

12-1-1995

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Recommended Citation

Niva Telerant, *Riparian Rights under International Law: A Study of Israeli-Jordanian Peace Treaty*, 18 Loy. L.A. Int'l & Comp. L. Rev. 175 (1995).

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RIPIARIAN RIGHTS UNDER INTERNATIONAL LAW: A STUDY OF THE ISRAELI-JORDANIAN PEACE TREATY

I. INTRODUCTION

Many people laugh at the media's portrayal of a water-starved, post-apocalyptic future. Yet most, particularly in the United States, do not understand what it means to lack water. Even in California, where a recent drought finally focused the public's attention on the necessity of conservation, the concept of not having water is difficult to perceive. The notion of waging war to protect precious water resources is even more incomprehensible. Yet in many parts of the world, particularly in the arid Middle East, these considerations are a reality.

The Israeli-Jordanian Peace Treaty (Peace Treaty)¹ has catapulted the issue of water use and rights, specifically along the Jordan River, from a secretive and highly sensitive series of negotiations to a public, international forum. The issue of riparian rights² along international waterways has commanded attention for over a century.³ Governments have proposed and enacted various strategies and agreements to establish, exercise, and protect riparian rights along international rivers. The public's

1. Treaty of Peace Between the State of Israel and the Hashemite Kingdom of Jordan, Oct. 26, 1994, Isr.-Jordan, 34 I.L.M. 43 (1995) [hereinafter Peace Treaty].

2. A riparian is "one that lives or has property on the bank of a river." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 1960 (3d ed. 1986). "Riparian rights" are those that accrue by "operation of law" to "owners of land on the banks of waterways, such as the use of such water, ownership of soil under the water, etc." BARRON'S LAW DICTIONARY 425 (3d ed. 1991).

3. See Dante A. Caponera, *Legal Aspects of Transboundary River Basins in The Middle East: The Al Asi (Orontes), The Jordan and the Nile*, 33 NAT. RESOURCES J. 629 (1993) (noting agreements mentioning water sources as far back as 1891). The last few decades have seen numerous treaties and international agreements established between riparian neighbors. See, e.g., Treaty Concerning the Regulation of Water Economy Questions in the Frontier Region, Apr. 9, 1956, Hung.-Aus., 438 U.N.T.S. 123; Agreement Between the United States of America and Canada On Great Lakes Water Quality, Nov. 22, 1978, U.S.-Can., 30 U.S.T. 1383; Supplementary Agreement Amending the Agreement Between the United States of America and Canada on Great Lakes Water Quality, 1978, Oct. 16, 1983, U.S.-Can., T.I.A.S. No. 10,798; Agreement on Cooperation on Management of Water Resources in the Danube Basin, Dec. 1, 1987, F.R.G.-Aus.-EEC, 1990 O.J. (L 90) 2. In addition, agreements dating back to the 19th century mention international waters.

recent focus is on the scarcity of water in the Middle East and the need to negotiate water rights in any peace accord. Usually, discussions center around the Palestinians in the West Bank and Gaza Strip, and relegate Jordan to mere mention as a riparian state on the Jordan River.⁴ Although the focus of this Comment is not upon the Palestinians, it discusses their situation and the underground water resources in the West Bank in order to understand fully the scenario unfolding between Israel and Jordan. This Comment outlines an international policy regarding water rights and applies this policy to the relations between Israel and Jordan. At issue is whether international policy on water rights, which organizations such as the International Law Association (ILA)⁵ and the International Law Commission (ILC)⁶ have set forth, is functional in a real world setting, particularly one in which the highly emotional issue of water rights plays such a crucial role.

Part II of this Comment focuses on the hydrology, climate, and historic use of Israel's and Jordan's water resources, and also discusses the region's political history; both serve as background to understanding the water issues in the region. Part III examines international water rights policy and explores the "hydro-political" situations of other international river basins including those found in the Middle East, Africa, and North America. Finally, Part IV compares the recent Peace Treaty, and its resolution of Israeli-Jordanian water issues, to the ILA's Helsinki Rules on the Uses of the Waters of International Rivers⁷ and the ILC's Draft Articles on the Non-Navigational Uses of International Water-

4. Some discussion of the Jordan River Basin in terms of peace between Israel and Jordan, however, did occur prior to the Peace Treaty. See Aaron Wolf, *Water for Peace in the Jordan River Watershed*, 33 NAT. RESOURCES J. 797 (1993); see generally Caponera, *supra* note 3.

5. The ILA is a non-governmental organization that was established in 1873. [1995/96] 1 Y.B. OF INT'L ORG. (Union of International Associations) 986. Its aims are the study and advancement of international and comparative law, as well as proposing solutions to conflicts of law and striving for a unification of law. *Id.*

6. In 1947, General Assembly Resolution 174 (II) established the ILC, a Commission of the United Nations (U.N.). *Id.* The ILC aims to promote the development of international law, as well as its codification according to article 13(1)(a) of the U.N. Charter. *Id.*

7. INT'L LAW ASS'N, *Helsinki Rules on the Uses of the Waters of International Rivers*, in REPORT OF THE FIFTY-SECOND CONFERENCE HELD AT HELSINKI 477 (1967) [hereinafter *Helsinki Rules*].

courses.⁸ These policies, because of their basis in equity and fairness, appear flexible enough to provide the framework for a treaty between two countries whose very existence depends upon the water they share. The flexibility of these policies is reflected in the fact that, although the legal principles of equity and fairness demand one outcome, the realities of war, drought, and economics may demand another. Under the new Peace Treaty, we see how the threat of war and the need for peace outweigh some of the equitable principles reflected in international policy.

II. BACKGROUND: HISTORICAL AND POLITICAL OVERVIEW OF WATER USE IN ISRAEL AND JORDAN

A. *Hydrology, Climate, and Historic Use*

1. Hydrology

The Jordan River watershed is a principal source of water for Israel and Jordan.⁹ The convergence of three tributaries forms the Jordan River: the Dan River, which begins in Israel's Huleh Valley; the Hasbani River, which originates in Lebanon; and the Banias River, located in the Israeli-occupied Golan Heights.¹⁰ The rivers join in the Huleh Valley and flow through Israeli territory to Lake Tiberias.¹¹ The water continues southward, eventually meeting another tributary, the Yarmuk River, located just south of Lake Tiberias.¹² The Yarmuk River forms a border first between Jordan and Syria, then between Jordan and Israel.¹³ From the

8. Draft Articles on the Law of the Non-Navigational Uses of International Watercourses, 30 I.L.M. 1575 (1991) [hereinafter Draft Articles].

9. Eyal Benvenisti & Haim Gvirtzman, *Harnessing International Law to Determine Israeli-Palestinian Water Rights: The Mountain Aquifer*, 33 NAT. RESOURCES J. 543, 563 (1993). The Jordan River watershed and a large series of underground aquifers comprise most of the water Israel and Jordan use. Aaron Wolf & John Ross, *The Impact of Scarce Water Resources on the Arab-Israeli Conflict*, 32 NAT. RESOURCES J. 919, 925-26 (1992). Additionally, Israel supplements its water supply with desalinated water and reclaimed water. Wolf, *supra* note 4, at 799 n.a.

10. Benvenisti & Gvirtzman, *supra* note 9, at 562. Israel occupies the Golan Heights as a result of the 1967 War. Caponera, *supra* note 3, at 641.

11. Benvenisti & Gvirtzman, *supra* note 9, at 562. Lake Tiberias is commonly called the Sea of Galilee and the Kinneret; this Comment refers to it as Lake Tiberias.

12. *Id.*

13. *Id.* at 563.

location where the Jordan River joins the Yarmuk River, the Jordan River serves as the border between Jordan and Israel.¹⁴

Jordan and Israel have independently established national systems for diverting water from the Jordan River. Jordan's East Ghor Canal begins at the confluence of the Yarmuk and Jordan Rivers.¹⁵ Israel's National Water Carrier is on the northwestern shore of Lake Tiberias.¹⁶

The Jordan River has an annual flow of 1400 million cubic meters per year (mcm/yr).¹⁷ The Yarmuk River constitutes approximately forty percent of the total flow.¹⁸ The water in the region is not only scarce but also heavily salinated. Although the salinity level of the headwaters is quite low at 15 to 20 parts per million (ppm), the Jordan River's southward flow is below sea level, causing its salinity level to increase greatly.¹⁹ Lake Tiberias has a salinity level of 340 ppm, although the Yarmuk River dilutes it.²⁰ At the Dead Sea, the Jordan River's terminus, salinity reaches 250,000 ppm.²¹

2. Climate

The climate in Israel is quite varied. The south is arid, but the north receives significantly more rainfall.²² The potential for evaporation in this semi-arid climate is 1900-2600 millimeters per year (mm/yr).²³ The rainwater that does not evaporate²⁴ seeps into a series of underground aquifers²⁵ generally known as the

14. *Id.*

15. Wolf & Ross, *supra* note 9, at 935-36.

16. *Id.* at 931.

17. *Id.* at 922.

18. Caponera, *supra* note 3, at 638.

19. This is because "the small springs which contribute to its flow pass first through the salty remains of ancient seas . . ." Wolf & Ross, *supra* note 9, at 922.

20. *Id.*

21. *Id.*

22. The average annual rainfall in Israel is as follows: less than 30 millimeters (mm) in the south; 700-1100 mm in the north; 500-700 mm in the western slopes of the Judean and Samarian Mountains; 100-500 mm in the eastern slopes; and 200-400 mm in the Gaza Strip. Jehoshua Schwarz, *Water Resources in Judea, Samaria, and the Gaza Strip*, in *JUDEA, SAMARIA AND GAZA: VIEWS ON THE PRESENT AND FUTURE* 81, 85 (Daniel J. Elazar ed., 1982).

23. Benvenisti & Gvirtzman, *supra* note 9, at 552.

24. This amount is probably about 25 to 30% of the total rainfall. *Id.*

25. An aquifer is "a water-bearing bed or stratum of permeable rock, sand, or gravel capable of yielding considerable quantities of water to wells or springs." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 108 (3d ed. 1986).

Mountain Aquifer.²⁶ This aquifer provides Israel with approximately thirty-five percent of its yearly water consumption.²⁷

Rain in Jordan is equally scarce. Most of the country receives less than 200 mm of rainfall annually.²⁸ Groundwater resources provide Jordan with 480 mcm/yr, almost fifty percent²⁹ of its annual water supply.³⁰

3. Regional Levels of Water Use

Currently, several riparians to the Jordan River use the region's freshwater resources in excess of their sustainable potential.³¹ Israel's total water supply is about 1800 mcm/yr, sixty percent from groundwater and forty percent from surface water, specifically from the Jordan River.³² Arab West Bank residents use approximately 110 mcm/yr, ninety percent from underground aquifers.³³ The residents of Gaza, entirely dependent on groundwater resources, currently use 95 mcm/yr.³⁴ Jordan's water consumption is about 870 mcm/yr.³⁵ Both Syria and Lebanon receive sufficient water from the Euphrates and Litani Rivers, making their consumption of Jordan River water negligible.³⁶

26. Three main basins comprise the aquifer, located beneath the Judea and Samaria Mountains: the Yaqon Tanninim basin to the west, which lies almost entirely within Israel proper (this term signifies pre-1967 borders, also known as the "green line"); the Nablus-Gilboa basin to the north, which is predominantly located in the West Bank; and the east basin, made up of several smaller catchments, mostly within Israel proper. Benvenisti & Gvirtzman, *supra* note 9 at 555-56.

27. *Id.* at 559.

28. Natasha Beschorner, *Water and Instability in the Middle East*, 273 ADELPHI PAPER 3 Winter 1992/93, at 15.

29. See *infra* note 35 (discussing reports of supply breakdown).

30. Beschorner, *supra* note 28, at 15. About 270 mcm of Jordan's groundwater comes from renewable sources, while 210 mcm comes from non-renewable sources. *Id.* In addition, there are "large reserves of fossil brackish water . . . which could yield up to 70 mcm/yr." *Id.* at 16.

31. Wolf & Ross, *supra* note 9, at 919-20.

32. *Id.* at 925.

33. *Id.* Jewish settlers use 36 mcm/yr. *Id.*

34. *Id.* The water recharge—the amount returned to the basin—is only 60 mcm/yr. *Id.*

35. *Id.* at 926. Reports as to the breakdown of this supply are conflicting. Some estimates state 75% of the water comes from surface sources, predominantly the Yarmuk River. *Id.* Other sources, however, claim that only 320 mcm/yr comes from surface water, 130 mcm from the Yarmuk River, 120 mcm from the Jordan River, and the rest from minor streams. Beschorner, *supra* note 28, at 15.

36. Wolf & Ross, *supra* note 9, at 926. But see Beschorner, *supra* note 28, at 17-18 (stating that Syria has been developing irrigation projects since the mid-1970s along the

Jordan and the West Bank are currently at one hundred percent of potential usage.³⁷ Israel is running at a deficit of 200 mcm/yr, and Gaza has a deficit of 35 mcm/yr.³⁸ By the end of the century, serious water shortages will exist—Israel's projected water requirement will be one hundred thirty percent of current supplies and Jordan's requirement one hundred twenty percent.³⁹

B. Political History

1. Pre-Israeli Independence

Historically, the waters of the Middle East always have played a part in politics. During the fall of the Ottoman Empire in the first decades of this century, the water sources of what are now Israel, Lebanon, Syria, and Jordan helped determine the borders of the French and British Mandates.⁴⁰ During boundary negotiations in 1919, Zionists⁴¹ asked that France and Great Britain draw Israel's borders north, to the Litani River, and include the headwaters of the Jordan River.⁴² France would not agree to that request; therefore, the borders of Lebanon and Syria encompass the Litani River and the headwaters of the Jordan River.⁴³

France and Great Britain signed a 1923 convention regarding hydraulic power development, which required a state desiring to begin such a project to reach an agreement with any affected state.⁴⁴ In 1926, France and Great Britain entered into an

Yarmouk River, and that if all contemplated projects are finished, Syrian usage of the Yarmouk River will increase from 153 mcm/yr to 200 mcm/yr).

37. Wolf, *supra* note 4, at 799.

38. *Id.* at nn.a & c.

39. The actual projections state that by the year 2000, Israel's yearly requirement will be 2500 mcm and Jordan's will be 1000 mcm. Wolf & Ross, *supra* note 9, at 920.

40. Wolf, *supra* note 4, at 801.

41. Zionism was a movement for the establishment of the State of Israel. RANDOM HOUSE DICTIONARY OF THE ENGLISH LANGUAGE 1661 (1973). These border negotiations took place after the Balfour Declaration in which Great Britain pledged a Jewish homeland in Palestine; therefore, the Zionists were involved to some degree in the planning process. Wolf & Ross, *supra* note 9, at 927.

42. *Id.*

43. *Id.* at 929.

44. Convention Relating to the Development of Hydraulic Power Affecting More Than One State and Protocol of Signature, Dec. 9, 1923, 35 L.N.T.S. 75, 81. Only Great Britain actually ratified the convention and, under the theory of state succession, Israel has acceded to it. Caponera, *supra* note 3, at 644.

agreement providing for a continuation of past grazing, watering, and cultivation rights.⁴⁵ The agreement further provided that it would not change any rights "derived from local laws or customs concerning the use of the waters, streams, canals and lakes for the purposes of irrigation or supply of water to the inhabitants."⁴⁶

In 1939, the British Director of Development for the government of Transjordan published the Ionides Plan.⁴⁷ This plan supported the Arab contention that "the region's water resources were inadequate for Jewish immigration."⁴⁸ In 1944, Dr. Walter Lowdermilk suggested that a regional water management scheme, based on the Tennessee Valley Authority (TVA), could provide resources for the immigration of another four million Jews, as well as the 1.8 million Jews and Arabs already living in Palestine.⁴⁹ The 1947 U.N. Partition Plan included such an arrangement but, because the Arab states rejected the plan, it never went into effect.⁵⁰

2. 1948-1967

Both Israel and Jordan saw a mass influx of immigrants after the Israeli War of Independence in 1948. Israel absorbed the European Jews who fled the Holocaust, as well as some 700,000 Jews from Arab countries.⁵¹ Jordan incorporated 450,000 Palestinian refugees both by direct immigration and by Jordan's annexation of the West Bank in 1950.⁵²

45. Agreement of Good Neighborly Relations Concluded on Behalf of the Territories of Palestine, on the One Part, and on Behalf of Syria and Great Lebanon, on the Other Part, Feb. 2, 1926, Gr. Brit.-Fr., 56 L.N.T.S. 79, 83.

46. *Id.*

47. Wolf & Ross, *supra* note 9, at 929.

48. *Id.* In response, the MacDonald White Paper was published, which limited additional Jewish immigration to 75,000. *Id.* This remained in effect until Israel's independence in 1948. *Id.*

49. *Id.* The plan involved the irrigation of both sides of the river, and the Negev desert, in addition to a canal from the Mediterranean to the Dead Sea to be used for hydropower and replenishment of the diverted freshwater. *Id.*

50. *Id.* at 925-30. In fact, in 1948, upon Great Britain's withdrawal from Palestine, the countries of Egypt, Iraq, Syria, Jordan, Lebanon, and Saudi Arabia went to war against the new Israeli state. *Id.* at 930.

51. *Id.* at 930. Israel's "Jewish population increased from 650,000 in 1948 to 1.6 million in 1952." *Id.*

52. *Id.* This was an 80% increase in population, bringing Jordan's total to 1.85 million. *Id.*

In the early 1950s, when the need for a water policy became apparent, several of the riparian states began developing plans for the Jordan River watershed.⁵³ Israel announced its "All Israel Plan," which involved draining Huleh Lake and the surrounding swamps, diverting the northern Jordan River, and constructing a carrier to bring water to the coastal plain and Negev Desert.⁵⁴ Jordan developed a plan to irrigate the East Ghor of the Jordan Valley using water from the Yarmuk River.⁵⁵ When Jordan announced this plan, Israel drained the Huleh swamps and closed a dam south of Lake Tiberias.⁵⁶ The actions took place in a demilitarized zone, and Israel's actions resulted in several skirmishes with the Syrians.⁵⁷

In 1953, Jordan and the U.N. Relief and Works Agency (UNRWA) for Palestine Refugees entered into an agreement calling for a dam at Maqarin on the Yarmuk River, and another at Addassiyah, to direct water into the East Ghor.⁵⁸ Under this agreement, Jordan and Syria agreed to share the waters of the Yarmuk.⁵⁹ Later in the same year, Israel began constructing its National Water Carrier with an intake at Gesher B'not Ya'akov, north of Lake Tiberias in the demilitarized zone.⁶⁰ The construction led to fighting with Syria, and a complaint from Syria to the U.N.⁶¹ The fighting caused the work to cease.⁶² The Soviet Union vetoed a resolution⁶³ calling for a resumption of the work, forcing Israel to move the intake to Eshed Kinrot on the shores of Lake Tiberias.⁶⁴

53. *Id.* A watershed is "the catchment area or drainage basin from which the waters of a stream or stream system are drawn." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 2584 (3d ed. 1986).

54. Wolf & Ross, *supra* note 9, at 930-31.

55. *Id.* at 931.

56. *Id.*

57. *Id.*

58. *Id.* This was known as the Bunger Plan. *Id.*

59. *Id.* Israel protested against the agreement, claiming it was an infringement upon its riparian rights. *Id.*

60. *Id.*

61. *Id.*

62. *Id.*

63. *Id.*

64. *Id.* This is also its current site. *Id.* This created a two-fold problem for Israel. The high salinity level of Lake Tiberias required Israel to filter the water. *Id.* In addition, the original location would have allowed the water to flow using gravity. *Id.* at 931-32. The placement of the new intake location forces Israel to pump the water to a height of 250 meters before it can begin to flow southward. *Id.*

In light of these conflicts, President Eisenhower sent special envoy Eric Johnston to mediate an agreement between the parties.⁶⁵ Charles Main and the TVA, borrowing from Lowdermilk's plan, drafted a plan that suggested taking water where it was needed, regardless of any political borders.⁶⁶ This plan involved storing most of the Jordan River's water in Lake Tiberias, with a thirty-three to sixty-seven percent split of the river's flow between Israel and the Arab states, respectively.⁶⁷ This plan would have allocated 394 mcm/yr to Israel, 774 mcm/yr to Jordan, and 45 mcm/yr to Syria.⁶⁸ The Arab states rejected the plan.⁶⁹

Israel responded with the Cotton Plan, which envisioned using the Litani River, out-of-basin transfers to the Negev and the coastal plain, as well as storing water in Lake Tiberias.⁷⁰ The Cotton Plan would have allocated 1290 mcm/yr to Israel, 575 mcm/yr to Jordan, 30 mcm/yr to Syria, and 450 mcm/yr to Lebanon.⁷¹ The Arab states countered with a plan that "reaffirmed in-basin use, rejected storage in Lake Kinneret . . . and excluded the Litani."⁷² The Arab plan would have allocated 182 mcm/yr to Israel, 698 mcm/yr to Jordan, 132 mcm/yr to Syria, and 35 mcm/yr to Lebanon in addition to Lebanon's use of the Litani River.⁷³ Johnston spent the next few years negotiating the specifics of these various plans.⁷⁴ The end result, the Johnston Plan, provided allocations of 400 mcm/yr to Israel, 720 mcm/yr to Jordan, 132 mcm/yr to Syria, and 35 mcm/yr to Lebanon.⁷⁵ In a compromise, Israel relinquished its demand on the Litani River, and the Arabs allowed an out-of-basin transfer, as well as storage

65. *Id.* at 932.

66. *Id.* Main and the TVA conducted their study at the request of UNRWA. *Id.*

67. *Id.*

68. *Id.*

69. Caponera, *supra* note 3, at 640. The Arab nations cited several reasons for their rejection, including: lack of respect for political boundaries; little benefit to Lebanon; use of Lake Tiberias being unsound due to evaporation; and acceptance of the plan would imply recognizing the state of Israel. *Id.*

70. Wolf & Ross, *supra* note 9, at 932 (this would also allow for dilution of the salinity in Lake Tiberias).

71. *Id.*

72. *Id.* at 932-34.

73. *Id.* at 934.

74. *Id.*

75. *Id.* Of the 400 mcm/yr to go to Israel, 25 mcm/yr was to come from the Yarmuk River and the rest from the Jordan River. *Id.*

in Lake Tiberias and at Maqarin Dam.⁷⁶ Committees from both sides accepted the plan, as did the Israeli Cabinet; although Egypt's President Nasser was a strong proponent of the plan, the Arab League Council did not accept it.⁷⁷

In the following years, Israel and Jordan built their water carriers, despite the two countries' failure to reach an agreement.⁷⁸ In 1964, Israel began diverting Jordan River waters through the National Carrier.⁷⁹ In response, Arab nations called a summit, and several pledged to finance a Headwater Diversion Project.⁸⁰ In 1965, they began construction.⁸¹ Israel considered the project an act of aggression that threatened its water supplies and proceeded to attack and destroy the construction sites.⁸²

As a result of the Six Day War in 1967, Israel improved its control over various water sources.⁸³ Occupation of the West Bank secured Israel's position on the Jordan River and, in conjunction with the occupation of the Gaza Strip, extended its control over the underground aquifers.⁸⁴ After occupying the West Bank, Israel nationalized the water and placed limits on its use.⁸⁵ Further, occupation of the Golan Heights gave Israel

76. *Id.*

77. *Id.* at 934-35. Even though the agreement failed, Israel and Jordan have essentially adhered to the details, though they have proceeded with unilateral projects. *Id.* at 935.

78. *Id.*

79. *Id.*

80. *Id.* The project involved building dams in order to divert water from the Hasbani and Banias rivers, conveying the water through Jordan's East Ghor Canal, and irrigating Jordan, Syria, and Lebanon. Caponera, *supra* note 3, at 641. The plan would have cut the supply to Israel's National Water Carrier by 35%, and increased the salinity of Lake Tiberias by 60 ppm. Wolf & Ross, *supra* note 9, at 937.

81. Wolf & Ross, *supra* note 9, at 937.

82. Caponera, *supra* note 3, at 641. In 1969, Israel also bombed Jordan's East Ghor Canal but, after subsequent secret negotiations, the Israelis permitted Jordan to rebuild it. *Id.*

83. *Id.*

84. *Id.*

85. Wolf & Ross, *supra* note 9, at 945. This is possible because the West Bank encompasses most of the recharge area for the aquifers that run to the coastal plain and supply Israel with one-third of its water. *Id.* at 946. Excessive use and degradation of the aquifer could result in saltwater intrusion in the coastal wells. *Id.* To avoid this additional drilling and to prevent saltwater intrusion, Israel brings water from the National Carrier to the West Bank cities of Ramallah and Hebron. *Id.* West Bank water is a key issue in the negotiations between Israel and the Palestinians, as it was in the Israeli-Jordanian negotiations, because the Johnston Plan called for Jordan to supply 70-150 mcm/yr to the West Bank. *Id.* at 947.

control over the headwaters of the Jordan River, effectively making any Arab diversion scheme impossible.⁸⁶

3. 1967-Present

During the late 1970s, Jordan built a dam and an irrigation network along the Zarqa River.⁸⁷ Throughout the 1970s, attempts at negotiating other plans met with failure.⁸⁸ During the 1980s, Jordanian and Israeli officials secretly conducted negotiations, now known as the "Picnic Table Talks," at the confluence of the Jordan and Yarmuk Rivers.⁸⁹ These talks were informal and not on the ministerial level.⁹⁰ In 1982, Israel occupied southern Lebanon and, as a result, extended its control over the Litani River, although to date Israel has not diverted any of the Litani's waters.⁹¹

III. INTERNATIONAL POLICY REGARDING WATER RIGHTS

The ILA and the ILC propounded several international policies concerning water rights. At its 1966 conference in Helsinki, the ILA approved a set of articles known as the Helsinki Rules on the Uses of the Waters of International Rivers.⁹² In 1986, the ILA added a section entitled Rules on International Groundwaters to the Helsinki Rules. This new section was known as the Seoul Rules.⁹³ Presently, the ILC is developing draft articles on the Law of Non-Navigational Uses of International Watercourses.⁹⁴ These policies have provided the background for treaties, negotiations, and articles on the uses of international waterways.

86. *Id.* at 937.

87. *Id.* at 940-41.

88. *Id.* at 941.

89. Wolf, *supra* note 4, at 804. These talks took their name from the site at which they occurred. *Id.* The talks were usually accommodating, with both sides sandbagging the river either above or below the entrance to the East Ghor Canal in order to increase the flow to the Jordan River or to the canal. Beschoner, *supra* note 28, at 22.

90. Wolf, *supra* note 4, at 805 (the only time ministerial level talks occurred was on May 6, 1977).

91. Wolf & Ross, *supra* note 9, at 943-44.

92. *Helsinki Rules*, *supra* note 7.

93. INT'L LAW ASS'N, *Rules on International Groundwaters*, in REPORT ON THE SIXTY-SECOND CONFERENCE HELD AT SEOUL 251 (1987) [hereinafter *Seoul Rules*].

94. Draft Articles, *supra* note 8. In 1994, the ILC submitted a modified version of the Draft Articles to the General Assembly. *Report of the International Law Commission*, U.N. GAOR, 49th Sess., Supp. No. 10, at 195, U.N. Doc. A/49/10 (1994) [hereinafter *1994 Draft Articles*].

A. *The Helsinki Rules*

The Helsinki Rules define an international drainage basin as "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."⁹⁵ The Rules assert that water apportionment should adhere to a principle of "equitable utilization."⁹⁶ "Equitability" in this context does not mean a precisely equal share of the water; it is the *right of utilization*.⁹⁷ The Helsinki Rules continue this line of reasoning by stating factors used to determine what is reasonable and equitable.⁹⁸ These relevant factors include: geography, hydrology, climate, past and present utilization, economic and social needs of the riparians, population, costs of alternative measures, other resources, practicability of compensation in instances of dispute, and how the needs of one riparian may be fulfilled without substantial injury to another riparian.⁹⁹

An interesting principle of the Helsinki Rules is that they do not give preference to one reasonable use over another. For example, the Helsinki Rules would not prefer industrial use over agricultural use.¹⁰⁰ While the rules assert this principle in theory, in reality, two factors tend to predominate: human conditions over natural properties, and past and present uses over potential

95. *Helsinki Rules*, *supra* note 7, at 484-85.

96. Chapter Two, article IV of the Rules states that the riparians are entitled to "a reasonable and equitable share in the beneficial uses of the waters." *Id.* at 486. The comments to the Rules explicitly reject the "Harmon Doctrine," which supports a state's unqualified use of waters flowing through its territory. *Id.* Rather, equitable utilization reflects the principle that "every basin state in an international drainage basin has the right to the reasonable use of the waters of the drainage basin." *Id.*

97. Thomas Naff, *International Riparian Law in the West and Islam*, Proceedings of the International Symposium on Water Resources in the Middle East: Policy and Institutional Aspects at the University of Illinois at Urbana-Champaign 114, 115 (Oct. 24-27, 1993) (on file with author) (emphasis in original).

98. *Helsinki Rules*, *supra* note 7, at 488.

99. *Id.* The weight accorded to each factor is "determined by its importance in comparison with that of other relevant factors," and all of them are to be considered together. *Id.*

100. *Id.* at 491. The purpose of this policy is to maintain flexibility so that one state does not reserve waters it does not need, while at the same time preventing another state from maintaining a perpetual right. *Id.* According to this concept, when a riparian is ready to use waters previously unused, the entire issue of apportionment is reviewable. *Id.* at 493.

uses.¹⁰¹ The Helsinki Rules also address pollution in terms consistent with the principle of equitable utilization.¹⁰² They espouse the idea that states should take care not to cause "substantial injury" to the territory of a co-riparian, and they provide procedures for dispute resolution and compensation.¹⁰³

B. *The Seoul Rules*

Under the Seoul Rules, into the definition of an international basin incorporates waters that come from an aquifer lying under more than one state.¹⁰⁴ The Rules also state that riparians must take into account the interdependence of surface, ground, or other sources of water.¹⁰⁵ The Seoul Rules do not replace the Helsinki Rules; rather, they consistently emphasize that they are an addition to the Helsinki Rules.¹⁰⁶ The Seoul Rules also discuss pollution, but urge states to consult, exchange data, and cooperate with each other in order to preserve and protect the groundwater, as well as to consider joint projects and protection measures.¹⁰⁷

The ILA added three articles to the Seoul Rules that were intended to compliment the Helsinki Rules.¹⁰⁸ The first article restates the principle that a state shall refrain from acts causing "substantial injury" to a co-riparian as long as the principle of equitable utilization does not justify an exception.¹⁰⁹ The last two articles discuss the need for agreement when undertaking a project requiring work in the territory of a co-riparian, as well as notice and reasonable time for objection to proposed work that will substantially affect a co-riparian.¹¹⁰

101. Benvenisti & Gvirtzman, *supra* note 9, at 547-48.

102. *Helsinki Rules*, *supra* note 7, at 496.

103. *Id.* at 496-505. The procedures recommended for settlement of disputes are "reference to a joint agency, mediation, conciliation and, finally, arbitration." *Id.* at 501-02.

104. *Seoul Rules*, *supra* note 93, at 251. The Seoul Rules define an aquifer as "all underground water bearing strata capable of yielding water on a practicable basis." *Id.* They consider an aquifer part of the basin even if its waters do not combine with the surface water to flow into the common terminus. *Id.*

105. *Id.* at 259.

106. *Id.* at 252, 259.

107. *Id.* at 268.

108. *Id.* at 275.

109. *Id.* at 278.

110. *Id.* at 284-86.

C. *The Law of Non-Navigational Uses of International Watercourses*

The ILC's Draft Articles on the Law of Non-Navigational Uses of International Watercourses (Draft Articles) define a watercourse as a system of surface and ground waters constituting a whole and flowing into a common terminus.¹¹¹ This definition, however, includes "ground water only to the extent that it interacts in some way with surface water."¹¹² The ILC defines an international watercourse as one whose parts are in more than one state.¹¹³ The Draft Articles, like the Helsinki Rules, use the principle of equitable and reasonable utilization.¹¹⁴ The factors the ILC uses to determine reasonable and equitable use are: geographic, hydraulic, climatic and ecological, social and economic, effects of use on co-riparians, existing and potential uses, conservation and protection, and the availability of alternative sources.¹¹⁵

The ILC's Draft Articles differ from their ILA counterparts in three respects. First, the ILC requires consideration of the effects to another state,¹¹⁶ whereas the ILA discusses compensation.¹¹⁷ Second, the ILC considers present and future uses, as opposed to the ILA's past and present uses.¹¹⁸ Third, the ILC uses the concept of "appreciable harm," as opposed to the ILA's use of "substantial injury."¹¹⁹ Under the appreciable harm principle, although a state may use waters in its territory, it cannot do so in a way that will cause harm to riparian neighbors.¹²⁰

111. Draft Articles, *supra* note 8, at 1575.

112. Stephen C. McCaffrey, *The International Law Commission Adopts Draft Articles on International Watercourses*, 89 AM. J. INT'L L. 395, 402 (1995). This is contrary to the definition espoused by the ILA in its Seoul Rules. See *supra* note 104 (defining an aquifer under the Seoul Rules).

113. Draft Articles, *supra* note 8, at 1575.

114. *Id.* at 1576.

115. *Id.* at 1576-77.

116. *Id.* at 1576, art. 6.

117. *Helsinki Rules*, *supra* note 7, at 488. Although the Helsinki Rules consider substantial injury to another state a factor, the Rules balance more valuable use against damage to existing use. *Id.* at 489-90.

118. See Draft Articles, *supra* note 8, at 1577. See also *Helsinki Rules*, *supra* note 7, at 488.

119. Draft Articles, *supra* note 8, at 1577.

120. Naff, *supra* note 97, at 115. Problems exist in defining appreciable harm. *Id.* Apparently, appreciable harm "does not explicitly proscribe any harm whatsoever . . . it

Recent changes to the draft do not subject the principle of "no appreciable harm" to that of "equitable apportionment"; instead, the changes apply a "due diligence" standard so that use of an international river does not cause significant harm to other riparians.¹²¹ The 1994 Draft Articles, however, do specifically address the equitable use-significant harm conflict and provide "that where a state exercises due diligence but its use still causes significant harm, it must . . . consult with that state."¹²² Nevertheless, this still does not clarify whether equitable and reasonable use relieves a state of its burden not to cause harm.¹²³ Like the addendum to the Helsinki Rules, the Draft Articles contain provisions for notification and reply regarding proposed works on the watercourse,¹²⁴ as well as sections regarding pollution, preservation, and protection of the watercourse and its ecosystem.¹²⁵

The 1994 Draft Articles do not include confined transboundary ground water.¹²⁶ The ILC, however, adopted a resolution wherein it recommended that states apply the principles of the Draft Articles to ground water usage.¹²⁷ Interestingly, this provision engendered significant debate¹²⁸ despite the fact that the Seoul Rules already contained a similar provision.

D. *The International Hydro-political Situation*

A primary obstacle to a comprehensive policy on international water rights law is its unenforceability. The Helsinki and Seoul Rules, although widely accepted and broad in their scope, are not enforceable because the ILA is an unofficial organization.¹²⁹ In addition, the ILC's Draft Articles are only drafts and do not yet

clearly means more than merely 'perceptible' but not necessarily 'substantial'." *Id.* (emphasis in original).

121. McCaffrey, *supra* note 112, at 399.

122. *Id.* at 400 (noting, "[w]hile it is clear that this paragraph does not entirely solve the problem, it at least strongly suggests that a state's use that causes significant harm is not per se a breach of the state's international obligations.").

123. *Id.* (noting that reasonable and equitable use could never justify some serious harms, but that it would assist in negotiations or third party dispute resolutions).

124. Draft Articles, *supra* note 8, at 1578.

125. *Id.* at 1580-81.

126. McCaffrey, *supra* note 112, at 403. Confined ground water is "ground water that is not related to surface water." *Id.* at 402.

127. *Id.* at 403.

128. *Id.* at 402-03.

129. Jonathan E. Cohen, *International Law and the Water Politics of the Euphrates*, 24 N.Y.U. J. INT'L L. & POL. 502, 519 (1991).

have the force of a multilateral agreement or treaty.¹³⁰ Notwithstanding these limitations, these two policies are the only guidelines available for the formation of treaties concerning the riparian water rights to an international river.

1. The Tigris and Euphrates Rivers

The Euphrates River originates in the mountains of Turkey, flows through Syria into Iraq, and empties into the Persian Gulf.¹³¹ The basin,¹³² which includes tributaries, extends over 444,000 square kilometers.¹³³ Twenty-eight percent of the basin lies within Turkey, seventeen percent within Syria, fifteen percent within Saudi Arabia, and the remaining forty percent within Iraq.¹³⁴ Although Turkey's share of the basin is only twenty-eight percent, it contributes ninety-eight percent of the river's flow.¹³⁵ The Tigris River has its headwaters in Turkey and Iran and flows into Iraq.¹³⁶ Iraq has a fifty-four percent share of the drainage basin.¹³⁷ Turkey's share of the Tigris River's flow is forty-five percent.¹³⁸

Turkey has begun a massive project along the Euphrates, known as the Grand Anatolia Project, which will create twenty-two dams and nineteen hydro-electric stations.¹³⁹ Syria also developed projects along the Euphrates, and is building the ath-Thawrah Dam at Tabqa.¹⁴⁰ Although these projects will tend to lower downstream water levels, Iraq uses the Euphrates less than

130. The ILC's ultimate goal is to "incorporate this law into a multilateral convention." *Id.* at 520.

131. *Id.* at 507.

132. A basin is "the entire tract of country drained by a river and its tributaries." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 182 (3d ed. 1986).

133. Cohen, *supra* note 129, at 507.

134. *Id.*

135. Beschorner, *supra* note 28, at 29.

136. Cohen, *supra* note 129, at 510.

137. Nurit Kliot, *Application of Customary International Law to International Rivers in the Middle East*, Proceedings of the International Symposium on Water Resources in the Middle East: Policy and Institutional Aspects at the University of Illinois at Urbana-Champaign 126 (Oct. 24-27, 1993) (on file with author).

138. Beschorner, *supra* note 28, at 29.

139. Cohen, *supra* note 129, at 508.

140. *Id.* at 509.

it does the Tigris, and Iraq's planned Tharthar Canal project should compensate for any reduction in the Euphrates' flow.¹⁴¹

Until the middle of the 1960s, Iraq made the most use of the Euphrates.¹⁴² The construction of the Keban Dam in Turkey and the ath-Thawrah Dam in Syria created tension between these two riparians that nearly escalated into war, and the risk of future hostilities remains great.¹⁴³ The Grand Anatolia Project could reduce Syria's flow from the Euphrates by forty percent and Iraq's by eighty percent.¹⁴⁴

Issues of Kurdish nationalism and the riparians' support of political opponents underlie the instability of the region.¹⁴⁵ Syria and Turkey have quarreled for years over Syrian support of Turkey's enemies, as well as Syria's claim on the province of Hatay.¹⁴⁶ While Turkey and Iraq once shared flourishing economic ties and often cooperated in their reprisals against Kurdish nationalists, various political issues in the late 1980s converged to cool their relations.¹⁴⁷ In addition, rival ideological branches of the Ba'ath party rule Syria and Iraq, and have been feuding since the 1960s.¹⁴⁸ Drought and the Persian Gulf War have combined to exacerbate these problems.¹⁴⁹

141. *Id.* at 510. Because Turkey and Iran also share the Tigris, any increased use by them would cause severe shortages for Iraq. *Id.* at 510-11.

142. *Id.* at 511.

143. *Id.* at 511-12. Saudi Arabia mediated a settlement and the threat of war de-escalated. *Id.* at 512. Apparently, Syria agreed to take only 40% of the water from the Euphrates, leaving the rest to Iraq. *Id.*

144. *Id.* at 513. In 1987, Turkey agreed to release water at a rate of 500 cubic meters/second. *Id.* In 1990, the nations amended this agreement, by which Syria agreed to allow 58% of the flow to continue to Iraq. *Id.* Also, in 1990, tensions rose because Turkey cut off the Euphrates for a month to partially fill a dam. *Id.* Although Turkey promised that this was a one-time procedure, Syria and Iraq still have much to fear because Turkey will have complete control over the Euphrates when the Grand Anatolia Project is complete. *Id.* at 513-14.

145. Beschoner, *supra* note 28, at 27. As a result, border security is a significant concern for the basin's riparians. *Id.*

146. *Id.* at 36. Turkey often has accused Syria of supporting anti-government groups such as Kurdish and Armenian guerrillas. *Id.* at 37. In fact, these security issues led Turkish President Özal to threaten to cut off the Euphrates flow unless Syria ended its support for the Kurdish militants. *Id.* In 1989, a Syrian official stated that Syria did not recognize Turkey's claim over Hatay. *Id.* at 36-37.

147. *Id.* at 38. Additionally, the United States used its bases in Turkey to bomb Iraq during the Persian Gulf War. *Id.*

148. *Id.* at 39.

149. Cohen, *supra* note 129, at 514-18.

Various pressures created tense standoffs between the riparians. Turkey's construction of the Keban Dam in the 1970s elicited Syrian anxiety over Turkey's ability to control the rivers.¹⁵⁰ Syria's construction of the Tabqa Dam on the Euphrates, the subsequent filling of the Lake Assad reservoir, and other political pressures led both countries to send troops to their common border.¹⁵¹ The most critical clash, however, occurred over Turkey's filling of the Atatürk Dam reservoir.¹⁵² In effect, Turkey significantly reduced the flow of the Euphrates.¹⁵³ The downstream riparians complained, but all meetings and discussions ended in deadlock.¹⁵⁴

Notwithstanding the detail and flexibility of either the ILA's or the ILC's policies, the Euphrates' riparians have not come to a regional agreement regarding its use.¹⁵⁵ One of the obstacles is Turkey's insistence that the Euphrates is a regional, not international, river.¹⁵⁶ Neither the ILA's Rules nor the ILC's Draft Articles apply to anything but international rivers.¹⁵⁷ Turkey's claim that no international law mandates it to make any agreements or compromises is evidence that neither set of rules is enforceable.¹⁵⁸ Turkey's position as uppermost riparian to the Euphrates eliminates its incentive to participate in cooperative measures. Admission to the European Union (EU) may provide a sufficient incentive.¹⁵⁹ If the parties agree to cooperate, however, they will have to choose a system such as the ILA's Rules or the ILC's Draft Articles.¹⁶⁰

150. Beschorner, *supra* note 28, at 39.

151. *Id.* at 39-40.

152. *Id.* at 41.

153. *Id.*

154. *Id.* at 41-42.

155. *Id.* at 39. But there are some bilateral treaties and agreements between the various riparians. *Id.* at 39.

156. Cohen, *supra* note 129, at 527.

157. *Id.*

158. *Id.* at 527-28.

159. *Id.* at 549.

160. *Id.* at 552. "It is crucial that the parties constructing the Euphrates agreement choose one unified system." *Id.*

2. The Nile River

The Nile River Basin encompasses almost one tenth of Africa's territory.¹⁶¹ Burundi, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania, Uganda, and Zaire all share the Nile Basin.¹⁶² There are three sub-basins, created by the major tributaries: the White Nile, the Blue Nile, and the Atbara River.¹⁶³ The average annual flow of the Nile is 90 billion cubic meters per day.¹⁶⁴ Sources estimate the White Nile's contribution to this flow is between one-seventh and two-sevenths, with the Blue Nile and the Atbara River making up the other five to six-sevenths.¹⁶⁵ The majority of development along the Nile is in Egypt,¹⁶⁶ although some works are in the upper riparian territories.¹⁶⁷ Numerous treaties govern the use of the Nile River Basin, many of which the European nations signed during the colonial period.¹⁶⁸ The most important, however, are five agreements of the modern governments: the Agreement of 1959 between Egypt and Sudan, which calls for complete utilization of Nile River water;¹⁶⁹ the Agreement of 1967 creating HYDROMET, a multilateral survey project;¹⁷⁰ the Treaty of 1977 between Burundi, Rwanda, Tanzania, and Uganda establishing an organization for the development of the White Nile;¹⁷¹ the Agreement of December 1992 establishing

161. Caponera, *supra* note 3, at 650. The catchment area is approximately 2.9 million square kilometers. *Id.*

162. *Id.*

163. *Id.*

164. *Id.*

165. *Id.* at 650, 652. Egypt estimates the Blue Nile and the Atbara River constitute five-sevenths of the total flow, while Ethiopia claims that they constitute six-sevenths. *Id.* This and other disagreements impeded cooperation between the two countries until recently. *Id.* at 652.

166. *Id.* These works include the Aswan Dam, the Sadd-el-Aali Dam, and five barrages. *Id.*

167. *Id.* at 653. These works include: the Sennar Dam, the Roseires Dam and Reservoir, the Jebel Aulia Dam, all in Sudan; the Tana Beles irrigation project in Ethiopia; and the Owen Falls Dam in Uganda. *Id.* at 653-54.

168. *Id.* at 657-59.

169. Agreement Between the Republic of the Sudan and the United Arab Republic For the Full Utilization of the Nile Waters, Nov. 8, 1959, Sudan-U.A.R., 453 U.N.T.S. 278.

170. Caponera, *supra* note 3, at 659.

171. Agreement for the Establishment of the Organization for the Management and Development of the Kagera River Basin, Aug. 24, 1977, Rwanda-Burundi-Tanz., 1089 U.N.T.S. 165.

a follow-up committee to the HYDROMET project;¹⁷² and the Agreement of July 1, 1993, between Egypt and Ethiopia, creating a framework for future cooperation.¹⁷³

As in the Tigris-Euphrates Rivers basin, the countries of the Nile River basin have strained political, as well as environmental, relations. The governments of Egypt and Sudan have opposing ideologies, and Egypt has accused Sudan of harboring radical Islamic anti-governmental groups.¹⁷⁴ Relations between Egypt and Ethiopia improved when Ethiopia's Mengistu government ended, but the two countries still have little in common except for the Blue Nile.¹⁷⁵ At one time, relations deteriorated to such a degree that Egypt's President Sadat threatened to bomb any Ethiopian projects along the Blue Nile, and Ethiopia's Mengistu threatened to decrease the flow of the Blue Nile.¹⁷⁶ Ethiopia and Sudan have also improved their relations since the demise of the Mengistu regime, but, like Egypt and Ethiopia, have little in common.¹⁷⁷

Critics are skeptical of applying the list of factors determining equitable and reasonable use, outlined in the Helsinki Rules and the Draft Articles, to the Nile River Basin.¹⁷⁸ For example, applying the geographical and hydrological factors to the basin, Ethiopia's share should be the greatest because it contributes the most; yet it uses only one percent of the water.¹⁷⁹ Further, the Helsinki Rules and the Draft Articles do not address the great water losses encountered in equatorial states such as Sudan.¹⁸⁰ Sudan has the largest drainage area of the Nile River, contributes nothing to the river, and uses twenty percent of its water.¹⁸¹ Egypt contributes nothing to the Nile River and uses most of its

172. Caponera, *supra* note 3, at 659.

173. Survey of World Broadcasts, ME/1731, A/4, of 3 July, 1993.

174. Beschorner, *supra* note 28, at 58. This tension increased during the Persian Gulf War because Sudan supported Iraq while Egypt supported the U.N. coalition. *Id.*

175. *Id.* at 59.

176. *Id.* at 60.

177. *Id.*

178. Kliot, *supra* note 136, at 124.

179. *Id.* at 125.

180. Swamps in Sudan's Sudd region cause significant water loss. Caponera, *supra* note 3, at 654. One estimate places the amount at close to 50% of the White Nile's discharge. Beschorner, *supra* note 28, at 45.

181. Kliot, *supra* note 136, at 125.

water.¹⁸² Egypt, however, has been using the Nile River since ancient times, is completely dependant on this water source, and is therefore entitled to it.¹⁸³ Nevertheless, Egypt's needs must be balanced against the needs of the Nile River's other riparians.¹⁸⁴ Egypt's massive usage, as well as the great loss of water in both the Aswan Dam and the Sudd region, contradicts the theories of equitable and reasonable utilization and avoidance of unnecessary waste.¹⁸⁵ Further, under both the Helsinki Rules and the Draft Articles, Egypt and Sudan could face condemnation for unnecessary waste.¹⁸⁶

These criticisms do not take into account the regional cooperation occurring among the riparians to the Nile River.¹⁸⁷ Although this regional cooperation is limited to research, and to only a few of the riparians,¹⁸⁸ the spirit of the recent agreements reflects a desire to incorporate international policy.¹⁸⁹

3. United States and Canada

The U.S.-Canada border contains more than 300 lakes and rivers.¹⁹⁰ The basis for most of the agreements between Canada and the United States is the 1909 Boundary Waters Treaty.¹⁹¹

182. *Id.* The Aswan Dam also experiences enormous water losses. *Id.* at 126.

183. *Id.* at 125.

184. *Id.*

185. *Id.* at 126.

186. Article V(1)(i) of the Helsinki Rules calls for the avoidance of unnecessary waste. *Helsinki Rules*, *supra* note 7, at 488. Likewise, article 6(e) of the Draft Articles requires states to adopt measures to promote conservation. Draft Articles, *supra* note 8, at 1577. The current construction of the Jonglei Canal to divert water from the swamps in the Sudd region should counter some of the loss and should insulate Sudan from criticism. Caponera, *supra* note 3, at 654.

187. See *supra* text accompanying note 178.

188. See *supra* text accompanying note 178.

189. Caponera, *supra* note 3, at 662-63. "The recent agreement of July 1, 1993, between Egypt and Ethiopia calls for the principle of good neighborliness and the peaceful settlement of disputes; the use of the waters is to be based on 'international law,' and the parties are not to do anything with the waters which may cause harm to the interests of the other party." *Id.* at 663 (emphasis added).

190. Patricia K. Wouters, *Allocation of the Non-Navigational Uses of International Watercourses: Efforts at Codification and the Experience of Canada and the United States*, 30 CAN. Y.B. INT'L L. 43 (1992). "Water forms the boundary for more than one-half of the 8,900-kilometre border between Canada and the United States." *Id.* at 52.

191. Treaty Between the United States and Great Britain relating to Boundary Waters and Boundary Questions, Jan. 11, 1909, U.S.-Gr. Brit., 208 Consol. T.S. 214 [hereinafter Boundary Waters Treaty]. "The Boundary Waters Treaty realized three broad goals: it resolved some outstanding issues regarding two shared watercourses; it provided general

The Boundary Waters Treaty guarantees freedom of navigation,¹⁹² prohibits pollution,¹⁹³ and categorizes, in order of importance, three types of uses.¹⁹⁴ It also provides a guideline for resolution of Canadian-U.S. disputes.¹⁹⁵ In applying the Boundary Waters Treaty, the two countries repeatedly have referred cases to the International Joint Commission (IJC) and, most of the time, have followed its recommendations.¹⁹⁶

Article 2 of the 1909 Boundary Waters Treaty provides that each state has "exclusive jurisdiction and control over the use and diversion" of water on its side of the border.¹⁹⁷ Historically, the agreements and treaties between the United States and Canada show that they "have voluntarily protected each other by refusing unilaterally to perform or continue harmful activities, even though the latter were clearly allowed by treaty."¹⁹⁸ This practice of the two nations arguably shows that the IJC has not applied the concept of "appreciable harm," as articulated in the Draft Articles;

guidelines along which the two countries could approach other, existing and future, international watercourse disputes; and it established the International Joint Commission (IJC)." Wouters, *supra* note 190, at 53 (emphasis added).

192. Boundary Waters Treaty, *supra* note 191, art. I.

193. *Id.* art. IV.

194. *Id.* art. VIII. These uses are domestic and sanitary purposes, navigational purposes, and power and irrigation purposes. *Id.*

195. Wouters, *supra* note 190, at 80.

196. *Id.* In 1925, the United States and Great Britain entered into a Treaty and Protocol to regulate the Lake of the Woods. *Id.* at 57. Canadian and U.S. diversions on the St. Mary and Milk rivers led to a dispute, which the parties resolved by incorporating a new article into the Boundary Waters Treaty. *Id.* at 58. This new article provided that the two rivers be treated as one system and that the waters should be apportioned equally. *Id.* In 1950, through article 5 of the Boundary Waters Treaty, the two countries settled a dispute regarding diversion of the Niagara River. *Id.* at 59. In 1989, an agreement regarding the Souris River settled decades of dispute surrounding apportionment of the waters. *Id.* at 64-65. In 1964, the Columbia River Treaty resolved one of the most protracted water disputes between Canada and the United States. *Id.* at 66. In 1975, the countries referred their dispute regarding the Garrison Diversion Unit along the Missouri River to the IJC. *Id.* at 70-71. The IJC recommended against building that portion of the diversion that would adversely affect Canada. *Id.* at 71-72. During 1984 and 1985, the two countries referred the proposed opening of a coal mine along a tributary of the Flathead River to the IJC. *Id.* at 76. The IJC recommended against the opening of the mine. *Id.* at 77.

197. Boundary Waters Treaty, *supra* note 191, art. II. Under this provision, private individuals may not bring suit unless the other state's activities cause them harm. Wouters, *supra* note 190, at 54 n.53.

198. *Id.* at 81.

instead, the IJC has resorted to the Helsinki Rules' concept of equitable utilization.¹⁹⁹

Two-thirds of the world's treaties relating to fresh water concern North America and Europe.²⁰⁰ What becomes apparent from the foregoing is that states in regions with plentiful water resources are able to establish amicable relations, treaties, and joint commissions, whereas in "the Middle East region . . . international treaties regulating the sharing, use, and quality control of water are virtually non-existent."²⁰¹ Aside from the scarcity of water, "[p]olitical and ideological rancor or outright hostilities have defeated sporadic efforts to fashion multilateral . . . [treaties] for the use of the . . . major river basins in the area."²⁰² Against this background, the Peace Treaty between Israel and Jordan was forged.

IV. EXAMINATION OF THE ISRAELI-JORDANIAN PEACE TREATY: HELSINKI RULES OR THE DRAFT ARTICLES ON THE NON-NAVIGATIONAL USES OF INTERNATIONAL WATERCOURSES?

Examination of the Israeli-Jordanian Peace Treaty poses the following questions: Upon which international policy did Israel and Jordan rely to construct the water related provisions of the Peace Treaty? and Have they properly addressed all the issues? The response to these questions is determined through an evaluation of the Peace Treaty in light of the foregoing analysis.

A. *The Peace Treaty*

Prior to the peace accord between Israel and Jordan, Israel received approximately 720 mcm/yr of its 1800 mcm/yr consumption from the Jordan River system.²⁰³ Jordan received 652.5 mcm/yr of its 870 mcm/yr consumption from the Jordan River system as well, primarily from the Yarmuk River.²⁰⁴ Under the Peace Treaty, during the summer, Israel will pump 12 mcm from the Yarmuk River, and Jordan will receive the rest of

199. *Id.* at 86-87.

200. Naff, *supra* note 97, at 123.

201. *Id.*

202. *Id.*

203. See *supra* text accompanying note 32.

204. See *supra* text accompanying note 35.

the flow.²⁰⁵ During the winter, Israel will pump 13 mcm from the Yarmuk River, and Jordan will retain the rest of the flow.²⁰⁶ This retention is subject to a clause providing that Jordan will permit Israel to pump an additional 20 mcm during the winter if Israel concedes to transfer 20 mcm of Jordan River waters to Jordan during the summer.²⁰⁷

Additionally, during the winter, the Peace Treaty permits Jordan to store Jordan River flood water south of the confluence with the Yarmuk River.²⁰⁸ The Peace Treaty further stipulates that Israel may maintain its current use of the Jordan River and that Jordan is entitled to the same amount as Israel, provided it does not affect the quantity, or degrade the quality, of Israel's water.²⁰⁹ Israel also will provide Jordan with 10 mcm of desalinated water from springs that it currently diverts into the Jordan River.²¹⁰ The agreement allows Israel to retain the use of any wells it currently is using that now fall on Jordan's side of the new borders.²¹¹ The Peace Treaty makes further procedural provisions for checks on water quality and control,²¹² notification and agreement,²¹³ cooperation,²¹⁴ and a joint water committee.²¹⁵

Jordan will receive approximately 505 mcm/yr from the Yarmuk and the Jordan River transfers, not including any amount that it will be able to take directly from the Jordan River. Israel will receive 25 mcm/yr from the Yarmuk River²¹⁶ along with a possible 3 mcm/yr of stored Jordan River flood waters.²¹⁷ Israel, however, will be giving Jordan the 10 mcm of water it currently diverts to the Jordan River.²¹⁸ Israel, therefore, is technically getting the amount of Yarmuk River water the Johnston Plan

205. Peace Treaty, *supra* note 1, Annex II, art. I.

206. *Id.*

207. *Id.*

208. *Id.*

209. *Id.* "The Joint Water Committee . . . will survey existing uses for documentation and prevention of appreciable harm." *Id.*

210. *Id.*

211. *Id.* Annex II, art. IV.

212. *Id.* Annex II, art. III.

213. *Id.* Annex II, art. V.

214. *Id.* Annex II, art. VI.

215. *Id.* Annex II, art. VII.

216. This does not include the 20 mcm that is returned in the summer. *See supra* text accompanying note 207.

217. Peace Treaty, *supra* note 1, Annex II, art. II.

218. *See supra* text accompanying note 210.

recommended,²¹⁹ but is giving up some water directly to Jordan, as well as any water Jordan may be pumping directly from the Jordan River.

The Peace Treaty appears to have appeased the Jordanian contention during negotiations that the distribution of water was unlawful, and that the allocations had to be redistributed.²²⁰ It is likely Israel conceded to these allocations as a cheaper and socially preferable solution to a continuation of hostilities.²²¹ Israel had argued that the demand simply exceeds the amount of water available, and that instead the focus should be on creating new sources of water.²²² Jordan appears to have conceded to Israel on this point, because the Peace Treaty calls for some cooperation to find additional sources of water.²²³

B. Comparison to the Helsinki Rules and the Draft Articles

The concept of equitable apportionment, as articulated in the Helsinki Rules and the Draft Articles, significantly influenced the Peace Treaty. Both sides attempted to apportion the limited water supplies as evenly as possible. In this context, the Peace Treaty appears to have favored the Helsinki Rules' factor of past uses. The Peace Treaty is slanted towards appropriating equitable amounts of water to appease Jordanian desires of establishing past rights, as well as both sides' needs for water.²²⁴ The Helsinki Rules, however, also give great weight to existing reasonable uses.²²⁵ According to this factor, Israel should have been able to maintain more of its current use, especially since alternative water

219. See *supra* text accompanying note 75.

220. Michael Parks & Mary Curtius, *Israel, Jordan OK Draft Peace Treaty*, L.A. TIMES, Oct. 18, 1994, at A1, A8. See also Beschoner, *supra* note 28, at 24-25.

221. Negotiations with the Palestinians also reflected this policy. Steve Rodan, *Divided Waters—Part I*, JERUSALEM POST, Sept. 1, 1995, at 8, available in LEXIS, Nexis Library, JPOST File. "But the principle fits in well with the Rabin government's aim of completing an agreement with the Palestinians on the next stage of Palestinian self-rule as quickly as possible." *Id.*

222. Parks & Curtius, *supra* note 220, at A8.

223. Peace Treaty, *supra* note 1, Annex II, arts. I & VI.

224. During the negotiations Jordanian officials were insisting that Jordan be allocated its "fair share" of water. Steve Rodan, *The Ice Cube on Jordan's Team*, JERUSALEM POST, Sept. 23, 1994, at 2B, available in LEXIS, Nexis Library, JPOST File. Officials referred to pre-Israeli independence use levels. *Id.*

225. *Helsinki Rules*, *supra* note 7, at 490. Specifically, article VIII says an existing reasonable use should be maintained unless its continuance is unjustified in light of other factors. *Id.* at 493.

sources are a factor to consider when modifying or terminating an existing use.²²⁶ Indeed, although article VI does discuss cooperation in future projects,²²⁷ the Peace Treaty appears to give short shrift to the search for new sources of water. Had it applied the Draft Articles' factors of present and future uses,²²⁸ necessity would have dictated a much greater emphasis on future water supplies. While the Peace Treaty may fall short by not setting forth a more detailed plan for alternative sources of water, Israel and Jordan have been cooperative in formulating plans for the development of water sources for Jordan.²²⁹

The Peace Treaty also embodies the concept, set forth in both policies, of preventing waste.²³⁰ It specifically states, "In order that waste of water will be minimized, Israel and Jordan may use . . . excess flood water that is not usable and will evidently go to waste unused."²³¹ What the Peace Treaty does not address is the potential for wrangling over these flood waters. Will these waters be used on a first come, first served basis? Or, will they inevitably require joint management?

The parties apparently favored the Draft Articles' inclusion of "appreciable harm,"²³² and its subsequent limitation on equitable utilization. Article I of the Peace Treaty states, "Jordan is entitled

226. *Id.* at 489.

227. Peace Treaty, *supra* note 1, Annex II, art. VI.

228. See *supra* text accompanying note 115.

229. See David Ridge, *Eilat, Akaba to Get Desalination Plants*, JERUSALEM POST, Dec. 28, 1994, at 3, available in LEXIS, Nexis Library, JPOST File (desalination project to provide Eilat and Akaba with fresh water and another at Lake Kinneret to desalinate water from briny springs); Peres, *Hassan Discuss Water, Other Issues*, JERUSALEM POST, Mar. 13, 1995, at 2, available in LEXIS, Nexis Library, JPOST File (Peres and Hassan met on March 12, 1995, to discuss their joint stance on water projects for new sources in an attempt to solicit funds from the EU); *EU to Do Studies of Israel-Jordan Water Projects*, Reuters World Service, Mar. 15, 1995, available in LEXIS, Nexis Library, EUWLD File (EU paying for feasibility studies for two projects); *EIB to Finance ME Projects*, European Investment Bank, ISR. BUS. TODAY, Apr. 21, 1995, at 17, available in LEXIS, Nexis Library, ASAPII File (EIB will finance joint water projects between Israel and Jordan); *Jordan-Israel Water Pipeline Begins Operating*, Reuters World Service, June 20, 1995, available in LEXIS, Nexis Library, EUWLD File (a pipeline provided for in the treaty is already in operation); *Experts Plan Water, Environmental Cooperation in Mideast*, Agence France Presse, June 20, 1995, available in LEXIS, Nexis Library, AFPFR File (study begun for regional information bank on water). Under the terms of the Peace Treaty, Israel and Jordan are to cooperate in finding alternative sources to supply Jordan with an additional 50 mcm/yr. Peace Treaty, *supra* note 1, Annex II, art. I.

230. Peace Treaty, *supra* note 1, Annex II, art. I.

231. *Id.*

232. See *supra* text accompanying note 119.

to an annual quantity equivalent to that of Israel, provided, however, that Jordan's use will not harm the quantity or quality of . . . Israeli uses."²³³ Therefore, any harm Jordan may cause to Israeli water needs limits its equitable utilization of the Jordan River.

As in article IX of the Helsinki Rules²³⁴ and article 21 of the Draft Articles,²³⁵ the Peace Treaty protects the Jordan and Yarmuk Rivers from pollution.²³⁶ Also, the sections on cooperation and notification²³⁷ reflect the spirit, if not the letter, of both the Seoul Rules²³⁸ and the Draft Articles.²³⁹

The Peace Treaty apparently has embraced facets of both policies. It bases its use of equitable utilization on the factors set forth in the Helsinki Rules, but has limited its application by using the "no appreciable harm" standard propounded in the Draft Articles.

C. *A Critique of the Peace Treaty*

Although the Peace Treaty between Jordan and Israel represents a milestone in Arab-Israeli relations, its treatment of the water issue is flawed. The Peace Treaty is conspicuously missing any reference to the Palestinians in the West Bank. Any agreement must consider the Palestinians, particularly in light of the recent Israeli-Palestinian agreement.²⁴⁰ The Palestinians on the West Bank are also riparians to the Jordan River, as well as to the underground aquifers in the region.²⁴¹ Further, Israel currently supplies the West Bank with water from its National Carrier to prevent over-pumping of groundwater wells in the West Bank.²⁴² Therefore, the Peace Treaty should have taken the Palestinians into account; in all likelihood, allocations made under the Peace Treaty will require change in order to accommodate a new Palestinian state.

233. Peace Treaty, *supra* note 1, Annex II, art. I.

234. *Helsinki Rules*, *supra* note 7, at 494.

235. Draft Articles, *supra* note 8, at 1580.

236. Peace Treaty, *supra* note 1, Annex II, art. III.

237. *Id.*, arts. V & VI.

238. *Seoul Rules*, *supra* note 93, at 286.

239. Draft Articles, *supra* note 8, at 1578.

240. Harold Dichter, *The Legal Status of Israel's Water Policies in the Occupied Territories*, 35 HARV. INT'L L.J. 565, 565 (1994).

241. Wolf & Ross, *supra* note 9, at 919, 924-25.

242. See *supra* note 85 (discussing Israel's importation of water to the West Bank).

One of the points of contention in the peace process between Israel and the Palestinians is the issue of water.²⁴³ Israel receives a significant amount of its water from the aquifers beneath the West Bank, and it has legitimate fears about relinquishing control over them.²⁴⁴ The Palestinians in the West Bank and Gaza Strip, however, desperately need an increase in water supplies, especially in Gaza.²⁴⁵ The Interim Autonomy Agreement (Agreement) between Israel and the Palestinian Authority addressed this issue.²⁴⁶ The Agreement provided an increase of 28 mcm/yr of water to the Palestinians.²⁴⁷ This Agreement provides Palestinians a significant amount of water and gives them exclusive use of the eastern aquifer.²⁴⁸ Resources remain negligible in the area, however, and alternative resources must be developed.²⁴⁹ Further, the Palestinians reportedly are seeking compensation for Israel's and Jordan's agreement on water in the Peace Treaty.²⁵⁰ Jordan and Israel negotiated a bilateral treaty addressing water without consulting one of the riparians. As in the Tigris-Euphrates basin, there are now going to be several bilateral treaties concerning the same rivers, which could lead to continual in-fighting. But, unlike the Tigris-Euphrates riparians, the Jordan Basin riparians currently are engaging in multilateral talks.²⁵¹ A flaw in establishing this bilateral agreement on water rights is that Palestinian water is now seen as an Israeli problem. As Israeli territories, the West Bank and Gaza Strip were integrated, albeit

243. Gershon Baskin, *Water Needs, Not Rights*, JERUSALEM POST, July 19, 1995, at 6, available in LEXIS, Nexis Library, JPOST File. "The Israelis say: No changes in water allocation. The Palestinians want full control of water in the West Bank." *Id.*

244. David Makovsky, *Israel Agrees to PA Civilian Police Along Green Line*, JERUSALEM POST, July 23, 1995, at 1, available in LEXIS, Nexis Library, JPOST File ("Israel wants the means to verify that Palestinians are not doing extra drilling in the Kalkilya and Tulkarm area where the Yarkon-Taninim aquifer is located, nor in the Jenin area, where the Gilboa aquifer is located."). But see Baskin, *supra* note 243 (proposing that there is little risk of Palestinian damage to the aquifer).

245. Sharif S. Elmusa, *Dividing Common Water Resources According to International Water Law: The Case of the Palestinian-Israeli Waters*, 35 NAT. RES. J. 223, 231 (1995).

246. *Summary of Israel-PA Agreement*, JERUSALEM POST, Sept. 27, 1995, at 3, available in LEXIS, Nexis Library, JPOST File.

247. *Id.*

248. *Id.*

249. Rodan, *supra* note 221. "We can significantly increase Palestinian water supplies without hurting Israel . . . [b]ut we can only do this for one or two years before we have to desalinate." *Id.*

250. Makovsky, *supra* note 244.

251. Elmusa, *supra* note 245, at 224.

marginally, in the Israeli water system. It is highly unlikely that Jordan will relinquish any of its newly obtained water to the Palestinians, especially in light of its own water shortages. Although regional talks and treaties will provide a framework for information banks, joint management, conservation, and methods of obtaining alternative sources,²⁵² they will not solve the immediate problem of distributing the basin's waters.

The Peace Treaty is also woefully short of providing for the development of alternative water sources. In light of the region's water scarcity and population growth, as well as estimates that by the year 2000 chronic water shortages will be the norm,²⁵³ the Peace Treaty should have explored further, and expanded farther, the provisions for other water resources.²⁵⁴ Although the two countries do appear to be working together to develop additional water sources, what they actually are developing are only the sources for Jordan that the Peace Treaty requires.²⁵⁵ Serious discussion and consideration of impending water shortages is necessary. Alternative water sources such as desalination plants and inter-basin pipelines require years of planning and building. The region simply does not have the luxury of time to procrastinate on the development of these sources.

An oft-cited suggestion for the alleviation of the water problems in the region is inter-basin transfers.²⁵⁶ Plans have included: diverting the Litani River from Lebanon to the Sea of Galilee; transferring surplus Nile River waters to Gaza or the Negev Desert; and bringing water from Turkey into the parched region via the so called "Peace Pipeline."²⁵⁷ Another option is the creation of regional desalination plants.²⁵⁸ One proposed project, discussed since the 1960s, is the Med-Dead Canal.²⁵⁹

252. *Id.*

253. Wolf & Ross, *supra* note 9, at 920.

254. Article I of the Peace Treaty requires the two countries to cooperate to find sources to provide Jordan with an additional 50 mcm/yr of drinking water. Peace Treaty, *supra* note 1, Annex II. Also, article VI provides for cooperation between Jordan and Israel in developing new sources, but it sets no deadlines or agendas. *Id.*

255. See *supra* note 229 and accompanying text.

256. Wolf, *supra* note 4, at 817.

257. *Id.* at 818-19. But see Beschorner, *supra* note 28, at 25, 43 (Lebanon opposes any transfers from the Litani, and Turkey has shelved the "Peace Pipeline" in the face of opposition from its intended customers and because it has rethought its domestic needs).

258. Wolf, *supra* note 4, at 830.

259. *Id.* at 819.

This project would involve building a canal from the Mediterranean Sea to the Dead Sea.²⁶⁰ The Dead Sea's drop in sea level would create hydropower, which in turn would run desalination plants.²⁶¹ Some experts disagree, claiming desalination plants not only take years to build, but are strategic targets.²⁶² Others add that replacing fresh water with desalinated water would create Israeli dependence on imported energy.²⁶³ What critics suggest instead is unclear. Speaking of control and protection but offering no regional solutions,²⁶⁴ their words are empty rhetoric. Control and protection of dwindling resources only postpones the inevitable shortage of water.²⁶⁵ In light of the impending water shortages in the region, the countries must consider all options and bring them to fruition as soon as possible.

V. CONCLUSION

The unenforceability of the Helsinki Rules and the Draft Articles illustrates the difficulties countries encounter when attempting to establish treaties based on international law. The water agreement in the Peace Treaty between Jordan and Israel is an example of an attempt to glean from each international policy the principle that works best in the given situation. The end result is an agreement that reflects an awareness of its insufficiencies, while simultaneously being aware it is a milestone achievement.

The Peace Treaty emphasizes the need for flexibility in any international policy, flexibility that both the Helsinki Rules and the Draft Articles possess. This is apparent in the balancing of the various factors that determine allocation and utilization of water. Future Israeli-Jordanian actions, however, must include all riparians, specifically the Palestinians, and consider alternative solutions. The reality is that one day there simply will not be

260. *Id.* at 831.

261. *Id.* at 832-33. Some suggest that this could be the impetus for an entire agro-industrial complex along the canal route. *Id.* The Jordanians put forth another option, the Red-Dead Canal. *Id.* at 831. The Red-Dead Canal would operate on the same principles, but would bring water from the Red Sea. *Id.* Choosing one or the other option would be a matter of politics or technicalities. *Id.* at 832.

262. Steve Rodan, *Divided Waters-Part II*, JERUSALEM POST, Sept. 1, 1995, at 8, available in LEXIS, Nexis Library, JPOST File.

263. *Id.*

264. *Id.*

265. *Id.* "Israel will be unable to forestall a water crisis within the next few years even if it refuses to part with one drop." *Id.*

enough water, and the Middle East will mirror the post-apocalyptic world portrayed by our media. To guard against that day, Jordan, Israel, and other riparians must expand the current Peace Treaty regionally and include satisfactory alternatives to the meager water sources of the region.

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* J.D. candidate, Loyola Law School, 1996; B.A. English and Anthropology, University of California, Los Angeles, 1993. I thank my parents for their love, support, and encouragement. I also thank the editors, staff members, and friends, whose help proved immeasurable. Finally, I dedicate this Comment to the memory of Israeli Prime Minister Yitzhak Rabin, whose wisdom and vision brought peace, and whose legacy is the courage and determination to continue striving for peace.

