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Diminishing Water Resources and International Law: U.S.-Mexico, A Case Study

Introduction

International law on groundwater is nearly nonexistent. This situation complicates the ability of nations to resolve disputes over shared groundwater resources. First, the legal vacuum leaves room for a wide assortment of claims. Second, emerging legal principles regarding groundwater are too weak to be legally binding because nations do not as yet recognize them as law.

Several reasons account for this lack of law. Competing doctrines in the area of international environmental law have created a stalemate that impedes groundwater law formation. Because state boundaries cannot restrict water flow, any effective regime for groundwater must necessarily involve international regulation. However, most states cling to old notions of territorial sovereignty and accordingly resist such regulation. Additionally, scientific uncertainty regarding the nature of groundwater makes it difficult to allocate groundwater based on international law.

This Note illustrates the need to improve the international legal regime governing transboundary groundwater by analyzing the recent dispute between the U.S. and Mexico over shared groundwater resources. Mexico has objected to a proposed U.S. project to reline the bottom of the All American Canal in Southern California, fearing that the project will reduce or stop the substantial flow of groundwater to Mexico’s northern regions. Both Mexico and the U.S. claim a legal right to the water.¹ This dispute epitomizes the type of crisis that can occur in a world of diminishing natural resources.

In analyzing this dispute, this Note will first present the applicable international law, including both the applicable treaties and customary international law. It will next explain why the customary international law of groundwater is in such a rudimentary stage. Third, this Note will


apply what little definitive international environmental law there is to the U.S.-Mexican dispute. Finally, this Note will borrow from U.S. domestic law to resolve the dispute between Mexico and the U.S.

I. Background

A. The Dispute between the U.S. and Mexico

The event igniting the current dispute between Mexico and the U.S. was an American proposal to reline the bottom of the All American Canal (the "Canal") which carries water, primarily for irrigation purposes, from the Colorado River into California's Imperial Valley. The Canal was completed in the late 1930s with an earthen bottom and has annually lost approximately half its total volume, about 32.6 billion gallons, from seepage through this bottom. Lost water flows underground through a large sandy area that runs parallel to the Mexican border and eventually reaches Northern Mexico. There, more than 700 wells wait to recover the water. Because of this water source, the Mexicali Valley in Northern Mexico "has become a major producer and exporter of wheat, cotton, vegetables, and animal fodder." It is one of Mexico's most productive agricultural zones.

In November of 1988, the U.S. "Congress authorized the Department of the Interior to reline sixty-six miles of the Canal, west of Andrade, California, with concrete 'in order to reduce the seepage of water.'" Soon thereafter the Department began a "1.5 mile 'prototype relining project' on the Coachella Branch of the Canal in Southern California." The impetus behind this relining project is the concern that there will not be enough water to sustain the rapidly growing populations of Los Angeles and San Diego. California's total population has risen from 10,586,000 in 1950 to 27,663,000 in 1987. Population projections estimate that California's total population will reach 31,463,000 by the year 1995. The growth in Southern California has been and will continue to be explosive. For example, the population of Los Angeles rose by nearly 100,000 from 1988 to 1989. San Diego's population also increased by approximately the same amount, growing from 2,328,300 to 2,418,200.

Predictably, Mexico is extremely concerned about the Canal pro-

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2. Canal Project, supra note 1, § 1, at 3, col. 1; see also Canal Lining Could Bring Southland Water Bonanza, L.A. Times, Nov. 13, 1988, § 1, at 3, col. 1 [hereinafter Bonanza].
3. Canal Project, supra note 1, § 1, at 3, col. 1; Bonanza, supra note 2, § 1, at 3, col. 1.
4. Canal Project, supra note 1, § 1, at 3, col. 1.
5. Id.
6. Id.
7. Id.
8. Id.
10. Id. at 24. Los Angeles population rose from 8,551,500 to 8,650,300.
11. Id.
ject. A Mexican government study estimates that agriculture consumes 94.5% of the water in Northern Baja California. In addition, urban and industrial sectors rely heavily on the local groundwater. According to Sergio Amaya Brondo, a representative of Mexico's National Water Commission in Mexicali, if the U.S. implements the relining project, it will mean the end of the Mexicali Valley.

Mexico's national population is also experiencing rapid growth, increasing by approximately 20 million between 1970 and 1980 alone. Population estimates predict that the Mexican population will increase by 30 to 40 million inhabitants between 1980 and the year 2000, and that this increase will be highest in the border region. Thus the groundwater recovered from the Canal will become more crucial than ever to Northern Mexico.

B. The Treaties

The U.S. and Mexico have several agreements relating to the waters flowing between the two countries. The U.S. is relying upon a 1944

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12. Canal Project, supra note 1, § 1, at 3, col. 1.
13. Id.
14. Id.
15. Id.
17. Id. at 757. "Baja California has a substantial, largely untapped supply of groundwater that is hydrologically related to the surface flow of the Colorado." Hearings before the Committee on Foreign Relations of the United States on the Treaty with Mexico Relating to the Utilization of the Waters of Certain Rivers, 79th Cong., 1st Sess. 1337 (1945). There is some scientific uncertainty over the source of this groundwater. The American section of the International Boundary and Water Commission is at this time only willing to say that the All American Canal (the "Canal") is losing water. While it is likely that the Canal is the source of the Mexican groundwater, it is possible that the groundwater comes from another source. In that case, lining the Canal would not stop the flow. Additionally, it is uncertain whether the Canal interferes with naturally flowing groundwater or creates the groundwater for Mexico when it brings the Colorado River water to Southern California. For the purposes of this Note, I will assume that relining the Canal would stop the flow of groundwater and that the Canal creates the groundwater from the Colorado River.
18. Among these agreements are the following:
Most recent agreements relate to transboundary water pollution:
Treaty which apportioned the waters of the Rio Grande, Colorado, and Tijuana rivers. Mexico, in turn, is relying upon a 1973 agreement which addressed a salinity problem in the Colorado River.19

Treaties do not necessarily reflect international law. A state can waive certain rights by treaty.20 A state, however, may not enter a treaty to violate international law. For example, two states may not contract to invade a third state.21 Therefore, the agreements between the U.S. and Mexico do not necessarily embody international law. Nevertheless, international agreements are legally binding on the parties, much in the same way that a contract would be.22 Thus, treaties between the U.S. and Mexico bind both countries as parties.

In 1944 the U.S. and Mexico entered into a Treaty on Utilization of the Waters of the Colorado and Rio Grande23 (the "Treaty") to fix and to define the rights of the two countries with respect to the waters of the Colorado and Tijuana Rivers, and of a portion of the Rio Grande.24 The Treaty's purpose was to obtain the optimal utilization of the waters.25 Article 3 embodies this principle by prioritizing intended uses for the waters.26 By giving some uses priority over others, such as domestic use over recreational, the Treaty limits waste and ensures that the water will serve the more crucial needs of society.27

The Treaty allots to Mexico an amount that is equal to nearly ten


The International Law Commission's commentary to the draft article that became Article 53 states that "the majority of the general rules of international law do not have that character, and states may contract out of them by treaty." See Int'l Law Comm'n, Draft Articles on the Law of Treaties, 61 AM. J. INT'L L. 263, 409 (1967).

22. Vienna Convention, supra note 21, art. 26, reprinted at 245.

23. Treaty, supra note 19.

24. Id. at preamble

25. Id. at proclamation.

26. Id. at art. 3.

27. Part of the reason that the U.S. entered into this agreement was to pursue better relations with Mexico. The U.S. had hoped that better relations would solve other problems, such as compensation for American oil interests which Mexico had previously expropriated. See Meyers, The Colorado Basin, in THE LAW OF INTERNATIONAL DRAINAGE BASINS 544 (1967).
percent of the average annual flow of the Colorado river. This annual quantity from the Colorado river averages 1.5 million acre feet. In years when the U.S. has surplus water, Mexico can receive an additional 200,000 acre feet. The Treaty specifically states that the U.S. is under no obligation to deliver more than 375,000 acre feet through the All American Canal.

The Treaty provides that the U.S. must allow Mexico's allotted share to flow to Mexico, except in conditions of extraordinary drought or serious accident to the irrigation system in the U.S. which would make delivery of the apportioned quantity difficult. Additionally, in the event of extraordinary drought, the U.S. may reduce Mexico's water by the same percentage as that reduced in the U.S.

Since 1944 there have been several agreements relating to the water flowing between the two countries. Most pertinent to the dispute is the 1973 Agreement (the "Agreement") enforcing Minute 242 of the International Boundary and Water Commission (IBWC), which addresses the problem of increased salinity of the Colorado River resulting from a U.S. irrigation and drainage project. With an eye to preventing future problems, the Agreement limits developments in the border area that might adversely affect either country. Section 6 of the Agreement states, "the U.S. and Mexico shall consult with each other prior to undertaking any new development of either the surface or

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28. Id. at 541. The Colorado River originates in a network small streams on the western slope of the Colorado Rocky Mountains. Id. at 492. The Colorado River borders Arizona and Mexico for about 20 miles, then runs through Mexico for another 100 miles, where it becomes the border between Baja California and Sonora. It then empties into the Gulf of California. Id. at 489.

29. Treaty, supra note 19, at art. 10. An acre foot is the volume of water needed to cover an acre of land to a depth of one foot—approximately 325,851 gallons.

30. Id.

31. See id. at art. 15 (schedule II). Article 4 of the Treaty apportioned the waters of the Rio Grande. Although Mexico contributes approximately 70% of the waters of the Rio Grande, the apportionment scheme divides the waters in half. Meyers, supra note 25, at 561. The treaty later resolves this inequity by giving Mexico one half of the waters of the Colorado although Mexico only contributes 10% to these waters. Id. at 541.

32. Treaty, supra note 19, at art. 10.

33. Id.

34. See supra note 16.

35. Agreement, supra note 19. This agreement settled saline discharges from the Wellton-Mohawk irrigation and drainage district. Until 1960, Mexico had received at least an extra 400,000 acre feet of water per year, but after 1960 the U.S. reduced the flow to the treaty specifications. This reduction in water combined with the saline discharges doubled the salt content of the water going to Mexico from the Colorado River. Mexico asked the U.S. for the release of more water to deconcentrate the salt, but the U.S. refused. The agreement reached required the U.S. to take measures to assure that by July 1, 1974, the water delivered to Mexico upstream from the Moreles Dam would have an average annual salinity of approximately 115 parts per million (plus or minus 30 parts per million) over the average annual salinity of the water which arrives at the Imperial Dam, the diversion point for the U.S. F. GRAD, TREATISE ON ENVIRONMENTAL LAW § 13.04, at 13-149 (1989).

36. Agreement, supra note 19, at § 6.
groundwater resources, or undertaking substantial modifications of present developments, in its own territory in the border area that might adversely affect the other country. " \(^{37}\) The Agreement is one of the few agreements in the world that actually addresses groundwater. \(^{38}\) In Section 5 the Agreement limits groundwater pumping within five miles of the Arizona-Sonora boundary near San Luis, Mexico, to 160,000 acre feet per year. \(^{39}\)

C. International Law

1. International Law on Groundwater

International custom becomes international law when it meets the requirement of \textit{opinio juris,} when all states feel legally bound to obey that practice. Broad adherence to the custom is not enough. \(^{40}\) As there is almost a complete lack of law, custom, or institutional oversight addressing groundwater at the international level, \(^{41}\) today's environment does not even suggest a widely followed practice, let alone \textit{opinio juris.}

Transboundary groundwater law has only recently begun to develop. \(^{42}\) Although in reality all water resources form an integrated whole, legislation and international agreements still take a fragmented approach to water resources. \(^{43}\) For example, no international agreements exist that incorporate groundwater in any significant way with surface waters. This occurs despite the reality that surface waters feed underground waters and vice versa. \(^{44}\)

Europe probably has the most mature groundwater law. European countries are more aware of the interconnections between ground and surface water than other countries. \(^{45}\) Recent bilateral negotiations and certain new water treaties show a growing tendency to recognize the interconnections between water systems. \(^{46}\) For instance, France and Switzerland have recently signed an agreement on the groundwater

\(^{37}\) \textit{Id.}
\(^{39}\) Agreement, \textit{supra} note 19, at § 5.
\(^{40}\) \textit{Restatement (Third) of Foreign Relations Law of the United States} § 102(2) (1987) [hereinafter \textit{REST. 3rd}].
\(^{42}\) \textit{Utton, supra} note 38, at 4. "[R]eferences to groundwater are scant and too limited in scope to propose them in terms of customary law." \textit{Caponera & Alheritiere, Principles for International Groundwater Law}, in \textit{INTERNATIONAL GROUNDWATER LAW, supra} note 38, at 54.
\(^{43}\) \textit{Hayton, The Groundwater Legal Regime as Instrument of Policy Objectives and Management Requirements}, in \textit{INTERNATIONAL GROUNDWATER LAW, supra} note 38, at 57-75.
\(^{44}\) See Comment to Article II of the Helsinki Rules on the Waters of International Rivers, adopted by the International Law Association at the 52nd Conference, August 20, 1966 ("The drainage basin is an indivisible hydroic unit ... "). \textit{International Law Association, Helsinki Rules on the Uses of the Waters of International Waters} at art. II (1966) [hereinafter \textit{Helsinki Rules}].
\(^{45}\) \textit{See} \textit{Caponera & Alheritiere, supra} note 42, at 48.
\(^{46}\) \textit{Id.}
resources of the Lake Geneva Basin. Yet, even here the law is rudimentary. In the few treaties discussing groundwater, the groundwater is usually included as an aside to surface water allocation or pollution problems rather than as an interconnected resource, significant in its own right. Examples of this adjunctory inclusion of groundwater occur in the references to groundwater made in the International Convention on Lake Geneva and in the Netherlands-Federal Republic of Germany Convention. In addition, a 1972 Convention between Switzerland and Italy dealing with the contamination of interboundary lakes from polluted groundwater orders all steps to be taken to investigate this problem. Thus, even in Europe, where groundwater law is the most developed, consistent groundwater practice is limited.

2. Reasons for the Dearth of Groundwater Law
There are several reasons for the dearth of groundwater law. First, incentives are insufficient to persuade the international creation of groundwater laws. Law usually develops out of necessity. The global water shortage has not yet reached crisis proportions. In addition, groundwater by definition is out of sight, contributing to public inattention to the topic. Second, as groundwater resources begin to diminish, law is beginning to form, but older conflicting principles of territorial sovereignty impede its growth. Additionally, present institutions lack the power to effectively manage groundwater resources and to resolve disputes. Finally, scientific uncertainty also discourages new groundwater law.

a. Competing Ideologies Hamper Progress
Competing ideologies in the area of natural resources contribute to inconsistent practices. Older notions of territorial sovereignty are by definition incompatible with developing laws which recognize groundwater's transboundary nature. According to strict territorial sovereignty, a state's territorial jurisdiction is absolute and exclusive. Other states have no right to question the actions of a state within its own territory.

These older notions of territorial sovereignty surface in documents such as the United Nations General Assembly Resolution on Permanent Sovereignty over Natural Resources (1962), which describes the "inaugural right of all states freely to dispose of their natural wealth and resources in accordance with their national interests." The theme of territorial integrity and autonomy also appears throughout the U.N.

47. Id.
48. Id.
49. Id.
50. See Hayton, supra note 43, at 60.
52. Id.
In light of this doctrine, an upstream state has the right to exploit the water within its boundaries to the detriment of a downstream state. As a result of diminishing natural resources, competing doctrines are challenging the notion of territorial sovereignty. Some believe that certain natural resources are the common heritage of mankind. Following this belief, there is a growing trend to incorporate groundwater into boundary or "shared" water treaties. This trend is visible in new treaties, additions or amendments to older treaties, and joint interpretations of newer and older treaties. Because water is a fugitive resource, it does not stay neatly within territorial boundaries. Consequently, laws based upon territorial sovereignty over water are contrary to hydraulic reality. Due to this reality and the diminishing supplies of groundwater, there is a growing movement in the international community to view groundwater as part of an interconnected hydraulic system that transcends state boundaries.

The vast majority of recommendations of U.N. conventions or spe-

55. Riparian rights generally recognize that the owner of land overlying groundwater has complete ownership of that water. See Greenman v. City of Fort Worth, 308 S.W. 2d 553 (Tex. Civ. App. 1988).
56. Two General Assembly Resolutions relating to the resources of the areas of the sea-bed and ocean floor are good examples of this development. First, the Moratorium Resolution, 24 U.N. GAOR Supp. (No. 24-30) at 10, U.N. Doc. A/7630 (1969), was adopted on December 15, 1969. The vote was 64 to 28, with 28 abstentions. Most developed countries voted against it. G.A. Res. 2574, 24 U.N. GAOR Plenary A/7834. Part of the reason might have been that the resolution called for states to refrain from “all activities of exploitation of the resources of the areas of the sea-bed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction.” Id. Developed countries had the technology to extract the minerals and may not have wanted to wait for the developing countries to catch up.
57. Caponera & Alheritiere, supra note 42, at 46. “In Africa, the 1964 Convention and Statutes between Cameroon, Chad, Niger and Nigeria relating to the development of the Chad Basin refer to the use of both surface and groundwater.” Id. at 49; see also infra pp. 8-9; and Agreement, supra note 19, at § 7.
58. Utton, supra note 38, at 9.
cial international bodies are not legally binding, but they may be evidence of emerging principles and concerns. Organizations such as these have moved the farthest from the notions of absolute territorial control. For instance, the International Law Association’s rules, created in Helsinki, opt for a model of interconnected water sources. The rules include groundwater in international waters: “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.” The rules explicitly reject the unqualified right of overlying states to make use of the groundwater as they see fit. Rather, the rules recommend equitable utilization, stating that “[e]ach [basin] state is entitled, within its territory, to a reasonable and equitable share in the beneficial uses of waters in an international drainage basin.” The rules qualify equitable utilization accordingly: “Equal and correlative rights of use among the cobasin states does not mean that each such state will receive an identical share in the uses of the waters.” Instead, a country’s reasonable and equitable share depends upon weighing social, geographic and demographic factors. In addition, the use must be beneficial, but “it need not be the most productive use . . . nor need it utilize the most efficient methods.” The rules recommend holding states “to a duty of efficiency which is commensurate with their financial resources.” Thus, the Helsinki Rules promote a global view of water resources by suggesting that all states with affected interests have some sort of say in water allocation.

Recent U.N. conferences also point to increasing international concern and interest about groundwater. For example, the U.N. water conference in 1977 at Mar Del Plata recommended that “countries sharing water resources . . . should review existing and available techniques for managing shared water resources and cooperate in the establishment of programs, machinery and institutions necessary for the coordinated development of such resources.” The conference recommended using groundwater aquifers in the form of collective and integrated systems, taking into account the regulation and use of surface water.

59. T. Blumenthal & H. Maier, supra note 20, at 31.
60. Helsinki Rules, supra note 44.
63. Id. at comment to art. iv.
64. Id. at art. iv.
65. Id. at comment to art. iv.
66. Id. at art. v.
67. According to the Helsinki Rules, “beneficial” means “economically or socially valuable” as opposed to using the water to harass another state. Id. at comment to art. iv.
68. Id.
69. Id.
resources. Also, the conference advised that studies be undertaken "to explore the potential of groundwater basins, the use of aquifers as storage and distribution systems, and the conjunctive use of surface and subsurface resources to maximize efficacy and efficiency."71 For drought loss management, the conference recommended an intensification of the exploration of groundwater.72

Clearly there is an increased awareness in international law of the transboundary nature of water resources. Nations, however, continue to cling to older notions of territorial sovereignty. Because the two principles are diametrically opposed, laws can only embrace one principle or the other. Therefore, this polarity has created a stalemate that impedes the law from becoming accepted practice, a threshold requirement of international law.73

b. The Failure of Management Institutions to Confront the Groundwater Problem

Legal institutions managing groundwater resources lack the power to enforce their decisions. This inadequacy prevents proper resource management and dispute resolution, and ultimately impedes the formation of consistent law. Because their decisions often go unheeded, these institutions are unable to help create consistent practice.

There are few international agencies or institutions available to deal with disputes arising over shared groundwater.74 The legal authority that exists between the U.S. and Mexico for assuring that both nations receive their fair share of transboundary groundwater is "nearly non-existent."75 The IBWC, which was created by article 2 of the 1944 Treaty, would probably be the appropriate body to consider groundwater disputes, but no agreement has as yet charged it with jurisdiction over groundwater issues.76 It is important that the institution dealing

71. Id.
72. Id. at ¶ 10.
73. REST. 3RD, supra note 38, at § 102(2).
74. "Even with the increased attention to groundwater in modern legislation in many countries, we are still faced, generally speaking, with unsatisfactory results. It is more a case of non-management than of mismanagement." Hayton, supra note 43, at 66. Among some of these institutions are the Organization for Economic Cooperation and Development (OECD) and the European Economic Community (EEC). Smith, The United Nations and the Environment: Sometimes a Great Notion?, 19 TEXAS INT'L L.J. 335, 355 (1984).
76. The IBWC consists of a Mexican section and a United States section. Treaty, supra note 19, at art. 2. The primary purpose of the Commission was to oversee "application of the treaty, the regulation and exercise of rights and duties which the two governments assume under it, and the settlement of disputes which may arise out of its observance and execution." Meyers, supra note 28, at 560-61. This Commission "is distinctive in that it exercises more than supervisory and advisory powers." Ely & Wolman, Administration, in THE LAW OF INTERNATIONAL DRAINAGE BASINS 130 (1967). Article 24 also charges the Commission with the responsibility to facilitate completion of public works projects called for in the Treaty. Treaty, supra note 19, at
with shared boundary resources be international in character. An agency run entirely by one state is prone to discriminate against the interests of other states. This situation, however, requires an outside body to dictate what a state does internally. Clearly many states disdain infringement on their sovereignty by international management commissions and, as a result, these commissions have little power. For instance, the Mexican section of the IBWC cannot assume jurisdiction or control over public works located within the territorial limits of the U.S. The U.S. section is similarly restricted. This applies even if the work is international in character, such as that authorized by the 1944 Treaty. Jurisdiction may only be obtained by the consent of the other state. This means that in reality a self-interested body has jurisdiction over works on each side.

In resolving disputes under the Treaty, if the commission members are unable to agree, the commissioners must inform the U.S. Department of State and Mexico's Ministry or Foreign Relations. Additionally, the IBWC has no enforcement power. Any decision by the IBWC is subject to review, including reversal, by the State Department and its Mexican counterpart. Clearly in this situation the sovereign retains a great deal of power. This is most poignant in light of the fact that the IBWC has more power than most other international agencies dealing with groundwater.

c. Scientific Uncertainty Contributes to Vague Laws

The properties of groundwater are poorly understood, especially their hydraulic connection to surface waters. This frustrates dispute resolution and contributes to the vagueness and ineffectiveness of groundwater laws.

Nations will not abide by a system in which their needs are not addressed. Thus in order to create an effective system, it is necessary to

arts. 5-8. The jurisdiction of the Commission extends “to the limitrophe (border) parts of the Rio Grande, Rio Bravo, and the Colorado River, to the land boundary between the two countries, and to works located upon their common boundary, each Section of the Commission retaining jurisdiction over that part of the works located within the limits of its own country.” Id. at art. 2.
77. See Utton, supra note 75, at 1110.
78. See generally Utton, supra note 38, at 3.
79. Treaty, supra note 19, at § 2.
80. Id. at art. 24.
81. Id.
82. See Utton, supra note 75, at 1114. The Helsinki Rules recommend forming joint agencies for the resolution of disputes. Helsinki Rules, supra note 44, at art. xxxi. Such agencies should survey the basin and formulate “plans or recommendations for the fullest and most efficient use thereof in the interest of all such States.” Id. If the joint commission is incapable of resolving the problem, then the contending states should seek the mediation of a third state or a qualified international organization or person. Id. at art. xxxii. If mediation of a third state fails, the states should form an ad hoc conciliation commission. Id. If this does not work, the rules recommend submitting to an ad hoc arbitral tribunal or the ICJ. Id. at art. xxxiv.
83. See supra note 17; see also Hayton, supra note 43, at 69-75.
allocate control over groundwater fairly. Fair allocation depends upon having all the facts. The dispute between Mexico and the U.S. is a good example of how scientific uncertainty may frustrate dispute resolution. It is possible that the Mexican groundwater comes from a source that does not originate in the All American Canal. In this case, relining the Canal would have no effect upon the groundwater flowing to Mexico. Even if the Canal is the source of the groundwater, it is not certain whether the Canal has interfered with a natural groundwater aquifer or whether it created the groundwater for Mexico when it brought water from the Colorado River to Southern California. In order to resolve this dispute, it will be necessary to determine which scenario is correct. If the relining project has no effect on the groundwater flow, then no dispute will exist to resolve. On the other hand, a finding that the All American Canal interferes with a naturally flowing underground aquifer may engender a different allocation than if the Canal artificially creates the groundwater for Mexico.

D. General International Law

Although laws specifically relating to groundwater have not as yet developed, there are international environmental principles that would receive widespread approval which may be applicable to groundwater situations such as the dispute between the U.S. and Mexico.

1. Reasonable and Equitable Share

States are only entitled to a "reasonable and equitable share of the beneficial uses of a transboundary natural resource." The standard of a reasonable and equitable share under international law is still developing. The Helsinki Rules suggest a factor-analysis balancing test which would take into account the interests of all affected states and their relative importance to each state.

84. See supra note 17.
86. Id.
87. Id. at n.30.
88. The Helsinki Rules enumerate the relevant factors:
   (2) Relevant factors which are to be considered include, but are not limited to:
   (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, 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;
2. Duty Not To Harm Another State

A state is responsible under international law for activities within its jurisdiction or control that cause significant injury in or to the territory of another state. For example, in *Trail Smelter*, the U.S. sued Canada for air pollution injury resulting from a Canadian smelting operation. The arbitral 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 by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence." This duty of care is recognized in the Declaration of the United Nations Conference on the Human Environment at Stockholm. Principle 21 of the Declaration charges states with "the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction." However, the Declaration also acknowledges states' "sovereign right to exploit their own resources pursuant to their own environmental policies . . ." Thus, the responsibility for damages is merely a limit on a state's ability to exploit its own resources.

*Lake Lanoux,* an arbitration proceeding between France and Spain, also illustrates that states have an affirmative obligation to prevent transboundary harm. This case, however, goes a step further. The International Court of Justice held that all interests that may be affected must be taken into account, even if they do not correspond to a right.

The Restatement of Foreign Relations Law similarly charges states with an affirmative duty to regulate activities within their jurisdiction or

(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.

Helsinki Rules, *supra* note 44, at art. V.

90. *Id.*
91. *Id.* at 1965
93. *Id.*
95. *Id.* at 138-39.
control so as not to harm other states.\textsuperscript{96} A state is liable for significant injury caused to the environment, persons, or property outside its jurisdiction or control.

Substantial support exists for the proposition that under international law a state cannot cause injury to another state, even if the conduct occurs within its own territory. This duty includes not harming the water resources of other states.\textsuperscript{97}

3. \textit{Duty To Protect the Environment}

Under existing international documents, states must protect the global environment. For instance, the Stockholm Convention on the Human Environment declares that humankind "bears a solemn responsibility to protect and improve the environment for future generations."\textsuperscript{98} The Vienna Convention for Protection of the Ozone Layer calls upon states to take appropriate measures "to protect human health and the environment against the adverse effects resulting or likely to result from human activities which modify or are likely to modify the ozone layer."\textsuperscript{99}

Article 192 of the United Nations Convention of the Law of the Sea\textsuperscript{100} requires that states protect and preserve the marine environment, thereby limiting states' rights to exploit their own resources.\textsuperscript{101} The convention also calls for cooperation on a global scale to preserve and protect the marine environment and, in addition, calls upon states to take all appropriate measures "to prevent, reduce, and control pollution of the marine environment from any source."\textsuperscript{102} These harsh obli-

\begin{footnotesize}
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\item \textsuperscript{96} \textit{REST.}, 3rd, \textit{supra} note 40, at § 601.
\item \textsuperscript{97} \textit{see generally} Lake Lanoux Arbitration, \textit{supra} note 94.
\item \textsuperscript{98} \textit{REPORT ON THE HUMAN ENVIRONMENT}, \textit{supra} note 92, at principle 1.
\item \textsuperscript{99} \textit{Vienna Convention for Protection of the Ozone Layer}, 1985, 28 I.L.M. 1335, at art. 2.
\item \textsuperscript{101} \textit{Id.} at art. 193.
\item \textsuperscript{102} \textit{Id.} at art. 194(1).
\end{itemize}
\end{footnotesize}
gations do, however, have limits. States are only required, for example, to take measures that are in accordance with "the best practicable means at their disposal and in accordance with their capabilities."\textsuperscript{103}

Although all water resources are significant, global freshwater resources in particular are diminishing.\textsuperscript{104} Because this planet cannot support life without adequate freshwater, the protection of freshwater resources is crucial to the global environment. Consequently, international law must respond by regulating on a global scale activities that affect the world's supply of freshwater.

II. Analysis

A. The 1944 Treaty and the 1973 Agreement between the U.S. and Mexico

1. Basic Principles of Treaty Interpretation

International agreements create law for the states that are parties to them. Article 26 of the Vienna Convention on the Law of Treaties declares that treaties bind the countries that are parties to them,\textsuperscript{105} much like a contract between individuals. Although a treaty may not articulate customary international norms, it is law for its ratifying parties. Article 31(1) of the Vienna Convention on the Law of Treaties contains the basic principle for the interpretation of treaties: "A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose."\textsuperscript{106} Thus, the starting point for interpreting treaties is the plain language of the agreement. However, specific contents of particular provisions must be analyzed in relation to the object and purpose of the treaty, as reflected in the agreement as a whole and in additional instruments such as the preamble.\textsuperscript{107} Article 31(3) of the Vienna Convention also requires that subsequent relevant practice be taken into account.\textsuperscript{108} Drafting history may be relevant to confirm the meaning derived from textual analysis or when the text is ambiguous or leads to an absurd result.\textsuperscript{109}

2. Application of the 1944 Treaty

It is likely that the disputed groundwater originally came from the Colorado River.\textsuperscript{110} The only treaty between the U.S. and Mexico that gov-

\textsuperscript{103} Id.
\textsuperscript{104} The global population explosion has caused increased consumption of freshwater. This trend, combined with pollution, has greatly diminished global freshwater resources. Utton, supra note 38, at 2; see also Tecleaff & Tecleaff, supra note 51.
\textsuperscript{105} Vienna Convention on the Law of Treaties, supra note 21, art. 26, reprinted at 246.
\textsuperscript{106} Id., reprinted at 247.
\textsuperscript{107} Id. at art. 31(2), reprinted at 248.
\textsuperscript{108} Id.
\textsuperscript{109} Id. at art. 32, reprinted at 248.
\textsuperscript{110} See supra note 17.
erns the Colorado River is the 1944 Treaty. The Treaty specifically states that Mexico is to receive a maximum of 1.7 million acre feet from the Colorado River, only 375,000 of which need be from the Canal. Although it appears that Mexico receives more than its allotment, underground flow is not considered part of Mexico's allotment under the Treaty. Consequently, the U.S. is not delivering more water to Mexico than is required under the Treaty because the Treaty does not address groundwater. The intent of the Treaty was to apportion only surface waters. Thus, the Treaty is not relevant to groundwater disputes.

3. Application of the 1973 Agreement

As stated above, the 1973 Agreement limits new development or modification of present developments in the border area that might adversely affect surface or groundwater resources of either the U.S. or Mexico. The U.S. project to reline the bottom of the Canal seems to fall under this limitation because it is in the border area, and if completed would in all likelihood dry up Mexico's groundwater.

Proper treaty interpretation, however, requires looking at the whole agreement and the context in which it was created. The purpose of the Agreement was to correct the increased salt content in the water going to Mexico from the Colorado River. The Agreement says nothing about who has rights to the groundwater. It only limits the groundwater that can be pumped in Arizona. This limit is only an interim arrangement until the governments reach "a comprehensive agreement on the groundwater in the border area." Because the Agreement is designed to deal only with pollution and admits that there

111. See supra note 18.
112. Treaty, supra note 19, art. 15.
113. Utton, supra note 41, at 158 n.8.
114. See Treaty, supra note 19, at preamble. The proclamation introducing the Treaty proceeds in part:
   to fix and delimit the rights of the two countries with respect to the waters of the Colorado and Tijuana Rivers, and of the Rio Grande (Rio Bravo) from Fort Quitman, Texas, United States of America, to the Gulf of Mexico, in order to obtain the most complete and satisfactory utilization thereof, have resolved to conclude a treaty
As one can see, this only deals with surface waters contained in the channels of the two rivers. See El Paso v. Reynolds, 563 F. Supp. 379, 387 (1983) (the court refused to apply the 1906 compact to groundwater because the Treaty made no mention of groundwater).
115. Agreement, supra note 19, at § 6. See supra note 49 and accompanying text.
116. Vienna Convention, supra note 21, art. 31, reprinted at 248.
117. The Agreement's title is "Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River." The first page of the text of the agreement approving IBWC Minute 242 states that the two commissioners have come together "in order to incorporate in a minute the joint recommendations . . . for a permanent and definitive solution of the international problem of the salinity of the Colorado River."
118. Agreement, supra note 19, at § 5.
119. Id.
is no arrangement for groundwater, developments that "adversely affect" means only those activities that would pollute or make the water unusable. Lining the bottom of the Canal would do neither; consequently, it is outside the scope of the Agreement. It is merely a conservation measure. Mexico would still have the amount for which it contracted under the 1944 Treaty.

Principles of treaty interpretation also require looking at subsequent relevant practice because it may reflect the parties' understanding of an agreement. The U.S. has never objected to Mexico's use of groundwater. This silence on the part of the U.S. may indicate that it believes that the 1944 Treaty and the Agreement allow Mexico to use the groundwater. Then again, necessity creates the law. The U.S. may not have objected simply because water scarcity was not yet a problem. The U.S. may not have foreseen such conflicts with Mexico. Without more, such as a statement from Congress, it is impossible to determine whether or not the U.S. has ever recognized Mexican rights to groundwater.

It appears that neither the Treaty nor the Agreement addresses groundwater allocation, and therefore they do not definitively determine whether or not Mexico has a cause of action. When treaties fail to address an issue, it is appropriate to fill in the gaps with customary and general principles of international law.

B. Application of Customary and General Principles of International Law

Global environmental law relating to water is in a state of flux. New notions of global unity and shared resources have not yet been successful in replacing old notions of territorial sovereignty. Applying either principle to the groundwater dispute between the U.S. and Mexico results in opposite outcomes.

1. Application of the Principle of Territorial Sovereignty

Even if the Canal drastically interferes with groundwater that naturally flows to Mexico, the U.S. can justify its actions on the basis of territorial sovereignty. According to general notions of territorial sovereignty, riparian states can do whatever they want with water and public works located within their territory. In the dispute with Mexico, the U.S. is the upper riparian user and, therefore, is in an advantageous position. As the first landowner to overlie the groundwater, it can use the water according to its own needs without regard for the needs of downstream users.

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120. Lining is merely a conservation measure which will not pollute the water. See Bonanza, supra note 2, § 1, art. 3, col. 1.

121. See Hayton, supra note 43, art. 60.


123. See supra pp. 404-10.
users such as Mexico. In light of this principle, Mexico should not have allowed itself to become reliant on the groundwater when it knew that the groundwater originated in the U.S.124

2. Application of Transboundary Principles

In the face of U.S. claims as an upper riparian user, there are a number of counter-arguments. Growing awareness of diminishing natural resources and increasing environmental deterioration have tempered traditional approaches to transboundary issues.125 Nations are beginning to accept transboundary harm as a cause of action,126 thereby limiting the principle of territorial sovereignty and creating new international responsibilities.127 As a result, states are only entitled to a reasonable and equitable share of the beneficial use of a transboundary resource. Therefore, the U.S. cannot develop a canal lining which would dry up all or most of the groundwater that normally flows to Mexico because this is more than its reasonable and equitable share.

Likewise, a state may not cause injury to another state from activities within its own borders. Trail Smelter,128 discussed above, recognized this obligation with respect to injury from pollution. The result is the same, however, whether the resource is unusable because it becomes polluted or because it becomes nonexistent. Were the U.S. to complete the Canal project, Mexico's water would disappear, bringing ruin to the economic and social structure of Northern Mexico. Because the project causing harm to Mexico is entirely within the territorial jurisdiction and control of the U.S., the project violates the U.S. responsibility to ensure that activities within its borders do not substantially harm other states.

The Lake Lanoux arbitral tribunal held that "account must be taken of all interests . . . even if they do not correspond to a right."129 The U.S. has allowed Mexico to use the disputed water without objection for quite a while and, consequently, Mexico's northern economy now depends upon this water. It would be unjust to cut Mexico off from this groundwater after it has grown to rely upon it, especially in light of the fact that the U.S. made no objection to this use. Therefore, even if Mexico does not have a legal claim to the water, its interests must be taken into account.

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124. The U.S. is a large proponent of territorial sovereignty for all nations. In accordance with this position, the U.S. has studiously avoided situations where it would have to judge the actions of other states. The Foreign Sovereign Immunities Act outlines the rare exceptions when a foreign state can be haled into a U.S. court. Foreign Sovereign Immunities Act of 1976, 28 U.S.C. §§ 1330, 1332, 1391, 1441, 1602-1611 (1988). If a foreign state's actions fall under one of the exceptions, that state may still never see a U.S. courtroom because the act of state doctrine holds that the U.S. should not sit in judgment upon acts of a government of another country. See Banco Nacional de Cuba v. Sabbatino, 376 U.S. 398 (1964).
125. See supra pp. 306-08.
126. See supra pp. 311-12.
127. REST. 3RD, supra note 40, at § 102(2).
Mexico may also argue that the water in the Canal has become a shared resource. Canals, like rivers, are in principle subject to the territorial sovereignty and jurisdiction of the state or states which they separate or traverse. The groundwater from the All American Canal flows into Mexico, traversing international boundaries. It follows that Mexico has some jurisdiction over this water because it comes from a canal that traverses more than one state. Under this view, the U.S. cannot appropriate Mexico’s groundwater any more than it could legally appropriate Mexico’s share of the Colorado or Rio Grande rivers.

Territorial concerns, however, should be balanced against conservation interests. The Canal project is a conservation measure, not merely a diversion scheme, because the relining will save some of the groundwater that would be lost on the way to Mexico. Because the planet is rapidly losing freshwater resources, it is important to encourage water conservation measures in order to protect the global environment. Therefore, any allocation of groundwater between the two countries should take the U.S. conservation effort into consideration by allocating a greater share to the U.S. than it would have obtained without the relining project.

It is unclear what solution international law would currently dictate. Because absolute territorial control is an antiquated argument, the U.S. cannot rely on this doctrine. Precedent indicates that the U.S. has a duty to take Mexico’s interests into account. Territorial rights, however, cannot be completely ignored because territorial sovereignty is still an important doctrine in international law. The best approach to the dispute requires a balancing of the extent of the harm to Mexico against the territorial rights and conservation measures of the U.S.

III. Application of U.S. Law

Although international law fails to provide a definitive answer to the groundwater dispute, U.S. domestic law provides further guidance on the appropriate resolution. Internal policies and specific laws of a particular state may reveal the state’s position on an international issue. Such inquiry is especially relevant when the subject matter of the domestic legislation is closely related to the subject matter of the international problem. International legal scholars also look to federal systems for guidance in areas not addressed by international law.

130. BROWNLE, PRINCIPLES OF PUBLIC INTERNATIONAL LAW 275 (3d ed. 1979).
132. See F. GRAD, TREATISE ON ENVIRONMENTAL LAW, supra note 35 and accompanying text.
A. Prior Appropriation

1. Background

Prior appropriation is the predominant doctrine used to determine water rights in the arid western region of the U.S. \(^{135}\) This doctrine provides that water rights, once established, constitute interests independent of the land and may be sold to another party for use on other land. \(^{136}\) Prior appropriation is usually applied to surface water but has been applied to groundwater as well. \(^{137}\) The doctrine creates a hierarchy of usage whereby the first water users have seniority and can use the water on non-riparian land. \(^{138}\) However, the owner must use the water or lose the privilege. \(^{139}\) In addition the owner must use the water beneficially. \(^{140}\) Arizona and New Mexico have adopted this theory. \(^{141}\)

Texas and California, the only other states sharing the Mexican border, supplement prior appropriation with a "reasonable use" theory, \(^{142}\) which entitles landowners to the reasonable use of water on their land. Downstream owners cannot enjoin upper riparian owners from using the water unless they are not receiving enough water for their needs or the upstream owner is substantially interfering with their needs. \(^{143}\) Reasonable use may conflict with prior appropriation when a state incorporates both doctrines. Under prior appropriation the interest in water can be severed from the land while under reasonable use it is part of the land. A situation could arise where someone buys land on which the water has already been appropriated. States that incorporate both prior appropriation and reasonable use theories have established administrative boards to resolve such conflicts. \(^{144}\)

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\(^{138}\) Non-riparian land is land not physically connected to the water supply. "An appropriator may change his or her place of use, nature of use, or point of diversion of his or her water right." Clyde, supra note 135, at 437. The prior appropriation doctrine grew from the custom and usage of early mining camps and irrigated farms of the western United States, where water was sometimes needed miles away from its source. Id. at 435; Caponera & Alheritiere, supra note 42, at 36.

\(^{139}\) "To be beneficial, the use must promote economic activities, and generally there must be actual diversion and consumption of water." Clyde, supra note 135, at 436.


\(^{142}\) People v. Shirokow, 605 P.2d 859, (Cal. 1980); In re Water Rights of Brazos III, 746 S.W.2d 207, 209 (Tex. 1988).


\(^{144}\) See cases cited supra note 142.
2. The Extension of Prior Appropriation to Groundwater

The states contiguous to Mexico are the heaviest groundwater users in the U.S.145 These states, however, have completely different groundwater laws.

In 1980, the Arizona legislature adopted the Arizona Groundwater Code, which extends the doctrine of prior appropriation only to water flowing in streams or definite underground channels. The code omits reference to percolating groundwater, or water that does not flow in a definite stream, such as rain seepage. An owner's use of percolating water is limited only by what is reasonable.146

California, on the other hand, has a system of correlative rights. Surface owners of common aquifers (underground water basins) own the water jointly, and each is allowed a proportionate quantity of water based upon the amount of surface ownership or use.147 Surplus water not needed on basin lands can be used on other land; however, any use that lowers the water table is prohibited. Prior appropriation doctrine comes into play when water is to be applied elsewhere than to the overlying land.148

One of the first states to establish a groundwater management system,149 New Mexico recognizes that prior appropriation applies to surface as well as groundwater.150 In addition, water rights are conditioned upon actual use so that unused rights revert to the public. New Mexico's statutory system regulates new water rights by requiring application, notice and hearing, and by providing for detailed record keeping prior to issuing usage permits.151

Texas has the least-developed groundwater regime of all the states contiguous to Mexico. Because ownership of groundwater in Texas is absolute, landowners are entitled to unlimited withdrawals.152 Texas expects voluntary conservation, an unrealistic expectation in a competitive society capable of drilling more and deeper wells.153 As a result of this regime, the groundwater level in Texas has declined drastically.154

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148. Hayton, supra note 43, at 63-64.
149. Clark, supra note 147, at 1012.
150. "There does not exist one body of substantive law relating to appropriation of stream water and another body of law relating to appropriation of underground water. . . . The substantive rights, when obtained are identical." Albuquerque v. Reynolds, 379 P.2d 73, 79 (N. Mex. 1962).
151. Clark, supra note 147, at 1012.
153. Clark, supra note 147, at 1010.
154. The Winter Garden area of South Texas has experienced water-level declines in excess of 240 ft. in the past 20 years, and water levels in the Trinity Group aquifer in the Dallas-Fort Worth area have declined more than 400 feet during the past 25 years.
One reason the U.S. is not willing to enter into a groundwater treaty with Mexico at this time involves problems of federalism. The four states bordering Mexico are not only the heaviest groundwater users in the country, but all four have different and often conflicting groundwater laws. Creating a workable treaty would necessarily involve conforming the various state laws. However, this may present constitutional problems because it requires that the federal government dictate to the states their internal groundwater law.

B. Equitable Apportionment

1. Background

Equitable apportionment is the doctrine of federal common law that governs disputes between states concerning rights to use water of an interstate stream. It is a flexible doctrine that requires consideration of many factors. Prior appropriation is the guiding principle when all states that are parties to a dispute recognize it internally. However, prior appropriation is not the exclusive factor in determining equitable apportionment.

Around El Paso, water levels have shown a marked decline as the Cities of El Paso and Ciudad Juarez, Mexico, have pumped more water than is recharged to the Hueco Bolson. It is simply a matter of time before the aquifer is either depleted or invaded by the underlying salt water. Id. (quoting The Cross Section High Plains Underground Water Conservation Dist. No. 1, at 3 (May 1981)).

155. Telephone interview with Counsel at the IBWC (Feb. 7, 1990).

156. However, it is not unheard of for treaties to ignore federalism problems regarding resources within a state. In Missouri v. Holland, 252 U.S. 416 (1920), the U.S. had entered into a treaty with Great Britain to protect migratory birds that travelled between the two countries. The treaty prohibited the "killing, capturing, or selling any of the migratory birds included in the terms of the treaty, except as permitted by regulations." Id. at 431. Missouri claimed that the treaty and the accompanying regulations were "void as an interference with the rights reserved to the States." Id. at 432. Missouri asserted title to the migratory birds found there. The Supreme Court allowed the treaty to pre-empt Missouri law. "Wild birds are not in the possession of anyone; and possession is the beginning of ownership. The whole foundation of the State's rights is the presence within their jurisdiction of birds that yesterday had not arrived, tomorrow may be in another state, and in a week a thousand miles away . . . ." Id. at 434. The Court continued, holding that matters of national interest are particularly suited to treaty administration: "Here a national interest of very nearly the first magnitude is involved. It can be protected only by national action . . . But for the treaty and the statute there soon might be no birds for any powers to deal with." Id.

The same argument can be made for groundwater. Such water is transitory. Today it may be in California or Arizona, but tomorrow it may be in Mexico. Potable fresh water is a diminishing resource. Therefore it would be in both national and international interests to have a single coherent treaty dealing with the shared groundwater.

157. Colorado v. New Mexico, 459 U.S. 176, 183 (1982). The U.S. Constitution extends to the Supreme Court the power to resolve disputes between states. See U.S. CONsT. art. III § 2. Therefore, there is no unconstitutional infringement when the Supreme Court applies equitable apportionment to resolve disputes over water rights between states.

apportionment. Rather, the just apportionment of interstate waters depends "upon the pertinent laws of the contending States and all other relevant facts." The Court has subsequently defined these relevant factors.

In Washington v. Oregon, the Court held that wasteful or inefficient use would not be protected. In Nebraska v. Wyoming, the Court retained prior appropriation, but modified it to protect junior users whose economies are dependent upon the later appropriation. Thus, a court will not strictly apply the rule of priority where it would work more harm on junior users than it would benefit senior users.

In Nebraska v. Wyoming, the Court expanded the doctrine of prior appropriation to encompass other concerns besides protecting less developed economies. Although the Court held that prior appropriation is important, other relevant factors include:

- physical and climatic conditions,
- the consumptive use of water in the several sections of the river,
- the character and rate of return flows,
- the extent of established uses,
- the availability of storage water,
- the practical effect of wasteful uses on downstream areas,
- the damage to upstream areas as compared to the benefits to the downstream areas if a limitation is imposed on the former.

In Colorado v. New Mexico, the Court severely manipulated the doctrine of prior appropriation by introducing two new factors. The Court stated:

> while the equities supporting the protection of established senior uses are substantial, it is appropriate to consider additional factors relevant to a just apportionment, such as the conservation measures available to both states here and the extent to which these conservation measures will offset harm from the diversion.

Additionally, the Court held that it is appropriate to consider the harm to competing states. The state seeking the diversion has the burden of proving that the benefits of the diversion outweigh the harms.

2. Application of Equitable Apportionment to the Groundwater Dispute with Mexico

Strict application of prior appropriation would be unfair in this situation. The U.S. is far more developed than Mexico and has historically

159. Id. at 618.
161. 297 U.S. 517 (1936).
162. Id. at 527-28.
163. 325 U.S. 589 (1945).
164. Id. at 618. A junior user is a latecomer to water use who therefore has a lower priority in the hierarchy of established water uses.
165. Id.
167. Id. at 188.
168. Id.
169. Id. at 187 n.13.
been able to use more water. Consequently, prior appropriation would entitle the U.S. to substantially more water, leaving Mexico without enough water for its needs.

Because the U.S. seeks the diversion, it has the burden of proving that the benefits of the Canal project to the U.S. would outweigh the harm to Mexico. At first glance, the balance would seem to favor Mexico. Mexico is a junior user whose economy depends upon the water, and the U.S. Supreme Court has interpreted the doctrine of prior appropriation to protect less developed countries that depend on disputed water. Also, the Supreme Court has dictated that it is proper to take into consideration the nature and extent of the established usage. Mexico uses this water in all facets of its society: domestic, agricultural, and industrial. Diminishing or drying up the water would ruin these aspects of Mexican society. California, on the other hand, only intends to use this water for future development. While future use is one factor to consider in balancing the equities, it is less equitable to ruin a vibrant economy in one region than to prevent future development in another.

A balance of the equities under the doctrine of equitable apportionment favors Mexico because its economy is predicated upon the continued use of the water. On the other hand, it is in the general public interest and the interest of the environment to conserve natural resources. One criteria laid out by the Supreme Court in Colorado v. New Mexico is the ability of one of the states involved to conserve water. Conservation affects the balance of whether or not to divert the water. The fact that the U.S. proposes the project as a conservation measure weighs in favor of the project. The U.S. may be able to save enough water from the project to make it reasonable to reapportion the 1944 Treaty and give Mexico more water.

Conclusion

Given the nebulous nature of international groundwater law, the dispute between Mexico and the U.S. will be difficult to resolve. The treaties do not address groundwater, and international law contains such diametrically opposed principles that both sides can make compelling arguments. This situation illuminates the need for greater structure in the international groundwater regime. Many crucial natural resources such as groundwater traverse state lines, yet international law fails to reflect this reality in any definitive way. Nations need to be weaned away from notions of territorial sovereignty over natural resources towards a more

170. Canal Project, supra note 1, § 1, at 3, col. 1.
172. Canal Project, supra note 1, § 1, at 3, col. 1.
173. Id.
175. Id. at 188.
global view. International institutions that deal with shared groundwater should be given more power, and new institutions should be formed, facilitating dispute resolution and the formation of adequate laws. To help clear up scientific uncertainty that is presently clouding efforts to allocate groundwater, nations that share groundwater resources should exchange information regarding the nature of the water. Additionally, the international community should look to domestic laws, especially of countries with federal systems, for ideas on how to resolve groundwater conflicts.

As the world population outstrips diminishing resources, similar conflicts are already arising between nations. For example, Egypt recently temporarily blocked a loan to Ethiopia from the African Development Bank because it was concerned that the loan would finance a project which would consume too much water from the Blue Nile.\textsuperscript{176} Turkey’s diversion of the Euphrates to fill a new reservoir has disrupted water use in Syria and Iraq.\textsuperscript{177} It is important that international law develop in this area as quickly as possible, before more serious disputes lead to the use of force as an unsatisfactory alternative to the rule of law.

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\textsuperscript{176} Now, A Little Steam; Later, Maybe, a Water War, N.Y.Times, Feb. 7, 1990, § 1, at 35, col. 3.
\textsuperscript{177} Id.