supplies in the City of Mexicali,<sup>30</sup> irrigation supply in Northern Baja Mexico,<sup>31</sup> and the Andrade Mesa Wetlands.<sup>32</sup>

## II. LEGAL FRAMEWORKS FOR EVALUTING AQUIFER RECHARGE AND CANAL LINING

In considering the legal framework for the dispute over the lining of the All-American Canal and its impact on cross-border groundwater resources, there are in fact at least three different potential frameworks at play: (1) United States environmental impact assessment law; (2) the 1944 Waters Treaty and International Boundary Waters Commission regime; and (3) international law on transboundary watercourses.

### A. AQUIFER RECHARGE AND CANAL LINING UNDER UNITED STATES ENVIRONMENTAL IMPACT ASSESSMENT LAW

When the United States made the final decision to proceed with the lining project, plaintiff Consejo de Desarrollo Economico de Mexicali ("Consejo"), representing the business and farming interests in Northern Mexico, sued the United States Bureau of Reclamation in federal district court in July, 2005.<sup>33</sup> The City of Calexico (in California) and two United States-based environmental groups, Citizens United for Resources and the Environment ("CURE") and Desert Citizens Against Pollution ("DCAP") were also plaintiffs in that action.<sup>34</sup>

Among other things, the plaintiffs in the lawsuit alleged that the Environmental Impact Report ("EIR") that the United States Department of Reclamation prepared for the project did not comply with the National Environmental Policy Act ("NEPA") because it did not assess the adverse cross-border environmental impacts of the project.<sup>35</sup> As the plaintiffs stated in their briefing:

This is a "transborder" case as every significant impact is felt simultaneously on both sides of the border. The impacts from the project on

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28. *Id.* at 136, 142.

29. *See* Garcia Saille, et al. *supra* note 10, at 79.

30. *See generally* Garcia Acevedo, *supra* note 2, at 130.

31. *See* Garcia Saille et al., *supra* note 10, at 79, 82.

32. *See Consejo I*, *supra* note 22, 438 F. Supp. 2d at 1235-36.

33. *See Consejo II*, *supra* note 3, 482 F.3d at 1165-66.

34. *Id.* at 1165.

35. *See Consejo I*, 438 F. Supp. 2d at 1234.



U.S. soil literally cross the border and revert back given the inter-related watershed, ecosystem and air-basin.

All the so-called Mexican impacts have a U.S. analog with respect to this project. Drying up the wetlands deprives American Yuma clapper rails of a winter habitat and breeding ground; allowing selenium deposits to accumulate threatens birds on both sides of the border. Less water for irrigation in Mexico means fewer vegetables for U.S. consumers, less profits for U.S. farmers in Mexico, fewer Mexican shoppers at the “Big Box” stores in Calexico, more illegal immigration from displaced farm workers, and less run-off to the New River and thence to the Salton Sea.

Every Mexico impact has a reciprocal and related impact because the air, water and ecological setting does not respect the artificial border. Appellants are not asking for “extra-territorial” application of NEPA to a foreign project, and BOR [Bureau of Reclamation] has not and cannot cite to a single case excusing NEPA compliance in circumstances where the project is taking place in this country.<sup>36</sup>

For purposes of the NEPA EIR, the United States Bureau of Reclamation took the position that NEPA only required assessment of “domestic” environmental impacts and not cross-border or transnational impacts.<sup>37</sup> The United States District Court rejected the plaintiffs’ NEPA argument in a July 2006 decision that held:

Based on the facts here and absent a clear statutory intent to the contrary, NEPA does not apply to the All-American Canal lining project's environmental impacts in Mexico. Although the agency action of constructing and lining a new section of the All-American Canal will occur within the United States, the projects’ effects on the Andrade Mesa Wetlands, the Mexican Yuma Clapper Rail population, the socio-economic situation in Mexico, groundwater in the Mexicali Valley, seepage flow to the New River in Mexico, and air quality in Mexico will occur outside United States territory. . . . Accordingly, NEPA does not require [the Bureau of] Reclamation to issue a SEIS [Supplemental Environmental Impact Statement] examining the All-American Canal project's impacts in Mexico.<sup>38</sup>

The plaintiffs then appealed the District Court’s decision to the Ninth Circuit Court of Appeals;<sup>39</sup> the Ninth Circuit Court issued a preliminary injunction to halt work on the project while the appeal was

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36. Consolidated Reply Brief of All Appellants at 18-19, Consejo de Desarrollo Economico de Mexicali v. United States, 482 F.3d 1157 (9th Cir. 2007).

37. *Consejo I*, 438 F. Supp. 2d at 1234.

38. *Id.* at 1235-36.

39. *Consejo II*, 482 F.3d at 1162.

pending.<sup>40</sup> By issuing this preliminary injunction, the Ninth Circuit Court suggested that it might be prepared to reverse the District Court's ruling and require cross-border environmental impact assessment.

While the appeal before the Ninth Circuit was pending, however, in December 2006, the United States Congress enacted a section to an omnibus appropriations bill that provided in pertinent part: "Notwithstanding any other provision of law, upon the date of enactment of this Act, the Secretary of the Interior shall, without delay, carry out the All-American Canal Lining Project identified . . . as the preferred alternative in the record of decision for that project, dated July 29, 1994 . . . ."<sup>41</sup> The 2006 legislation also provided:

The Treaty between the United States of America and Mexico relating to the utilization of the waters of the Colorado and Tijuana Rivers and of the Rio Grande, and supplementary protocol signed November 14, 1944 . . . is the exclusive authority for identifying, considering, analyzing, or addressing impacts occurring outside the boundary of the United States of works constructed, acquired, or used within the territorial limits of the United States.<sup>42</sup>

Following the enactment of this December 2006 legislative rider, the Ninth Circuit requested additional briefing and oral argument on the question of the extent to which the rider affected the viability of the appeal.<sup>43</sup>

After the briefing and oral argument, in April 2007, the Ninth Circuit lifted its injunction and ruled that the plaintiffs' appeal could not proceed.<sup>44</sup> In its decision doing so, the Ninth Circuit held: "[W]e conclude that, in light of the 2006 Act, we cannot fashion effective relief and the challenges . . . based on alleged past violations of NEPA . . . are moot."<sup>45</sup>

The end result of this litigation, in which the court exempted the federal government from the obligation to consider the impacts of the AAC lining project on the Andrada Mesa wetlands in Northern Mexico, was particularly striking in light of the outcome in another somewhat similar domestic environmental case. In *Sierra Club v. Glickman*, environmental groups sued the United States Department of Agriculture in connection with agency programs that increased pumping from

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40. *Id.*

41. Tax Relief and Health Care Act of 2006, Pub. L. No. 109-432, §395, 120 Stat. 2922, 3046 (2006).

42. *Id.* § 397.

43. *See Consejo II*, 482 F.3d at 1162.

44. *Id.* at 1174.

45. *Id.* at 1172.

the Edwards Aquifer in the State of Texas.<sup>46</sup> Unless pumping impact the Aquifer, water in the Edwards Aquifer flows to the Northeast where it eventually discharges into San Marcos Springs and Comal Springs.<sup>47</sup> The court noted that the San Marcos Springs and Comal Springs are the only remaining habitat for four species of fish protected under the federal Endangered Species Act ("ESA").<sup>48</sup>

In *Sierra Club v. Glickman*, the Fifth Circuit Court of Appeals determined that pumping from the Edward Aquifer can "have significant ecological consequences to the Edwards-dependent species. In times of even mild drought, the springflow at both the San Marcos and Comal Springs can decrease enough to threaten the survival of the Edwards-dependent species."<sup>49</sup> The court's determination led the Fifth Circuit to conclude that the United States Department of Agriculture had violated section seven of the ESA in failing to consult with the United States Fish & Wildlife service concerning the impacts of the anticipated aquifer depletion on listed species.<sup>50</sup>

As in the AAC lining litigation, *Sierra Club v. Glickman* addressed the specific question of the legal obligation of federal agencies to evaluate their actions that impact wildlife-dependent surface waters when the actions reduce the amount of water in a hydrologically-connected aquifer. The answer therefore appears to be "yes" if federal agency actions deplete groundwater hydrologically connected to wildlife-dependent surface waters in the United States but "no" if federal agency actions deplete groundwater hydrologically connected to wildlife-dependent surface waters across the border in Mexico.

#### B. AQUIFER RECHARGE AND CANAL LINING UNDER 1944 WATERS TREATY AND IBWC MINUTE NO. 242

The second legal framework for considering how the project raises issues of aquifer recharge and canal lining is the 1944 Waters Treaty between Mexico and the United States, which the Congress referenced in the December 2006 legislation concerning the All-American Canal lining project.<sup>51</sup>

Among other things, the 1944 Waters Treaty allocated the surface waters of the Colorado River between the United States and Mexico.<sup>52</sup> The Treaty allocated the United States 14 million annual acre feet of Colorado River water and allocated Mexico 1.5 million annual acre

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46. *Sierra Club v. Glickman*, 153 F.3d 606, 610 (5th Cir. 1998).

47. *Id.*

48. *Id.* (referring to the species as the "Edwards-dependant" species).

49. *Id.*

50. *Id.* at 621.

51. Tax Relief and Health Care Act of 2006, Pub. L. No. 109-432, § 397, 120 Stat. 2922, 3047 (2006).

52. 1944 Waters Treaty, *supra* note 1.

feet of Colorado River water.<sup>53</sup> On the subject of allocation of cross-border groundwater resources, however, the 1944 Waters Treaty is silent.

The 1944 Waters Treaty designated the International Boundary and Water Commission ("IBWC") as the binational forum for Mexico and the United States to resolve disputes over shared water resources.<sup>54</sup> In 1973, the IBWC adopted Minute No. 242, which provided in pertinent part:

With the objective of avoiding future problems, the United States and Mexico shall consult with each other prior to undertaking any new development of either the surface or the groundwater resources, or undertaking substantial modifications of present developments, in its own territory in the border area that might adversely affect the other country.<sup>55</sup>

Although Mexico has lodged protests with the IBWC over the proposed lining,<sup>56</sup> the United States' position is that, under the 1944 Waters Treaty, any waters it diverts from the Colorado River into the All-American Canal are part of the 14 million annual acre feet the treaty allocates to the United States; therefore, Mexico has no claim to any of the Canal's groundwater seepage and no basis to object to the Canal's paving.<sup>57</sup> The United States reasserted this position in its September

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53. *Id.* at art. 10. The 1922 Colorado River Compact equally divided the 15 million acre feet of water in the Colorado River between the Upper Basin and the Lower Basin of the river. The 1944 Waters Treaty allocated 1.5 million acre feet of the Colorado River to Mexico. Thus, the 1944 Waters Treaty allocated *approximately* 14 million acre feet to the United States. See 1922 Colorado River Compact, art. III, ¶ a, *available at* <http://www.usbr.gov/lc/region/g1000/pdffiles/crcompct.pdf>.

54. 1944 Waters Treaty, *supra* note 1, art. 2.

55. International Boundary and Water Commission, U.S.-Mex., Minute 242, Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River, August 30, 1973, *available at* <http://www.ibwc.state.gov/Files/Minutes/Min242.pdf>.

56. Stephen P. Mumme & Donna Lybecker, *The All-American Canal: Perspectives on the Possibility of Reaching a Bilateral Agreement*, in *LINING THE ALL-AMERICAN CANAL: COMPETITION OR COOPERATION FOR WATER IN THE U.S.-MEXICAN BORDER?* 175, 177 (Vicente Sanchez Munguia ed., SCERP, The U.S.-Mexican Border Env't Monograph Series No. 13, 2006).

57. *Id.* (stating "[s]hortly after the initial 1988 decision to line the AAC, Mexico informally lodged a protest with the United States through the Comision Internacional de Limites y Aguas (CILA), its section of the IBWC, alleging potential injury due to existing uses in the Mexicali-Valley and pointing to the U.S. obligation arising from Minute 242 to consult with Mexico on any changes affecting groundwater use along the international boundary. Mexico's case centers on the issue of so-called acquired rights. The United States, in turn, denied any intent to alter the groundwater regime, claiming AAC seepage water was, in fact, previously allocated to the United States and its status remained unaffected by any conservation measures the United States should take.") (citation omitted). See also Larry Rohter, *Canal Project Sets Off U.S.-Mexico Clash Over Water for Border Regions*, N.Y. TIMES, Oct. 1, 1989, at A1.

2005 briefing to the United States District Court in the NEPA litigation over the All-American Canal lining project, arguing:

The Complaint's central claim[,] that Mexican users of the Mexicali aquifer have established a water right to seepage from the All-American Canal[,] is entirely inconsistent with the position taken by the United States government on the application of the 1944 Treaty to conveyance of the Colorado River waters that seep from the All-American Canal. The United States maintains that the Colorado River waters that seep from the All-American Canal are waters reserved to the United States under the 1944 Treaty, and on this basis the United States asserts the sovereign right to recover or conserve Colorado River water flowing through the All-American Canal.<sup>58</sup>

The plaintiffs called this reasoning into question in their briefing to the Ninth Circuit Court of Appeals:

The drafters of the 1944 Treaty could have addressed groundwater, and in particular the seepage from the AAC (which had then already in operation), but they chose not to do so. This Court should hesitate to impose a gloss on this Treaty that neither side intended, and that no responsible legal scholar has ever accepted.<sup>59</sup>

Similarly, the 2006 SCERP monograph observed:

[T]he fact that the treaty negotiators were cognizant that groundwater in Baja California was hydrologically connected to the Colorado River but silent as to the potential effects of Mexican use of those groundwaters on the hydrological system constitutes a major ambiguity that the treaty does not resolve in a mutually satisfactory manner.<sup>60</sup>

In terms of IBWC Minute No. 242, the United States' position is that the duty to "consult" with Mexico about the proposed lining of the All-American Canal is simply the duty to provide notice to Mexico of the project.<sup>61</sup> The United States has not interpreted the consultation requirement in IBWC Minute No. 242 to mean that the consultation must result in any type of consensus between the United States and Mexico, or to mean that the United States must obtain Mexico's consent before proceeding.<sup>62</sup>

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58. Memorandum in Support of United States' Motion to Dismiss Counts 1-4 and 7-8 at 15, Consejo de Desarrollo Economico de Mexicali, A.C. et al. v. United States, 438 F. Supp. 2d 1207 (D. Nev. 2006) (No. CV-S-05-0870-KJD-GWF).

59. Consolidated Reply Brief, *supra* note 36, at 7.

60. Mumme & Lybecker, *supra* note 56, at 181 (citation omitted).

61. *Id.*; Garcia Acevedo, *supra* note 2, at 143.

62. Mumme & Lybecker, *supra* note 56, at 181; Garcia Acevedo, *supra* note 2, at 143.

As Professor Albert Utton (for whom the Utton Transboundary Resources Center at the University of New Mexico School of Law is named) noted back in 1991:

The groundwaters in the Mexicali Valley are return flows or seepage water from the Colorado River. Accordingly, the United States is correct in its assertion that the Colorado River waters have already been allocated by mutual agreement under the 1944 Treaty. Nevertheless, one question remains: even if the source of the groundwater is the surface flow from the Colorado River, and even if this surface flow has been allocated, does the United States have the right to interrupt return flows by lining the canal, thus enabling it to recapture seepage waters upon which Mexican farmers have developed a dependency and corresponding expectancy over the course of several decades?<sup>63</sup>

To answer the question posed by Professor Utton, we must consider sources of international water law outside the 1944 Waters Treaty.

### C. AQUIFER RECHARGE AND CANAL LINING UNDER INTERNATIONAL LAW ON TRANSNATIONAL WATERCOURSES

This leads to the third legal framework for considering the United States' proposed All-American Canal lining project: the international law on transnational watercourses. Within this international law framework, there are in fact three sub-frameworks: the equitable apportionment doctrine; transboundary environmental impact assessment; and recharge zone protection.

#### 1. Equitable Apportionment/Prescription

A fundamental concept in international law on the topic of shared watercourses, whether they be surface-waters or groundwaters, is that of "equitable apportionment." Many treaties and international documents set forth and recognize this concept, including the 1997 *United Nations Convention on the Law of Non-navigational Uses of International Watercourses*<sup>64</sup> and the 2004 *International Law Association Berlin Rules on Water Resources Law*.<sup>65</sup>

Article 6 of the 1997 *United Nations Convention on the Law of Non-navigational Uses of International Watercourses* articulates that equitable apportionment of shared water resource should take account of "[t]he

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63. Albert Utton, *The Transfer of Water From an International Border Region: A Tale of Six Cities and the All-American Canal*, 16 N.C.J. INT'L L. & COM. REG. 477, 483 (1991).

64. United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 5, May 21, 1997, 36 I.L.M. 700 [hereinafter *United Nations Convention*].

65. Fourth Report of the Water Resources Law Committee, International Law Association, Berlin Conference, art. 12, 2004 [hereinafter *Berlin Conference*].

population dependent on the watercourse in each watercourse State,” and “[t]he effects of the use or uses of the watercourse in one watercourse State on other watercourse States.”<sup>66</sup>

Article 12 of the *2004 International Law Association Berlin Rules on Water Resources Law* includes an articulation of the equitable utilization principles that provides: “Basin States shall in their respective territories manage the waters of an international drainage basin in an equitable and reasonable manner having due regard for the obligation not to cause significant harm to other basin States.”<sup>67</sup>

The international law doctrine of “prescription” is relevant in the application of the concept of “equitable utilization” to the All American Canal situation. As Professor Utton observed back in 1991: “Prescription under international law has strong echoes [sic] of abandonment. Perhaps the long usage by Mexico of the seepage waters of the All-American Canal might arguably create a prescriptive right to the continued flow of these groundwaters.”<sup>68</sup> Professor Utton added:

The U.S. would surely counter that it had not intentionally abandoned the water, but at all times had intended to recapture the water when it was needed . . . . But the fact that the United States has not put the water to beneficial use for forty eight years would cast doubt on the robustness of U.S. intent.<sup>69</sup>

The forty-eight year delay Utton mentioned back in 1991 is now a sixty-five year delay, which only lends additional weight to Mexico’s potential prescription-based claim.<sup>70</sup>

## 2. Transboundary Environmental Impact Assessment

As explained above, in preparing its environmental impact assessment for the lining of the All-American Canal, the United States Bureau of Reclamation took the position that, under the National Environmental Policy Act, it had no obligation to assess the cross-border environmental effects of the project.<sup>71</sup> That is to say, for environmental impact assessment purposes, the United States took the position that it could draw a line in the Mexicali-Imperial Aquifer at the border.<sup>72</sup>

Many international water law experts, such as Professor Owen McIntyre in his 2007 book, *Environmental Protection of International Watercourses under International Law*, suggest that the Bureau of Reclama-

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66. *United Nations Convention*, *supra* note 64, at art. 6, ¶ 1, §§ c-d.

67. *Berlin Conference*, *supra* note 65, at art. 12, ¶ 1.

68. Utton, *supra* note 63, at 490.

69. *Id.* at 488.

70. *Id.* (citing a 48-year delay in an article 17 years ago).

71. *Consejo I*, *supra* note 22, 438 F. Supp. 2d at 1234.

72. *Id.*

tion's position does not square with current international law principles.<sup>73</sup> Professor McIntyre states:

The requirement to carry out an environmental impact assessment of any development or activity likely to cause harm to the environment of an international watercourse or of another watercourse State plays a very important role in ensuring that environmental concerns are likely to figure prominently in determining an equitable regime for the utilization of an international watercourse.<sup>74</sup>

For instance, Article 29(1) of the *2004 International Law Association Berlin Rules on Water Resources Law* provides: "[s]tates shall undertake prior and continuing assessment of the impact of programs, projects, or activities that may have a significant effect on the aquatic environment or the sustainable development of waters."<sup>75</sup> As Professor McIntyre explains in his 2007 book:

[I]n 2004 the members of the Water Resource Committee of the [International Law Association] clearly regarded the requirement to conduct transboundary [Environmental Impact Assessment] as a rule of customary international law and, as if to dispel any lingering doubts, the commentary to Article 29 of the Berlin Rules expressly notes that "[T]he International Law Association recognized that the practice has crystallized into a rule of customary international law, at least insofar as transboundary effects are concerned."<sup>76</sup>

This was also the conclusion of a September 2007 article in the journal *Water Resources Development*, titled *Assessing the Assessments: Improving Methodologies for Impact Assessment in Transboundary Watercourses*. The article's authors stated: "[o]ver the past decade and more, a variety of international, bilateral and national laws, guidelines and institutions have adopted requirements that a TIA [transboundary impact assessment] be conducted prior to making decisions on projects or activities with transboundary implications."<sup>77</sup>

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73. See OWEN MCINTYRE, ENVIRONMENTAL PROTECTION OF INTERNATIONAL WATERCOURSES UNDER INTERNATIONAL LAW 367 (2007); Carl Bruch et al., *Assessing the Assessments: Improving Methodologies for Impact Assessment in Transboundary Watercourses*, WATER RESOURCES DEVELOPMENT, Sept. 2007, at 391.

74. MCINTYRE, *supra* note 73, at 367.

75. *Berlin Conference*, *supra* note 65, at art. 29, ¶ 1.

76. MCINTYRE, *supra* note 73, at 235.

77. Bruch, *supra* note 73, at 391.



### 3. Recharge Zone Protection

#### a. 2006 Draft Articles on Law of Transboundary Aquifers

Although there is not currently a comprehensive international convention or treaty dealing exclusively with the issue of transnational groundwater resources, in 2006 the Drafting Committee of the United Nations International Law Commission finalized its Draft Articles on the Law of Transboundary Aquifers.<sup>78</sup>

Articles 2(f) and 10(1) of the *Draft Articles on the Law of Transboundary Aquifers* focus on the All-American Canal controversy.<sup>79</sup> Article 2(f) provides that the term “recharge zone” means “the zone which contributes water to an aquifer, consisting of the catchment area of rainfall water and the area where such water flows to an aquifer by runoff on the ground and infiltration through soil.”<sup>80</sup>

Article 10, “Recharge and Discharge Zones,” provides: “Aquifer States shall identify recharge and discharge zones of their transboundary aquifer or aquifer system and, within these zones, shall take special measures to minimize detrimental impacts on the recharge and discharge processes.”<sup>81</sup>

In his 2007 article on the *Draft Articles on the Law of Transboundary Aquifers*, Professor Gabriel Eckstein offered the following commentary on Article 10:

In order to ensure the viability and normal functioning of an aquifer, the integrity of related recharge and discharge zones must be maintained and protected. In the case of recharge zones, this consists of ensuring both the quantity and quality of water flowing through the recharge zone and entering the aquifer. Thus, protection of the recharge zone might include limitations on industrial and municipal development projects in the recharge area that potentially could diminish the amount of water percolating through the zone into the aquifer. . . . Draft Article 10(1) obligates aquifer States to identify the recharge and discharge zones of transboundary aquifers. Once identified, they are then bound “to take special measures to minimize” any

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78. U.N. Int'l Law Comm'n, *Report of the International Law Commission*, ¶ 15, U.N. Doc. A/61/10 (May 1-June 9 and July 3-August 11, 2006), available at <http://untreaty.un.org/ilc/reports/2006/2006report.htm> (adopting draft articles); see also Gabriel E. Eckstein, *Commentary on the U.N. International Law Commission's Draft Articles on the Law of Transboundary Aquifers*, 18 *COLO. J. INT'L ENVTL. L. & POL'Y* 537, 538 (2007).

79. Eckstein, *supra* note 78, at 547, 584.

80. *Id.* at 547.

81. *Id.* at 584.

negative consequences to the processes of recharge and discharge in these zones.<sup>82</sup>

The bed of the canal would likely qualify as a recharge zone given the significant contribution to the cross-border Mexicali-Imperial Aquifer resulting from seepage from the presently earthen All-American Canal.<sup>83</sup> It seems highly questionable whether the United States' current unilateral paving plans for the canal would comply with Article 10 of the *Draft Articles on the Law of Transboundary Aquifers*.

*b. 1988 Bellagio Draft Treaty on Transboundary Groundwaters*

A precursor to the 2007 *Draft Articles on the Law of Transboundary Aquifers* was the 1988 *Bellagio Draft Treaty on Transboundary Groundwaters* ("Bellagio Draft").<sup>84</sup> The origins of this effort go back to 1977 when Professor Albert Utton and Ambassador Cesar Sepulveda helped form the United States-Mexico Transboundary Resources Study Group.<sup>85</sup> A working group under this broader study group undertook the task of examining binational aquifers and this resulted in the 1985 "Ixtapa Draft" of a Mexico-United States agreement on the subject.<sup>86</sup>

In 1987, following up on the release of the 1985 Ixtapa Draft focusing on Mexico-United States binational groundwaters,<sup>87</sup> a global conference on transboundary aquifers convened at the Rockefeller Conference Center in Bellagio, Italy.<sup>88</sup> The proceedings of the 1987 conference resulted in the *Bellagio Draft*, which the group presented in 1988 at a Panel Session of the Sixth Congress of the International Water Resources Association.<sup>89</sup>

Article I(19) of the *Bellagio Draft* defines "recharge" as "the addition of water to an aquifer by infiltration of precipitation through the soil or of water from surface streams, lakes, or reservoirs, by discharges of water to the land surface, or by injection of water into the aquifer through wells."<sup>90</sup>

Article VII of the *Bellagio Draft* calls for appropriate binational commissions (such as perhaps the IBWC in the case of Mexico and the United States) to identify and delineate "Transboundary Groundwater

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82. *Id.* at 585.

83. *See id.*

84. *See, e.g.*, Robert D. Hayton & Albert E. Utton, *Transboundary Groundwaters: The Bellagio Draft Treaty*, 29 NAT. RESOURCES J. 663, 666, 676 (1989) [hereinafter *Bellagio Draft Treaty*].

85. *Id.* at 665.

86. *Id.*

87. *Id.*

88. *Id.*

89. *Id.* at 666.

90. *Bellagio Draft Treaty*, art. I, ¶ 19, *supra* note 84, at 679.

Conservation Areas.”<sup>91</sup> One of the considerations in identifying and delineating a “Transboundary Groundwater Conservation Area” is whether “recharge has been or may become impaired.”<sup>92</sup>

Article VIII of the *Bellagio Draft* provides that appropriate binational commissions shall develop “Comprehensive Management Plans” for each designated “Transboundary Groundwater Conservation Area.”<sup>93</sup> These “Comprehensive Management Plans” may “provide for the establishment where required of protective zones in which land use must be regulated” and “arrange, where conditions are favorable, programs for transboundary aquifer recharge.”<sup>94</sup>

The primary objective of the *Bellagio Draft* was institutional in nature: to create a workable binational structure allowing for improved management of crossborder aquifers.<sup>95</sup> The elements of this proposed institutional arrangement include the binational designation of areas where groundwater recharge may become impaired, and the binational development of management plans concerning land use regulation to help ensure adequate aquifer recharge.<sup>96</sup> As such, the United States’ approach regarding the proposed AAC lining is difficult to reconcile with the more cooperative and collaborative decision-making structure the *Bellagio Draft* proposes.<sup>97</sup>

#### IV. CONCLUSION

The governance structure for determining whether the lining project will proceed and the project’s impacts on binational groundwaters is essentially unilateral in the case of the All-American Canal and its impacts on the Mexicali-Imperial Aquifer.

The United States Congress intervened to ensure that the courts do not interpret NEPA to require assessment of the project’s cross-border impacts. To date, the United States treats the consultation provisions of IBWC Minute No. 242 as a mere notification requirement; moreover, international law concepts of equitable apportionment, prescription, and recharge zone do not play a role in the outcome.

As Professor Helen Ingram of the University of California observed in her preface to the 2006 SCERP monograph: “[e]mbedded in the very name “All-American Canal” is a clue to the basic issue at stake.

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91. *Bellagio Draft Treaty*, art. VII, ¶¶ 1-2, *supra* note 84, at 692.

92. *Bellagio Draft Treaty*, art. VII, ¶ 5(b), *supra* note 84, at 693.

93. *Bellagio Draft Treaty*, art. VIII, ¶ 1, *supra* note 84, at 695.

94. *Bellagio Draft Treaty*, art. VIII, ¶ 2(a)(5), (d), *supra* note 84, at 696.

95. Hayton, *supra* note 84, at 668.

96. *Bellagio Draft Treaty*, art. VII, ¶ 2, art. VIII, ¶ 1, *supra* note 84, at 692, 695.

97. *See Bellagio Draft Treaty*, art. VII, ¶¶ 1-2, *supra* note 84, at 692.

Unilateralism is at odds with geographical and hydrological reality in the river basins and aquifers that straddle international boundaries.<sup>198</sup>

In sum, the experience to date with the All-American Canal reveals that while the United States and Mexico may share a common aquifer, there is presently little common ground as to the appropriate legal framework for managing this groundwater in an equitable and ecologically sound manner.

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98. Helen Ingram, *Preface* to LINING THE ALL-AMERICAN CANAL: COMPETITION OR COOPERATION FOR WATER IN THE U.S.-MEXICAN BORDER?, at xv (Vicente Sanchez Mun-guia ed., SCERP, The U.S.-Mexican Border Env't Monograph Series No. 13, 2006).