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The Two Rivers and the Lands Between:
Mesopotamia and the International Law of Transboundary Waters

*Joseph W. Dellapenna*

I. INTRODUCTION

All rivers and most aquifers of significance across the entire sweep of the Middle East, from Marrakech to Samarkand, are internationally shared water resources. The Middle East is the largest dry region (and the driest large region) on Earth; thus there is considerable (and growing) potential for conflict over these shared waters. I have already written extensively about various disputes relating to these more conflict-prone river basins of the region.¹ In this article, I will examine two such

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For twelve years, I have consulted on the Middle East Water Project, under the Direction of Dr. Thomas Naff, first at the Middle East Research Institute of the University of Pennsylvania and later with the Associates for Middle East Research, Inc. The project has already produced a single volume study, WATER IN THE MIDDLE EAST, supra, and is now preparing a series of volumes on specific aspects of the water in the Middle East to be entitled WATER: THE MIDDLE EAST IMPERATIVE, publication having begun in 1990. My contribution to the series, MIDDLE EAST WATER: THE POTENTIAL AND LIMITS OF LAW, is completed and is to be published in 1996. I have also consulted with the Portuguese Directory-General of Natural Resources (Direcção-Geral dos Recursos Naturais) as a Fulbright grantee in the summer of 1990.
conflict-prone river basins of the region—that of the Euphrates and the Tigris Rivers, the two rivers that together bound "Mesopotamia."

Mesopotamia—the "land between the rivers"—rivals Egypt as the birthplace of hydrology. Not so long ago—only some 12,000 years ago or so—the Middle East was not a dry region. During the Ice Ages, rainfall was plentiful and the Sahara and other deserts of the region were watered by now extinct rivers which fed broad grasslands with occasional small forests. After the glaciers retreated, the region rapidly dried out. This global climate change presented the relatively dense human population of hunters and gatherers with the prospect of imminent starvation, and presumably prompted most people in the region to migrate. However, in the region near Mesopotamia, people found a way to adapt without migrating. Apparently, a few women (who were responsible for gathering, storing, and preparing seeds for eating) discovered that they could plant some of those seeds and thereby multiply the yield sufficiently to sustain their communities and even support an increase in population. This transition—the invention of agriculture—occurred first in the hills stretching from what is now southeastern Turkey down through Syria and Lebanon to what is now Israel and Palestine.

These early farmers did not know much about farming, and their practices caused heavy erosion of the hillsides where they planted. The soil washed down to fill the now dry valleys below, leaving behind

The analysis and conclusions are my own, and do not necessarily represent the views of the American or Portuguese governments or of the Associates for Middle East Research, or of the Middle East Research Institute.


barren hillsides that are now characteristic of the region that gave birth to wheat-based agriculture. After a millennium or more, the farmers discovered that by digging ditches from the rivers out onto the remarkably flat plains of the land between the Euphrates and Tigris Rivers to bring water out to the now deep soils, they could bring the water to where the soil had already gone. This transition introduced several major cultural changes that together we describe as the birth of civilization. In particular, the ensuing increase in productivity enabled the creation of the first true cities in what anciently was called the “Fertile Crescent.”

Since the advent of agriculture, human life in the Middle East has always depended on successful management of the limited fresh water available in the region, especially once artificially irrigated agriculture was invented. Irrigation requires the continuous application of more labor than the dry farming of the hills had required. Men as well as women now had to take part in agricultural work, especially irrigation, and this work had to be done in under strong, centralized leadership. Yet siltation and salination from poor irrigation practices undermined the richness of the lands—the heart of the “Fertile Crescent”—a millennium ago, and the ravages of war completed the breakdown of the ancient irrigation systems by the middle of the thirteenth century.
Poor irrigation practices that cause soil salination and other environmental depredations have been a recurring problem since irrigation began in Mesopotamia, leading to the collapse of earlier civilizations, particularly in the lower reaches of the twin basins. Traces of abandoned canals and tells (hills composed of rubble) of abandoned villages testify to the rise and decline of earlier communities, states, and empires. The region's dependence on the water of the Euphrates and the Tigris continues to shape the political and economic life of the land between the two rivers, and provides a structure for the legal disputes over water in the Mesopotamia today.

This article examines the modern law of the two rivers as found in treaties, less formal arrangements, and international legal custom. In part II, I describe the hydrologic setting for the modern law of the rivers. In part III, I discuss the economic and political context of that law. Finally, in part IV, I analyze the law itself. I conclude the paper with observations on how the yet unresolved legal problems of the two rivers might best be handled, and the prospects for such an outcome.

II. THE HYDROLOGIC SETTING

Although the Euphrates and Tigris Rivers are virtually separate, united only for the last 190 kilometers (118 miles) in the Shatt al-'Arab (the "Shore of the Arabs"), it is customary to treat them as a single socio-hydrologic unit because the two rivers in practice are shared by three states—Iraq, Syria, and Turkey—and those three states generally manage the three rivers in a coordinated fashion. Iran, which is a source of tributaries to the Tigris River, has not made any substantial use of those waters nor any claim to a share of the main stem of the Tigris.

Of the two rivers that have shaped human life in the "Fertile Crescent," the Euphrates (Firat to the Turks, and Furat to the Arabs) is the longer and for much of its length the larger, and is more centrally located in the region. The Euphrates arises in the mountains of eastern Turkey, flows southwest for a time, and then turns southeast to flow

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9. Clor, supra note 2, at 34; George Cressey, The Shatt al-Arab Basin, 12 MIDDLE EAST J. 448, 448-49 (1958); Tvedt, supra note 8, at 18; Wilford, supra note 6.

10. KLIOT, supra note 2, at 100, 111; Bakour & Kolars, supra note 2, at 127.

across the northwest of Syria and then down the length of Iraq. At 2,700 kilometers (1,675 miles), it is the longest river is southwestern Asia and the second longest in the vast region stretching from Morocco to Iran. Despite its length, however, the Euphrates is a fairly small river. Its normal annual flow, as measured at Hit in Iraq, averages around 32 billion cubic meters (“BCM”) annually, ranges between 10 BCM and 40 BCM depending on variations in precipitation upstream. The average flow is a bit less than half of the current average flow of the Nile and less than one-third of the average flow of the Nile in former centuries. The Euphrates averages only one-fourth the volume of the Rhine, a river that drains only a comparatively small region of humid western Europe.

12. The geography of the Euphrates is described in brief but useful detail in Saleh, supra note 2, at 69-70. See also Kliot, supra note 2, at 102.

13. Hillel, supra note 2, at 92; Bakour & Kolars, supra note 2, at 137. Nurit Kliot gives the length of the Euphrates as 3,000 kilometers (1,865 miles). Kliot, supra note 2, at 100-01. Walid Saleh gives the length as 2,336 kilometers (1,450 miles). Saleh, supra note 2, at 70. See also Hasam Chalabi & Tarek Majzoub, Turkey, the Waters of the Euphrates and Public International Law, in Water in the Middle East: Legal, Political and Commercial Implications 189, 191 (J.A. Allan & Chibli Mallat eds 1995); Jonathan Cohen, Note, International Law and the Water Politics of the Euphrates, 24 N.Y. INT'L L. & POL. 502, 507 (1991); Cressey, supra note 2, at 448. The discrepancies arise from differences of opinion regarding which of several streams is the furthest source stream of the Euphrates as opposed to a mere tributary.


As with most rivers in the Middle East, the Euphrates is an “exotic” river that arises naturally in well-watered mountains and flows across an extensive dry area before reaching the sea.\(^\text{17}\) While crossing the dry regions of northeastern Syria and the length of Iraq, it experiences large evapotranspiration and seepage (infiltration) losses, becoming smaller as it approaches the sea. The largest and last significant tributary of the Euphrates—the Khabur River—arises in southeastern Turkey and joins the Euphrates shortly after it enters Syria. The Khabur and other, smaller streams that also join the Euphrates in Syria add about 2 BCM to the flow, but these tributaries arise in Turkey and most of their flow as well represents precipitation over Turkey.\(^\text{18}\) Virtually no water joins the river after crossing the Iraqi border, though evaporation rates reach as high as 70%.\(^\text{19}\) Thus the Euphrates is largest well before it crosses the Iraqi-Syrian border. In all, about 98% of the water flowing in the Euphrates derives from Turkey, and about 2% from Syria.\(^\text{20}\)

The Tigris also arises in eastern Turkey (only 30 kilometers from one of the sources of the Euphrates) and flows south into Iraq.\(^\text{21}\) The boundaries of Syria were drawn by the British and the French to enable the far northwest corner of Syria to barely reach to the upper Tigris. The Tigris forms part of the Syrian border with Turkey for 36 kilometers (22

\(^{17}\) Christiaan Gischler, Water Resources in the Arab Middle East and North Africa 5 (1979); Hillel, supra note 2, at 92; Water in the Middle East, supra note 1, at 85-86. For just how dry most of Iraq is, see Kliot, supra note 2, at 105-08; Bakour & Kolars, supra note 2, at 131-32; Cressey, supra note 2, at 448, 450.

\(^{18}\) Hillel, supra note 2, at 95; Water in the Middle East, supra note 1, at 83; Bakour & Kolars, supra note 2, at 128-30.

\(^{19}\) Hillel, supra note 2, at 95, 97; Bilen, supra note 14, at 108; Cressey, supra note 2, at 455. See also Edward Goldsmith & Nicholas Hildyard, The Social and Environmental Effects of Large Dams 140 (1984); Bakour & Kolars, supra note 2, at 128-29.

\(^{20}\) Kliot, supra note 2, at 112, 114-15; Kolars & Mitchell, supra note 14, at 3-5, 191; Water in the Middle East, supra note 1, at 83-84; Beaumont, supra note 14, at 37; Cohen, supra note 13, at 507; George Gruen, Recent Negotiations over the Waters of the Euphrates and Tigris, in Proc. Intl. Symposium on Water Resources in the Middle East: Policy and Institutional Aspects 100, 104 (Glenn Stout & Radwan Al-Weshah eds. 1993); Hager, supra note 2, at 209, 219; George Joffe, The Issue of Water in the Middle East and North Africa, in Resource Politics: Freshwater and Regional Relations 65, 75 (Caroline Thomas & Darryl Hewlitt eds. 1993); Tvedt, supra note 8, at 15.

Two Turkish commentators have generously attributed 12% of the flow to Syria, apparently based on where the tributaries join the Euphrates, but without allowing for the fact that most of the water in those tributaries derives from precipitation in Turkey. Chalabi & Majzoub, supra note 13, at 191.

\(^{21}\) Hillel, supra note 2, at 96. For succinct but useful description of the geography of the Tigris, see M.G. Ionides, The Regime of the Rivers Euphrates and Tigris 115-18 (1937); Kliot, supra note 2, at 102-04.
miles) and with Iraq for a length of eight kilometers (5 miles).\(^{22}\) It is one third-shorter than the Euphrates, measuring only about 1,840 kilometers (1,140 miles).\(^{23}\) It also has a smaller flow until well into Iraq. The average flow of the Tigris as measured at Mosul in northern Iraq is 23 BCM.\(^{24}\)

The Tigris, flowing further to the east and close to the mountains that mark the border between Iran and Iraq, exhibits some important features differentiating it from other rivers in the region. Most importantly, it receives major tributaries along its entire length, including several tributaries that arise in Iran, and many of which enter the main river in Iraq. One of those tributaries, the Greater Zab, contributes as much as 13 BCM annually, and the tributaries reaching the Tigris in Iraq collectively contribute an average of around 30 BCM/year.\(^{25}\) Thus, although the Tigris, like the Euphrates, experiences the major evapotranspiration and seepage losses characteristic of this dry, desert region, it is not an exotic river for it maintains and even enlarges its flow as it approaches the sea. In fact, the Tigris measures about 49 BCM per year at its terminus in the Shatt al-'Arab, although this flow varies considerably from year to year.\(^{26}\) As with the Euphrates, the major scene of historic use was in Iraq, but only a small amount of the water in the river was contributed by precipitation over Iraq. About 43% of the total flow derives from Turkey, with about 42% deriving from rainfall over mountains in eastern Iraq, and about 9% from Iran.\(^{27}\)

Early in their history, the Euphrates and the Tigris each reached the Persian Gulf separately, but the growth of their deltas eventually led to their merger into the Shatt al-'Arab. Prior to 1974, the flow into the Shatt, really a vast swampland that is home to the “Marsh Arabs,” measured about 66 BCM (a bit less than the average flow of the Nile).
Most of the flow into the Shatt was lost through evaporation, and only a feeble 20 BCM were discharged annually into the Persian Gulf.\textsuperscript{28} Of this combined flow, a bit more than 49 BCM (nearly 75\%) were contributed by the Tigris, with the remainder coming from the Euphrates.\textsuperscript{29}

Today, the Shatt al-'Arab forms part of the border between Iran and Iraq, and has been the ostensible focus of the Middle East's longest and bloodiest war.\textsuperscript{30} The disputes over the Shatt have been primarily over navigation and not over the consumptive uses that are the focus of this article. While forming the boundary between Iraq and Iran, the Shatt receives the overall system's last major tributary—the Kharun. At 830 kilometers (515 miles), The Kharun is the longest river in Iran. But for the sharing of the Shatt with Iraq, the Kharun would be entirely within Iran.\textsuperscript{31}

\textbf{III. THE ECONOMIC AND POLITICAL CONTEXTS}

The most notable economic and political feature of the two rivers is that Iraq, the major consumer of water from the rivers, contributes only small amounts of water to the flow of the Tigris and virtually none to the Euphrates.\textsuperscript{32} Growing populations have placed immense pressure on

\textsuperscript{28} Cressey, supra note 9, at 455. The figure for total flow comes from Kolars, supra note 11, at 106-08. Estimates for total flow range as high as 84 BCM/year—similar to estimates for the current annual average flow for the Nile. Beaumont, Blake, \& Wagstaff, supra note 8, at 364; Kliot, supra note 2, at 110; Bakour \& Kolars, supra note 2, at 127. The different estimates might simply reflect the high variability of the flow of the two rivers from year to year. Beaumont, Blake, \& Wagstaff, supra, at 357. For the geography of the Shatt-al-Arab, see Water in the Middle East, supra note 1, at 85; Cressey, supra note 9, at 448-49, 452.

\textsuperscript{29} One recent study gave a much higher estimate for the Euphrates' contribution to the Shatt-al-Arab, concluding that it accounted for about 58\% of the combined flow in the Shatt. Beaumont, Blake, \& Wagstaff, supra note 8, at 84.


\textsuperscript{31} Water in the Middle East, supra note 1, at 85-87; Kolars, supra note 11, at 118. See also Kliot, supra note 2, at 104, 111; Cressey, supra note 9, at 448. The Kharun joins the Shatt-al-Arab 72 kilometers (45 miles) from the Gulf. Bakour \& Kolars, supra note 2, at 127.

\textsuperscript{32} Tvedt, supra note 8, at 15.
each of the three riparian states: The combined populations of Iraq, Syria, and Turkey have grown from about 39,000,000 in 1960 to around 84,000,000 in 1990. Iran could add another 55,000,000 to the possible base of demand. All four of these riparian states depend heavily on agriculture to employ their populations, and only Iraq and Iran have strong alternate resource bases in oil. Each of the four countries must import substantial quantities of food to feed their growing populations, in quantities amounting to between 7% and 17% of their needs. Yet Iraq continues to employ 35% of its labor force in agriculture compared to only 3% in the oil industry. The wars and revolutions of their recent history have left the Iraqi and Iranian economies largely in ruins despite all their oil, leaving them to fall back on agriculture nearly as much as Syria and Turkey have always depended on it.

Iraq's dominance of the consumption of the Euphrates was nearly total until the 1960's, with little water being consumed at all in Syria or Turkey, a pattern that can be traced back to the earliest antiquity. The three states have responded to the pressures of growing population by seeking agricultural self-sufficiency. To do this, they have sought to create adequate storage capacity within their own borders to satisfy their own plans without regard to the activities of the other riparian states. All this storage considerably increases the evaporation losses from the

33. KLIO T, supra note 2, at 153-54, 160; JO YCE S TAR R & DA NIEL S TOLL, U.S. FOR EIGN POLICY ON W ATER RESOURCES IN THE M IDDE L EAST 12 (1987); Cohen, supra note 13, at 516; Tvedt, supra note 8, at 17.
34. KLIO T, supra note 2, at 153; J.A. Allan, I rrigated Agriculture in the Middle East: Th e Future, in AGRICULTURAL DEVELOPMENT IN THE MIDDLE EAST, supra note 39, at 51.
36. KLIO T, supra note 2, at 154.
37. Cohen, supra note 13, at 511; Joyce Starr & Stephen Alley, Troubled Waters Ahead for Iraqi Irrigation, FIN. TIMES, Oct. 21, 1988, § 1, at 5. Greg Shapland gives the figure of 20% as the employment level for agriculture. Greg Shapland, Policy Options for Downstream States in the Middle East, in WATER IN THE MIDDLE EAST, supra note 9, at 301, 316. In any event, Mahmood Clor has aptly caught the difference: "Oil, discovered in 1926, is the basis of Iraq's wealth but water from the Tigris and the Euphrates rivers is its sustenance." Clor, supra note 2, at 34.
38. KLIO T, supra note 2, at 152-53, 170.
39. Addeane Calleigh, Middle East Water: Vital Resource, Conflict and Cooperation, in A SHARED DE S TINY 121, 124 (Joyce Starr & Addeane Calleigh eds. 1983); Cohen, supra note 13, at 511; Tvedt, supra note 8, at 15. At least some see the timing of the Syrian and Turkish development of the waters of the Euphrates came as a response to Egyptian propaganda depicting the High Dam at Aswan as the key to modernization and progress in the region, leading other governments to feel compelled to undertake similar projects. Chalabi & Majzoub, supra note 13, at 197-98.
40. HILLEL, supra note 2, at 169; KLIO T, supra note 2, at 122-123, 160.
Euphrates system, especially in the hot dry plains of Iraq.\textsuperscript{41} Such losses are particularly unfortunate as the three states together propose to store more than 200 BCM of Euphrates water—nearly three times the annual average flow of the two rivers combined (70-75 BCM).\textsuperscript{42} Not only can the Euphrates not sustain all this storage, but the storage projects also decreases the total water available to all by more than 10% due to loss by evaporation of about 8 BCM from the reservoirs.\textsuperscript{43}

In this section, I shall examine in turn the Iraqi use of the Euphrates, the Syrian challenge to Iraqi dominance of the river, the Turkish challenge to the Iraqi and Syrian modus vivendi. I will then summarize the situation regarding the Tigris. Finally, I will examine the one proposal for joint activity on the rivers—the “Peace Pipeline.” Not until the next section will I address the legal aspects of these experiences and proposals.

A. Iraq and the Euphrates

The two rivers have been depositing silt across their mouths for millennia, and today the greater part of Iraq is a nearly flat plain composed of former delta lands aggregating more 100,000 square kilometers.\textsuperscript{44} The still heavy silt loads of the two rivers gives rise to the two distinctive features of the Iraqi plain: It is extremely fertile if properly watered, and the rivers actually flow above the level of the plain. This latter feature arose because of the constant threat of flooding by the rivers.\textsuperscript{45} The rivers have been contained by levees which cause significant amounts of silt to settle in the river bed, thereby raising the beds as well as the banks of the rivers above the level of the surrounding land.\textsuperscript{46}

Irrigation began in what now is Iraq at least 6,000 years ago, but, as already noted, experienced periods of major decline due to the salination of the soil, and never recovered from the devastations of the Mongol

\textsuperscript{41} Ionides, supra note 21, at 111; Kliot, supra note 2, at 122, 136; Beaumont, supra note 14, at 38-39.

\textsuperscript{42} Iraq proposes to store 100 BCM, Syria 15 BCM, and Turkey 90 BCM. Hillel, supra note 2, at 102-03. See also Kliot, supra note 2, at 144-50, 167; Water in the Middle East, supra note 1, at 93, 96-97; Bakour & Kolars, supra note 2, at 137-40; Zohurul Bari, Syrian-Iraqi Dispute over the Euphrates Waters, 16 Int'l Stud. 227, 238 (1977); Beaumont, supra note 14, at 39; Kolars, supra note 11, at 108; Tvedt, supra note 8, at 16.

\textsuperscript{43} Hillel, supra note 2, at 103. A disproportionate share of this loss occurs in Iraq (5+ BCM) because of its extremely dry climate.

\textsuperscript{44} Hillel, supra note 2, at 93; Kliot, supra note 2, at 102.

\textsuperscript{45} See generally Cressey, supra note 9, at 449-55.

\textsuperscript{46} Hillel, supra note 2, at 54, 93-94, 96, 304-05 n.2; Tvedt, supra note 8, at 15.
invasion in 1258.\(^{47}\) Thereafter irrigation, while carried out on a small scale, largely languished until the early twentieth century. As elsewhere in the Middle East, British engineers began the development of modern irrigation on the Euphrates in the later years of the nineteenth century with the construction of the Al Hindiya Barrage in 1909, with other dams and canals following down to the present time.\(^{48}\) Dams and barrages on the Tigris followed in short order. By the 1970's, Iraq was consuming about 13 BCM from the Euphrates annually to irrigate about 1,550,000 hectares,\(^{49}\) and was consuming another 17 BCM from the Tigris River to irrigate another 1,200,000 hectares or so.\(^{50}\) Only about 25% of the agricultural lands in Iraq—in the hills near the Tigris River—rely on rainfall as opposed to irrigation.\(^{51}\) About 42% of Iraq's total surface is irrigated.\(^{52}\)

By 1970, Iraq's total water total consumption of 30 BCM/year (from the Euphrates, the Tigris, and other sources) arose from a base of supply generally ranging from 76 and 84 BCM/year, 98% of which was found in the Euphrates and Tigris system.\(^{53}\) In contrast, Syria was then consuming about 2 BCM/year from the two rivers, mainly from the Euphrates, and Turkey about 820 MCM/year from the two rivers, also
mainly from the Euphrates.\textsuperscript{54} A decade later the Syrian and Turkish figures were more than doubled.\textsuperscript{55} The pressures on the Euphrates would continue to rise throughout the remaining two decades of the twentieth century, placing Iraq in an extremely vulnerable position even before the war with Iran and the Gulf War.

Iraq, under Saddam Hussein, responded to the threat by doubling its financial commitment to water facilities and bringing several new dams on line in the later 1980s.\textsuperscript{56} These efforts increased Iraq's current total storage capacity to around 100 BCM.\textsuperscript{57} Before the Gulf War, Iraq was planning to irrigate an additional 1,830,000 hectares, mostly between Hit and Hindiya, to improve drainage of the irrigated lands in lower Iraq, to divert water from the Tigris to the Euphrates, and to increase its hydroelectric generation.\textsuperscript{58} Improved drainage is particularly important to Iraq as the only effective means of dealing with the continuing problem of soil salination,\textsuperscript{59} although the drainage projects have been criticized as an "environmental crime" and as attempted genocide against the Marsh Arabs.\textsuperscript{60} In all, the Iraqi designs will require diversions from the Euphrates aggregating in the neighborhood of 25 BCM annually—nearly double the diversions from that river in 1970.\textsuperscript{61} Unfortunately, Turkish releases from the Atatürk Dam will only be about 15 BCM or less annually,\textsuperscript{62} and Syrian usage will consume the bulk of this flow.\textsuperscript{63}

Since 1980, Iraq has been continuously at war with Iran, or over Kuwait, or with portions of its own population. Iraq faced a threatening situation regarding water before it embarked on its wars with its neighbors. Before the Gulf War, Iraq employed only about 12\% of its labor force in agriculture to generate about 7\% of its Gross Domestic

\textsuperscript{54} Bakour & Kolars, supra note 2, at 128; Kolars, supra note 11, at 107.
\textsuperscript{55} KLIOT, supra note 2, at 143.
\textsuperscript{56} Badry, Mehdi, & Khawar, supra note 14, at 318; Cohen, supra note 13, at 510-11; Hager, supra note 2, at 212; Starr & Alley, supra note 37; Tvedt, supra note 8, at 15.
\textsuperscript{57} KLIOT, supra note 2, at 122; Badry, Mehdi, & Khawar, supra note 14, at 316.
\textsuperscript{58} HILLEL, supra note 2, at 100-02; KLIOT, supra note 2, at 145, 147; WATER IN THE MIDDLE EAST, supra note 1, at 92, 98; Badry, Mehdi, & Khawar, supra note 14, at 325-26; Bilen, supra note 14, at 103-07; Chalabi & Majzoub, supra note 13, at 206 n.48; Kolars, supra note 11, at 117; Kolars, supra note 48, at 83-87; Saleh, supra note 2, at 73-74; Tvedt, supra note 8, at 16.
\textsuperscript{59} CRESSEY, supra note 2, at 390; FISHER, supra note 53, at 387; HILLEL, supra note 2, at 99; KLIOT, supra note 2, at 158-59; CRESSEY, supra note 9, at 452; Ubell, supra note 49, at 9.
\textsuperscript{60} HILLEL, supra note 2, at 102.
\textsuperscript{61} KLIOT, supra note 2, at 145; Kolars, supra note 48, at 84. For the 1970 figures, see the text supra at notes 49-53.
\textsuperscript{62} Chalabi & Majzoub, supra note 13, at 204. See also the text infra at notes 214-15.
\textsuperscript{63} KLIOT, supra note 2, at 146; Chalabi & Majzoub, supra note 13, at 204.
Product.\textsuperscript{64} This effort, however, consumed 92% of its water usage.\textsuperscript{65} We have no reliable figures regarding the use of water in Iraq today, although the continuing international boycott of Iraqi oil and other products suggests that agriculture plays an even greater role in the economy today than before the war. After two disastrous wars and with heavy pre-war debts to service, it is doubtful that Iraq will be able to pay for its food imports even if the restrictions on its sale of oil were to be lifted.\textsuperscript{66}

As the most downstream state sharing the twin basins, Iraq is in a particularly exposed situation. In a strong sense, Iraq epitomizes the comment of Samuel Baker, a British explorer of the late nineteenth century: "No water, no Arabs."\textsuperscript{67} The Iraqis were already experiencing water shortages during the summer months before Syrian and Turkish development, for these hot dry months produce an average flow of half or less of the winter peaks, yet these are precisely the months in which the growing crops most need water.\textsuperscript{68} Impending development in the upstream states portends possible disaster for Iraq, with Iraq losing perhaps as much as 90\% of the Euphrates waters on which it has depended for millennia.\textsuperscript{69} It goes too far, however, to suggest as historian Terje Tvedt that Iraq could be devastated to a similar extent as it was during the invasions led by Hulagu Khan in 1258.\textsuperscript{70} Much of this shortfall could be made up by compensatory diversions from the Tigris over to the Euphrates farms.\textsuperscript{71} Iraqi agricultural practices are also inefficient, leaving considerable room to forestall some losses by improved methods of irrigation and drainage.\textsuperscript{72} Still, diversions from the Tigris and improved efficiency leaves no room for increasing the agricultural lands and probably will result in some net losses in the face of a steadily increasing population. The Iraqis then have a sound basis

\begin{footnotes}
\item[64] KLIOT, supra note 2, at 158.
\item[65] Sadik & Barghouti, supra note 52, at 3.
\item[66] KLIOT, supra note 2, at 159.
\item[67] As quoted in Tvedt, supra note 8, at 29.
\item[68] KLIOT, supra note 2, at 109.
\item[69] Id., at 146.
\item[70] Tvedt, supra note 8, at 18.
\item[71] KLIOT, supra note 2, at 146; Kolars, supra note 11, at 117; Saleh, supra note 2, at 73-74; Shahim Tekeli, Turkey Seeks Reconciliation for the Water Issue Induced by the Southeastern Anatolian Project (GAP), 15 WATER INT'L 206, 215 (1990); Tvedt, supra note 8.
\item[72] BEAUMONT, BLAKE, & WAGSTAFF, supra note 3, at 352, 364; FISHER, supra note 42, at 378; KLIOT, supra note 2, at 146, 150, 158, 163-64, 170; WATER IN THE MIDDLE EAST, supra note 1, at 98; Cressev, supra note 9, at 458; Ockerman & Samano, supra note 39, at 194; Saleh, supra note 2, at 73-74; Ubell, supra note 39, at 3. Syria also has considerable inefficiencies. WATER IN THE MIDDLE EAST, supra, at 97-98.
\end{footnotes}
in experience to fear significant diminution in the quantity, quality, or rate of flow of the water flowing down to them.  

B. The Syrian Challenge to Iraq

The practice of leaving Iraq near exclusive use of the waters of the Euphrates and the Tigris began to change in the 1960's when Syria announced plans to construct the Tabqa Dam designed to store about 12 BCM the Euphrates River in a reservoir named Lake Assad. Syria is a generally dry state that has little water available from catchment areas within its territory. Syria depends primarily on water flowing in the Euphrates and the Orontes Rivers, both rivers that originate in mountains outside Syria. Even the Yarmuk River, the catchment area of which is largely in Syria, is an international stream shared with the Israelis and the Jordanians. Though more than 85% of Syria's agriculture is rain-fed, rainfed agriculture generally is less productive than irrigated agriculture, even in humid regions. Yet for Syria to undertake to develop its water resources, a necessary precondition to increasing its agricultural output, the development will nearly always implicate international concerns. This is particularly true regarding the Euphrates, easily Syria's largest river and most important water resource: The 30 BCM it brings into Syria is about 10 times the total of all other surface sources in Syria combined, and six times as much as all other water sources combined.

The international dimensions of water use in Syria were most clearly visible in the dispute over the Tabqa Dam. Under prodding from Western agencies, Iraq and Syria had been engaged in serious negotiations over the undertaking of a joint project on the Euphrates; these negotiations broke down when Soviet funding became available. The Tabqa Dam was then constructed with Soviet Aid after the World Bank

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73. Teclaff, supra note 8, at 1; Tvedt, supra note 8, at 18-19; Wilford, supra note 6.
74. Badry, Mehdi, & Khawar, supra note 14, at 317; Bari, supra note 42; Kolars, supra note 48, at 44, 80-82; Tvedt, supra note 8, at 15-16, 28. See also Kliot, supra note 2, at 120-22, 161-62; Saleh, supra note 2, at 74.
75. Kliot, supra note 2, at 137-38.
76. Hillel, supra note 2, at 169, 310 n.18; Kliot, supra note 2, at 209-12, 222-24; Dellapenna, Jordan Valley, supra note 1, at 20, 26-27; Bakour & Kolars, supra note 2, at 133-34; Aaron Wolf, A Hydropolitical History of the Nile, Jordan and Euphrates River Basins, in International Waters of the Middle East, supra note 14, at 5, 34.
77. Kliot, supra note 2, at 139; Sadik & Barghouti, supra note 52, at 8.
78. See Sadik & Barghouti, supra note 52, at 7.
79. Gischler, supra note 17, at 114; Hillel, supra note 2, at 107; Kliot, supra note 2, at 138.
80. Chalabi & Majzoub, supra note 13, at 198-201.
and western institutions declined to finance it, and introduced a period of intense dispute between the states riparian to Euphrates. By 1975, with the flow of water in the Euphrates reduced from an expected 920 cubic meters per second (m³/sec.) to only 197 m³/sec., Iraq and Syria seemed on the verge of war over the waters of the Euphrates. Iraq apparently failed to understand that Syria’s actions were not the only cause of Iraq’s water shortage; 1974 was an exceptionally dry year, and Turkey also begun filling the reservoir behind its Keban Dam in 1974.

The dispute over the Tabqa Dam, between two left-leaning Arab states both ruled by factions of the Ba’ath Party, was largely ignored in the West where it did not fit either the paradigm of Cold War conflict or the paradigm of Arab-Israeli conflict. After mediation by Saudi Arabia and the Soviet Union, Syria agreed to slow the filling of its reservoir and to assure that 40% of the flow of the river came down to Iraq, ostensibly as an act of “goodwill” rather than because it accepted any Iraqi legal claim to receive the water. While controversy diminished under this arrangement, Iraqi diplomatic protests recurred from time to time. Syria in turn supported Iran in its war with Iraq without becoming directly involved in any fighting and took an active part in supporting the Allied Coalition during the Gulf War. Water concerns were certainly not the only reasons for Syria’s posture on these matters, and probably not even primary reasons, but concerns over water probably played a role at least in reinforcing Syrian policies decided on other grounds.

81. WATER IN THE MIDDLE EAST, supra note 1, at 97; Chalabi & Majzoub, supra note 13, at 197-200; Tvedt, supra note 8, at 16.

82. HILLEL, supra note 2, at 108-09; WATER IN THE MIDDLE EAST, supra note 1, at 90, 93-94; Chalabi & Majzoub, supra note 13, at 196; Cohen, supra note 13, at 511-12; Gruen, supra note 20, at 100; Hager, supra note 2, at 212; Joffe, supra note 20, at 75; Kolars, supra note 48, at 65; Shapland, supra note 37, at 313; Joyce Starr, Water Wars, 82 FOREIGN POL’Y 17, 31 (1991); Tvedt, supra note 8, at 16; Wolf, supra note 76, at 5, 29.

83. KLIOIT, supra note 2, at 111, 136, 161-62; WATER IN THE MIDDLE EAST, supra note 1, at 91; Beaumont, supra note 14, at 41; Mahmoud Clor, A River of Contention, GEOGRAPHICAL MAG., Nov. 1988, at 36; Cohen, supra note 13, at 511; Hager, supra note 2, at 212; Waterbury, supra note 49, at 57. The filling of the Tabqa Dam was delayed by the porous nature of the limestone underlying the reservoir; this was solved by injecting cement into the limestone and covering the whole with clay. HILLEL, supra note 2, at 105.

84. Tvedt, supra note 8, at 16. See also KLIOIT, supra note 2, at 166; WATER IN THE MIDDLE EAST, supra note 1, at 95.

85. EBERHARD KIENLE, BA’ATH VERSUS BA’ATH: SYRIAN RELATIONS WITH IRAQ SINCE 1968, at 96-100 (1990). See also HILLEL, supra note 2, at 109; KLIOIT, supra note 2, at 161-62; WATER IN THE MIDDLE EAST, supra note 1, at 93-96; Cohen, supra note 13, at 512; Gruen, supra note 20, at 100; Tvedt, supra note 8, at 16; Waterbury, supra note 49, at 57; Wolf, supra note 76, at 29.

86. KLIOIT, supra note 2, at 166; Tvedt, supra note 8, at 16.
The Syrians intended to use the Tabqa Dam to irrigate approximately 640,000 hectares. In fact water was applied to land more slowly than planned, largely because of poor soils in the reclamation area, so that even today somewhat less than 400,000 hectares are actually irrigated. The dam also fell far short of its projected electricity production. Syria's storage on the Euphrates is now about 12 BCM and proposes to increase this to 15 BCM. This storage, if unhindered by the activities or needs of other riparian states, is adequate to accomplish the proposed irrigation and to provide water for hydroelectric generation and for export to the urban centers in western Syria.

Despite the effort that has gone into the Tabqa Dam, the amount of land actually irrigated in Syria has fallen by perhaps as much as 20% since 1960, with only about 24% of Syrian labor continuing to be employed in agriculture. Syrian agriculture today produces about 28% of the Gross Domestic Product, yet still consumes 83% of Syria's water usage. The loss of irrigated land in Syria has been variously attributed to the inundation of good land behind the Tabqa and other dams, waterlogging and salination of soils, and even the impact of land reforms. In an effort to increase the amount of irrigated lands, Syria was committing as much as 40% of its national budget to irrigation and hydroelectric facilities by 1988. This heavy investment is directed at doubling or tripling withdrawals from the Euphrates to a level approach-

87. Hillel, supra note 2, at 109; Water in the Middle East, supra note 1, at 91; Bakour & Kolars, supra note 2, at 134; Kolars, supra note 48, at 81-82; Tvedt, supra note 8, at 16.
88. Beaumont, Blake, & Wagstaff, supra note 3, at 383; Hillel, supra note 2, at 107-08; Kliot, supra note 2, at 139; Kolars & Mitchell, supra note 14, at 260; Water in the Middle East, supra note 1, at 90-91, 97; Chalabi & Majzoub, supra note 13, at 205, 213; Cohen, supra note 13, at 511; Kolars, supra note 11, at 106; Kolars, supra note 48, at 81-82; Tvedt, supra note 8, at 16.
90. Gischler, supra note 17, at 114; Kliot, supra note 2, at 122, 138.
91. Hillel, supra note 2, at 109.
92. Gischler, supra note 17, at 114; Kliot, supra note 2, at 142-43.
93. Beaumont, Blake, & Wagstaff, supra note 3, at 383; Kliot, supra note 2, at 139; Shapland, supra note 37, at 316.
94. Kliot, supra note 2, at 157; Ian Manners & Tagi Sagafi-Nejad, Agricultural Development in Syria, in Agricultural Development in the Middle East, supra note 39, at 255, 257; Sadik & Barghouli, supra note 52, at 1, 10.
95. Sadik & Barghouli, supra note 52, at 3.
96. Kliot, supra note 2, at 139, 157; Bilen, supra note 14, at 108-09; Manners & Sagafi-Nejad, supra note 94, at 263. See generally Goldsmith & Hildyard, supra note 19, at 140-47.
97. Tvedt, supra note 8, at 16. See also Hillel, supra note 2, at 109.
ing 10 BCM annually. Work that has also begun on a project to pump water up from the Tigris gorge to irrigate 150,000 hectares will no doubt generate yet further international disputes. Notwithstanding all of this effort, however, Syria may face a serious water deficit by the year 2000 thanks to largely to the GAP project in Turkey.

C. Turkey Enters the Game

Turkey is one of the few states in the entire Middle East that can fairly be described as having a water surplus, primarily because, until recently, it had not invested heavily in developing its waters. Even before major investment in water projects began, employment in Turkish agriculture had declined to 40% of the Turkish labor force, and their contribution to Turkey’s Gross National Product had declined to only 17%. This decline is likely due to the fact that, while per capita income in Turkey is a relatively prosperous (by Middle Eastern standards) US$ 1,630 annually, farmers on average earn only about 40% of this figure. Yet Turkey, alone of the states sharing the Mesopotamian basin, has the prospect of becoming wholly self-sufficient in agricultural production. The highly mountainous east of Turkey was ideal for hydroelectric generation, while there were extensive areas in the Turkish portion of historic Mesopotamia that would lend themselves to irrigation. With this context in mind, it should not have surprised anyone when Turkey began to make major investments in dams and other water use facilities.

Turkey quietly completed its first large dam on the Euphrates at Keban in 1974. Nine years later, in 1983, Turkey followed the filling of the Keban Dam by beginning work on its Southeast Anatolia

98. KLIOT, supra note 2, at 139-42; Beaumont, supra note 14, at 40.
99. KLIOT, supra note 2, at 138; Waterbury, supra note 49, at 63-64 n.12.
101. KLIOT, supra note 2, at 104-08, 133-34, 137, 150; Bakour & Kolars, supra note 2, at 121-23, 139; Joffé, supra note 20, at 73; Kolars, supra note 11, at 117; Waterbury, supra note 49, at 39.
104. Cohen, supra note 13, at 508.
105. KLIOT, supra note 2, at 126, 161; Chalabi & Majzoub, supra note 13, at 199-200, 202; Tvedt, supra note 8, at 16.
Project (known by its Turkish acronym GAP—Guneydogu Anadolu Projesi). The GAP will eventually include 15 dams, 14 hydroelectric facilities, and the irrigation of 700,000 hectares, a feat that will consume about 40% of the normal annual flow of the Euphrates as measured at the Keban Dam in eastern Turkey. The center-piece of Turkey’s GAP project is the massive Ataturk Dam, designed to store, by itself, the equivalent of about one-and-a-half years flow of the Euphrates River, in all about 49 BCM. That storage, when combined with other planned or existing Turkish dams on the Euphrates, will aggregate over 100 BCM.

Turkey’s storage is now sufficient to enable Turkey to consume about 21 BCM/year, and estimates for its eventual irrigation in the GAP range as high as 2,000,000 hectares.

Turkey has experienced serious difficulties in accomplishing its grand plans for the Euphrates. International financing was denied because of the lack of agreement among the riparian states on how to share the waters of the Euphrates, leaving Turkey to generate the US$ 21,000,-

106. See generally Hillel, supra note 2, at 104-06; Kliot, supra note 2, at 124-31; Chalabi & Majzoub, supra note 13, at 201-06.

107. Natasha Beschorner, Water and Instability in the Middle East 31 (Adelphi Paper No. 273, Institute for Strategic Studies 1992); Hillel, supra note 2, at 37, 104-06; Kolars & Mitchell, supra note 14, at 260; Bakour & Kolars, supra note 2, at 137; Chalabi & Majzoub, supra note 13, at 189, 201-04, 214-15; Clor, supra note 83, at 36, Gruen, supra note 20, at 101-02; Kolars, supra note 11, at 106; Kolars, supra note 44, at 48-50, 54-63, 66-77; Tekeli, supra note 71, at 207; Tvedt, supra note 8, at 16; Okay Unver & Bruno Voron, Improvement of Canal Regulation Techniques: The Southeastern Anatolia Project-GAP, 18 WATER INT’L 157 (1993); Waterbury, supra note 49, at 54. On the impotence of hydropower to Turkey, see Kliot, supra note 2, at 134-36. The precise number of dams, hydroelectric facilities, and irrigated hectares reported to the project vary considerably in different studies because the Turks themselves have frequently revised their plans; the figures in the text are less than half of those originally proposed. See Hillel, supra note 2, at 105; Kliot, supra, at 125; Beaumont, supra note 14, at 38; Cohen, supra note 13, at 508, 511; Clyde Haberman, Sanliurfa Journal: Dam Is Watering Hope for a New Fertile Crescent, N.Y. TIMES, Mar. 30, 1990, at A4; John Kolars, The Hydro-Imperative of Turkish Search for Energy, 40 MIDDLE EAST J. 53 (1986); Okay Unver, Bruno Voron, & Turhan Aküzüm, Improvement of Field Water Distribution and Irrigation Techniques: The Southeastern Anatolia Project-GAP, 18 WATER INT’L 166, 167 (1993); Tvedt, supra, at 16. See generally U. Özis, The South-East Anatolian Project in Turkey, in POLICY AND INSTITUTIONAL ASPECTS, supra note 3, at 279.

108. Kliot, supra note 2, at 126-29; Chalabi & Majzoub, supra note 13, at 205-06; Saleh, supra note 2, at 74; Wachtel, supra note 14, at 365. Daniel Hillel gives the storage capacity as an enormous 82 BCM. Hillel, supra note 2, at 106.


110. Hillel, supra note 2, at 105; Kliot, supra note 2, at 125, 127, 131, 134; Chalabi & Majzoub, supra note 13, at 204; Cohen, supra note 13, at 508; Gruen, supra note 20, at 101-03; Joffé, supra note 20, at 75; Kolars, supra note 11, at 106; Kolars, supra note 48, at 67; Waterbury, supra note 49, at 54.
000,000 needed for the GAP solely from internal sources. The lack of international financing has slowed the pace of developing the project, particularly as regards extending irrigation as promised. Turkey further suffered from the Gulf War because before that war Turkey was Iraq’s largest trading partner. Since late 1990, no trade has been allowed between Iraq and Turkey. This reality has cost Turkey its primary source of oil and the revenues accruing to it as the major marketing outlet for Iraqi oil exported to Europe. Turkey’s response of seeking greater economic integration into Europe has not thus far improved the opportunities for external financing of the GAP.

Being upstream, Turkey is in the strong position of having the physical capacity to block the flow of the water down to Iraq and Syria should Turkey decide to do so with the latter two states being able to do little about it short of war. Turkey, however, has the largest and best armed military in the region after Iraq’s military was seriously weakened by the Gulf War, making a military response unlikely. In fact, some observers have noted that Turkey tends to exploit its dams for political advantage rather than merely using them to achieve its economic goals. These observers contend that Turkey has cut the flow of the Euphrates in order to pressure Syria to cut-off its support to Kurdish rebels in Turkey. Should Turkey abuse its dominant position, Iraq, and to a lesser extent Syria, will have to depend on law to protect their rights in the waters of the Euphrates and the Tigris, if these rights are to be protected at all, ironic as that might seem in light of Iraq’s own dismal record towards compliance with international law.
G. The Situation on the Tigris

Development along the Tigris came more slowly than along the Euphrates because the Tigris flows through a more hilly (and thus better watered) terrain. Further, slow development occurred because the Tigris is smaller than the Euphrates until it is well into Iraq, and the flow of the Tigris is more variable from year to year than is the flow of the Euphrates.\textsuperscript{118} Even though the same three states shared the main course of the Tigris in the same relationship, when disputes did emerge in the middle years of the twentieth century their focus was within each of the two major user nations (Iraq and Turkey) rather than across their borders.\textsuperscript{119} Indeed, concerns about Tigris water in particular have played an important, albeit usually neglected, role in the vexing Kurdish question, for any independent Kurdistan would be a new riparian at least on the Tigris and possibly on the Euphrates as well, being downstream from Turkey and upstream from Iraq. This would expose the Iraqis to further demands on the water which they have been using, while Turkish Kurdistan includes the sites of several large dams planned by the Turks in fulfillment of the GAP project.\textsuperscript{120}

While the situation on the Tigris is not yet so close to crisis as on the Euphrates, at least in part because of the Kurdish rebellion, Turkish development plans do call for the withdrawal of up to 7 BCM per year from the Tigris during the early twenty-first century, enough to pose further significant problems for Iraq.\textsuperscript{121} When combined the impending negative water balance on the Euphrates, the Tigris developments would

\textsuperscript{118} Kliot, supra note 2, at 110; Cressey, supra note 9, at 450-51, 458; Kolars, supra note 11, at 117; Saleh, supra note 2, at 69.

\textsuperscript{119} Joffé, supra note 20, at 75-76; Tvedt, supra note 8, at 17.

\textsuperscript{120} Hillel, supra note 2, at 37-38, 104-05; Kliot, supra note 2, at 125, 165; Clor, supra note 83, at 36-37; Jansen, supra note 100, at 12-13; Kolars, supra note 48, at 84-85; Tvedt, supra note 8, at 17-18. On the Kurdish revolt generally, see John Darnton, Discontent Seethes in Once-Stable Turkey. N.Y. TIMES, Mar. 2, 1995, at A1, A8; Eric Rouleau, The Challenges to Turkey, 72 FOREIGN AFF., 110, 122-25 (No. 5, 1993). On one aspect of the Turkish response—a demand for the session of oil-rich Kurdish areas in Iraq to Turkey, see Pipes, supra note 113.

\textsuperscript{121} Kliot, supra note 2, at 136; Kolars, supra note 11, at 108.
place Iraq in an impossible situation. These developments would also create an ecological disaster in the upper Persian Gulf.\[^{122}\]

Despite its contributions to the waters flowing in the Tigris basin, Iran has never been a major player in exploiting those waters. John Kolars has commented that "[o]f all the countries in the Middle East, Iran has had the least hydrologic involvement with its neighbors."\[^{123}\] Still, Iran's future plans for hydrologic development are even more shrouded in secrecy than is characteristic of other national communities in the region. Should Iran at some point begin to extract considerable water from the tributaries that arise within its borders, the situation in Iraq would be even more desperate.

H. The "Peace Pipeline"

The situation in Turkey, particularly the Kurdish revolt but also the unwillingness of the international community to help finance the GAP, have prevented Turkey from developing uses for all the water from these rivers that it is beginning to store behind its mammoth dams. Turkey has responded by seeking markets for the water it has impounded, both as a means of earning income and also to increase its political leverage in the region.\[^{124}\] Most of these proposals involve variations of what has come to be called the "Peace Pipeline."\[^{125}\] This proposal, in its most ambitious form, would provide as much as 6 MCM daily to be piped as far as Jeddah and Mecca in Saudi Arabia (1.5 MCM) in a western branch and as far as Bahrain and Qatar (2.5 MCM) in a eastern branch.\[^{126}\]

The Peace Pipeline proposal is based upon the conclusion that the water facilities already in place in Turkey—principally the Atatürk

\[^{122}\] Kolars, supra note II, at 108.
\[^{123}\] Id., at 118.
\[^{124}\] Id., at 119.
\[^{125}\] See generally Beaumont, Blake, & Wagstaff, supra note 3, at 84; Hillel, supra note 2, at 243-46; Kliot, supra note 2, at 131-37, 163; Cem. Duna, Turkey Peace Pipeline, in The Politics of Scarcity: Water in the Middle East 119 (Joyce Starr & Daniel Stoll eds. 1988); George Gruen, Contribution of Water Imports to Israeli-Palestinian-Jordanian Peace, in Water and Peace, supra note 14, at 273, 280-84; Chris Hellier, Draining the Rivers Dry, Geographical Mag. 32, 34-35 (July 1990); Kolars, supra note 11, at 117; Hillel Shuval, Approaches to Resolving the Water Conflicts between Israel and her Neighbors—A Regional Water-for-Peace Plan, 17 Water Int'l. 133, 139-41 (1992); Itar Turan, Turkey and the Middle East: Problems and Solutions, 18 Water Int'l. 23, 26-27 (1993); Wachtel, supra note 14. For a wide-ranging criticism of the project, see Manuel Schiffler, Sustainable Development of Water Resources in Jordan: Ecological and Economic Aspects in a Long-Term Perspective, in Legal, Political and Commercial Implications, supra note 13, at 239, 251.
\[^{126}\] Hillel, supra note 2, at 246; Gruen, supra note 125, at 281.
Dam—will develop more water than can be consumed in Turkey without interfering with the equitable shares of Iraq and Syria. Turkish estimates of the amount of water exploitable from all drainage basins in Turkey is about 96 BCM, a figure that still allows Turkey to consume about five times as much water per capita as current levels of consumption, even assuming that Turkey’s population grows above 80,000,000 by 2010.127 These figures allow a fairly confident prediction of as much as 43 BCM as “surplus” water, available for export annually.128

Any version of the Peace Pipeline depends on Syria’s on-going cooperation.129 This is unlikely unless on-going incentives for Syrian cooperation are built into the arrangement.130 This perhaps explains why the Turkish planners expected to deliver 1.1 MCM (18%) to Syrian cities out of 6 MCM to be pumped daily through the pipeline under the most ambitious proposal.131 Less ambitious proposals for a pipeline from Turkey only to the Jordan Valley also include substantial deliveries to the Syrians (275 MCM out of 1.1 BCM annually).132 In addition, Syria could generate hydroelectric power from the fall of the pipeline as it crosses Syrian territory, perhaps as much as 200 megawatts.133 An Israeli analyst, Hillel Shuval, has gone so far as to propose that the pipeline provide water only to Syria, on the assumption that water could then be released from Syrian diversions from the Yarmuk River would satisfy Jordanian and Palestinian needs.134

127. Gruen, supra note 125, at 280. See generally BEAUMONT, BLAKE, & WAGSTAFF, supra note 3, at 84; KLIOT, supra note 2, at 133-37.
128. Gruen, supra note 125, at 280; Kolars, supra note 11, at 117.
129. “Medusa bags”—enormous plastic bags filled with water—have been suggested as a means for carrying the water from a Turkish port to an Israeli port, and thus literally circumventing the Syrian problem. This proposal seems simply too expensive to be taken seriously. See HILLEL, supra note 2, at 250-51; KLIOT, supra note 2, at 133, 240; Gruen, supra note 125, at 282-84; Hugh Pope, Water in a Bag, 8 MIDDLE EAST INT’L 14 (1990). See also Turan, supra note 125, at 27 (describing a plan to transport water to Israel by tanker). For a more optimistic estimate, see Elisha Kally, Costs of Inter-Regional Conveyance of Water and Costs of Sea Water Desalination, in WATER AND PEACE, supra note 14, at 289, 292-95.
131. KLIOT, supra note 2, at 133; Duna, supra note 125, at 120; Gruen, supra note 125, at 281.
132. KOLARS & MITCHELL, supra note 14, at 90; Gruen, supra note 125, at 282; Wachtel, supra note 14, at 363, 365, 368-69, 373.
133. Wachtel, supra note 14, at 368.
134. Shuval, supra note 125, at 140.
Despite Turkey's plans for exploiting the Euphrates and even without the Peace Pipeline, Syria will receive enough water for its current plans so long as Syria feels free to disregard any obligation to deliver adequate amounts of water to Iraq. With so much of the water to be used for irrigation in Turkey, however, Syria will likely face severe degradation of water quality in the Euphrates and in the tributaries that feed into the Euphrates in Iraq. And with its population currently growing at a rate that will double it every 18 years, even the quantity of water available to Syria could well prove problematic in the not very distant future.

The dependence of the project on Syrian as well as Turkish goodwill perhaps explains why Saudi Arabia and the Gulf States have proven distinctly uninterested in the Peace Pipeline proposal. With their disinterest, financing the project becomes problematic except perhaps as part of the overall Middle East peace process. Even then, the project yet again takes water out of the Euphrates, threatening Iraq with no compensating benefits that could alleviate Iraqi concerns. Even if, as has been suggested, the water to be exported were to be drawn from the Ceyhan and Seyhan Rivers or even from other rivers, rather than directly from the Euphrates, that arrangement would not seriously relieve Iraqi fears as Euphrates water would probably be used directly or indirectly to replace the exported water. Furthermore, water sources that might serve as alternatives to the Euphrates would require so much more pumping than the higher Atatürk Dam that these sources would probably not be economically feasible. For now, the grander version of the peace pipeline seems stillborn; it remains to be seen whether the more modest proposal to export water to the Jordan Valley will be realized.

135. Kolars, supra note 11, at 115-16.
136. WATER IN THE MIDDLE EAST, supra note 1, at 87-89, 97; Kolars, supra note 11, at 115.
137. Kolars, supra note 11, at 115.
138. HILLEL, supra note 2, at 246; Jamil al-Alawi & Mohammed Abdulrazzak, Water in the Arabian Peninsula: Problems and Perspectives, in WATER IN THE ARAB WORLD, supra note 2, at 171, 196-97; Gruen, supra note 125, at 252; Tvedt, supra note 8, at 19.
139. KILOT, supra note 2, at 132; Gruen, supra note 125, at 282-83; Wachtel, supra note 14, at 365-67.
140. Wachtel, supra note 14, at 366.
IV. THE LAW OF THE RIVERS

The entire basin of the Euphrates and most of the basin of the Tigris became part of the Ottoman Empire early in the sixteenth century and remained under Ottoman rule until 1918. During this time, there could be no international disputes over the Euphrates, and, given the modest scale of usage, there appear to have been few or no international disputes between the Ottoman and Safavid Empires (modern Turkey and Iran) regarding use of the Tigris River. Although several treaties that attempted to define the boundary between the Ottomans and the Safavids between 1847 and 1914 did deal, though not altogether clearly, with a boundary line in the Shatt al-'Arab itself, even these treaties were not concerned with consumptive uses of water.

The British conquered Mesopotamia during World War I; after the war, the region was partitioned between a British Mandate over Iraq, a French Mandate over Syria, and a residual portion left to Turkey. This was the origin of the present state structure in the basin. This section examines the several efforts to remedy this lack either through customary international law or through negotiation and agreement among the several interested states. First, I will explain the background of arguably controlling agreements that emerged between the end of World War I and the dispute over the Tabqa Dam, and show why those agreements fail to prevent or resolve disputes over the shared waters of the basin. Second, I shall discuss the customary international law governing consumptive uses of transboundary waters, describe the general practices described as customary international law in this regard, and examine the customary law as developed in the disputes over the waters of the two rivers of the Mesopotamian basin.

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A. Treaties before Active Disputes Began: 1918-1974

Even after the division of Mesopotamia among three states, no serious disputes arose until Syria announced its plans for the Tabqa Dam. Prior to that time, the uses of the several states simply were not sufficiently competitive for them to codify their relationships regarding, or seriously dispute the rights to, the water. The dispute between Iraq and Syria over the Tabqa Dam focused attention on the law of the rivers in a way never before attempted. The Turkish projects and proposals have further accentuated this attention.

During the Mandate period, the British and the French included promises to consult over their uses of the rivers, and established a consultative committee for this purpose. France and Turkey reached an agreement in 1921 in which each promised to use only an equitable share of the available water, but that agreement only pertained to the Kuveik River which flows from Turkey to northwestern Syria, disappearing into the desert without reaching the sea. The same agreement authorized the city of Aleppo in Syria to "organize, at its own expense," a water supply from the Euphrates in Turkey. A treaty signed by France and Turkey in 1926 was no more specific. The Commission on the Delimitation of the Turkish-Syrian Frontier simply declared that "[a]ll questions [relating to the Tigris River], such as navigation, fishing, industrial and agricultural utilization of the waters, and the policing of the river, shall be resolved on the basis of complete equality." Rather than establishing a regime for the twin rivers, these highly general agreements signaled the utter lack of interest in either Syria or Turkey in developing the waters of the Euphrates and the Tigris at that time.

143. KLIOT, supra note 2, at 161. For the Tabqa Dam dispute, see the text supra at notes 80-86.
145. Agreement with a View to Promoting Peace, signed Oct. 20, 1921, France-Turkey, art. 12, 14 L.N.T.S. 177. See Chalabi & Majzoub, supra note 13, at 193, 195-96.
146. Agreement, supra note 143, art. 13.
149. Hager, supra note 2, at 214; Waterbury, supra note 49, at 56.
At a time when Syria and Turkey had no interest in developing the waters of Mesopotamia, Iraq was vitally interested. This pattern gave rise to two treaties between Iraq and Turkey, one in 1930 (while Iraq was still under the British mandate) in which each promised not to change the flow of the Euphrates without the consent of the other, and the second in 1946 (after the Mandate ended) reaffirming the earlier agreement.\textsuperscript{150} Turkey promised not to alter the rivers without informing Iraq, and to conform its works to the needs of the other states "as far as possible."\textsuperscript{151} Turkey consented to Iraq's construction of dams in Turkey to regulate the flow of the rivers in Iraq.\textsuperscript{152} Arguably, the effect of these treaties was Turkish acceptance of Iraq's vested right to receive its then established uses, about 13 BCM.\textsuperscript{153} These treaties gradually fell in desuetude. Iraq never constructed the works in Turkey that the 1946 treaty had anticipated, perhaps because Iraq was unwilling to have its major water control facilities located outside its borders.\textsuperscript{154} A meeting of representatives of the three states in 1965 signaled only the demise of the treaty system.\textsuperscript{155} In follow-up bilateral talks, Syria expressly rejected any recognition of vested rights by Iraq.\textsuperscript{156} No new agreement replaced the earlier treaties. Thereafter, each state began to construct new works without the consent of the other parties.

The two consultative committees continued to meet intermittently, and eventually, in 1983, the two consultative committees were merged into a Trilateral Commission on the Tigris and the Euphrates.\textsuperscript{157} That Commission, which has only met sporadically, has been strictly limited to technical matters. None of the three states has attempted to involve the Trilateral Commission in their political disputes relating to the Euphrates or to the Tigris.\textsuperscript{158}

Between 1946 and 1990, the three states did not enter into any formal treaty relative to their shared waters. With the apparent abandonment of any claims they might have had under the earlier treaties,

\begin{itemize}
\item \textsuperscript{150} Protocol Relative to the Regulation of the Waters of the Tigris and Euphrates, signed Mar. 29, 1946, Iraq-Turkey, art. 4, 37 U.N.T.S. 280. See Chalabi & Majzoub, supra note 13, at 194-95.
\item \textsuperscript{151} Protocol, supra note 150, art. 5.
\item \textsuperscript{152} Id., art. 6.
\item \textsuperscript{153} Waterbury, supra note 49, at 56. See also Hager, supra note 2, at 214-15.
\item \textsuperscript{154} Waterbury, supra note 49, at 56.
\item \textsuperscript{155} Id.; Bari, supra note 42, at 238.
\item \textsuperscript{156} Waterbury, supra note 49, at 56-57.
\item \textsuperscript{157} Kliot, supra note 2, at 162; Gruen, supra note 20, at 100; Waterbury, supra note 49, at 57.
\item \textsuperscript{158} Gruen, supra note 20, at 100-01; Joffé, supra note 20, at 76.
\end{itemize}
the states have, in fact, no formal agreement allocating the waters of the two rivers. As we shall see, the claims, discussions, and recriminations that make up the customary international law process have given rise to several informal agreements. Whether these will provide a more stable region for the waters of the basin remains to be seen.

B. The Customary International Law of Transboundary Waters

International law is in many respects still a relatively primitive legal system, i.e. a system that mostly lacks centralized institutional structures for law-making and law-enforcing, relying instead on the decentralized processes of self-help, agreement, and custom. The system of international law in fact is so primitive that some question whether it deserves to be called law at all. This question only arises when people have a very specific model of how law works when they describe something as a legal right or obligation. This model envisions a legislative act formally creating a highly determinate rule enforced by a policeman on the corner who will "take you in" if you violate the "law." However, this model does not go very far in explaining how "law" actually works.

Consider mundane examples of traffic laws. In the United States, nearly everyone drives faster than the legal speed limit and there could never be enough police to compel people to drive at or below the legal limit. In fact, if the government ever attempted to strictly enforce the speed limit, it would fail simply because too many people are breaking the law. The best the government can do is to keep most people driving enforce the limits on a case-by-case basis through selective enforcement targeted particularly at those who drive very fast. In spite of this enforcement procedure, however, it is difficult to imagine that one would be allowed to defend their speeding to a judge on the basis that the law.

159. Klion, supra note 2, at 161. See also Water in the Middle East, supra note 1, at 99.
is not effectively enforced or that the designated speed limit is not the law.

Contrast the situation regarding traffic lights. If nearly every one were to disregard traffic signals, the laws proscribing driving through red lights could no more be enforced than the speed limits. Yet people in the United States seldom drive through red lights, even though many people often cheat a little. When only a few violate a rule, a small number of police are adequate to enforce the rule against the violators. The reason most people do not drive through red lights is self-evident: To drive through a red light is more dangerous than speeding, and would be suicidal if nearly every one did so. Yet one’s emotional response to another’s driving through a red light is not simply that it is dangerous. Most people perceive it as anti-social behavior; they condemn it as illegal, and not simply as stupid.

This social sense of legitimacy makes true law—even in paradigm situations of clear rules and vigorous official enforcement, more so than John Austin’s “command of a sovereign” or any ensuing enforcement.164 As A.L. Goodhart stated, “It is because a rule is regarded as obligatory that a measure of coercion may be attached to it; it is not obligatory because there is coercion.”165 H.L.A. Hart’s notion of law as growing out of a “habit of obedience”166 seems inadequate to capture this sense of legitimacy, but it is closer to the reality of what makes for law than the notion of command or sanction that are often thought to constitute “the law.”167

International law operates on much the same basis, but without the superstructure of specialize institutions—executive, legislative, and judicial—with which we are familiar in modern national legal systems. This lack has led some to believe that the international system does not have law. The conclusion confuses particular institutional arrangements with what law really is and how it really operates. Those institutions are have proven useful, and perhaps even necessary, in large communities, and corresponding institutions may yet have to be developed in an international system with increasing numbers of states and other participants. Yet the absence of those institutions no more indicates an

164. AUSTIN, supra note 161, at 133, 201. This notion of law can be traced back at least as far as Hobbes in the seventeenth century. See THOMAS HOBBES, LEVIATHAN (1651).
166. See HART, supra note 160, at 77-96.
absence of law in the international system than the absence of those institutions indicated the lack of law in pre-industrial societies the world over. 168

In the absence of formal treaty, international law arises through a process of claim and counter-claim that produces an explicit or implicit agreement of the participants to the controversy. 169 If nothing more were involved, one might well question whether we were talking about anything that could properly be termed law. States on both sides of a controversy, however, will refer to international law as a primary justification of their claims and their practices. Foreign ministries and diplomats know very well the difference between appeals to law and appeals to morality, and they often express this difference at appropriate points in their discourse. 170 This reference to law ties the customary practice to a sense of legitimacy, and constitutes the practice as law in a highly decentralized and institutionally undeveloped system like international law or, for that matter, customary law among substance farmers or nomadic tribesmen. 171 A consistent pattern of behavior joined with the sense that the practice is legally obligatory (the *opinio juris*) is what international lawyers mean by saying that a pattern of state behavior has become customary international law. 172

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168. MICHAEL BARKUN, LAW WITHOUT SANCTIONS (1968); VICTOR LI, LAW WITHOUT LAWYERS (1978); Cornelius Murphy, _Some Reflections upon Theories Concerning the Nature of Law_, 70 COLUM. L. REV. 447 (1970).


Customary international law frequently remains ill-defined and uncertain, as is true of all customary law. Proving that a practice has crystallized as customary international law and the precise content of any such custom is difficult, requiring research into the professed reasons for state practices in often obscure sources. For this reason, states and international tribunals often have recourse to the learning of leading scholars (termed "the most highly qualified publicists" in the Statute of the International Court of Justice) to discover the actual customary international law. There are numerous sources of state practice and of evidence of the reasons for that practice. A widespread pattern of treaties or other international agreements demonstrate not only the agreement of the specific parties, but also that the practice is so widely followed that it has become a rule of customary law binding even on states that are not parties to any such treaty. One might also find votes in international assemblies or decisions by international courts or international arbitrators equally useful. Even unilateral actions of states demonstrate that a particular state embraces a particular customary rule of law.

Yet even when a norm of customary international law has been determined with some certainty, customary forms of enforcement—claim and counterclaim among states—are not neutral enforcement mechanism. Without a neutral enforcement mechanism, one always suspects that national interest overrides any real commitment to law. Without a neutral enforcement mechanism, international law ultimately has nothing better


178. BROWNLIE, supra note 171, at 5; JANIS, supra note 160, at 38-43.
to offer for punishing violations than the law of the vendetta.\textsuperscript{179} Despite its institutional primitiveness, however, customary international law has worked fairly well when there were only a few participants in the international community and their wants were relatively simple and straightforward. That continues today in the many areas in which customary international law operates without controversy.\textsuperscript{180} Customary international law continues to empower international actors by legitimating their claims while also limiting the claims they can make. The institutional primitiveness of international law has always been felt most seriously during periods of major crisis, a problem that also continues today.\textsuperscript{181}

In coupling of a recognized mode of expert analysis with woefully inadequate institutional development, customary international law has become seriously unbalanced. The "most highly qualified publicists" who figure so prominently in international legal processes often devise doctrinal schemes of considerable sophistication without being able to translate those schemes into effective institutional arrangements. Diplomats and politicians, responsible for crafting institutional arrangements, have had predictably mixed results, rarely succeeding in institution building through customary processes. A fully developed institutional framework is essential for any region facing increasingly desperate water shortages.\textsuperscript{182} Institution builders, to get beyond the limits of custom, must combine the sophisticated insights of international lawyers with the practical structures created by political actors through treaties creating institutions appropriate for managing cooperative activities and for resolving conflict before its escalates to injurious levels.


\textsuperscript{182} See generally Dellapenna, Designing Legal Structures, supra note 1, at 93-103; Dellapenna, Jordan Valley, supra note 1, at 40-45; Dellapenna, Treaties, supra note 1, at 51-56; Northcutt Ely & Abel Wolman, Administration, in THE LAW OF INTERNATIONAL DRAINAGE BASINS 124 (Albert Garretson, Robert Hayton, & Cecil Olmstead eds. 1967) ("INTERNATIONAL DRAINAGE BASINS"); TECLAFF, supra note 2, at 113-203.
In short, customary international law, by itself, is unable to solve such contentious problems as the managing of transboundary water resources. Yet even for the managing of transboundary water resources, the pattern of state claim and counterclaim, and of state behavior intended to make such claims remains consistent, and of ultimate outcomes is, in general terms, entirely predictable, even though all states agree on only one point: Only riparian states—states along the boundary of which, or through which, a river flows—have any legal right, absent agreement, to use the water of a river. Otherwise, the patterns of international claim and counterclaim initially diverge sharply according to the riparian status of the state making the claim.

The uppermost-riparian state initially claims "absolute territorial sovereignty", typically claiming the right to do whatever it chooses.


185 Draft Articles, supra note 184, art. 4; WATER IN THE MIDDLE EAST, supra note 1, at 166-167.

186 BERBER, supra note 7, at 14-19, 77-78, 108; BRUHACS, supra note 184, at 41-47; CAPONERA, supra note 7, at 212-13; GODANA, supra note 184, at 32-35 (1985); WATER IN THE MIDDLE EAST, supra note 1, at 164-165; Lipper, supra note 184, at 20-23; Maluwa, supra
with the water regardless of its effect on other riparian states. Downstream states generally open by claiming a right to the "absolute integrity of the river", claiming that upper-riparian states can do nothing that affects the quantity or quality of water that flows down the watercourse. Of course, neither claim can prevail, although the process of negotiating or otherwise arriving at a solution could require decades.

The usual solution is found in a concept of "restricted sovereignty". States that find themselves to be both upper and lower riparians on the same stream (usually relative to different states) often are the first to adopt a theory of restricted sovereign rights under which each state recognizes the right of all riparian states to use some water from a common source and the obligation to manage their uses so as not to interfere with like uses in other riparian states. States often allocate water under this theory according to some selected historic pattern of use, although occasionally some other more or less objective measure of need is advanced (population, area, arable land, etc.). At the extreme, the

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187. BERBER, supra note 7, at 19-22; BRUHÄCS, supra note 184, at 43-47; CAPONERA, supra note 7, at 213; GODANA, supra note 184, at 38-39; WATER IN THE MIDDLE EAST, supra note 1, at 165; A.P. Lester, River Pollution in International Law, 57 AM. J. INT’L L. 828, 832 (1963); Lipper, supra note 184, at 18-20; Maluwa, supra note 184, at 24-25; Utton, supra note 184, § 49.02(2); Yu, supra note 184, at 990.

188. BERBER, supra note 7, at 11-14, 78-79; BRUHÄCS, supra note 184, at 45-48; CAPONERA, supra note 7, at 213-14; GODANA, supra note 184, at 40; WATER IN THE MIDDLE EAST, supra note 1, at 165-166; William Bush, Compensation and the Utilization of International Rivers and Lakes: The Role of Compensation in the Event of Permanent Injury to Existing Uses of Water, in THE LEGAL REGIME OF INTERNATIONAL RIVERS AND LAKES 309 (Ralph Zacklin & Lucius Caflisch eds. 1981); Lipper, supra note 184, at 23-38; Maluwa, supra note 184, at 26-30; McCaffrey, supra note 186, at 110-33; Utton, supra note 184, § 49.02(3); Yu, supra note 184, at 991.

theory of restricted sovereignty might be no more developed than the vague notion that each state is entitled to a "reasonable share" of the water.\(^{190}\)

Restricted sovereignty has become the customary rule of international law under the rubric of "equitable utilization." The rule of equitable utilization has been applied in international judicial and arbitral awards,\(^{191}\) adopted in innumerable treaties,\(^{192}\) and supported by the near unanimous opinions of the most highly-qualified publicists.\(^{193}\) Every quasi-public international organization of lawyers, jurists, and scholars to consider the customary legal regime governing internationally shared water resources has embraced the concept of equitable utilization in one form or another.\(^{194}\) Finally, the principle has been endorsed by

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\(^{192}\) These are collected in BERBER, supra note 7; SMITH, supra note 184; Dellapenna, Treaties, supra note 1; Schwebel, supra note 184, at 76-82, 88-90; Utton, supra note 184, \(\S\) 49.03(a).

\(^{193}\) See the authorities collected supra at note 184.

\(^{194}\) INTER-AMERICAN BAR ASS'N, RESOLUTION ON PRINCIPLES OF LAW GOVERNING THE USES OF INTERNATIONAL RIVERS AND LAKES (1957); INSTITUT DE DROIT INTERNATIONAL, UTILIZATION OF NON-MARITIME INTERNATIONAL WATERS (EXCEPT FOR NAVIGATION), art. 2 (Sept. 4-13, 1961); INTERNATIONAL L. ASS'N, THE HELSINKI RULES ON THE USES OF THE
the International Law Commission, an organ of the United Nations
designed to foster the progressive codification of customary international
law, has embraced the principle as the dominant norm in its Draft
Articles on Non-Navigational Uses of International Watercourses.
The Draft Articles provides as succinct a summary of the law as one can
find today in two of its articles:

**Article 5**

**Equitable and reasonable utilization and participation**

(1) Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal utilization thereof and benefits therefrom consistent with adequate protection in the watercourse.

(2) Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner. Such participation includes both the right to utilize the watercourse and the duty to cooperate in the protection and development thereof, as provided in the present articles.

**Article 7**

**Obligation not to cause significant harm**

1. Watercourse States shall exercise due diligence to utilize an international watercourse in such a way as not to cause significant harm to other watercourse States.

2. Where, despite the exercise of due diligence, significant harm is caused to another watercourse State, the State whose

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196. Draft Articles, supra note 184, arts. 5-7, 10. See also ECONOMIC COMM'N FOR EUROPE, TWO DECADES OF CO-OPERATION ON WATER, U.N. Doc. ECE/ENVWA/2, at 1, 3 (1988).
use causes the harm shall, in the absence of agreement to such use, consult with the State suffering such harm over:

(a) the extent to which such use has proved equitable and reasonable taking into account the factors listed in article 6;

(b) the question of ad hoc adjustments to its utilization, designed to eliminate or mitigate any such harm caused and, where appropriate, the question of compensation.

How one reconciles these two articles in their current form is not entirely clear. Former Special Rapporteur Stephen McCaffrey, the primary draftsman of the 1991 version of the Draft Articles, finds “no harm” rule of article 7 dominant over the “equitable utilization” rule of article 5.\(^\text{197}\) A careful reading of article 7 suggests, to the contrary, that the “no harm” rule is subordinated to rule of “equitable utilization.” McCaffrey himself even concedes that subsection 2 implies that a use causing significant harm is not “per se a breach of the state’s international obligations,” echoing the International Law Commission's official commentary on the revised article that a use causing significant harm “would not of itself necessarily constitute a basis for banning it.”\(^\text{198}\)

Article 7’s subsection 1 recognizes only an obligation to use “due diligence” to avoid significant harm. Its subsection 2 declares an obligation for the state causing harm to consult with the injured state, but qualifies even that limited obligation by requiring consultation only over whether the harmful use is “equitable and reasonable” and over whether the harm might be reduced or prevented by “adjustments” to the way water is used. The reference to “the question of compensation” at the end of the subsection (2)(b) thus becomes highly ambiguous,\(^\text{199}\) arguably limiting the obligation to pay compensation to situations where the harmful use is neither equitable nor reasonable. Compensation appears to be “appropriate” only if adjustments to reduce or prevent an “inequitable or unreasonable” harm are not possible. The ambiguity arises because the International Law Commission presumably did not intend that there would be no obligation to consult over steps to avoid or minimize harm


\(^{198}\) ILC REPORT, supra note 184, at 236; McCaffrey, supra note 197, at 400. See also Richard Kyle Paisley & Timothy McDaniels, International Water Law, Acceptable Pollution Risk and the Tatshenshini River, 35 NAT. RESOURCES J. 111, 121 (1995).

\(^{199}\) McCaffrey, supra note 197, at 400-01.
for uses that were "equitable and reasonable." This interpretive problem is resolved if one reads the second obligation—the obligation to consult over mitigating harm—as explanatory rather than as indicating some independent duty: If harm can be prevented or reduced by reasonable adjustments in the manner, place, or timing of use, the harmful use is neither equitable nor reasonable. If so, subsection (b)(2)'s function is to make explicit the obligation to compensate for "inequitable and unreasonable" uses; in other words, article 7 explicitly subordinates the "no harm" rule to the now clearly primary rule of equitable utilization found in article 5—a proposition endorsed by Robert Rosenstock, the Special Rapporteur who drafted the final version of the Draft Articles.

This is no mere abstract debate over fine points of legal doctrine. A stronger "no harm" rule would prohibit any meaningful use by an upper-riparian state, turning the rule into merely a variant form of the absolute integrity claim. Furthermore, as the state seeking to initiate a new use would generally be cast in the posture of the one creating the "injury," absolute integrity favors the more highly developed states at the expense of their less developed neighbors, particularly as the lower basin states tend to develop earlier and faster than upper basin states. Such a posture is hardly conducive to achieving the developmental equity proclaimed under various banners at the United Nations. The only equitable way to resolve such concerns is to allow each a reasonable and equitable share, rather than attempting to insist that a state's development of its waters not harm another state. As the German federal supreme court stated in The Danauversinkung Case (Württemberg v. Baden), "[o]ne must consider not only the absolute injury caused to the neighbor-


ing State, but also the relation of the advantage gained by one to the injury caused to the other.\textsuperscript{203}

C. Claims and Counter-Claims Relating to the Two Rivers

Without either formal agreements or effective multilateral machinery regarding the international sharing of the waters of the two rivers, the states sharing the Mesopotamian basin have been left to the informal processes of claim and counter-claim that forms the method of customary international law.\textsuperscript{204} In Mesopotamia, this has resulted in some oral agreements, the meaning of which, and even the existence of which, is disputed between the parties. And these agreements, such as they are, refer only to the Euphrates; there isn't even that much of an arrangement regarding the Tigris.\textsuperscript{205}

Apparently the earliest actual recent promise to restrain one nation's use to assure water to the other riparian states was a promise by Turkey in 1964 to assure a flow of a mere 350 m\textsuperscript{3}/sec of water in the Euphrates.\textsuperscript{206} During the Tabqa Dam dispute,\textsuperscript{207} Turkey increased its promised releases to 450 m\textsuperscript{3}/sec,\textsuperscript{208} ostensibly as an accommodation to Syria, but actually to defuse possible protests over Turkey's own Keban Dam. Eventually, Syria also agreed to release an additional 200 MCM from Lake Assad to ameliorate the Iraqi complaints, but insisted that it did so as a favor and not because of any legal right in Iraq.\textsuperscript{209}

Syria's legal position during the disputes with Iraq over the Euphrates took the form of the classic claim of absolute sovereignty.\textsuperscript{210} This posture fit nicely with the Syrian claim of absolute sovereignty over the Banias Spring feeding the upper Jordan River,\textsuperscript{211} but did not take into account that Syria was downriver from Turkey on both the Euphrates and the Tigris Rivers, as well as downriver from Lebanon on the Orontes.

\textsuperscript{203} See also Bourne, supra note 201, at 82-92; Schwebel, supra note 184, at 102; Utton, supra note 184, §§ 49.05, 49.06.
\textsuperscript{204} Hager, supra note 2, at 215-17.
\textsuperscript{205} KLIOT, supra note 2, at 161.
\textsuperscript{206} Id.
\textsuperscript{207} See the text supra at notes 80-86.
\textsuperscript{208} KLIOT, supra note 2, at 161.
\textsuperscript{209} Id., at 161-62; WATER IN THE MIDDLE EAST, supra note 1, at 94; Tvedt, supra note 8, at 16.
\textsuperscript{210} Calleigh, supra note 33, at 127; Cohen, supra note 13, at 512.
\textsuperscript{211} SALIBA, supra note 189, at 144; WATER IN THE MIDDLE EAST, supra note 1, at 167-68, 173-74; Dellapenna, Jordan Valley, supra note 1, at 41.
Nor did this position sit well with Syria's position down­
slope on one or more aquifers shared with Turkey. Turkey's actions
would shortly compel Syria to confront this neglect.

When the Atatürk Dam was closed in 1990, Turkey's Prime
Minister pledged to assure a flow of the Euphrates of 500 m³/sec through
the Atatürk Dam. This rate of flow through the dam would allow
only about 9 BCM annually to flow down to Syria and Iraq. Turkey
treats this promise as a matter of accommodation, and not as a legal
obligation, even though it is included in a bilateral agreement between
Syria and Turkey signed in 1987. The relevant language of that
agreement reads:

During the filling up period of the Atatürk dam reservoir and until the
final allocation of the waters of the Euphrates among the three riparian
countries, the Turkish side undertakes to release a yearly average of
more than 500 cubic meters per second at the Turkish-Syrian border
and in cases where the monthly flow falls below the level of 500
m³/sec., the Turkish side agrees to make up the difference during the
following month.

Turkey has not entirely lived up to this promise, but then neither has
Syria lived up to its promises in the same agreement not to allow anti-
Turkish activities—by the Kurdish Workers Party—on Syrian soil. While Turkey has, on at least one occasion, released water from the dam

212. For a detailed description of the geography of the Orontes, see WATER IN THE
MIDDLE EAST, supra note 1, at 115-18.
214. KLIOT, supra note 2, at 162; Chalabi & Majzoub, supra note 13, at 207-08, 215;
Gruen, supra note 125, at 280; Kolars, supra note 11, at 107; Tekeli, supra note 71, at 210.
215. Kolars, supra note 11, at 107-08. Many others have estimated that water delivers
to Syria will amount to about 15 BCM/year, although this perhaps involves a double counting.
HILLEL, supra note 2, at 193, 106; KLIOT, supra note 2, at 137, 145-46, 149; Chalabi &
Majzoub, supra note 13, at 204-05; Gruen, supra note 125, at 280; Tekeli, supra note 71, at
210; Waterbury, supra note 49, at 55. Kolars indicates that the Euphrates water crossing the
Syrian border will be about 9 BCM/year, and the Euphrates water crossing the border to Iraq
will be about 6 BCM/year—but the latter water will, of course, be composed mostly of the
residue of the water crossing the Syrian border as only small amounts are contributed by
tributaries feeding into the Euphrates in Syria. See also Ioffé, supra note 20, at 76.
216. Bakour & Kolars, supra note 2, at 134, 139; Chalabi & Majzoub, supra note 13, at
213; Cohen, supra note 13, at 513; Gruen, supra note 20, at 101-43, 105-06; Waterbury,
supra note 49, at 58.
217. Protocol on Matters Pertaining to Economic Cooperation, signed July 26, 1987,
Syria-Turkey, art. 6 (unpublished). See Chalabi & Majzoub, supra note 13, at 228.
218. Gruen, supra note 20, at 102-03.
to maintain the flow at 500 m³/sec., thereby delaying the filling of the reservoir, Turkey has also virtually closed down the Euphrates for one winter month in 1990 and again during the Gulf War, reducing the flow to 125 m³/sec in order to accelerate the filling of the reservoir behind the Atatürk Dam. Iraq and Syria protested vigorously against receiving such a small amount of water in the Euphrates, both rejecting Turkish claims to absolute sovereignty. Iraq’s claim to the absolute integrity of the river was consistent with its approach toward its other neighbors, particularly Syria. Syria, however, was embarrassed by its earlier claims of absolute sovereignty in water disputes with downstream neighbors, and continued to do so vis-à-vis Iraq, Israel, and Jordan.

Against Turkey, Syria based its claim on the theory of restricted sovereignty, demanding a “reasonable share” of the flow of the Euphrates. As the proposed guaranteed flow was adequate to meet Syrian needs (if Syria disregarded any obligation to deliver water to Iraq), Syria did not persist in its objections. Still, the disputes between Syria and Turkey over the GAP probably played a role in inducing Syria to support covertly the Kurdish rebellion against the Turks for this would, at the least, slow the development plans of the Turks for both the Tigris and the Euphrates.

Iraq faces a real possibility of a near exhaustion of the Euphrates as a source of water by Syria and Turkey; it therefore has had no option but

219. Hillel, supra note 2, at 106; Kliot, supra note 2, at 128, 162; Cohen, supra note 13, at 513-14; Alan Cowell, Now, a Little Stream, Later, Maybe a Water War, N. Y. TIMES, Feb. 2, 1990, at A11; Haberman, supra note 53, at A4; Nick Williams, jr., Parched Iraq, Syria Jittery as Turks Divert Euphrates to Power Project, L.A. TIMES, Jan. 14, 1990, at A8. On releases during the drought of 1991, see Gruen, supra note 20, at 105. See also Ilter Turan, Politics of Water and the Role of Regional Organizations: The Middle East, in POLICY AND INSTITUTIONAL ASPECTS, supra note 3, at 152, 155 (the Turks reduced the flow of the Euphrates to 170 m³/sec. in 1993 because of lull in the needs electricity, causing them to release less water through their turbines).

220. Kliot, supra note 2, at 123; Sheherezade Daneshku & Andrews Gowers, Shrinking Euphrates Raises Turkish-Syrian Tension, FIN. TIMES, Oct. 23, 1990, § 1, at 3; Gruen, supra note 20, at 101; Hager, supra note 2, at 216-17; Tekeli, supra note 71, at 211. See text supra at notes 80-86.

221. See the authorities collected supra at note 212.

222. Hillel, supra note 2, at 306 n.12; Kliot, supra note 2, at 123; Hager, supra note 2, at 216.

223. Joffé, supra note 20, at 76; Kolars, supra note 11, at 115. There were, however, persistent rumors of a Syrian plot to blow up the Atatürk Dam. Starr & Alley, supra note 37, at 5. See the authorities collected supra at note 212.

224. Beschorner, supra note 107, at 37; Kliot, supra note 2, at 164-65; Cohen, supra note 13, at 513; Covell, supra note 219; Gruen, supra note 20, at 102-04, 106; Haberman, supra note 107, at A4; Hager, supra note 2, at 221-22; Tvedt, supra note 8, at 18; Turan, supra note 219, at 155; Waterbury, supra note 49, at 55.
to the continues its objections to Turkey’s activities. The seriousness of the difficulties facing Iraq was made clear when Iraq and Syria signed an agreement on April 16, 1990, to share whatever water reaches Syria from Turkey on a basis 42% to Syria and 58% to Iraq. If the optimistic estimates of Syria receiving 15 BCM of water in the Euphrates were realized, this agreement would reduce Iraq’s present usage from the river by about half. Syria would lose nearly half of its planned usage as well, and if actual deliveries were to fall below this level, the outcome would be even worse for Iraq and Syria. Yet none of these figures factor in that increasingly the water reaching Syria and especially Iraq will be degraded return flows of ever poorer quality, or that something like 5 BCM must remain in the Euphrates if one is to maintain any sense of ecological integrity. These figures raise real questions about how seriously Iraq can rely on the Syrian promise when Syria continues with plans to vastly increase its use and when the relations between Iraq and Syria are so hostile in other respects.

Iraq faced an even greater risk when Turkey proposed to sell water to national communities outside the basin of the two rivers. Iraq has gone further than Syria, demanding that Turkey respect the absolute integrity of the river, or at least that Turkey cause “no harm” to established uses downstream. The proposal to export water from the upper Euphrates to national communities outside the watershed of the river has already generated major regional opposition, particularly from Iraq. At the very least, such exports demonstrate that Turkey does not need the water it is storing from the Euphrates, and thus that Iraq and Syria’s “equitable shares” should be larger than Turkey would concede to them. The “Peace Pipeline” proposals therefore include substantial

226. BESCHORNER, supra note 107, at 41-42; KLIOT, supra note 2, at 149, 162; Bakour & Kolars, supra note 2, at 139; Cohen, supra note 13, at 513-14; Gruen, supra note 20, at 100; Waterbury, supra note 49, at 57.

227. STARR & STOLL, supra note 33, at 9; Chalabi & Majzoub, supra note 13, at 204, 208; Cohen, supra note 13, at 515; B.A. Hurwitz, The Water Crisis in the Middle East, 13 MIDDLE EAST F. 6 (1991); Jeffrey Lee & John Bulloch, Spirit of War Moves on Mid-East Waters: Arab States Fear a Plot to Control Their Supplies of Water, The INDEPENDENT, May 13, 1990, at 13, 13; Waterbury, supra note 49, at 58-59. For Iraqi usage, see the text supra at note 49-52.

228. KLIOT, supra note 2, at 149-50; Waterbury, supra note 49, at 58. See also Clor, supra note 83, at 36-37.


230. MAJID KHADDURI, SOCIALIST IRAQ 163 (1978); KLIOT, supra note 2, at 123; Gruen, supra note 20, at 101, 105. Robert Hager has characterized the Iraqi claims as being based upon priority of use rather than on the integrity of the river. Hager, supra note 2, at 215-16, 219-20.

231. Gruen, supra note 125, at 282.
water benefits for the Syrians, typically as much as one-sixth of the water to be exported. 232 Syria’s acceptance of such benefits, along with the realization of hydropower generation capabilities offered by the pipeline, could largely defuse their objections to any such proposal. 233 No comparable arrangements have been proposed for Iraq, however, leaving Iraq to press the legal case against the pipeline.

The Iraqis in this regard are much stronger position to object than are the Ethiopians who have raised comparable objections to the proposed export of Nile water to the Jordan Valley. 234 Unlike Egyptian diversions from the Nile, Turkish exports actually will reduce the amount of water flowing down to Iraq and Syria. Even exporting the water from the Ceyhan and Seyhan Rivers or even from other rivers rather than directly from the Euphrates 235 would not seriously undermine Iraqi arguments as they could legitimately argue that directly or indirectly Euphrates water is used to replace the exported water. As a result of these concerns, the Iraqis are demanding that the water flowing in the Euphrates at the Syrian-Turkish border be increased from 500 m$^3$/sec. to 700 m$^3$/sec. 236 For now, the grander version of the Peace Pipeline seems stillborn, not because of Iraqi opposition but because Saudi Arabia and the Gulf States seemed uninterested in accepting the costs (political as well as financial) of bringing the water from such a distance, 237 and even the more modest proposal to export water to the Jordan Valley could founder on Iraqi opposition.

Even apart from the Peace Pipeline proposal, Turkey has found itself caught between its development desires and its need to appear to be a

232. See the text supra at notes 129-34.

233. See § 5 03(c)(2), at notes 173-77.


235. KLIOT, supra note 2, at 132; Gruen, supra note 125, at 282-83; Wachtel, supra note 14, at 365-67.

236. KLIOT, supra note 2, at 162; Chalabi & Majzoub, supra note 13, at 207; Cohen, supra note 13, at 514 n.71; Gruen, supra note 125, at 282; Gruen, supra note 20, at 104; Kolars, supra note 11, at 115; Tekeli, supra note 71, at 210; Wachtel, supra note 14, at 366-67.

237. See the text supra at note 138.
"good neighbor" as it seeks membership in the European Union. In order to do so, Turkey has consistently portrayed itself as a peaceful state seeking a cooperative result with its co-riparians based upon technical solutions. As part of this campaign, Turkey has offered to sell electricity both to Iraq and to Syria on favorable terms. Turkey's claimed legal position, however, actually belies such a posture. In particular, the Turks claim that the Euphrates and Tigris Rivers are "transboundary" rivers rather than "international" rivers, and thus not subject to the rule of equitable utilization. Turkey claims absolute sovereignty over its "transboundary" rivers before they across the border, analogizing to the absolute ownership of oil by states where oil fields are located. Turkey also would restrict negotiations to the main stem of the river, ignoring the contributions of any tributaries, basing this position on principles adopted at the Congress of Vienna in 1815.

Turkey's legal claims contradict the explicit terms of both the Helsinki Rules and the International Law Commission's Draft Articles. Nor is there any support for this position in state practice. The Vienna Congress principles were intended to deal only with freedom of navigation, and not to the allocation of water to consumptive uses at all. Even the analogy to oil does not hold up, as it ignores the obligation of "equitable pooling" imposed upon transboundary oil
Turkey adopted such a dubious legal position because its position in any dispute resolution focusing on equitable utilization is bound to be weak. Turkey has abundant sources of water other than the Euphrates and the Tigris; those two rivers comprise only about 45% of the total water resources available to Turkey. In contrast, those rivers comprise about 80% of the water resources of Syria, and 98% of the surface waters available to Iraq. In light of these facts, Turkey cannot validly claim the lion’s share of the water from those two rivers, whether for its own inefficient consumption practices, for sale to other national communities, or to replace other waters to be sold to the other national communities—even though the other national committees also desperately need water. On the other hand, Iraq in particular cannot claim a vested right to continue its highly inefficient water-use practices. Nor should Turkey have to bear the entire cost of building the necessary facilities to assure adequate water supplies to Iraq and Syria, although those two states have not expressed any willingness to pay part of the cost of adapting Turkey’s facilities to their needs. Ultimately, the needs of the entire fertile crescent can only be met by the sort of


247. BEAUMONT, BLAKE, & WAGSTAFF, supra note 8, at 384; KLIOT, supra note 2, at 134-35, 150; Kolars, supra note 11, at 117.

248. BEAUMONT, BLAKE, & WAGSTAFF, supra note 8, at 384; GISCHLER, supra note 17, at 100, 114; KLIOT, supra note 2, at 138, 143, 150.

249. KLIOT, supra note 2, at 150, 171-72. On Turkish inefficiencies, see Gruen, supra note 20, at 103.

250. BEAUMONT, BLAKE, & WAGSTAFF, supra note 8, at 352, 364; FISHER, supra note 53, at 378; KLIOT, supra note 2, at 146, 150, 158, 163-64; Ockerman & Samano, supra note 49, at 194; Saleh, supra note 2, at 73-74; Ubell, supra note 49, at 3.

251. KLIOT, supra note 2, at 163-64; Tekeli, supra note 71, at 215.
regional management arrangement.\textsuperscript{252} It is to this possibility that I shall address a few comments in the conclusion.

VI. CONCLUSION: THE NEED FOR INTEGRATED MANAGEMENT

The problem to be solved in the land between the two rivers is how to allocate equitably the waters of the two rivers, especially of the Euphrates. The existing informal agreements arguably do this, with Turkey promising to Syria to deliver 500 m\textsuperscript{3}/sec. on the Euphrates to the Syria border, and Syria promising to Iraq not to consume more than 42\% of the water that arrives at its border with Turkey.\textsuperscript{253} None of the states involved, however, treat the agreements as final or definitive. Given the pressures of population growth, wasteful and extravagant usage of water, and mutual hostility, a final and definitive determination of what the equitable shares of Iraq and Syria are will not be easy to achieve.\textsuperscript{254}

Even if the states were to agree to a partition of the waters, this would be a less than optimum solution. With each nation undertaking to store and develop its own share of the waters, excessive storage capacity will probably be built in the region.\textsuperscript{255} Even if there is no excessive storage capacity, there will be excessive and unnecessary evaporation losses because so much of the storage capacity will be built on the hot, dry plains of Iraq with the reservoir spreading over a large surface area, rather than in the relatively cool and narrow gorges of Turkey.\textsuperscript{256} In addition, each nation will build diversion and drainage works that are either duplicative or reciprocal, \textit{i.e.}, with roughly parallel canals carrying water in the same direction or on opposite directions on either side of a border, when a single canal (or perhaps no canal at all) would achieve the same or similar values with far less economic and environmental costs than would be under the unilateral approach to water management that

\textsuperscript{252}. \textit{See also} STARR \& STOLL, \textit{supra} note 33, at 1-3, 40-43; Bakour \& Kolars, \textit{supra} note 2, at 143-44; Chalabi \& Majzoub, \textit{supra} note 13, at 227-29; Cohen, \textit{supra} note 13, at 529-56; Kolars, \textit{supra} note 48, at 87-91; Bilen, \textit{supra} note 14, at 109-14; Sadik \& Barghouti, \textit{supra} note 52, at 22-24, 33-34; Turan, \textit{supra} note 219, at 157. For a skeptical view of this possibility, see Waterbury, \textit{supra} note 49, at 61-62.

\textsuperscript{253}. See the text \textit{supra} at notes 214-17, 226-27.

\textsuperscript{254}. \textit{See, e.g.}, KLIOT, \textit{supra} note 2, at 100-72, 270-72; Chalabi \& Majzoub, \textit{supra} note 13, at 213-14; Gruen, \textit{supra} note 20.

\textsuperscript{255}. See the authorities collected \textit{supra} at note 42.

\textsuperscript{256}. HILLEL, \textit{supra} note 2, at 103; IONIDES, \textit{supra} note 21, at 111; KLIOT, \textit{supra} note 2, at 122, 136; Beaumont, \textit{supra} note 14, at 38-39. More than half of the current evaporation losses occur in Iraq for the reasons indicated in the text.
results from partition. All of this is without considering the likelihood of cheating and the difficulty of monitoring compliance under a partitioning approach—not to mention the rigidity of the system in the face of impending global warming.

The restricted sovereignty approach to internationally shared waters rests ultimately on the concept of an international drainage basin as a coherent juridical and managerial unit, a concept widely supported by naturalists, engineers, and economists. The notion gives rise to the concept of integrated, basin-wide management of water resources transcending national (and other) frontiers. The United Nations has endorsed this principle at just about every opportunity. The most succinct and emphatic statement of this conclusion within U.N.-sponsored activities was the opening statement in a working paper prepared by the U.N. Secretariat for the Fourth Regional Technical Conference on Water Resources Development in Asia and the Far East, held in Colombo in 1960: “River basin development projects are now necessarily multipurpose and lead to unified development.”

The U.N. Economic Commission for Europe has adopted three instruments relative to international water management. The “Declaration of Policy on Prevention and Control of Water Pollution, Including Transboundary Pollution,” merely indicates that “rational utilization of water resources” is a basic element of long-term water management. The “Declaration of Policy on the Rational Use of Water” recommended a “unified strategy” and “coordinated utilization.” The “Recommendations to ECE Governments on Long-Term Planning of Water Management” endorse basin-wide, cooperative management of shared water resources. And the principle were endorsed unanimously by the United


261. Decision C (XXXIX), in ECE, supra note 260, at 12, 15.

262. ECE, supra note 260, at 39, 41.
This goal, and the avoidance of the inefficiencies and other problems inherent in partition, can only be avoided by creating a regional water management authority including (at the least) Iraq, Syria, and Turkey. It would be better, but not essential, to include Iran, given its relation to the Tigris River. On the other hand, if the Peace Pipeline (or something like it) were to be included, one would need to add Israel, Jordan, Lebanon, and Palestine (and perhaps some others).

A regional relationship involving at least the three active riparian states (Iraq, Syria, and Turkey), is easy to envision but would likely be extraordinarily difficult to realize given the hostilities between or even within these states. Enlarging it either to the west (Iran) or to the southwest (Israel, Jordan, Lebanon, Palestine) would be even more difficult. Only the extreme need likely to emerge as global warming becomes a reality is likely to overcome this hostility—if it does not prompt “water wars” instead.  

On the positive side, one can note that the four riparian states (Iran, Iraq, Syria, and Turkey) all share a common legal and cultural tradition regarding their approach to water management issues derived from the traditional Islamic law—the shari’a. Indeed, the very word shari’a originally meant “the path to the watering place.”

263. REPORT OF THE UNITED NATIONS WATER CONFERENCE, MAR DEL PLATA, 14-25 MARCH, 1977, at 53, U.N. Doc. No. E.77.II.A.12 (recommendations 90, 91). See Utton, supra note 184, § 49.09, at 39-40. One might also refer to the many directives issued by the European Community relative to shared waters; I refrain from doing so in that these directives appear more like domestic legislation than like international decisions. See generally CAPONERA, supra note 7, at 190-91.


allocates community water among users and calls upon water users from time to time to maintain the communal water system. We can trace this approach all the way back to the Code of Hammurabi in ancient Babylon and down to the present day.

Expanding the regional management scheme to include the entire Fertile Crescent would bring in Israel, the law of which is not based upon the shari'a. The Israeli legal tradition pertaining to water is not materially different from the modern concepts applicable to water in the Islamic states. The ancient traditions—almost as old as the Code of Hammurabi—is very similar to the shari'a and its antecedents. Whether the laws laid down by the prophets are derived from Babylonian roots or simply reflect similar responses to similar problems hardly


268. See TALMUD BAVLI SHABBAT 121b.
matters. The contemporary Israeli water law also treats water as a community resource rather than as private property.\(^{269}\)

That all potential participants share a tradition of centralized management of water for the benefit of the entire community suggests that integrated management on a regional basis could be accepted by the several national communities. In addition, despite the hostilities between and within these nations which might lead one to expect fighting rather than sharing to be the normal response to water crisis, there is in fact considerable evidence that water is simply too important to fight over.\(^{270}\) Perhaps nowhere has this been demonstrated more dramatically than in the relations of India and Pakistan. The two states have engaged in three full-scale, albeit limited, wars since 1948, as well as numerous other skirmishes and serious threats of war.\(^{271}\) Yet during this same period, India and Pakistan negotiated and implemented a cooperative management scheme for the waters of the Indus Valley.\(^{272}\) And in each outbreak of war, they did not target water facilities or interfere in the operations of the water arrangements.\(^{273}\)

Each national community sharing the Fertile Crescent should recognize that it will receive significant benefits from the integrated management scheme.\(^{274}\) If the do so, they can be expected to discover the necessary steps to accommodate themselves to the requirements of the cooperative or integrated management arrangement. All that is required is some political imagination and the political will to place the needs of the community ahead of the needs of the political leadership of the community. Unfortunately, recent events in Mesopotamia suggests that both qualities might be in short supply.


\(^{270}\) See Dellapenna, Designing Legal Structures, supra note 1, at 70-72; Dellapenna, Treaties, supra note 1, at 27-33; Dellapenna, Jordan Valley, supra note 1, at 15-19.

\(^{271}\) For a good, brief summary of the general hostility between India and Pakistan, see Amaury de Riencourt, India and Pakistan in the Shadow of Afghanistan, 61 FOR. AFF. 416 (1982).

\(^{272}\) See Indus Waters Treaty, supra note 189. See generally TECLAFF, supra note 2, at 163-165, 183-184; Baxter, supra note 189; Concannon, supra note 257.

\(^{273}\) See Khan, supra note 257.