

12-1-1991

All-American Canal Project Sparks Test Case for Transboundary Groundwater Law

John H. Coghlin

Follow this and additional works at: <http://lawdigitalcommons.bc.edu/iclr>

 Part of the [Water Law Commons](#)

Recommended Citation

John H. Coghlin, *All-American Canal Project Sparks Test Case for Transboundary Groundwater Law*, 14 B.C. Int'l & Comp. L. Rev. 159 (1991), <http://lawdigitalcommons.bc.edu/iclr/vol14/iss1/8>

This Notes is brought to you for free and open access by the Law Journals at Digital Commons @ Boston College Law School. It has been accepted for inclusion in Boston College International and Comparative Law Review by an authorized administrator of Digital Commons @ Boston College Law School. For more information, please contact nick.szydowski@bc.edu.

All-American Canal Project Sparks Test Case for Transboundary Groundwater Law

INTRODUCTION

On November 17, 1988, the United States Congress authorized the U.S. Secretary of the Interior to construct a concrete lining on a sixty-six mile section of the All-American Canal (lining project).¹ The State of California proposed the lining project as a conservation measure to bolster southern California's water supply. The lining project is designed to prevent large quantities of Colorado River water from seeping into Mexico through the earthen walls of the canal.² Because the canal is located just north of the Mexican border,³ the water that seeps through its walls flows underground into Mexico and becomes a source of groundwater for Mexican farmers in the Valle de Mexicali region (see Figure 1).⁴

The lining project has sparked a controversy between the United States and Mexico. The Mexican Government claims that the project violates international law.⁵ The U.S. Government, however, claims that the water in the All-American Canal is U.S. water and that the U.S. Government has the right to implement projects to conserve it.⁶ The two governments have referred the

¹ San Luis Rey Indian Water Rights Settlement Act of 1988, Pub. L. No. 100-675, § 201, 102 Stat. 4000, 4005-4011 (1988) [hereinafter All-American Canal Lining Legislation]. See New York Times, Oct. 1, 1989, at 3.

² New York Times, Oct. 1, 1989, at 3; Press Release from Coachella Valley Water District (Sep. 26, 1990) (discussing approval of new funds for experimental canal lining program) [hereinafter CVWD Press Release]. See *infra*, text accompanying notes 95-99 for a description of the lining project's design concept.

³ BUREAU OF RECLAMATION, PROJECT DATA 1 (1981) [hereinafter PROJECT DATA]. The All-American canal carries water from the Colorado River in a southwesterly direction through the sand dunes and desert mesas running just north of the Mexican border. See *infra*, text accompanying notes 8-14.

⁴ See *infra*, text accompanying note 101.

⁵ New York Times, Oct. 1, 1989, at 3. The Mexican Government initially claimed that the United States violated Minute 242 which requires the United States to consult with Mexico prior to developing new projects in the border area that might adversely affect Mexico. See Colorado River Salinity Agreement Between the United States of America and Mexico, Aug. 30, 1973, 24 U.S.T. 1968, T.I.A.S. No. 7708 [hereinafter Minute 242].

⁶ New York Times, Oct. 1, 1989, at 3.

dispute to the International Boundary and Water Commission (IBWC)⁷ for exchange of technical information.

This Comment examines the issues of international law that arise from the lining project conflict. Part I presents the background of the conflict by discussing the competing claims for Colorado River water. Part II discusses the concept and design of the All-American Canal system and the lining project. Part III analyzes principles of international law that apply to the lining project dispute. Part IV suggests how an international tribunal might resolve the conflict. This Comment concludes that an international tribunal would grant Mexico the right to use some of the water in dispute pursuant to developing principles of customary international law.

I. BACKGROUND: COMPETING CLAIMS TO THE COLORADO RIVER

An international river,⁸ the Colorado flows generally in a southwesterly direction through 1,300 miles of the western United States before entering Mexico. One section of the river forms 24 miles of the international border.⁹ The Colorado River passes through the states of Wyoming, Nevada, Colorado, Arizona, New Mexico, and California.¹⁰ The river's path cuts through large mountain ranges and, together with its tributaries,¹¹ drains 242,000 square miles of land.¹² This drainage basin

⁷ A treaty between the United States and Mexico created the International Boundary Commission (IBC) in 1889. The Convention of 1889, Mar. 1, 1889, United States-Mexico, art. I, 26 Stat. 1512, T.S. No. 232. A treaty between the United States and Mexico in 1944 changed the name of the IBC to its present name, International Boundary and Water Commission (IBWC). Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, Feb. 3, 1944, United States-Mexico, art. 2, 59 Stat. 1219 (1945), T.S. No. 994, at art. 2 [hereinafter 1944 Treaty]. The IBWC consists of a U.S. Section and a Mexican Section. The Commissioner of each Section must be an engineer and each Commissioner functions under the foreign policy supervision of the Foreign Office of his government. See INTERNATIONAL BOUNDARY AND WATER COMMISSION, THE INTERNATIONAL BOUNDARY, UNITED STATES AND MEXICO, 1 (1987) [hereinafter IBWC PAPER].

⁸ The term international river refers to rivers that either cross two or more States (successive international rivers) or serve to demarcate States (contiguous international rivers). FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, THE LAW OF INTERNATIONAL WATER RESOURCES 4 (1980) [hereinafter FAO].

⁹ See IBWC PAPER, *supra* note 7, at 1.

¹⁰ *Arizona v. California*, 373 U.S. 546, 552 (1962).

¹¹ The major tributaries are the Green, the Yampa, the White, the Gunnison, the San Juan, the Little Colorado, and the Gila. Getches, *Competing Demands for the Colorado River*, 56 COLO. L. REV. 413, 413 (1985).

¹² The area drained by the Colorado River and its tributaries is approximately 900

is extremely arid and depends on Colorado River water to be productive and habitable.¹³

On the Mexican side of the border, the Colorado River passes through the state of Baja California Norte and empties into the Gulf of California.¹⁴ Baja California Norte, Mexico's fastest growing state, contains two important cities, Tijuana and Mexicali, as well as one of Mexico's most fertile agricultural areas, Valle de Mexicali.

Historically, the Colorado River has been a source of conflict among the several U.S. states and between the United States and Mexico.¹⁵ These sovereign users of the river settled most of these conflicts by developing the Law of the River.

The Law of the River is a set of interstate compacts,¹⁶ federal statutes,¹⁷ treaties,¹⁸ and U.S. Supreme Court decisions.¹⁹ The Law of the River effectively allocates all of the surface water of the Colorado River.²⁰ It does not, however, govern use of the groundwater that has its source in the Colorado River. This Section discusses the Law of the River as it apportions Colorado River water among the several U.S. states and between the United States and Mexico.

A. *Domestic Apportionment of Colorado River Water*

In 1921, the U.S. Congress authorized the Colorado River basin states (basin states) to negotiate and enter into a compact for the "equitable division and apportionment . . . of the water supply of the Colorado River."²¹ Because the basin states were not able

miles long from north to south and 300–500 miles wide from east to west. *Arizona v. California*, 373 U.S. at 552. This drainage basin is equal to nearly one-twelfth of the area of the continental United States.

¹³ *Id.*

¹⁴ *New York Times*, Oct. 1, 1989, at 3.

¹⁵ Getches, *supra* note 11, at 414.

¹⁶ *See, e.g.*, Colorado River Compact, 42 Stat. 171, 70 Cong. Rec. 324 (1928) [hereinafter Compact].

¹⁷ *See, e.g.*, Boulder Canyon Project Act of 1929, 46 Stat. 3000, 43 U.S.C.S. § 617 (1929) [hereinafter Project Act].

¹⁸ *See, e.g.*, 1944 Treaty, *supra* note 7.

¹⁹ *See, e.g.*, *Arizona v. California*, 373 U.S. 546 (1962).

²⁰ Getches, *supra* note 11, at 414.

²¹ 42 Stat. 171 (1921), as cited in *Arizona v. California*, 373 U.S. at 556–57 & n.19. The authorization for the Compact was required by article 1, § 10 of the U.S. Constitution, which provides, "[n]o state shall, without the consent of Congress, . . . enter into any Agreement or Compact with another State"

to agree on each state's share of the water, Secretary of Commerce Herbert Hoover suggested a compromise solution that divided the Colorado River basin into two parts—the Upper Basin and the Lower Basin.²² This compromise became the basis for the Colorado River Compact (Compact).²³

The Compact is the heart of the Law of the River.²⁴ The basin states intended the Compact to apportion an average of 7,500,000 acre-feet of water²⁵ per year to each basin.²⁶ Because the Lower Basin was more developed than the Upper Basin, the Compact allows the Lower Basin to use any water that the Upper Basin cannot use.²⁷ The Compact includes a provision for future deliveries of Colorado River water to Mexico.²⁸ Although the United States and Mexico had not reached an agreement on Mexican rights to Colorado River water at the time the states signed the Compact,²⁹ the Compact provides that the two basins are to share equally in any future burdens to deliver water to Mexico.³⁰

In 1929, Congress passed the Boulder Canyon Project Act (Project Act).³¹ The Project Act approved the Compact's apportionment of water between the two basins and authorized the individual states to allocate the water within the basins. The Project Act also authorized the Secretary of the Interior to construct, operate, and maintain a dam and other works to control floods, improve navigation, regulate the river's flow, store and distribute

²² *Arizona v. California*, 373 U.S. at 557. The Upper and Lower Basins are separated at Lee Ferry, which is a point on the river located in northern Arizona. The Upper Basin consists of Colorado, Utah, Wyoming, and New Mexico. Getches, *supra* note 11, at 417. The Lower Basin consists of Arizona, California, and New Mexico.

²³ See Compact, *supra* note 16.

²⁴ Abbot, *California Colorado River Issues*, 19 PAC. L.J. 1391, 1394 (1988).

²⁵ One acre-foot of water is approximately 325,851 gallons, or enough to cover one acre of land with one foot of water. *Arizona v. California*, 373 U.S. at 557 n.22. In the California region between San Diego and Ventura, one acre-foot of water supplies the average annual requirements of two households. CVWD Press Release, *supra* note 2.

²⁶ Compact, *supra* note 16, at art. III(a). See Getches, *supra* note 11, at 417. In addition, the Lower Basin is allowed to consume an extra 1,000,000 acre-feet per year when the flows allow. Getches, *supra* note 11, at 417.

²⁷ Compact, *supra* note 16, at art. III(e). See Getches, *supra* note 11, at 417–18.

²⁸ Compact, *supra* note 16, at art. III(c).

²⁹ The United States and Mexico did not sign the treaty apportioning the Colorado River waters until 1944. See 1944 Treaty, *supra* note 7.

³⁰ Compact, *supra* note 16, at art. III(c). According to the Compact, the water to be delivered to Mexico must first be supplied from surplus waters. When the surplus proves to be insufficient, the burden is to be shared equally between the Upper and Lower Basins.

³¹ See Project Act, *supra* note 17.

waters for beneficial uses, and generate electrical power.³² One of the projects authorized by the Project Act was the construction of the All-American Canal.³³

In order for the Project Act to become effective, California had to agree to limit its use of Colorado River water.³⁴ The California legislature passed a law restricting the state's use of the Lower Basin's apportionment to a maximum of 4,400,000 acre-feet per year.³⁵ Additionally, California restricted itself to using no more than one half of any surplus waters unapportioned by the Compact.

The Project Act also required persons interested in using Colorado River water to first enter into a contract with the Secretary of the Interior.³⁶ Accordingly, on August 18, 1931, the Secretary of the Interior signed the Seven Party Agreement authorizing delivery of Colorado River water for use in California.³⁷ The agreement sets priorities on each party's right to use the water.³⁸ In California, agricultural interests received the highest priority.

Pursuant to the authorization in the Project Act, the Upper and Lower Basins allocated each individual state's share of Colorado River water. The Upper Basin signed the Upper Colorado River Basin Compact.³⁹ This agreement gave each Upper Basin state a certain percentage share of the Upper Basin's apportionment.⁴⁰

³² Project Act, *supra* note 17, at § 617.

³³ Abbott, *supra* note 24, at 1399.

³⁴ Project Act, *supra* note 17, at § 617c. Section 617c of the Project Act required either unanimous ratification of the Compact by the basin states or ratification by at least six basin states, including California, together with California legislation limiting its share of Colorado River water to 4.4 million acre-feet per year. Arizona refused to ratify the Compact so California enacted the California Limitation Act to meet the requirements of § 617c. *See infra* note 35.

³⁵ *See* California Limitation Act, Cal. Stat. ch. 16, sec. 1 at 38-9 (1929), as cited in Abbott, *supra* note 24, at 1389.

³⁶ The Project Act states: "[n]o person shall have or be entitled to have the use for any purpose of the water stored . . . [behind the Hoover Dam] except by contract [made with the Secretary of the Interior]. Project Act, *supra* note 17, at § 671d.

³⁷ Abbott, *supra*, note 24, at 1401-03. The agricultural interests of the Palo Verde Irrigation District, the Yuma Project, the Imperial Irrigation District, and the Coachella Valley Water District were allotted 3,850,000 acre-feet per year. The next two priorities, totaling 1,212,000 acre-feet per year, went to the Metropolitan Water District of Southern California (MWD), and the remaining water was apportioned for agricultural use.

³⁸ *Id.* at 1402-03.

³⁹ Upper Colorado Basin Compact, ch. 48, 63 Stat. 31, 33 (1949).

⁴⁰ *Id.* at art. 1.

The states of the Lower Basin, however, were not immediately able to agree on a division of the Lower Basin's share.⁴¹ After years of intense litigation and dispute, the U.S. Supreme Court finally resolved the issue.⁴² The Court held that the Project Act effectively allocated the Lower Basin's apportionment of Colorado River waters among the individual basin states. Therefore, California was entitled to 4.4 million acre-feet per year, Arizona was entitled to 2.8 million acre-feet per year, and New Mexico was entitled to 300,000 acre-feet per year. In addition, Arizona and California were each to get one half of any surplus flows. The Court's decision finally clarified the issue of apportionment of the Colorado River between the Lower Basin states.

B. *International Apportionment of Colorado River Water*

Because the Colorado River is an international river, the United States and Mexico have signed agreements relating to both apportionment and quality of the water. For purposes of this Comment, the most important agreements are the treaty entitled Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande (1944 Treaty),⁴³ and Minute 242.⁴⁴ This Section provides a brief description of each of these agreements.

1. The 1944 Treaty

On February 3, 1944, the United States and Mexico signed the 1944 Treaty to apportion the waters of the Colorado River.⁴⁵ The treaty guarantees that the United States will deliver a quantity of

⁴¹ Getches, *supra* note 11, at 418. The Lower Basin states were not able to reach an agreement and sign a compact as authorized by the Project Act primarily because Arizona adamantly refused to include its Gila River waters as part of the apportionment of Colorado River water. The Gila River is a tributary of the Colorado River that flows through Arizona and New Mexico and can only be effectively used by Arizona. Arizona claimed that its economy depended on exclusive use of the Gila River and that the Project Act did not give California any claim to share these waters. The Supreme Court agreed with Arizona and held that the Project Act was not intended to include the tributary waters of the other Lower Basin states. *See generally* *Arizona v. California*, 373 U.S. 546 (1962). The Court held that the Project Act only apportioned the mainstream waters of the Colorado River.

⁴² *Arizona v. California*, 373 U.S. 546, 565 (1962).

⁴³ 1944 Treaty, *supra* note 7.

⁴⁴ Minute 242, *supra* note 5.

⁴⁵ 1944 Treaty, *supra* note 7. *See* IBWC PAPER, *supra* note 7, at 3.

1,500,000 acre-feet of Colorado River water per year to Mexico.⁴⁶ The 1944 Treaty entrusts the IBWC to apply the treaty, to regulate and exercise the rights and obligations assumed thereunder by the United States and Mexico, and to settle disputes that arise under the treaty.⁴⁷

The 1944 Treaty originated with a series of negotiations between the United States and Mexico beginning in the 1920s.⁴⁸ During this time, the basin states drafted the Colorado River Compact which referred to the possibility of a future treaty with Mexico.⁴⁹ In addition, the United States and Mexico each appointed three Commissioners to the International Water Commission (IWC) to secure information on which to base a treaty apportioning the use of the Colorado River and the Rio Grande.⁵⁰

The Commissioners quickly reached an impasse when the United States offered to apportion 750,000 acre-feet per year to Mexico and Mexico demanded 3,600,000 acre-feet per year.⁵¹ In 1932, Congress abolished the IWC and transferred the authority to negotiate a river treaty with Mexico to the International Boundary Commission (IBC).⁵²

Negotiations between the United States and Mexico continued sporadically throughout the 1930s and early 1940s with little progress.⁵³ A U.S. offer in 1942 to deliver to Mexico 1,150,000 acre-feet of Colorado River water per year initiated a new round of negotiations.⁵⁴ Mexico rejected the offer and stated that 2,000,000 acre-feet per year was the absolute minimum amount of water it needed for the region.⁵⁵

⁴⁶ 1944 Treaty, *supra* note 7, at art. 10. The treaty provides that the United States will deliver the water according to schedules formulated by Mexico within certain limitations. *Id.* at art. 15. The treaty also authorizes Mexico to construct a main diversion structure below the point of diversion. *Id.* at art. 12(a). In addition, the treaty permits the United States to construct such works that it might need to protect its land from floods and seepage that might result from the construction. *Id.* at art. 12(b)–(c).

⁴⁷ *Id.* at art. 2.

⁴⁸ See generally Meyers and Noble, *The Colorado River: The Treaty with Mexico*, 19 STAN. L. REV. 357 (1967). This article provides an authoritative and detailed account of the negotiation and drafting of the 1944 Treaty.

⁴⁹ See Compact, *supra* note 16, at art. III(c).

⁵⁰ Meyers and Noble, *supra* note 48, at 368. Mexico refused to discuss one river without the other because this placed Mexico in a better bargaining position.

⁵¹ *Id.*

⁵² *Id.* at 369.

⁵³ *Id.* at 369–83.

⁵⁴ See *Id.* at 376. This response was based on the assumption that the annual flow of the Colorado River was approximately 19,000,000 acre-feet per year.

⁵⁵ M. WHITEMAN, DIGEST OF INT. LAW 872, 949–50 (1968).

An important development during these negotiations was the U.S. Government's refusal to apply the Harmon Doctrine.⁵⁶ The Harmon Doctrine stated that a sovereign had the right to appropriate all of the water of an international river within its jurisdiction. By refusing to apply the Harmon Doctrine, the U.S. Government rejected the principle of absolute territorial sovereignty and adopted a more "internationalist" approach.⁵⁷ As a practical matter, the United States could not apply the Harmon Doctrine to the Colorado River because Mexico is upstream for two thirds of the Lower Rio Grande and the United States did not want to jeopardize this source of water. Agreeing to an equitable apportionment of Mexico's share of Colorado River water, however, remained a problem.

In the 1944 Treaty, the two governments finally agreed that Mexico would receive an allotment of 1,500,000 acre-feet per year from the United States.⁵⁸ The 1944 Treaty does not mention the effect of Mexican uses of groundwater reserves, despite their interrelation with the surface flow of the Colorado River.⁵⁹ Evidently, the negotiators did not consider whether the United States should be given credit for the groundwater that Mexico utilized.⁶⁰ As a result, the water that seeps through the All-American Canal is the subject of dispute between the United States and Mexico.

2. Minute 242—The Salinity Control Agreement

Between the years 1965 and 1973, a dispute arose between the United States and Mexico concerning salinity levels of the waters delivered to Mexico.⁶¹ During the 1960s, the salinity level of the Colorado River reached crisis proportions because of a combi-

⁵⁶ *Id.* at 950.

⁵⁷ See Memorandum of the Legal Advisor of the Department of State, dated May 26, 1942, as cited in M. WHITEMAN, *supra* note 55, at 950.

⁵⁸ 1944 Treaty, *supra* note 7, at art. 10(a). Article 10 of the 1944 Treaty states: "[o]f the waters of the Colorado River, from any and all sources, there are allotted to Mexico: . . . [a] guaranteed annual quantity of 1,500,000 acre-feet. . . ." Article 10 also provides that Mexico can not acquire any right to water used for any purpose in excess of the 1,500,000 acre-feet guaranteed by the United States.

⁵⁹ Meyers and Noble, *supra* note 48, at 415.

⁶⁰ *Id.* at 385.

⁶¹ See generally Bulson, *Colorado River Salinity Problem: Has a Solution Been Found?*, 9 INT'L LAW. 283 (1975).

nation of natural factors and U.S. use of the water for irrigation.⁶² By the time the waters of the Colorado River reached Mexico, they had become highly saline and almost unusable.

The United States claimed that it was not liable for damage caused by the high salinity levels because the 1944 Treaty did not require that the water delivered to Mexico be of any certain quality.⁶³ Indeed, the language of the treaty offered little support for the Mexican position that the water be of a minimum quality. Mexico claimed that the preamble of the 1944 Treaty implied that the water be usable. In addition, Mexico argued that because the treaty listed "agriculture and growing" as one of the principle uses for the water,⁶⁴ the delivery of unusable water undermined the purpose of the 1944 Treaty, and was therefore illegal.

It is important to note that despite the weakness of Mexico's position in terms of positive international law, Mexico probably would have prevailed if the case were submitted to an international tribunal.⁶⁵ Perhaps this is the reason that the United States negotiated a series of agreements with Mexico through the IBWC to solve the salinity problem.⁶⁶ These agreements culminated in the signing of Minute 242.⁶⁷

Point 6 of Minute 242 requires the United States to consult with Mexico before undertaking any new development of either surface or groundwater.⁶⁸ Pursuant to Point 6, the United States is currently exchanging technical information with Mexico concerning the lining project dispute.⁶⁹

⁶² Bulson, *supra* note 61, at 284–85. The natural factors contributing to the high salinity level include arid soil collecting salts due to lack of rainfall and runoff water carrying dissolved minerals into the Colorado River. The U.S. use of the waters for irrigation, however, greatly accelerated the natural collection of dissolved materials. In addition, the Welton-Mohawk irrigation project in Arizona pumped salty groundwater into the river causing salinity levels to rise drastically.

⁶³ *Id.* at 286. Assistant Secretary of State Acheson interpreted articles 10 and 11 of the 1944 Treaty to allow the United States credit for water delivered to Mexico even though it was so saline as to be unusable. Minute 242 effectively discredits this interpretation of the 1944 Treaty. M. WHITEMAN, *supra* note 55, at 962–63.

⁶⁴ Bulson, *supra* note 61, at 286–87.

⁶⁵ *Id.* at 290.

⁶⁶ *Id.* at 291. These agreements include Minute 218, signed on March 22, 1965, Minute 241 signed on July 14, 1972, and Minute 242, signed on August 30, 1973. These agreements provide for the construction of a drainage channel from the Welton-Mohawk project and for release of fresh water to dilute the salinity level.

⁶⁷ See Bulson, *supra* note 61, at 292.

⁶⁸ See Minute 242, *supra* note 5, at Point 6.

⁶⁹ Letter from Reinaldo Martinez of the IBWC to John Coghlin (Dec. 27, 1989) [hereinafter IBWC Letter].

II. THE ALL-AMERICAN CANAL SYSTEM AND THE LINING PROJECT

A. *The All-American Canal System*

The All-American Canal system is part of a diversion system authorized by the Project Act in 1929. The diversion system consists of the 80 mile All-American Canal, the 123 mile Coachella Canal, appurtenant structures, and the Imperial Diversion Dam and Desilting Works.⁷⁰ The first irrigation water was delivered through the All-American Canal in 1940.⁷¹

The All-American Canal was designed to replace the Alamo Canal in order to irrigate the Imperial Valley with water from the Colorado River.⁷² As an international canal traveling through the United States and Mexico, the Alamo Canal proved difficult to operate, especially without upstream control of the Colorado River. Therefore, Congress authorized a study to determine the feasibility of constructing a canal entirely within the United States. Eventually, the information was compiled in the Fall-Davis report which recommended a reservoir project at or near Boulder Canyon, a diversion dam and desilting works, and a canal—all located within the United States.

Thus, the All-American Canal system was built to relieve dependence on the Alamo Canal and to irrigate the Imperial Valley.⁷³ The Imperial Dam and Desilting Works, located 18 miles northeast of Yuma, Arizona, diverts and desilts Colorado River water for irrigation.⁷⁴ The All-American Canal and its branch the Coachella Canal deliver this water to the Imperial Valley (see Figure 1).

B. *The Need for the Lining Project*

Both the United States and Mexico face water supply shortages⁷⁵ and serious water management problems.⁷⁶ The two

⁷⁰ PROJECT DATA, *supra* note 3, at 1.

⁷¹ *Id.* at 3. Construction of the All-American Canal began in 1934, following construction of the Hoover Dam (now known as the Boulder Dam).

⁷² *Id.* The Alamo Canal was the first project to irrigate the Imperial Valley with Colorado River water. The Alamo Canal diverted water from the Colorado River and delivered it to the upper channel of the Alamo River in Mexico. The Alamo River flowed in a northerly direction into the Imperial Valley where auxiliary distribution structures were built to distribute the water.

⁷³ Parker, *Water Supply for Urban Southern California: An Historical and Legal Perspective*, 8 GLENDALE L. REV. 1, 22 (1988).

⁷⁴ PROJECT DATA, *supra* note 3, at 1.

⁷⁵ See Utton, *Overview*, 22 NAT. RESOURCES J. 735, 738-39 (1982) [hereinafter *Overview*].

⁷⁶ Parker, *supra* note 73, at 8.



Figure 1

The All-American Canal runs just north of the Mexican border. Large quantities of water diverted from the Colorado River seep through the earthen walls of the canal to become a source of groundwater for Mexican farmers. (Copyright © 1989 by the New York Times Company. Reprinted with permission.)

most important factors affecting the supply of water are population and economic growth.⁷⁷

California is projected to face a 33 percent increase in demand for water by the year 2020.⁷⁸ Southern California also faces severe competition for Colorado River water from both Arizona and the Indian Reservations. With the completion of the Central Arizona Project (CAP), southern California will forfeit use of approximately 1,000,000 acre-feet of water per year.⁷⁹ The Metropolitan

⁷⁷ Overview, *supra* note 75, at 735.

⁷⁸ Parker, *supra* note 73, at 8.

⁷⁹ *Id.* at 31. The Central Arizona Project (CAP) is a diversion project designed to deliver 1,200,000 acre-feet of water annually from the Colorado River to Phoenix and Tucson. Arizona's right to this water was the principle issue litigated in *Arizona v. California*, 373 U.S. 546 (1962).

The Supreme Court's ruling and the eventual completion of CAP will limit California's use of Colorado River water to 4,400,000 acre-feet rather than the 5,362,000 acre-feet it was using before Arizona had the capacity to divert its share of the river. Deliveries of water from the State Water Project have made some of these reductions possible. In addition, in 1981 the first 50 miles of the Coachella branch were lined with concrete which conserved approximately enough water to meet Coachella's reduction. CVWD Press Release, *supra* note 2. When CAP reaches full operation, however, California will have to further reduce its use of Colorado River water by 300,000 acre-feet per year. The MWD will be the water agency in California that suffers most from these reductions.

Water District of Southern California (MWD)⁸⁰ was using approximately one half of this water which forces the agency to look for new sources of water.⁸¹

Furthermore, Indian tribes have developed priority rights to use Colorado River water.⁸² The development and potential breadth of Indian water rights have left planners and law makers unable to alleviate conflict between Indian and non-Indian water users.⁸³ The uncertainty surrounding Indian water rights has made rational water planning nearly impossible.

Mexico's reliance on Colorado River water has been increasing since 1930 because of accelerated population growth and expansion.⁸⁴ In 1980, the estimated population in the border region of Mexico was 3.4 million. The national population growth rate between 1970 and 1980 was 3.2 percent, and this pattern is thought to apply to the resident population of the border area as well.

In short, continued rapid population growth in the border regions of both nations will involve greater demands on water

⁸⁰ Parker, *supra* note 73, at 41. The MWD is a California water agency created in 1928 by the California Legislature to provide supplemental water for cities and communities in Southern California. METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, MWD FACT SHEET, 1 (Apr. 1989) [hereinafter MWD FACT SHEET]. The MWD serves a district of approximately 14.5 million people. Within its district, there are approximately 300 cities and unincorporated areas. The MWD's budget for 1988-89 was \$468 million. MWD delivers approximately 2,000,000 acre-feet annually to its district. The largest user of MWD water is the San Diego County Water Authority which receives 28 percent of all the water sold by the MWD. Under the Seven Party Agreement with the Secretary of the Interior, MWD received a fifth priority for the use of Colorado River water. Abbott, *supra* note 24, at 1402 n.48.

⁸¹ In addition, MWD must look for new sources of water because its consumer population could increase from approximately 14.5 million in 1989 to 20 million in 2010. MWD FACT SHEET, *supra* note 80, at 1. Water demands for the MWD's service district are projected to increase from 4 million acre-feet per year in 1990 to 4.3 million acre-feet per year by 2010.

⁸² See generally McCool, *Indian Water Rights, The Central Arizona Project and Water Policy in the Lower Colorado River Basin*, 2 J. ENERGY L. & POL'Y 107 (1981); see also Back and Taylor, *Navajo Water Rights: Pulling the Plug on the Colorado River*, 20 NAT. RESOURCES J. 71 (1980). In *Winters v. United States*, the U.S. Supreme Court held that the federal government's creation of Indian reservations impliedly reserved water for the Indians. 207 U.S. 564 (1908). These rights have been subsequently expanded in later Supreme Court decisions. McCool, *supra* at 107.

⁸³ McCool, *supra* note 82, at 107.

⁸⁴ Alba, *Mexico's Northern Border: A Framework of Reference*, 22 NAT. RESOURCES J. 749, 751-52 (1982). Mexico's population increased from 17 million in 1930 to 50 million in 1970. During this period the population of the border region rose from a few thousand to 2.35 million.

and the environment.⁸⁵ With the major surface flows of the Colorado completely apportioned, both the United States and Mexico will have to somehow stretch the available supply.

C. *The Lining Project*

The proposed lining of the All-American Canal represents a U.S. attempt to stretch its water supply. Judge Rifkind first suggested the project as part of the Special Master's Report in *Arizona v. California*.⁸⁶ Judge Rifkind noted that instituting projects to line canals would conserve large amounts of water. On March 16, 1983, the Environmental Defense Fund of Berkeley (EDF) issued a report suggesting that investment in conservation measures in the All-American Canal system could save as much as 438,000 acre-feet of water a year.⁸⁷ According to the report, this water could then be used to help meet the demands of San Diego and Los Angeles.

On January 17, 1989, the MWD and the Imperial Irrigation District (IID)⁸⁸ signed an agreement largely based on the EDF proposal.⁸⁹ Under the terms of this agreement, MWD will pay for specific conservation projects, including lining the All-American Canal with concrete.⁹⁰ In return, MWD will be guaranteed a minimum of 100,000 acre-feet of water annually from the water conserved by these projects.⁹¹ MWD has agreed to pay for the conservation projects because, under the terms of its contract for Colorado River water with the Secretary of the Interior, it has a

⁸⁵ *Overview*, *supra* note 75, at 738.

⁸⁶ Abbott, *supra* note 24, at 1415.

⁸⁷ Parker, *supra* note 73, at 63; ENVIRONMENTAL DEFENSE FUND, EDF LETTER, 1 (Jun. 1983) [hereinafter JUNE 1983 EDF LETTER]. One of the EDF's principle reasons for proposing the conservation measures was to avoid the need to implement the State Water Project (SWP). The SWP is a plan to bring water to southern California from northern California at great expense to the environment.

⁸⁸ The Imperial Irrigation District (IID) is the largest irrigation district in the United States, and the largest user of California's share of the Colorado River. ENVIRONMENTAL DEFENSE FUND, EDF LETTER, 7 (May 1989) [hereinafter MAY 1989 EDF LETTER]. Under the Seven Party Agreement with the Secretary of the Interior, the IID received third priority for use of Colorado River water. Abbott, *supra* note 24, at 1402 n.48.

⁸⁹ MAY 1989 EDF LETTER, *supra* note 88, at 1.

⁹⁰ *Id.* The total costs of the project are approximately \$115 million, plus operation and maintenance costs of \$3.1 million. The conservation methods also include constructing local reservoirs, installing gates and automation equipment, and monitoring and management measures.

⁹¹ *Id.*

lower priority for the water than IID.⁹² As a result, when there is a shortage of water, only MWD is affected.⁹³ In addition, IID water is used for agricultural purposes and the federal government heavily subsidizes the water.⁹⁴ These government subsidies enable the IID farmers to pay artificially low prices for their water and give the farmers little incentive to invest in their own conservation projects.

The idea behind the lining project is to make more efficient use of the diverted Colorado River water.⁹⁵ A large amount of water is lost in transit through the earthen lining of the All-American Canal. Constructing a concrete lining on the walls of the canal will prevent most of this seepage.

There are two phases involved in the construction plan for the lining project.⁹⁶ The first phase is to lay a plastic liner in the canal to seal the canal's earthen walls. The second phase is to place a layer of concrete over the plastic in order to hold it in place and to protect it during canal maintenance.⁹⁷

The water conserved by the lining will be used by the MWD to help meet the needs of San Diego and Los Angeles.⁹⁸ Congress has already authorized the Secretary of the Interior to construct these conservation projects and to receive funds from the MWD to pay for them.⁹⁹ In fact, a \$9.35 million experimental canal lining program is scheduled for completion in November of 1990.¹⁰⁰ The experimental program consists of applying design elements in a test lining of a 1.5 mile section of the canal. The canal cannot be dewatered for conventional lining due to the

⁹² See *supra* text accompanying notes 36–38.

⁹³ MAY 1989 EDF LETTER, *supra* note 88, at 7.

⁹⁴ ENVIRONMENTAL DEFENSE FUND, EDF LETTER 2 (Sept. 1985) [hereinafter SEPTEMBER 1985 EDF LETTER] (reprinting New York Times editorial).

⁹⁵ See MAY 1989 EDF LETTER, *supra* note 88, at 7. These conservation projects may even be legally mandated. JUNE 1983 EDF LETTER, *supra* note 87, at 1.

⁹⁶ See CVWD Press Release, *supra* note 2.

⁹⁷ In addition to conserving water, the concrete lining increases the velocity of the water flowing through the canal. See COACHELLA VALLEY WATER DISTRICT, IRRIGATION & DRAINAGE SYSTEMS REHABILITATION 6 (1984) [hereinafter CVWD PAMPHLET]. This increase in velocity reduces transit time from the Colorado River and increases the efficiency in meeting irrigation demands and saves water.

⁹⁸ New York Times, Oct. 1, 1989, at 3. The lining project offers several advantages over alternative proposals to obtain additional supplies of water. See Parker, *supra* note 73, at 65. The plan is more economically efficient, safer for the environment, and capable of enhancing water quality.

⁹⁹ All American Canal Lining Legislation, *supra* note 1, at § 203(a),(e).

¹⁰⁰ CVWD Press Release, *supra* note 2.

demands of desert farmers. Consequently, the lining project has required implementing innovative and time consuming engineering techniques. Despite the technical difficulties, however, the United States is moving forward with the lining project.

The problem with the lining project is that it will severely diminish a source of groundwater that supplies Mexico's Valle de Mexicali and, therefore, may violate international law.¹⁰¹ The Valle de Mexicali, an extension of the Imperial Valley, is one of Mexico's most productive agricultural zones. The water that seeps through the earthen lining of the All-American Canal replenishes an aquifer from which the farmers of the Valle de Mexicali have been irrigating their lands for more than thirty five years (see Figure 1). With the projected rapid growth of the nearby cities of Mexicali and Tijuana, the groundwater recovered from the All-American Canal is more important to the farmers than ever.

III. THE LINING PROJECT AND INTERNATIONAL LAW

This Section analyzes the dispute over the lining project in terms of international law.¹⁰² The first step in the analysis is to determine whether an agreement between the United States and Mexico governs the water in dispute. After concluding that no such international agreement exists, the next step in the analysis is to determine which principles of customary international law apply to the dispute and to examine the relevant works of publicists and jurists.

This Section concludes that principles of customary international law limit the United States right to use the water in dispute. This limitation derives from the principle of limited territorial sovereignty as articulated by the United Nations International Law Commission (ILC) and the International Law Association (ILA). As a result, this Section proposes that the groundwater in

¹⁰¹ New York Times, Oct. 1, 1989, at 3.

¹⁰² There are four sources of international law, some of which are more developed than others in the case of transboundary groundwater law. *See* Statute of the International Court of Justice, Yearbook of the United Nations 1334 (1983).

In deciding disputes of international law the ICJ shall apply:

1. international conventions,
2. principles of customary international law,
3. general principles of law recognized by civilized nations, and
4. judicial decisions and teachings of Publicists of various nations.

dispute should be equitably utilized under the rules of customary international law set forth in the ILA's Helsinki Rules and further refined in the ILA's Seoul Rules.¹⁰³

A. *International Agreements*

1. The 1944 Treaty

The 1944 Treaty is a guarantee from the United States that it will deliver 1,500,000 acre-feet of Colorado River water per year to Mexico.¹⁰⁴ The first step in settling the dispute between the United States and Mexico over the lining project is to interpret the breadth of the 1944 Treaty. The issue is whether the treaty applies to groundwater.

If the 1944 Treaty applies to groundwater, article 10 invalidates Mexico's claims to the water that seeps through the All-American Canal. Mexico uses this water in addition to the 1.5 million acre-feet of water delivered annually, and article 10 of the 1944 Treaty explicitly states that "Mexico shall acquire no right beyond [its guaranteed allotment] . . . by the use of the waters of the Colorado River system in excess of the 1.5 million acre-feet . . . annually."

Commentators agree, however, that the 1944 Treaty only applies to surface water.¹⁰⁵ The drafters of the 1944 Treaty were probably aware of the existence of an untapped supply of groundwater that is hydrologically interrelated with the surface water of the Colorado River.¹⁰⁶ Nevertheless, the 1944 Treaty does not regulate use of this groundwater.¹⁰⁷

The U.S. Government claims that the groundwater in dispute is not governed by any international agreement, including the 1944 Treaty.¹⁰⁸ The United States asserts that the water in dispute is U.S. water, and that the United States has a right to conserve it. The United States argues that Mexico has been receiving free

¹⁰³ See *infra* text accompanying notes 141–154.

¹⁰⁴ 1944 Treaty, *supra* note 7, at art. 10. The treaty contains provisions to supply Mexico with additional water in the event that a surplus exists in a particular year. The 1944 Treaty also contains a provision relating to delivery of water during a time of extraordinary drought or severe accident. In either event, the amount of water guaranteed to Mexico by the treaty will be reduced in the same proportion as consumptive uses in the United States are reduced.

¹⁰⁵ Telephone interview with Professor Albert E. Utton, Professor of Law, University of New Mexico, (Feb. 26, 1990). See Meyers and Noble, *supra* note 48, at 385, 415.

¹⁰⁶ Meyers and Noble, *supra* note 48, at 415.

¹⁰⁷ *Id.*

¹⁰⁸ New York Times, Oct. 3, 1989, at 3.

use of the seepage water but that Mexico does not have any right to it.

Thus, the U.S. Government believes that it fulfills all of its obligations to Mexico regarding Colorado River water once it meets the delivery requirements of the 1944 Treaty. Regardless of whether the 1944 Treaty applies to groundwater, the United States argues that the treaty only entitles Mexico to 1.5 million acre-feet of Colorado River water annually. Since the United States will continue to deliver this amount of water to Mexico even after the lining project is completed, the United States claims that Mexico will receive all the Colorado River water it is entitled to under international law.¹⁰⁹

The U.S. position, however, may not be consistent with developing principles of customary international law.¹¹⁰ Although the United States is complying with the terms of the 1944 Treaty by delivering the 1.5 million acre-feet of water per year, this may not be the extent of its international legal obligations. Because the 1944 Treaty does not cover the groundwater in dispute, principles of customary international law may control the use of this groundwater.

2. Minute 242

Minute 242, the salinity control agreement of 1973 between the United States and Mexico, is important to the lining project controversy for three reasons. First, Minute 242 includes a specific provision regarding regulation of groundwater.¹¹¹ The agreement limits both U.S. and Mexican pumping of groundwater in the territory within five miles of the border in the San Louis-Yuma area. In addition, the agreement alludes to the need for a future comprehensive agreement on groundwater in the border areas.¹¹²

These provisions are significant even though they do not directly apply to the lining project dispute.¹¹³ Minute 242 is one of the few international agreements governing groundwater and it indicates a trend towards international regulation of groundwa-

¹⁰⁹ *Id.*

¹¹⁰ See *infra* text accompanying notes 122–54.

¹¹¹ Minute 242, *supra* note 5, at Points 5–6.

¹¹² *Id.* at Point 5.

¹¹³ These provisions do not apply to the lining project dispute because the 5 mile limit included in Minute 242 applies only to the San Louis-Yuma area.

ter. As is the case with the 1944 Treaty, agreements covering international rivers do not usually include provisions for use of related groundwater.¹¹⁴ A major reason for the exclusion of groundwater is the traditional perception that it is a commodity susceptible to ownership.¹¹⁵ This perception has impeded the development of a secure and flexible international legal regime for groundwater.¹¹⁶

Second, through Minute 242 the United States recognized the right of a lower riparian to have its economic interests protected.¹¹⁷ In Minute 242, the IBWC interpreted the 1944 Treaty to mean that the water delivered to Mexico must be of a certain minimum quality. Therefore, this agreement implies that the United States does not have the right to use the waters of the Colorado River in a manner that causes appreciable injury to Mexico. The approach initiated by Minute 242 is a recognition that the waters of the Colorado River are a common resource and the problems concerning these waters require a common solution.¹¹⁸

Finally, Minute 242 is central to the lining project dispute because it requires the United States and Mexico to consult each other prior to undertaking projects such as the lining of the All-American Canal. Although Minute 242 does not enable the protesting State to veto proposed construction projects, it does provide an opportunity for the State to voice its concerns.¹¹⁹ Minute 242 exemplifies the advantages of reaching technical solutions to transboundary water resource disputes, thereby avoiding adversarial dispute resolution mechanisms such as arbitration or the

¹¹⁴ Utton, *International Groundwater Management: The Case of The U.S.-Mexican Frontier*, 57 NEB. L. REV. 633, 636 (1978) [hereinafter *International Groundwater Management*]; Caponera and Alheritiere, *Principles of International Groundwater Law*, 18 NAT. RESOURCES J. 589, 592-93 (1978).

¹¹⁵ *International Groundwater Management*, *supra* note 114, at 636. Under English common law, the landowner has exclusive property rights over the water. The landowner has the right to pump water at any time and in any quantity for any "legitimate enterprise, either on or off the land." Because other pumpers may take possession of the mobile groundwater at any time, the common law doctrine has created great insecurity among landowners and States.

¹¹⁶ See *International Groundwater Management*, *supra* note 114, at 637.

¹¹⁷ Bulson, *supra* note 61, at 283-84.

¹¹⁸ See Bulson, *supra* note 61, at 293.

¹¹⁹ M. WHITEMAN, *supra* note 55, at 941. There is no rule of customary international law that requires a State to receive the consent of a co-riparian prior to developing a section of an international river system that lays within the State's territory. See also FAO, *supra* note 8, at 8.

International Court of Justice (ICJ).¹²⁰ In fact, the United States and Mexico are presently exchanging technical information on the lining project, pursuant to Point 6 of Minute 242.¹²¹

Thus, neither of the two relevant agreements between the United States and Mexico control the substantive issues of the dispute over the lining project. The 1944 Treaty does not apply to the conflict because, by its terms, it only governs Colorado River surface water. Minute 242 does not regulate the groundwater in dispute but it indicates a trend towards international regulation of groundwater and represents an admission by the United States that it does not have the right to use the waters of the Colorado River in a manner that causes appreciable injury to Mexico. The most tangible effect of Minute 242, however, is the provision that requires the United States and Mexico to submit the dispute before the IBWC. Therefore, the next step in analyzing the conflict under international law is to apply principles of customary international law.

B. *Principles of Customary International Law*

Settlement of the lining project dispute will be difficult because there are few accepted principles of customary international law governing use of transboundary groundwater.¹²² Yet, transboundary groundwater law has recently begun to develop.¹²³ This trend parallels an increased demand for groundwater.¹²⁴ Demand for groundwater has increased dramatically for two reasons. First, rapid economic and population growth has forced countries to attach more importance to water in general and groundwater in particular. Second, improved technology enables States to harness river resources in new and different ways.¹²⁵ Furthermore, groundwater is an ideal subject for international cooperation.¹²⁶

This Section discusses the principles of customary international law that apply to the dispute over the lining project. It first

¹²⁰ See Bulson, *supra* note 61, at 293.

¹²¹ IBWC Letter, *supra* note 69. U.S. consultation, however, began after Congress approved the lining project and it appears that Mexico faces a *fait accompli*.

¹²² M. WHITEMAN, *supra* note 55, at 920.

¹²³ Hayton and Utton, *Transboundary Groundwaters: The Bellagio Draft Treaty*, 29 NAT. RESOURCES J. 663, 668-73 (1989).

¹²⁴ See Caponera and Alheritiere, *supra* note 114, at 590.

¹²⁵ Michael, *The Allocation of Waters of International Rivers*, 7 NAT. RESOURCES LAW. 45, 45 (1974).

¹²⁶ Caponera and Alheritiere, *supra* note 114, at 590-91.

considers the right of sovereign States to use the surface waters of international rivers. Next, it suggests that this right applies by analogy to use of transboundary groundwater.

1. The Principle of Limited Territorial Sovereignty

The principle of limited territorial sovereignty is generally recognized as customary international law.¹²⁷ Limited territorial sovereignty permits a riparian State reasonable use of the waters of international rivers that flow through its territory.¹²⁸ Under this doctrine, a riparian State has a right to use these waters as long as it does not cause appreciable injury to a co-riparian.¹²⁹ In addition, this doctrine recognizes the right of co-riparians to use the international river water.

The principle of limited territorial sovereignty implies that a "community of interests" exists among States claiming the same transboundary water resource.¹³⁰ The doctrine is based on the idea that each riparian State has the right to consider the river system as a whole.¹³¹ Each State, in principle, has the right to make maximum use of the water within its territory. In exercising this right, however, each State must respect the rights of the other States.¹³²

As discussed in detail below, the ILC and the ILA have adopted the doctrine of limited territorial sovereignty in their efforts to codify transboundary water resource law. The ILC views water from international rivers as part of an international watercourse system in which groundwater is a "hydrographic component."¹³³ According to the ILC draft articles, each State that is part of an international watercourse system has a right to share in the use of the watercourse system.

¹²⁷ See Eagleton, *The Use of the Waters of International Rivers*, 23 CANADIAN B. REV. 1018, 1021 (1955); M. WHITEMAN, *supra* note 55, at 920-45; Caponera, *Patterns of Cooperation in International Water Law: Principles and Institutions*, in TRANSBOUNDARY RESOURCES LAW 1, 6 (A. Utton & L. Teclaff eds. 1987); Szekely, *Transboundary Resources: A View From Mexico*, in TRANSBOUNDARY RESOURCES LAW 211, 225 (A. Utton & L. Teclaff eds. 1987).

¹²⁸ M. WHITEMAN, *supra* note 55, at 921-23.

¹²⁹ UTTON, WATER AND WATER RIGHTS —(1991) (to be published by Michie & Co.).

¹³⁰ FAO, *supra* note 8, at 8.

¹³¹ Michael, *supra* note 125, at 50.

¹³² *Id.*

¹³³ *International Law Commission, Report to the General Assembly*, 10 U.N. GAOR Supp. (No. 10) at 45, U.N. Doc. A/43/10 (1988) [hereinafter 1988 ILC REPORT]. See *infra* text accompanying notes 180-93.

The ILA has adopted the doctrine of limited territorial sovereignty in developing the Helsinki Rules of 1966 (Helsinki Rules) which embrace the concept of an international drainage basin.¹³⁴ According to the ILA, a system of rivers and lakes in a drainage basin, which includes groundwater, should be treated as an integrated whole. Each basin State is entitled to a reasonable and equitable share in the water of this drainage basin. The ILA has further expanded the Helsinki Rules through the Seoul Rules, which specifically focus on use of transboundary groundwater.¹³⁵

Thus, under customary international law, sovereignty is not absolute for either the upper riparian¹³⁶ or the lower riparian.¹³⁷ The acceptance of the principle of limited territorial sovereignty is evidenced by the practice of States entering into treaties to apportion waters of international rivers,¹³⁸ decisions of national

¹³⁴ INTERNATIONAL LAW ASSOCIATION, HELSINKI RULES ON THE USES OF THE WATERS OF INTERNATIONAL RIVERS at art. I–III (London 1967) [hereinafter Helsinki Rules]. See *infra* text accompanying notes 194–202.

¹³⁵ INTERNATIONAL LAW ASSOCIATION, REPORT OF THE SIXTY-SECOND CONFERENCE HELD AT SEOUL 1986, 231, 241–42 (London 1987) [hereinafter Seoul Rules].

¹³⁶ Eagleton, *supra* note 127, at 1020. According to the doctrine of absolute territorial sovereignty, the upper riparian has the right to use the water of an international river even if its use causes injury to co-riparians. UTTON, *supra* note 129 at 2. Prevalent during the 19th and early 20th centuries, this doctrine received its greatest support in what came to be known as the Harmon Doctrine. See Griffin, *The Use of Waters of International Drainage Basins Under Customary International Law*, 53 AM. J. INT'L L. 50, 50–51 (1959).

In the context of allocation of international river waters, however, the doctrine of absolute territorial sovereignty no longer has credence. Most publicists agree that the principle has been replaced with the maxim, *sic utere tuo ut alienum* (so use your own as not to injure another's property). *Id.* at 59. In addition, no decision by an international tribunal supports absolute territorial sovereignty in this context.

¹³⁷ The doctrine of absolute territorial integrity posits that the lower riparian State has the right to demand the continued natural flow of waters from the upper riparians. UTTON, *supra* note 129, at 3. The upper riparian must allow the water to flow into the lower riparian's territory in its original channel. Eagleton, *supra* note 127, at 1022. The upper riparian could, however, make reasonable use of the water while it flowed through its territory.

The principle of absolute territorial integrity is also without juridical foundation. See UTTON, *supra* note 129, at 3. Like the principle of absolute territorial sovereignty, this principle disregards reciprocal sovereign rights of States that have an interest in the same international water resource. The absolute territorial integrity principle hampers the upper riparian's use of the river water and can lead to a waste of natural resources. Eagleton, *supra* note 127, at 1022.

¹³⁸ See generally Griffin, *supra* note 136, at 50–58 (contains a digest of several treaties governing international rivers). Over one-hundred treaties govern systems of international rivers. M. WHITEMAN, *supra* note 55, at 934. These treaties indicate that there are principles of international law that restrict the power of States to use the waters of international rivers without regard to the effects on other States. These agreements provide evidence of the general conception of this principle of limited territorial sovereignty. Griffin, *supra*

or municipal courts,¹³⁹ writings of publicists,¹⁴⁰ and decisions of international tribunals.¹⁴¹

Furthermore, the doctrine of “equitable utilization” has become an accepted means of calculating the amount of water each State is entitled to use.¹⁴² Equitable utilization is an expression of limited territorial sovereignty which derives from the concept of “equality of rights.”¹⁴³ Equitable utilization requires that the interests of the States in question be fairly weighed in determining each State’s right to use transboundary water resources. The right of a State to use this water carries with it the duty not to cause appreciable injury to other States.¹⁴⁴ The idea is based on the maxim *sic utere tuo ut alienum non laedas*—“so use your own property as not to injure your neighbor’s property.”¹⁴⁵

The ILA’s Helsinki Rules provide a list of relevant factors for calculating equitable utilization of transboundary water resources.¹⁴⁶ In promulgating this list of factors, the Helsinki Rules

note 136, at 58–59. See UTTON, *supra* note 129, at 5–12. By entering into the 1944 Treaty with Mexico the United States contributed to this practice of recognizing limited territorial sovereignty and obligations to co-riparians. Eagleton, *supra* note 127, at 1020.

¹³⁹ Although decisions of national or municipal courts generally are not binding precedent, they provide evidence of relevant policy considerations. UTTON, *supra* note 129, at 14. See *Kansas v. Colorado*, 206 U.S. 46 (1907) (Court rejects Colorado’s claim of absolute sovereign rights); *Wyoming v. Colorado*, 259 U.S. 419 (1922) (The upper state may not dispose of the waters of an unnavigable stream without regard to the harm that may be caused to the lower state).

¹⁴⁰ See *e.g.*, 10th Conference of the Inter-American Bar Association (Every State has the right to use the waters of an international system insofar as it does not interfere with the equal right of States having another part of the system within their territory); Economic Commission of Europe (A State has the right to unilaterally develop a section of an international waterway insofar as it only causes minor inconvenience or slight injury); Department of State Memorandum (Sovereignty is restricted by principles of customary international law); U.S. Representative to the United Nations General Assembly (In the absence of specific treaty provisions to the contrary, no State may claim to use the waters of an international river in such a way as to cause material injury to the interests of other states) M. WHITEMAN, *supra* note 55, at 921–43.

¹⁴¹ See Griffin, *supra* note 136, at 59. Several international tribunals have recognized that a State has a duty not to exercise its territorial sovereignty in a manner which causes injury to another State.

¹⁴² UTTON, *supra* note 129, at 33. For a detailed discussion of the development and use of the doctrine of equitable utilization, see UTTON, *supra* note 129, at 21–41.

¹⁴³ *Id.* at 21.

¹⁴⁴ *Id.* at 22.

¹⁴⁵ *Id.* at 23.

¹⁴⁶ Helsinki Rules, *supra* note 134, at art. V. Article V states:

- (1) What is a reasonable and equitable share within the meaning of Article IV is to be determined in the light of all the relevant factors in each particular case.
- (2) Relevant factors which are to be considered include, but are not limited to:

attempt to balance the benefits to the damaging State against the costs of the damaged State. According to the Helsinki Rules, each basin State is entitled to a "reasonable and equitable share in the beneficial uses of the water"

2. Applying Limited Territorial Sovereignty to Transboundary Groundwater

The principle of limited territorial sovereignty and its corollary principle of equitable utilization have developed primarily in the context of States using the surface water of international rivers. The water subject to dispute in the lining project conflict, however, is not surface water but rather, groundwater.¹⁴⁷ Therefore, in order for these principles to apply to the lining project dispute, an analogy must be made to principles governing surface water.

The analogy of transboundary surface water law to transboundary groundwater law is based on the physical interrelationship

- (a) the geography of the basin, including in particular the extent of the drainage area in the territory of each basin State;
- (b) the hydrology of the basin, including in particular the contribution of water by each basin State;
- (c) the climate affecting the basin;
- (d) the past utilization of the waters of the basin in each basin State, including in particular existing utilization;
- (e) the economic and social needs of each basin State;
- (f) the population dependent on the waters of the basin in each basin State;
- (g) the comparative costs of alternative means of satisfying the economic and social needs of each basin State;
- (h) the availability of other resources;
- (i) the avoidance of unnecessary waste in the utilization of waters of the basin;
- (j) the practicability of compensation to one or more of the co-basin States as a means of adjusting conflicts among uses; and,
- (k) the degree to which the needs of a basin State may be satisfied, without causing substantial injury to a co-basin State.

(3) The weight to be given to each factor is to be determined by its importance in comparison with that of other relevant factors. In determining what is a reasonable and equitable share, all relevant factors are to be considered together and a conclusion reached on the basis of the whole.

¹⁴⁷ There are two major classifications of groundwater, which may require different treatment under international law. *International Groundwater Management*, *supra* note 114, at 655. The first classification is groundwater that receives its source from surface water flows. This groundwater is interrelated with surface flows, and is the type of groundwater that is at stake in the lining project dispute. The second classification of groundwater is that which is not hydrologically connected with any identifiable surface river or lake. This Comment focuses on applying customary international law to groundwater that is interrelated with surface water.

of surface water and groundwater.¹⁴⁸ Groundwater is intimately linked to the quantity and quality of surface water.¹⁴⁹ Because it often flows underground before appearing in another State, it may not seem to have a surface connection. Yet, like surface water, groundwater is really part of an international water resource system¹⁵⁰ which does not respect political boundaries.¹⁵¹ Extraction of groundwater by one State can affect the level of surface water flows of a bordering state.¹⁵²

Customary international law should reflect the evolving practices of States.¹⁵³ Accordingly, with States increasing their demand for transboundary groundwater, the doctrine of limited territorial sovereignty should be applied to use of transboundary groundwater based on the analogy to surface water.¹⁵⁴ Applying this doctrine to groundwater would be consistent with the writings of the ILC and the ILA.

C. *General Principles of Law*

General principles of law recognized by civilized nations are a source of international law.¹⁵⁵ An international tribunal may apply principles of groundwater law developed by past and present societies. In addition, it may be helpful to consider the law of modern federal systems governing the use of groundwater.¹⁵⁶

In most countries, groundwater law has developed separately from surface water law.¹⁵⁷ The ancient Chinese water law was primarily concerned with surface water, but contained two useful concepts for developing transboundary groundwater law.¹⁵⁸ The

¹⁴⁸ See *International Groundwater Management*, *supra* note 114, at 654; Hayton & Utton, *supra* note 123, at 670–71. Although surface water and groundwater are interconnected, customary international law treats the two separately. This distinction is contrary to hydraulic reality.

¹⁴⁹ Hayton & Utton, *supra* note 123, at 670.

¹⁵⁰ Bradley and DeCook, *Groundwater Occurrence and Utilization in the Arizona-Sonora Border Region*, 18 NAT. RESOURCES J. 29, 41 (1978).

¹⁵¹ Caponera and Alheritiere, *supra* note 114, at 590.

¹⁵² See, e.g., *International Groundwater Management*, *supra* note 114, at 634 n. 8.

¹⁵³ See Caponera, *supra* note 127, at 6–7.

¹⁵⁴ Griffin, *supra* note 136, at 77. See e.g., Seoul Rules, *supra* note 135, at art. II. The ILA's Seoul Rules explicitly apply the doctrine of limited territorial sovereignty to transboundary groundwater.

¹⁵⁵ See Statute of the International Court of Justice, *supra* note 102.

¹⁵⁶ Caponera and Alheritiere, *supra* note 114, at 594.

¹⁵⁷ Seoul Rules, *supra* note 135, at 241.

¹⁵⁸ Caponera and Alheritiere, *supra* note 114, at 595.

ancient Chinese system placed a high priority on flexibility and equity. This system led to the concept of "equalization of water" which is the equivalent of the modern doctrine of equitable utilization.¹⁵⁹

Ancient Hebrew law recognized the right of every traveler to use public wells.¹⁶⁰ Water for domestic and irrigation use was subject to an order of priorities based on the proximity of the well to the user and ease of access to the well.

Islamic law treated groundwater with unusual detail because the core regions where Islam developed were so arid.¹⁶¹ In Moslem cultures, water was free because it was a common good. In principle, everyone had a right to use the water, subject to the rights of prior users. Appropriation of a well did not give ownership rights to the water itself; it merely established priority rights to use the water.¹⁶² Modern Moslem water law institutionalizes this traditional concept of community interest.¹⁶³

In most of Europe, title to land included ownership of the groundwater.¹⁶⁴ Some of the African and Asian colonies also adopted this concept of ownership. In most tribal areas, however, the concept of real property ownership was not indigenous, and village wells were used communally without concern over title.

There is, however, a major movement underway to replace the system of ownership of groundwater.¹⁶⁵ States are imposing quantity restrictions on groundwater use and extending permit and reporting requirements to those who use groundwater as well as to those who drill groundwater. There is pressure for reform due to modern understanding of aquifers and their waters and increased pressure on water supplies.

Many countries including Yugoslavia, Israel, Romania, and Turkey have severed groundwater from land ownership and have

¹⁵⁹ *Id.* See *supra* text accompanying notes 141–46 for a discussion of the principle of equitable utilization.

¹⁶⁰ Caponera and Alheritiere, *supra* note 114, at 596.

¹⁶¹ Seoul Rules, *supra* note 135, at 242.

¹⁶² Caponera and Alheritiere, *supra* note 114, at 597. In order to avoid the problems of depleting groundwater, prohibited areas (*harims*) were established around wells in which no other wells could be constructed. Seoul Rules, *supra* note 135, at 242. Those who dug the wells owned the water, and had the exclusive right to use the water for irrigation. These owners, however, were obliged under certain circumstances to share this water for domestic use with others.

¹⁶³ Caponera and Alheritiere, *supra* note 114, at 597.

¹⁶⁴ Seoul Rules, *supra* note 135, at 242.

¹⁶⁵ *Id.*

brought groundwater into the public domain.¹⁶⁶ In Poland, water is the property of the State although once it is pumped, it generally belongs to the landowner.¹⁶⁷ Only a few countries continue to treat the landowner of the overlying land as the absolute owner of the groundwater.¹⁶⁸ Even the States that continue to allow absolute control of groundwater have been legislating restrictions that reflect the need to plan actively to manage water resources.

In federal systems like Australia, Canada, and the United States, the quasi-sovereign provinces or states have developed a diverse field of groundwater law.¹⁶⁹ Some states have adopted permit systems while others retain prior appropriation or common law ownership approaches. In California, the judicial doctrine of correlative rights limits landowners' use of groundwater to amounts that they can beneficially use on their land and subject to the corresponding rights of other landowners sharing the same aquifer.

An international tribunal may consider the modern trend in groundwater law significant. This trend is to sever water rights from the concept of ownership and to adopt the concept of reciprocal rights to use the water.¹⁷⁰ There are an increasing number of groundwater regulations and it is generally recognized that conjunctive use of groundwater is correct.

D. *Decisions of International Tribunals and Writings of Publicists*

1. Decisions of International Tribunals

International tribunals may consider the decisions of other tribunals in order to apply emerging principles of international law. The most relevant decisions of previous international tribunals are the *International Trail Smelter Case (Trail Smelter Case)*¹⁷¹ and the *Lake Lanoux Arbitration*.¹⁷²

¹⁶⁶ *Id.* In Turkey, a well owner can only draw the amount of water allowed by the State, and only for "suitable or beneficial purposes." The well owner may be forced to share his water with a neighbor who cannot draw water from his land at a reasonable cost, when the well owner has a surplus.

¹⁶⁷ *Id.* Under certain circumstances pumping groundwater requires a permit.

¹⁶⁸ *Id.*

¹⁶⁹ *Id.* at 244.

¹⁷⁰ *Id.*

¹⁷¹ The *International Trail Smelter Case*, 35 AM.J. INT'L L. 684 (1941) [hereinafter *Trail Smelter Case*].

¹⁷² *Lake Lanoux Arbitration (France v. Spain)*, INT'L L. REP. 101 (1957) [hereinafter *Lake Lanoux Arbitration*].

a. *The Trail Smelter Case*

Although the facts in the *Trail Smelter Case* distinguish it from the dispute over the lining project,¹⁷³ the tribunal's reasoning may be helpful in analyzing the present dispute. The *Trail Smelter Case* adopted the principle of limited territorial sovereignty in the context of transboundary resources. The tribunal held that "no State has the right to use or permit the use of its territory in such a manner as to cause injury . . . to the territory of another . . . when the case is of serious consequence and the injury is established by clear and convincing evidence."¹⁷⁴ This principle could limit the United States claim that it has a right under international law to improve its public works projects.¹⁷⁵ According to the *Trail Smelter Case*, the United States interest in improving the All-American Canal structure must be balanced against the injury caused to Mexico.¹⁷⁶

b. *The Lake Lanoux Arbitration*

In the *Lake Lanoux Arbitration*, an international arbitral tribunal faced an issue similar to the lining project dispute.¹⁷⁷ The tribunal

¹⁷³ *Trail Smelter Case*, *supra* note 171. The *Trail Smelter Case* involved a dispute between the United States and Canada over emissions from a large zinc and lead smelter located at Trail, a locality in British Columbia, Canada. The smelter released sulphur dioxide fumes which carried into U.S. territory and caused damage to crops and vegetation in the State of Washington. After finding that these fumes did in fact cause damage to Washington, the tribunal assessed the amount of the damages and the indemnity to be paid to the United States, in the amount of \$78,000. The tribunal also held that the Trail Smelter must refrain from causing future damage to the State of Washington.

¹⁷⁴ *Trail Smelter Case*, *supra* note 171, at 716.

¹⁷⁵ See *New York Times*, Oct. 1, 1989, at 3.

¹⁷⁶ *Trail Smelter Case*, *supra* note 171, at 714. In addition, the tribunal held that, in the absence of a contrary rule of international law, it was reasonable to rely on cases decided by the U.S. Supreme Court. These decisions may be a legitimate guide in a field of international law that lacks judicial precedent. This holding is significant because there is little precedent set by international tribunals concerning disputes over transboundary groundwater resources.

If a tribunal were to apply this principle to the dispute over the lining project, it would find several relevant U.S. Supreme Court cases. See, e.g., *Kansas v. Colorado*, 206 U.S. 46 (1907); *Wyoming v. Colorado*, 259 U.S. 419 (1922); *Nebraska v. Wyoming*, 325 U.S. 589 (1945). These cases have rejected the principle of absolute territorial sovereignty in the context of transboundary water resources. The courts have adopted the doctrine of equitable apportionment which is an extension of the principle of limited territorial sovereignty in order to settle disputes between the several U.S. states concerning their shares of river waters. The doctrine enables the court to apply theories of riparian rights, prior appropriation, or whatever theories it deems necessary to balance the benefits of one state against the harm done to the other state. Eagleton, *supra* note 127, at 1023.

¹⁷⁷ *Lake Lanoux Arbitration*, *supra* note 172.

held that a French project to divert water from Lake Lanoux¹⁷⁸ did not violate customary international law.¹⁷⁹ Spain protested the French diversion project because it would have cut off the source of the Carol River which drained Lake Lanoux and flowed into Spain. The French Government offered to return water to the Carol according to Spanish agricultural needs, and to create an annual reserve for droughts in Spain.

The tribunal resolved the dispute by applying the principle of limited territorial sovereignty. The tribunal acknowledged that this principle prohibits the upstream State from causing serious injury to the downstream State by changing the waters of a river in their natural state. It held, however, that France did not violate this principle in the *Lake Lanoux Arbitration* because the French project did not alter the waters of the Carol River to the detriment of Spain.

The *Lake Lanoux Arbitration* may be relevant to the lining project dispute even though it concerns the use of surface water. Like the *Trail Smelter Case*, its facts distinguish it from the lining project, but it clarifies important concepts of customary international law. The *Lake Lanoux Arbitration* specifically recognizes the principle that international law prohibits an upstream State from using waters of an international river in a manner that causes serious injury to a downstream State. If the lining project causes appreciable injury to Mexico, the United States may be in violation of customary international law.

2. Works of Publicists

a. *The International Law Commission*

The ILC has been developing the “law of non-navigational uses of international watercourses” for the past two decades.¹⁸⁰ It has drafted a set of provisional articles that codify State practice

¹⁷⁸ Lake Lanoux is located entirely within French territory. The lake is drained by the River Font-Vive, which is the source of the Carol River. The Carol River flows into Spain where its waters are used for irrigation. M. WHITEMAN, *supra* note 55, at 1066.

¹⁷⁹ Griffin, *supra* note 136, at 62.

¹⁸⁰ See 1988 ILC REPORT, *supra* note 133, at 45. The ILC first included the subject in its program of work in 1971, at its twenty-third session. It began studying the topic in response to the recommendation of the General Assembly of the United Nations (General Assembly) in resolution 2669 (XXV) of December 8, 1970.

relating to non-navigational uses of international watercourses.¹⁸¹ The ILC's draft articles codify developing principles of customary international law. These articles are not binding on States and do not deal with international agreements addressing specific international water resource problems.¹⁸²

The ILC draft articles are deliberately general and vague.¹⁸³ The ILC has recognized that each watercourse is unique and has special uses that differ from system to system. It has adopted the concept of "international watercourse system" to include all transboundary water resources, including groundwater. This concept, however, is not designed to "create a superstructure from which to distill or extract legal principles." Rather, the concept is supposed to be flexible and applicable to a wide variety of issues and the special circumstances of each case.

The ILC definition of international watercourse system includes groundwater.¹⁸⁴ The ILC has recognized that the components of an international watercourse system, by virtue of their physical relationship, constitute a unitary whole.¹⁸⁵ Any use of waters in one part of the system may affect waters in another part of the system.¹⁸⁶ Therefore, the ILC draft articles recognize that States which are part of an international watercourse have a right to share in the use of the system's resources.¹⁸⁷

Article 6 of the ILC draft articles requires watercourse States to use an international watercourse system in an equitable and reasonable manner.¹⁸⁸ Watercourse States are to use and develop

¹⁸¹ See *International Law Commission, Report to the General Assembly*, 10 U.N. GAOR Supp. (No. 10) 237, 249, U.N. Doc. A/35/10 (1980) [hereinafter 1980 ILC REPORT]. The final form of the draft articles will be decided by the ILC at a later stage.

¹⁸² Hayton & Utton, *supra* note 123, at 669 n.10. Customary principles of international law are less satisfactory than written agreements between or among the States concerned in managing transboundary water resources. For this reason a working group has drafted a prototype treaty that would provide for the equitable apportionment of transboundary water resources (including groundwater). The idea is to avoid conflicts similar to the lining project dispute by the signing of prior international agreements that are fair and reasonable.

¹⁸³ See *International Law Commission, Second Report on the Law of the Non-Navigational Uses of International Watercourses*, U.N. Doc. A/CN.4/381, 7, 9 (1984) [hereinafter 1984 ILC REPORT].

¹⁸⁴ 1980 ILC REPORT, *supra* note 181, at 247.

¹⁸⁵ *Id.* at 251. Examples of components of an international watercourse system include rivers, lakes, groundwater, tributaries, canals, and glaciers.

¹⁸⁶ *Id.* at 247.

¹⁸⁷ 1984 ILC REPORT, *supra* note 183, at 23-24.

¹⁸⁸ See *id.* at 24.

the system with a view to attaining optimum utilization and benefits from the system.¹⁸⁹ State participation includes the right to use the international watercourse system and the duty to protect and develop it.¹⁹⁰

Article 7 specifies factors relevant to equitable and reasonable utilization of an international watercourse system.¹⁹¹ While it is beyond the scope of this Comment to apply these factors to the specific facts and circumstances of the lining project dispute, they may be a useful means of settling the dispute.

Several additional ILC articles may also apply to the lining project dispute. Article 8 codifies the holding in the *Lake Lanoux Arbitration*. It requires watercourse States to use an international watercourse system in such a way as to avoid causing appreciable harm to other watercourse States.¹⁹² Article 9 imposes a general obligation among States to cooperate in order to obtain optimum utilization and adequate protection of an international watercourse system.¹⁹³

b. *The International Law Association*

As discussed above, the ILA has applied the principle of limited territorial sovereignty to the use of transboundary water resources through its "international drainage basin" concept. The

¹⁸⁹ 1988 ILC REPORT, *supra* note 133, at 77.

¹⁹⁰ *Id.* The concept of a "right to use" water resources is important because it does not imply notions of ownership of the resources. In order to avoid the implication of ownership, the ILC has abandoned its prior conception that these water resources are "shared resources." See generally Szekely, *supra* note 127, for a discussion of this subtle yet significant distinction.

¹⁹¹ 1988 ILC REPORT, *supra* note 133, at 45. Article 7 states:

1. Utilization of an international watercourse [system] in an equitable and reasonable manner within the meaning of article 6 requires taking into account all relevant factors and circumstances, including:

- (a) geographic, hydrographic, hydrological, climatic and other factors of a natural character;
- (b) the social and economic needs of the watercourse States concerned;
- (c) the effects of the use or uses of an international watercourse system in one watercourse State on other watercourse States;
- (d) existing and potential uses of the international watercourse [system];
- (e) conservation, protection, development and economy of use of the water resources of the international watercourse [system] and the costs of measures taken to that effect;
- (f) the availability of alternatives, of corresponding value, to a particular planned or existing use.

¹⁹² *Id.* at 78

¹⁹³ *Id.* at 79-83.

Helsinki Rules formulate the drainage basin concept.¹⁹⁴ Accordingly, an international drainage basin is “a geographical area extending over two or more States determined by the watershed limits of the system of waters, including surface and underground waters, flowing into a common terminus.”¹⁹⁵

Pursuant to the Helsinki Rules, each basin State is entitled to a reasonable and equitable share in the beneficial uses of the waters of an international drainage basin.¹⁹⁶ Article V of the Helsinki Rules contains a comprehensive list of factors to consider when determining a basin State’s fair and equitable share of the waters of a drainage basin.¹⁹⁷

In addition to the Helsinki Rules, the ILA has adopted the Seoul Rules on International Groundwater (Seoul Groundwater Rules).¹⁹⁸ The Seoul Groundwater Rules provide special treatment for groundwater and thereby expand the Helsinki Rules as they relate to groundwater.¹⁹⁹ Article 2 of the Seoul Groundwater Rules is of particular importance to the lining project dispute because it addresses hydraulic interdependence.²⁰⁰ This article would subject the aquifer in the Valle de Mexicali, which receives its water from the surface water of the All-American Canal, to the terms of the Helsinki Rules. Article 2 would require the United States to take into account the interdependence of the surface water and the groundwater and their interconnection with the aquifer in Valle de Mexicali.

The ILA has also adopted the Complimentary Rules Applicable to International Water Resources (Seoul Complimentary Rules).²⁰¹ These rules serve as guidelines for applying the Helsinki Rules. Article 1 of the Seoul Complimentary Rules requires basin States

¹⁹⁴ Helsinki Rules, *supra* note 134, at art. I.

¹⁹⁵ *Id.* at art. V.

¹⁹⁶ *Id.* at art. IV.

¹⁹⁷ *See supra* note 146.

¹⁹⁸ Seoul Rules, *supra* note 135, at 245, 266.

¹⁹⁹ *Id.* at 244–45. Article 2, entitled, “Hydraulic Interdependence”, states:

1. An aquifer that contributes water to, or receives water from, surface waters of an international basin constitutes part of that international basin for the purposes of the Helsinki Rules

3. Basin States, in exercising their rights and performing their duties under international law, shall take into account any interdependence of the groundwater and other waters, including any interconnections between aquifers, and any leaching into aquifers caused by activities in areas under their jurisdiction.

Id. at 259.

²⁰⁰ *Id.*

²⁰¹ *Id.* at 275.

to refrain from acts in their territory that cause substantial injury to any co-basin State.²⁰²

IV. SETTLING THE LINING PROJECT DISPUTE

The United States and Mexico have referred the dispute over the lining project to the IBWC pursuant to Point 6 of Minute 242. The United States and Mexico are exchanging technical information at this stage and have not yet begun official negotiations.²⁰³ Ideally, the IBWC will be able to formulate some sort of a technical solution that is acceptable to both sides. If the IBWC is unable to solve the dispute, however, Mexico could submit the dispute to international arbitration or to the ICJ.

A. *Choice of Forum*

Under the Inter-American Arbitration Treaty of 1929 (Arbitration Treaty), Mexico could force the United States to arbitrate the dispute.²⁰⁴ The treaty provides that the parties agree to arbitrate differences that cannot be settled by diplomatic means.²⁰⁵ The Arbitration Treaty contains a list of specific questions that are proper for arbitration. Included in this list are "question[s] of international law."²⁰⁶ The Mexican Government could invoke this provision and demand arbitration if the IBWC cannot resolve the dispute.

Alternatively, Mexico could bring the dispute before the ICJ.²⁰⁷ The United States, however, has withdrawn its consent to ICJ compulsory jurisdiction²⁰⁸ under article 36 of the Statute of the International Court of Justice.²⁰⁹ Therefore, in order for the ICJ to exercise jurisdiction over the case, the United States would have to sign a special agreement to be bound by the ICJ's opinion.

The United States may refuse to submit the case to either an international arbitral tribunal or to the ICJ. U.S. failure to settle

²⁰² *Id.* at 278.

²⁰³ New York Times, Oct. 1, 1989, at 3.

²⁰⁴ Inter-American Arbitration Treaty With Other American Republics, Jan. 5, 1929, 49 Stat. 3153, 3158, T.S. No. 886, at 6 (effective Apr. 16, 1935) [hereinafter Arbitration Treaty].

²⁰⁵ *Id.* at art. 1.

²⁰⁶ *Id.*

²⁰⁷ See New York Times, Oct. 1, 1989, at 3.

²⁰⁸ See United States Department of State Bulletin, January 1986, p. 67.

²⁰⁹ Statute of the International Court of Justice, *supra* note 102.

this conflict would have serious repercussions on its relations with Mexico. If the United States refuses to settle this issue consistently with international law, Mexico could refuse to settle other matters that would have a negative impact on the United States. For example, Mexico may refuse to settle the dispute over sanitation and pollution levels in the Tijuana River.

B. *Analysis of the Arguments*

In the event that the United States and Mexico agree to submit the lining project dispute to an international tribunal, Mexico could argue that it has a right to some of the water that seeps through the All-American Canal as a matter of customary international law. Mexico could argue that while the the 1944 Treaty only guarantees delivery of 1.5 million acre-feet of Colorado River water annually, it only applies to surface water. Therefore, Mexico could admit that it has restricted its right to surface water from the Colorado River but deny that it has restricted its right to the groundwater. Mexico could base its claim on the principle of limited territorial sovereignty, and could refer to the decisions of international tribunals and to the works of publicists such as the ILC and the ILA. Mexico could invoke the principle of equitable utilization to calculate the amount of water in dispute that it is entitled to use.

The United States would probably respond that the terms of the 1944 Treaty only entitle Mexico to 1.5 million acre-feet of Colorado River water annually. The United States would then conclude that it has exclusive right to use the disputed water because Mexico will continue to receive its guaranteed share of Colorado River water.

A tribunal would probably hold that the 1944 Treaty does not apply to the water in dispute and, therefore, that the principle of limited territorial sovereignty prohibits the United States from acting in disregard of its neighbor.²¹⁰ As set forth above, the principle of limited territorial sovereignty has developed into customary international law as it applies to use of surface water of international rivers, and should apply to use of transboundary groundwater.²¹¹ To lend support to its application of the principle of limited territorial sovereignty, an international tribunal would

²¹⁰ See *International Groundwater Management*, *supra* note 114, at 649.

²¹¹ See *supra* text accompanying notes 147-54.

point to general principles of municipal law, decisions of other international tribunals, and writings of publicists, particularly the ILC and the ILA.

Perhaps the most important lesson that an international tribunal could glean from the general principles of law concerning water resources is the correlation between shortages of groundwater resources and the need for strict regulation of the resource. This may indicate to an international tribunal that, because there is a shortage of groundwater in the border region, there is a need for international regulation of the groundwater in dispute.

From the decisions of international tribunals and the writings of publicists, two concepts have developed to assist in regulating the use of transboundary groundwater. First, the principle of limited territorial sovereignty states that the groundwater in dispute is part of a system which requires the United States and Mexico to share in its use. By signing the 1944 Treaty, the United States recognized Mexico's right to share in the use of the surface water of the Colorado River. Because the groundwater in dispute is part of the same water resource system, it is inconsistent for the United States to argue that Mexico does not have a right to share in its use.

The United States may argue that the water in dispute is not really groundwater because its source is the All-American Canal, a man made structure. The United States would be attempting to classify the water as a type of surface water and thereby circumvent the application of transboundary groundwater law. Mexico could counter-argue that the water in dispute fits the classic definition of groundwater and, therefore, the water cannot be classified as surface water merely because its source is a canal. There are two generally recognized classifications of groundwater which are based on the groundwater's source. The first classification involves groundwater that has its source in surface water. The second classification involves groundwater that is not hydrologically connected with any identifiable surface flow.²¹² Because the water in dispute has its source in surface water, it fits into the traditional definition of groundwater. Therefore, Mexico could argue that the U.S. argument is simply distorting the definition of groundwater.

²¹² See *supra* note 147.

An international tribunal could rely on the works of the ILC and the ILA in applying the principle of limited territorial sovereignty. Although the ILC has adopted the concept of an international watercourse system and the ILA has adopted the concept of an international drainage basin, the two concepts are essentially the same. The ILC prefers its terminology over ILA's because it believes that its language focuses more effectively on the water resource as opposed to the land surrounding the water. Both organizations, however, have developed principles which could greatly assist an international tribunal in apportioning the water in dispute.

The second principle that seems to be consistent among the decisions of international tribunals and the writings of publicists is that the upper riparian does not have a right to use its territory in a manner that causes injury to a lower riparian. It seems clear that U.S. construction of the lining project will injure Mexico. Therefore, U.S. claims to the right to develop public works projects such as the lining project are limited. In other words, the United States has a duty under international law to consider Mexican interests when developing the lining project.

If an international tribunal applied the doctrine of limited territorial sovereignty to the groundwater in dispute, it could invoke the principle of equitable utilization in order to determine the amount of water that each State is entitled to use. The Helsinki and Seoul Rules would offer a tribunal effective guidance in balancing the factors to determine equitable utilization of the disputed water for both sides.²¹³

CONCLUSION

The dispute over the lining project is causing tensions in relations between the United States and Mexico. With virtually all of the Colorado River water allocated and the United States and Mexico facing projected water shortages, the stakes in the dispute are high. Both the United States and Mexico have to stretch the available supply of Colorado River water as far as possible.

The lining project seems to be an efficient means of conserving water. By lining the All-American Canal with concrete, the United States could prevent over 100,000 acre-feet of water per year from leaking into Mexico through the earthen walls of the canal.

²¹³ See *supra* note 146 and text accompanying notes 142-46.

The Mexican farmers in the Valle de Mexicali, however, rely on this source of groundwater to irrigate their farms. Thus, the lining project will cause serious damage to Mexico.

The 1944 Treaty apportioning Colorado River water between the United States and Mexico does not cover groundwater, and thus does not govern the water in dispute. Therefore, principles of customary international law should control the use of this water. According to the principle of limited territorial sovereignty, both the United States and Mexico have the right to reasonable use of the water in dispute. The principle of equitable utilization, as articulated by the ILA's Helsinki and Seoul Rules, provides an effective means of determining the amount of water each State is entitled to use.

John H. Coghlin