POLITICS OF WATER RESOURCES IN THE JORDAN, NILE AND TIGRIS-EUPHRATES: THREE RIVER BASINS, THREE NARRATIVES

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The Middle East water question is mostly associated with the hydropolitical issues in the three main transboundary river basins of the region, namely the Jordan, the Nile, and the Tigris-Euphrates. This article provides an overview of the politics of the water resources in these basins with specific references to the major historical episodes in these geographies. The article begins with analyses of the types of water scarcities in order to explain the underlying causes of water crises in the three basins. Next, the politics of water resources in these pivotal river basins are dealt with by focusing on the events in the first half of the 20th century. Here, the "colonial legacies" in the Nile and the Jordan are discussed. In the late 1920s, colonial water sharing agreements were concluded in the Nile basin with the full control of Britain. In the early 20th century, competitive water resources planning by the British and American engineers were conducted to respond to the looming needs of the burgeoning Arab and Jewish populations in the Jordan basin. In the period from the 1920s to the 60s harmonious water relations were observed in the Tigris-Euphrates basin, basically regulated through a series of historical bilateral political treaties.

The second half of the 20th century had witnessed rapid development of transboundary water resources in three basins. Major dams, irrigation canals and water diversion facilities were built through uncoordinated and unilateral water development projects. The Aswan High Dam in Egypt, Keban, Karakaya and Atatürk Dams in Turkey, Tabqa Dam in Syria, Thartar Canal in Iraq, and the National Water Carrier in Israel represented the highest stages of the water development ventures (*hydraulic mission*) in these basins. Hence, the paper also aims to explain the rising of the disputes over transboundary waters mainly due to the uncoordinated nature of the water development projects. Three diplomatic crises erupted in the Tigris-Euphrates basin when Turkey built and put in operation three large dams on

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the Euphrates from the 1970s to the 1990s. In the Jordan basin, capturing the control of the headwaters of the Jordan river and the groundwater resources of the West Bank and Gaza constituted the precipitating reasons behind the 1967 War between the Arabs and the Israelis. Even though there were not any direct water conflicts in the Nile basin, political relations among the riparians had been strained because of the continuous civil wars and border conflicts in the region. Furthermore, the rhetoric of the highest-level politicians across the rivers was harsh and threatening, consisting of even a possibility of escalation to hot confrontations. Yet, same politicians had already started a dialogue with their neighbors pertaining to, among others, water issues in the late 1980s.

With the end of the Cold War, the political climate became more conducive for cooperation in these basins. We observe shifting of alliances, enhanced dialogue and contacts in the realms of low and high politics. However, the scopes, duration, inclusiveness of water cooperation vary from basin to basin. In this respect, the Nile Basin Initiative represents a comprehensive and promising cooperative scheme to bring together for the first time in history all of the ten riparians with the aim to achieve equitable utilization of waters and socio-economic development of the region. Even though the "Process" is said to have collapsed already, the historical episode of the Middle East Peace Process is still worthwhile to discuss with particular emphasis on the water clauses of the Treaty of Peace between Israel and Jordan and the Interim Agreement between the Palestinian Authority and Israel. The political rapprochement between Turkey and Syria since late 1990s facilitated building up of inter-governmental and scientific networks, which act in the water-related development fields.

An Analysis of the Causes of Water Crisis in the Three Basins

The three major transboundary basins of the Middle East and North Africa have often been presented as the pivotal regions of severe water scarcity and crisis. Yet, the situation demands a more careful reading of the types of current and future scarcity of water resources in these basins. To this end, different types of water scarcities in the three major river basins are discussed below.

Thomas Homer-Dixon analyzes "environmental scarcity" as a function, jointly, of "supply-induced (driven)," "demand-induced," and "structural"

scarcities.[1] Supply-driven scarcity is caused by the kind of degradation or depletion of water resources. It results in low availability of supply especially for irrigation, yet other uses such as drinking and domestic water become also problematic due to the very high levels of urbanization. As human activities increase, more and more waste products are contaminating the available sources of surface and groundwater. This, in effect, means that serious water quality deterioration could be considered as equivalent to reduction in the quantity of water available various uses. Demand-induced scarcity is caused by either population growth or an increase in per-capita consumption of the resource.[2] Whereas structural scarcity arises from the unequal social distribution of a resource, that is, it occurs when a resource is concentrated in the hands of a small percentage of the population while the rest experiences shortages.[3]

Water is naturally scarce (supply-induced) in these river basins, and that scarcity is growing, and exacerbated by growing needs (demand-induced) in all water using sectors. With a length of approximately 6,800 kilometers from its most distant source in Burundi in Central Africa to the Egyptian Mediterranean coast, *the Nile* is the world's longest river.[4] But in relative terms it does not carry very much water, only 84 billion cubic meters (bcm) annually: three percent of that of the Amazon or the same amount as the river Rhine which, however, is only one fifth of its length. This contradiction between extreme length and modest discharge increases the potential for water stress while facing disproportional water demand and population growth. The waters of the Nile essentially come from rainfall on the Ethiopian highlands and the catchment areas of the Equatorial lakes. Some 86 percent of the average annual discharge, originates in Ethiopia, consisting of the Blue Nile (59 percent) and two further tributaries. Ethiopia thus is qualified as the supplier of most of the Nile waters. The White Nile contributes 14 percent, however losing nearly 50 percent of its original discharge in the Sudd swamplands of southern Sudan. Apart from a modest water supply, the varying annual and seasonal fluctuations in water discharge are difficult to handle. While the White Nile produces a stable flow throughout the year, the waters of the Blue Nile fluctuate widely and evaporation losses in the basin are extremely high except in the Lakes

[1] Thomas Homer-Dixon and Jessica Blitt, *Ecoviolence: links among environment, population and security*, Oxford, Rowman & Littlefield Publishers, 1998, pp. 5-6.
[2] Ibid., p. 6.
[3] Ibid., p. 6.
[4] Egypt, Sudan, Ethiopia, Eritrea, Burundi, Kenya, Rwanda, Tanzania, Democratic Republic of Congo and Uganda are the ten riparians of the Nile river system.

region.[5] The continuous growth of the population in the Nile Basin is one of the factors exacerbating these calculations.[6] The population of the ten riparian countries is expected to double and reach to 600 million in 2025, driving demand and placing additional stress on scarce resources.[7]

Total water availability in the *Jordan*[8] basin region is very limited. The Jordan river is the main axis of the system, and its total annual discharge into the Dead Sea is approximately 1,300 million cubic meters (mcm) per year.[9] This figure, however, was subject to extreme seasonal fluctuations. Moreover, in practice more than half of the average discharge rate of the Jordan river does not reach the Dead Sea since Israel annually pumps about 500 mcm out of Lake Tiberias (Sea of Galilea), while much of the water of the Yarmouk (major tributary of the Jordan river) and other tributaries is used by Syria and Jordan before it joins the Jordan main river.[10] In addition to the fact that the downstream course of the Jordan contains little water, the quality of this water is poor. There are also two aquifers located beneath Israel, the Gaza Strip and the West Bank. The Coastal Aquifer lies under Israel and the Gaza Strip. Even though naturally it has a storage capacity of many billions of cubic meters, only 250 mcm can be pumped up annually because it is filled with that amount of water per year. The Mountain Aquifer, which consists of three parts: the northern, the western and eastern aquifer, lies under the West Bank and Israel. Its storage capacity is around 650 mcm per year.[11]

In addition to the supply and demand-induced scarcities in the Jordan basin, particularly since 1967 "structural scarcity" is the cause of the regional and local crisis in the West Bank and Gaza. Occupation of the three territories (the West Bank, Gaza Strip and the Golan Heights) gave Israel almost total control over the headwaters of the Jordan river and its tributaries, as well as control over the major recharge region for its underground aquifers. The water in the West Bank is now used in a ratio of

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[5] Terje Tvedt, "The management of water and irrigation: the Blue Nile," in Martin Doornbos (ed.) *Beyond conflict in the Horn: the prospects for peace, recovery and development in Ethiopia, Somalia, Eritrea and Sudan,* Conference Proceedings, The Hague: Institute of Social Studies, 1992, pp. 81-82.

[6] Alan Nicol, "The Nile: Moving Beyond Cooperation," *From Potential Conflict to Cooperation Potential*, UNESCO, on file with author, 2002, pp. 5-6.

[7] Henrike Peichert, "The Nile Basin Initiative: A Promising Hydrological Peace Process," in Ismail Al Baz et al. (eds.) *Cooperation on transboundary rivers*, Baden-Baden, Nomos Verlagsgesellschaft, 2002, p. 115.

[8] Jordan river system riparians include Israel, Jordan, Palestinian Authority, Syria and Lebanon.

[9] Miriam Lowi*, Water and Power,* Oxford, Oxford University Press, 1994, p. 28.

[10] Henk Donkers, "Fresh Water as a Source of International Conflicts" in Edward H. P. Brans et al. (eds.), *The Scarcity of Water, Emerging Legal and Policy Responses*, London, Kluwer Law International, 1997, p. 138.

[11] Ibid., p. 139.

4.5 percent by Palestinians and 95.5 percent by Israelis (while the population is over 90 percent Palestinian).[12] Much of the tension over water between the Palestinians and the Israelis relates to the discrimination in water pricing, allocation and delivery systems. Water consumption by Israeli settlers in the West Bank is roughly eight to ten times that of the Palestinians.[13] Half of all Palestinian villages are not connected to the water system.[14] Even Palestinian villages and cities connected to the water system are not certain of water. Water is available to Palestinian villagers only one or two days a week (and is otherwise stored in water tanks on the roofs of houses) while it is made available daily and on demand to Israeli settlements. These discriminatory practices are enforced through the application of Israeli military orders to the West Bank and Gaza.[15] With also rapid population growth (3 percent per year) declining water availability in West Bank is a tightening constraint on agriculture and human use.[16]

Annual mean discharge (natural flow) of *the Euphrates* is about 32 bcm whereas *the Tigris* provides 52 bcm of water supply annually (in normal whether conditions). The amount of water available in the Euphrates-Tigris system[17] said to be fairly enough for vital needs of the three riparians. Yet, during the technical negotiations in the 1980s, the riparian governments declared their needs from both rivers, which indicated that total demand of the three riparians far exceeds the supply of each river especially in the case of the Euphrates. Hence, there are mismatches between supply (average discharge) and demand in the Euphrates-Tigris river basin. Moreover, the Euphrates and Tigris rivers have extremely high seasonal and multi-annual variance in their flow. Further, the natural flows of both rivers (supply) passing from Turkey to Syria, and from Syria to Iraq do change due to irrigation and energy projects that the riparians have already initiated. The rapidly increasing populations of these countries and the importance given to agricultural development and food production necessitate further utilisation of these rivers.[18]

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[12] Steve Lonergan, "Human Security, Environmental Security and Sustainable Development," in Miriam Lowi and Brian Shaw (eds.), *Environment and Security*, Macmillan Press, 2000, p. 78.
[13] Ibid., p. 79.
[14] Donkers, "Fresh Water as a Source of International Conflicts," p. 146.
[15] Lonergan, "Human Security, Environmental Security and Sustainable Development," p. 79.
[16] United Nations Development Programme (UNDP), *Human Development Report*, 2006, p. 216.
[17] Turkey, Syria and Iraq are the major riparians in the Euphrates-Tigris river system. Iran, also, contributes about nine percent of the Tigris river flow.
[18] Ayşegül Kibaroğlu, *Building a Regime for the Waters of the Euphrates-Tigris River Basin,* London, The Hague, Kluwer Academic Publishers, 2002.

The supply-induced, demand-driven and structural scarcities in these major river basins of the Middle East constitute the background of the transboundary water politics in the region, which is analyzed below through consecutive historical episodes in the 20th century.

Colonial Legacies in the Nile and Jordan, and Harmonious Relations in the Tigris-Euphrates (First Half of the 20th Century)

Historically, the first half of the twentieth century marked the colonial control of the Nile and Jordan river basins. The colonial regimes directed water management development towards serving their own strategic objectives as expressed, for example, in the suppression of industrialization and expansion of cotton-grown areas in Sudan and Egypt along with the associated irrigation measures. Some hydraulic control works were established in that era, for example the Old Aswan Dam in Egypt and some channel routing in the Nile basin.[19]

A number of forces external to the *Nile basin* have shaped the history of water resource development in the early twentieth century.[20] Egypt was British Empire's economic and politically most important colony. Peichert analyzes that Britain acted on behalf of Egyptian national interests by establishing a quasi-hegemonic regime regarding the Nile water utilization patterns.[21] Prior to and shortly after 1900, a number of bilateral agreements were set up among the colonies in order to assure a continuous and undisturbed flow of the Nile flow into Egyptian colony.[22] Britain was so pre-occupied with the economy of Egypt that it used its considerable power to ensure that there was no diminution of flows of water to Egypt through the development of works in its upper riparian colonies in the Lakes Basin of East Africa. Evidence of this commitment was the terms of the 1929 Nile Waters Agreement, which stated that there should be no such works in Uganda and the other Lake Basin colonies.[23] Further the share of the flow between Sudan and Egypt should be four percent to Sudan and ninety six

[19] Comision Nacional del Agua Mexico, *Middle East and North Africa Regional Document (4th World Water Forum)*, Mexico, Talleres Graficos de Mexico, March 2006, pp. 28-29.
[20] J. Anthony Allan, "The Nile Basin: Evolving Approaches to Nile Waters Agreement," *Occasional Paper* 20, London, SOAS, University of London, 1999.
[21] Peichert, "The Nile Basin Initiative: A Promising Hydrological Peace Process," p. 117.
[22] Nurit Kliot, *Water Resources and Conflict in the Middle East,* London, Routledge, 1994.
[23] R. O. Collins, *The Waters of the Nile: Hydropolitics and the Jonglei Canal. 1898-1988*, Oxford, Clarendon Press, 1990.

percent to Egypt. These were the shares and terms accepted by the colonial administrations of the British Empire.

The roots of the Israeli-Arab water conflict in the *Jordan basin* go back to the end of the 19th century. The first Zionists saw unlimited access to water as a condition of a viable Jewish state.[24] At the 1919 Paris Peace Conference the Zionist World Organization claimed for a state of its own within the borders of which a large portion of the Litani in Lebanon and the whole source area of the Jordan, including the Yarmouk, would be contained.[25] However, the organization could not achieve that objective. The sources of the Jordan and the Yarmouk were allocated to Syria and Lebanon under the French mandate, and not to Palestine under the British mandate. However, the crucial Sea of Galilea (the Lake Tiberias) was gained by the Zionist Organization.[26] During the British mandate (1922-1948) Jewish organizations were able to acquire large concessions of land and water. This led to enormous tensions between Jewish immigrants and Arab inhabitants. After the Arab revolt of 1936, the British Colonial Office sent a Royal Commission to Palestine to find ways to alleviate the tensions. In its report, the Peel Commission proposed the partition of Palestine into three parts: a Jewish state, an Arab state and a British enclave.

By the end of 1938, the British Government withdrew its support for the partition proposal, the report of another commission suggested that land and water resources were insufficient to support two workable homogeneous areas.[27] Nonetheless, a hydrographic survey of Transjordan had already been solicited for the Peel Commission from an irrigation engineer. In his report, Michael Ionides described the results of his survey and outlined a few preliminary projects for exploiting the agricultural and settlement potential of the country. Ionides found that the sole means of gaining a substantial increase in agricultural development, in the quantitative sense of providing room for increased population, lies in the canalization of the Jordan and Yarmouk rivers. He proposed laying a canal from north to south alongside the Ghor, diverting the Jordan and Yarmouk waters to irrigate the Terrace down the Dead Sea. His project was mainly confined to the east bank of the river. The Ionides project never materialized, since the partition proposal of 1937, for which it had been

[24] Lowi, *Water and Power*, p. 40.
[25] Donkers, "Fresh Water as a Source of International Conflicts," pp. 141-143.
[26] Lowi, *Water and Power*, pp. 40-41.
[27] Ibid., pp. 42-43.

commission, was rejected. Nevertheless, as Lowi emphasizes "it served as the basis for all subsequent Jordan system irrigation projects proposed by the Arabs."[28]

On the other side of the Jordan river, under contract from the Jewish agency for Palestine, the American soil conservationist, namely W. Lowdermilk came up with a plan for the development of the water resources. He suggested to irrigate both banks of the Jordan and divert water from the upstream course of the Jordan to the coast and the Negev desert in the south. In this way four million new Jewish immigrants could be provided for in addition to the two million Jews and Arabs who already lived there. The Arabs opposed the plan. They feared a new wave of immigration and felt that the plan favoured the Jewish settlements. After the foundation of the state of Israel in 1948, the Lowdermilk-Hays plan became the guideline for Israeli water politics.[29]

Hydropolitical relations among the three riparians in the *Euphrates-Tigris river basin*, namely Turkey, Syria and Iraq during the period between 1920s to 1960s could be characterized as harmonious. None of the countries were engaged in major development projects that could have resulted in excessive consumptive utilization of the Euphrates and Tigris rivers.[30] Even the inefficient and ineffective development and management practices of the three riparians did not have substantial negative impacts on the quantity as well as the quality of the waters.[31] While particular treaties were signed either between the mandate power France (on behalf of Syria) and Turkey, or between Turkey and Iraq, such treaties had little significance as the riparians were utilizing very little amounts of water at the time and did not need to seriously call on the treaties to resolve disputes.[32] In that period, one of the most important legal texts, which sets the harmonious relations between Iraq and Turkey as relates to the water resources of the Euphrates and Tigris rivers and tributaries is the Protocol annexed to the 1946 Treaty of Friendship and Good Neighbourly Relations.[33] The protocol

[28] Ibid., p. 45.
[29] Donkers, "Fresh Water as a Source of International Conflicts," p. 142.
[30] Sholami Dinar, "Geopolitics of Hydropolitics: Negotiations over Water in the Middle East and North Africa," *SAIS Working Paper Series Working Paper,* No.: WP/01/03, (2003), p. 9.
[31] Ayşegül Kibaroğlu and Olcay Ünver, "An Institutional Framework for Facilitating Cooperation in the Euphrates-Tigris River Basin," *International Negotiation: A Journal of Theory and Practice*, Vol. 5, No. 2, (2000), p. 312.
[32] See Kibaroğlu, *Building a Regime for the Waters of the Euphrates-Tigris River Basin*, p. 222.
[33] The Treaty of Friendship and Good Neighbourly Relations between Iraq and Turkey, Protocol on Flow Regulation of the Tigris and Euphrates rivers and of their tributaries*, United Nations, Legislative Texts and Treaty*

provides a framework for the two parties to deal with their respective interests along the river system. The protocol emphasised mainly the urgency of building up flood control works on the Euphrates and the Tigris rivers and also underlined the positive impact of storage facilities to be sited in the Turkish territory.

Hydraulic Mission in the Three Transboundary River Basins (from the 1950s to 1990s)

The first 75 years of the twentieth century witnessed concerted efforts, especially in the industrialized world, to build up of physical structures, namely dams and irrigation canals. The accelerated effort of building thousands of water resources infrastructure systems is called the "hydraulic mission."[34] The hydraulic mission, which was first and most fully implemented in the industrialized countries, proved to be readily exportable to the developing countries in the second half of the twentieth century, including the Middle East. From the late 1940s onward, countries in the three river basins gained their independence. This has witnessed a shift towards national water management which has become a prerequisite for satisfying the ambitious development plans that targeted enhanced agricultural production, support of industrialization, provision of safe drinking water, sanitation and other infrastructure services, all of which resulted in an escalating demand for water. Hence, the 'hydraulic mission' was carried out at intensive scales and speeded up through building dams and irrigation projects in the Nile, Jordan and Euphrates-Tigris basins.

In the *Nile basin*, the fully independent Egyptian Government of 1952 led by President Nasser immediately addressed the issue of water security by initiating the High Dam project at Aswan.[35] In order to commence construction of the dam, Egypt had first to agree a water treaty with Sudan. Hence, the 1959 Nile Waters Agreement was based on the main objective that Egypt would achieve total control of the Ethiopian flood by creating storage (High Aswan Dam) at its southern border with Sudan of about three times the annual flow at that point.[36] The two riparians agreed to share the

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Provisions Concerning the Utilisation of International Rivers for Other Purposes Than Navigation, UN/Doc. ST/LEG/SER. B/12, 1963.

[34] Allan, "The Nile Basin: Evolving Approaches to Nile Waters Agreement," p. 2

[35] Ibid.

[36] Past records used by the negotiators showed that the average flow of the waters to be shared by Egypt and the Sudan was 84 billion cubic meters per year. See John Waterbury, "Legal and institutional arrangements for

water in the proportions of 75 percent and 25 percent for Egypt and the Sudan, respectively. Other riparians were invited to participate in the discussions. None did; nor did they agree to recognize the terms of the agreement at any time since. Kenya and Ethiopia had been consistently critical of the 1959 agreement.

In the *Jordan basin* after the first Arab-Israeli War (1948-49), the resource bases of Israel and Jordan faced increasing stress. Both countries were pressed to develop their land and water resources for the settlement (Jewish immigrants) and subsistence of outsiders (Palestinian refugees). Yet, water in the immediate region was to be known scarce.[37] In 1953 Israel began the diversion of water from the Jordan to the coastal area and the Negev desert. As Donkers describes, this project which was later on called the National Water Carrier was said to be the symbol of the will to survive for the Israelis. For the Arabs, though, it was the symbol of Israel's aspiration to expand. The National Water Carrier constitutes the centerpiece of the Israeli national water supply network which draws the water from the north and distributes it along the coast and in the Negev desert. As a 112 kilometer long canal the Carrier provides water to a multi-branched distribution network. One to two million m3 of water a day (500 million m3 per year) is pumped from the Sea of Galilea, which lay 212 meter below sea level; and distributed through the Carrier. Arab countries reacted angrily to the Israeli diversion plans. They did not want to accept that Israel drew water from the Jordan, whereby the Palestinians on the West Bank and East Bank could take much less water.[38]

In 1958 Jordan began with the digging of the King Abdullah Canal (East Ghor Canal) which would also get a branch to West Bank. The East Ghor Canal project was a Jordanian venture, carried out in cooperation with Syria as per their June 1953 agreement, and financed jointly by the governments of the United States and Jordan.[39] It consisted of a seventy-kilometer main canal which, in the initial stages, would tap approximately 123 mcm of water per year from Yarmouk river, and some additional water is tapped from Zarqa river and from several seasonal streams within Jordanian territory to irrigate 12,000 hectares of cultivable land, and

managing water resources in the Nile Basin," *International Journal of Water Resources Development*, Vol. 3, No. 2, (1987), pp. 92-104.
[37] Lowi, *Water and Power*, p. 50.
[38] Donkers, "Fresh Water as a Source of International Conflicts," p. 144.
[39] Lowi, *Water and Power*, p. 116.

eventually 35,000 hectares, along the eastern slopes of the Jordan Valley.[40] Later stages of the project included plans to construct storage reservoirs at Mukheiba to hold up winter floodwaters and allow for the extension of the Canal almost to the Dead Sea; and at Maqarin, on the Jordan-Syrian border, to impound winter flows and control their release for irrigation, as well as for hydro-electric power to be shared by the two countries. Finished in June 1963, the aim of the project was to extend irrigated agriculture, double yields, and provide employment in this small, arid, resource-poor country, threatened by an explosive population growth (approximately 2.8 percent per year), yet heavily dependent upon agriculture as the principal source of economic sustenance.[41]

The water question emerged on the regional agenda in the *Euphrates-Tigris basin* when the three riparians initiated major water and land resources development projects. It is only since the 1960s that Turkey and Syria have put forward ambitious plans to develop the waters of the Euphrates-Tigris river system for energy and irrigation purposes. At the same time, Iraq also announced new schemes for an extension of its irrigated area. Specifically, the nature of water relations within the last 40 years has been closely shaped by the construction of major development projects, namely the Southeastern Anatolia Project of Turkey (GAP), the Euphrates Valley Project of Syria, and the Thartar Canal Project of Iraq.[42]

Turkey was planning to develop the Euphrates waters since the mid-1950s. The construction of the Keban dam started in 1965. The Keban Project was solely a hydropower project, thus it caused no loss of water potential to the downstream riparians. Construction of the Karakaya dam, further downstream from Keban started in 1976. Karakaya entered service in 1987, while work on the Atatürk dam had been under way since 1980. Consequently, the construction of these three major dams, which were originally planned to be a part of a Lower Euphrates Project initiated the most ambitious development scheme in Turkey, namely the GAP in 1980. GAP is designed to develop the waters of the Euphrates and Tigris rivers for hydroelectric power generation and irrigation. According to the GAP Master Plan, by the year 2010 the GAP project is expected to generate annually 27 billion kilowatt-hours of hydroelectric energy, and irrigate 1.7

[40] Arun Elhance, *Hydropolitics in the 3rd World*, Washington D. C., United States Institute of Peace, 1999, p. 116.
[41] Lowi, *Water and Power*, p. 116.
[42] Kibaroğlu, *Building a Regime for the Waters of the Euphrates-Tigris River Basin*, p. 170.

million hectares of land, accounting for nearly one-fifth of the irrigable land of Turkey. This would be accomplished through the construction of 22 dams, 19 hydropower plants, and extensive irrigation and drainage networks.[43]

Syria initiated the Euphrates Valley Project in the early 1960s when the Baath Party came to power. Thus, in 1963, the Government of Syria in the first five-year development plan decided to build a large dam on the Euphrates river as a response to the country's increasing energy and food needs. The Tabqa (renamed Al-Thawra meaning 'revolution' in Arabic) became operational in 1973. The government set a number of objectives to be followed in the context of the Euphrates Valley Project: irrigating an area as wide as 640,000 hectares; generation of electric energy needed for urban use and industrial development; and regulating the flow of Euphrates in order to prevent seasonal flooding. After more than 30 years, these objectives have been only partially realised in the Euphrates basin.[44]

The keystone of Iraq's water development scheme is the vast Thartar Canal (Depression) between the Tigris and the Euphrates northwest of Baghdad with a surface area of 2,710 km2. Its vast total capacity is twice that of the Atatürk Dam and as much as the live capacity of the Aswan Dam. It is filled by diverting water from the Tigris at the Samara Dam to protect Baghdad against the dangers of flooding. Moreover, with the Thartar Canal, Iraq has already been able to alleviate water shortages within the Euphrates basin by diverting the Tigris water (where Iraq has a surplus) into Lake Thartar and then into the Euphrates when there is not enough water to feed the dependent irrigation projects. Taking into consideration the constraints of water salinity in the Thartar Canal and the amount of water that can be saved and transferred from the Tigris to the Thartar Lake reservoir, it may be assumed that about 6 bcm of water could be transferred annually from the Thartar reservoir to the Euphrates river.[45]

Rising of the Disputes over Transboundary Waters Use (from 1960s to 1990s)

The 1959 water division treaty, which was signed between Egypt and Sudan, remains active and binding among the two signatories to date in the

[43] Ibid., p. 174.
[44] Ibid., pp. 197-199.
[45] Ibid., pp. 209-211.

Nile basin. It did not include other riparians. After achieving independence from colonial rule and acquiring some maneuverability vis-à-vis Egypt's favorable position, upper Nile riparians have, in principal, rejected all colonial era treaties, which have deliberately not included their own interests and allowed Egypt to dictate the hydropolitics of the region. Hence, the tensions in the Nile basin were often being raised by the political rhetoric, particularly between the Egyptian and Ethiopian leadership. Egypt, so heavily dependent on the Nile waters, has used its military might and hegemonic status to threaten any lower riparian, primarily Ethiopia, from undertaking any projects that would risk Egypt's current share from the Nile.[46] In 1978, President Sadat stated: "we depend upon the Nile 100 percent in our life, so if anyone, at any moment thinks to deprive us of our life we shall never hesitate to go to war because it is a matter of life or death."[47] Even though no direct military confrontation was noted among the riparians caused by transboundary water sharing, Nile basin riparians engaged with various border wars and ethnic conflicts with their neighbors during the 1960s and 1970s. During the 1980s conflicts in key Nile states emerged again, including civil conflict in Sudan, and in Ethiopia a new intensification in the civil war.[48] Most recently the civil war in Sudan between the Muslim North and the Christian South and Egypt's efforts to mediate the conflict has demonstrated Egypt's fear that an independent state in the south may endanger her interests in the Nile. Egypt has also threatened other countries, like Ethiopia, which support the Christian Sudanese.[49] Under this shifting mosaic of ideological and political developments, the contemporary politics of the region have frequently been extremely violent, from local to national to international level. In recent years major wars have been fought between co-riparian states, including the Ethiopian-Eritrean "border war" in the late 1990s, the conflict in the Democratic Republic of Congo, and the conflict in Southern Sudan.[50]

Although the claim that water was a major cause of the 1967 war is much disputed,[51] there is little doubt that the development of the Israel's

[46] Dinar, "Geopolitics of Hydropolitics: Negotiations over Water in the Middle East and North Africa," p. 12.
[47] John Waterbury, *Hydro-politics of the Nile Valley,* Syracuse, Syracuse University Press, 1979, p. 78.
[48] Nicol, "The Nile: Moving Beyond Cooperation," p. 19.
[49] Dinar, "Geopolitics of Hydropolitics: Negotiations over Water in the Middle East and North Africa," p. 14.
[50] Nicol, "The Nile: Moving Beyond Cooperation," p. 20.
[51] See, for instance, Jan Selby, "The Geopolitics of Water in the Middle East: Fantasies and Realities," *Third World Quarterly*, Vol. 26, No. 2, (2005), pp. 329-49; and Aaron T. Wolf, "Conflict and Cooperation along International Waterways," *Water Policy,* Vol. 1, No. 2, (1998), pp. 251-265.

National Carrier in 1964 and subsequent Syrian attempts to divert the headwaters of the *Jordan river* played a part in the chain of events leading to the war.[52] When in 1959 Israel continued with the construction of the National Water Carrier the Arab League came up with a counter plan: the water from the Hasbani and the Banias, two source rivers of the Jordan river, would be diverted over the Golan Heights to the Yarmouk. A dam would be built there in order to divert water via the East Ghor Canal to Jordan and Palestinian refugees there. In 1964, within weeks of the commencement of work on the Arab diversion project on the Banias tributary, there was a border clash between Israeli and Syrian forces: the first in a series of military responses to rival water projects.[53] When the Arabs began construction, Israel's prime minister Eshkol declared that "water is a question of life for Israel" and that "Israel would act to ensure that the waters continue to flow."[54] As Lowi explains "threats and counter-threats among the basin states and regarding the utilization of the Jordan waters were recurrent during this period." During 1965 and 1966 the conflict escalated from border skirmishes to air attacks. According to Donkers the water conflict set off a chain of reactions which finally led to the war of 1967.[55] Yet, Lowi asserts that "the Jordan water crisis of 1964 and the Arab-Israeli war of 1967 were two distinct crises in a protracted conflict, and the former can be considered as one of the several conflict spirals that, in combination, culminate in war."[56]

In the *Euphrates-Tigris Basin* technical meetings, which took place since the mid 1960s, did not fulfill the expressed aim of coordinating the water development and use patterns of the three riparians. Hence, a series of diplomatic crises occurred in the region during the 1970s, 80s and the 90s. Turkey started impounding the Keban reservoir by February 1974 at the same time that Syria had almost finalized the construction of Tabqa dam. This was a period of severe drought. The impounding of both reservoirs escalated into a crisis in the spring of 1975. Iraq accused Syria of reducing the river's flow to intolerable levels, while Syria placed the blame on Turkey. The Iraqi government was not satisfied with the Syrian response, and the mounting frustration resulted in mutual threats bringing the parties to the brink of armed hostility. A war over water was averted

[52] Lonergan, "Human Security, Environmental Security and Sustainable Development," p. 79; and Lowi, *Water and Power*.
[53] Miriam Lowi, "Water and Conflict in the Middle East and South Asia" in M. Lowi and B. Shaw (eds.) *Environment and Security*, MacMillan Press, 2000, p. 161.
[54] Donkers, "Fresh Water as a Source of International Conflicts," p. 144.
[55] Ibid.
[56] Lowi, "Water and Conflict in the Middle East and South Asia," p. 161.

when Saudi Arabia mediated that extra amounts of water be released from Syria to Iraq.[57]

On 13 January 1990, Turkey temporarily intervened in the flow of the Euphrates river in order to fill the Atatürk reservoir. The decision to fill the reservoir over a period of one month was taken much earlier. The month selected for this purpose was January, a month with no demand for irrigated agriculture. Turkey had notified its downstream neighbors by November 1989 of the pending event. Turkey released twice the usual amount for two months prior to the impoundment, sent delegations to Middle Eastern countries to explain the need for the impoundment, and the measures taken. However, the Syrian and the Iraqi governments officially protested Turkey, and consequently called for an agreement to share the waters of the Euphrates, as well as a reduction in the impounding period.

Another crisis occurred in 1996 after Turkey started the construction of the Birecik on the Euphrates river. Both Syria and Iraq sent official notes to the Turkish government in December 1995 and January 1996 indicating their objection to the construction of the Birecik dam on the grounds that the dam would affect the quantity and quality of waters flowing to Syria and Iraq.

Emergence of Cooperation Frameworks (1990s-onwards)

Even though there were attempts for cooperation in the *Nile basin* by the late 1960s under the Hydromet[58] project and the subsequent Undugu[59] initiative, the decisive step in the Nile Basin's evolution towards cooperation was taken by the Tecconile in 1992.[60] According to Nicol "the end of the Cold War was major contributory factor in greater feasibility; another was the actual realization amongst basin states that in order to

[57] Kibaroğlu, *Building a Regime for the Waters of the Euphrates-Tigris River Basin*, pp. 226, 229-230.

[58] Hydromet project, which was launched with the support of the United Nations Development Program and the World Meteorological Organization, sought to conduct a hydrological survey of the basin, and included many of the upper White Nile riparians, however participation was not unanimous. See Peichert, "The Nile Basin Initiative: A Promising Hydrological Peace Process," p. 119.

[59] Undugu initiative, which sought to bring together nations in unofficial economic and development discussions, consisted of Egypt, Sudan, Congo, and the Central African Republic, and later additionally Rwanda, Burundi, and Tanzania. The initiative examined such regional integration efforts as linking the electric grids of the riparian states to ensure that all members were able to meet their indigenous electricity demands. See Peichert, "The Nile Basin Initiative: A Promising Hydrological Peace Process," p. 121.

[60] Technical Cooperation Committee for the Promotion of the Development and Environmental Protection of the Nile Basin (Tecconile) served as a preparatory organization to the Nile Basin Initiative, and sought to unite six of the ten riparians (Egypt, Sudan, Uganda, Tanzania, Rwanda, and the Democratic Republic of Congo) in a comprehensive legal and institutional framework consisting of short and long term goals.

manage the river in the future, greater joint development of the resource would have to take place under a broader cooperative framework. The drought experienced in the Horn of Africa and on Nile flows during the 1980s helped to form this perception."[61]

Cooperation efforts around Tecconile culminated into the Nile Basin Initiative in 1998 with a basic objective to achieve the sustainable development of the river Nile for the benefit of all. With the support of the World Bank, the Nile Basin Action Plan was adopted by the riparian countries to promote inter-riparian collaboration, in the form of the International Consortium for Cooperation on the Nile (ICCON). This initiative promotes continual cooperation between the water ministers of the basin (Nile-COM), the Technical Advisory Committee (Nile-TAC), and the establishment of a permanent Secretariat (Nile-SEC) in Entebbe, Uganda.[62] By developing a shared vision statement, a range of multilateral cooperative projects, and addressing mutual issues and needs, the Nile Basin Initiative has served to unite the basin in expanded dialogue to resolve their previous disputes. The shared vision program identifies possible areas for further cooperation, which include environment, energy, agriculture, planning and management, communications, training, and socio-economic development.

Since formally being launched in 1998, the Nile Basin Initiative has sought to develop areas where formal cooperation is mutually beneficial. Nicol points out that "within this hugely diverse social and economic environment, inhabited by economies with few major linkages between one another and with massive divergence in financial strength, economic structure, and growth trajectories, building an equitable basis for benefit sharing will be difficult."[63] He goes on, however to identify addressing poverty and advancing human development as possible ties of common need, and where potentially collective benefit could be experienced. The Nile Basin Initiative has followed this focus, and the eight major projects which have been launched, or are being developed largely share this concern for alleviating poverty in the basin.[64] The areas being addressed are: "Applied Training Project, Confidence Building and Stakeholder

[61] Nicol, "The Nile: Moving Beyond Cooperation," p. 6.
[62] İlhan Sağsen, "The Issue of Management of the Waters of the Euphrates and Tigris Basin in International Context", Unpublished MSc Thesis, Middle East Technical University, 2006.
[63] Nicol, "The Nile: Moving Beyond Cooperation," p. 25.
[64] Ryan Taugher, "Transboundary Benefit Sharing among the Tigris and Euphrates River System Riparians", Paper presented at the Sixth International Relations Conference on the Middle East in Global and Regional Perspectives, Middle East Technical University, Ankara, 14-16 June 2007.

Involvement Project, Regional Power Trade Project, Shared Vision Coordination Project, Socio-economic and Benefit Sharing Project, Transboundary Environmental Action Project, Efficient Water Use for Agricultural Production Project, and the Water Resource Management Project."[65]

The volatile relations between the Arabs and Israelis in the second half of the 20th century had occasionally witnessed attempts for transboundary water cooperation, albeit fruitless. The Johnston Mission[66] could be recalled as one such initiative for cooperation in the *Jordan basin*. Nonetheless, as Jagerskog explains "in the aftermath of the Gulf crisis and Iraq's 1990 invasion of Kuwait, coupled with the end of the Cold War, the rules of engagement were drastically changed" in the region. With the regional scene changed, US President George Bush (the senior) was in a position to convene the Madrid Peace Talks in October 1991.[67] Immediately after the start of peace negotiations in Madrid, a separate working group was set up to negotiate the issue of water as part of the multilateral negotiations.[68] In the treaties and agreements signed since then water has been given much attention. In 1994, Jordan and Israel reached an agreement over water, and Palestine and Israel launched the Oslo peace process. In addition to the bilateral nature (Israel-Jordan; Israel-Palestinian Authority) of these agreements, Syria and Lebanon were out of the process since they boycotted the Middle East Peace Process altogether.

In the Treaty of Peace between Israel and Jordan, Article 6 and Annex II are devoted to water problems. Even though the water stipulations of the treaty argued to be rather balanced in terms of the keen emphasis on equitable and efficient use of available water resources, the rights of the Palestinians on the West Bank is totally ignored.[69] It allows Jordan to store winter runoff in Israel's Sea of Galilea. The accord also allows Israel to

[65] «http://www.nilebasin.org» (accessed on March 27, 2007)

[66] In 1953 when Israel started the construction of the National Water Carrier, the project quickly led to armed skirmishes with Syria. The American President Eisenhower realizing that the water conflict could develop into a new war, sent a special envoy, Eric Johnston, to the region in 1953 in order to gain the support of the four basin states of the Jordan for one distribution plan. After two years of negotiation Johnston achieved a compromise (the Unified Plan): the negotiating teams accepted it, but their governments did not. See Stephan Libiszewski, "Integrating Political and Technical Approaches: Lessons from the Israeli-Jordanian Water Negotiations," in N. Gleditsch et al. (eds.), *Conflict and the Environment,* Kluwer Academic Publishers, 1997, pp. 385-402.

[67] Anders Jagerskog,"Why States Cooperate over Shared Water," Unpublished Doctoral Dissertation, Linköping University, 2003, p. 98.

[68] For a critique of the Oslo Process see Jan Selby, "Dressing-up domination as cooperation: The Case of Israeli-Palestinian Water Relations," *Review of International Studies,* Vol. 29, No. 1 (January 2003), pp. 121-38.

[69] Donkers, "Fresh Water as a Source of International Conflicts," p. 155.

lease from Jordan a specified number of wells to draw water from agricultural land. As part of the agreement a Joint Water Committee was created to manage shared resources. But the accord did not detail what would happen to the prescribed allocations in a drought. In early 1999 the worst drought on record led to tensions as water deliveries to Jordan fell. But the agreement itself remained intact-an outcome that demonstrated the commitment of both sides to cooperate.[70]

As Donkers explains the Interim Agreement between Israel and Palestinian Liberation Organization incorporates, in the very detailed article 40, "the Palestinian water rights in the West Bank, but "these will be negotiated in the permanent status agreement relating to the various water resources."[71] In the agreement, the water requirements of the Palestinians have been underestimated at 70-80 mcm, which will definitely curtail agricultural development in the West Bank. Moreover, water rights of the Palestinians from the surface water of the Jordan are not discussed at all.[72]

Progress toward a basin-wide set of water agreements appeared to be at an advanced stage by 1995. However, the assassination of Israeli Prime Minister Yitzhak Rabin in 1996 and the subsequent change of government in Israel reversed the progress toward a set of comprehensive agreements, including those over water.[73]

These recent peace plans[74] should not be interpreted as a sign that water has become unimportant to either side. In this respect, Allan emphasizes that the establishment of the Joint Water Committee (JWC), an institution established with the Interim Agreement, underscores the importance each side confers on water issues. The JWC continues to hold regular meetings-even during the height of the second *Intifada* in 2001 and 2002. In January 2001, a joint statement by the Israeli Water Commissioner and the head of the Palestinian Water Authority called on both sides to avoid damage to the water infrastructure and interference with water supplies. At the same time,

[70] United Nations Development Programme (UNDP), *Human Development Report*, 2006, p. 222.
[71] Donkers, "Fresh Water as a Source of International Conflicts," pp. 155-156.
[72] Ibid., p. 156.
[73] J. A. Allan, "Hydro-Peace in the Middle East: Why no Water Wars? A Case-study of the Jordan River Basin", *SAIS Review,* Vol. 22, No. 2, (2002), p. 267.
[74] The most recent water negotiations occurred during the July 2000 session at Camp David and at Taba the following year. These meetings merely emphasized the low priority given to water disputes in relation to the more symbolic issues of Jerusalem and territory. The more recent Saudi proposal of March 2002 ignored water entirely. The Saudi proposal was to extend recognition to Israel by twenty-two Arab governments in exchange for a return to 1967 borders and consideration of the position of Palestinian refugees.

the Joint Water Committee is a source of frustration to Palestinian professionals as it is subject to the Israeli Defense Force views on security. Nevertheless, water management throughout the 1990s is a testament to the possibility of cooperation over this important strategic resource, and ensures that water will remain high on the agenda in both Palestine and Israel, despite the overwhelming social and security disruptions since September 2000.[75]

Based on the status of the relations between the riparians of the *Euphrates-Tigris basin* and the recent rapprochement between Turkey and Syria since late 1990s, one can predict better cooperation and more productive conditions for transboundary water coordination in the region. Yet, establishing a cooperative regional framework in the Euphrates-Tigris river basin presents a great challenge.[76] Notwithstanding, relations between Turkey and Syria have considerably improved since the signing of the Adana Security Agreement in 1998, and new and promising initiatives have been undertaken. To name a few, in 2001, the Southeastern Anatolia Project Regional Development Administration (GAP RDA), Turkey initiated contact with Syria by sending a delegation on the invitation of the General Organization for Land Development (GOLD), Ministry of Irrigation, Syria. As a result, a *Joint Communiqué* was signed between the GOLD and the GAP RDA on 23 August 2001. Its overall goal as perceived by their initiators is to provide sustainable utilization of the region's land and water resources.

Furthermore, development of political and economic relations among the riparians since the late 1990s produced fruitful impacts on the water-based development in the region. A series of government, private sector and civil society delegations have paid numerous mutual visits reaching fruitful understandings and agreements on trade and economic matters. These initiatives have culminated in the signing of the Free Trade Agreement in 2004, a real breakthrough in the advancement of bilateral economic relations. This productive dialogue has been also reflected in the water related development sectors, namely agriculture, health and trade. Thus, the years 2003 and 2004 have witnessed the signing of two framework

[75] Allan, "Hydro-Peace in the Middle East: Why no Water Wars? A Case-study of the Jordan River Basin", pp. 267-268.

[76] Even though, the riparians had managed to build an institutional framework, namely the Joint Technical Committee (1980-92), they couldn't succeed to empower it with clear and jointly agreed mandate. Instead, they continued unilateral and uncoordinated water and land development ventures. Thus, a series of diplomatic crisis erupted since the early 1970s.

cooperation agreements on health and agriculture, respectively. Both agreements underline the importance of enhancing cooperation and fostering development in two neighboring countries and comprise, among other things, issues on water related development fields such as combat against water borne diseases and soil and water conservation in agricultural practices.

Another significant development in the region is the foundation of the Euphrates-Tigris Initiative for Cooperation (ETIC) by a group of scholars and professionals from the three major riparian countries in May 2005.[77] ETIC adopts a holistic, development focused, multi-sectoral approach as opposed to one aiming at sharing the river flow. The latter has proven to be divisive and unproductive. ETIC does not promote a certain model of cooperation or a formula of water sharing. It envisages being a facilitating platform. In this respect, since its very recent establishment, ETIC has proven to be a dedicated convener of the conference sessions among the concerned authorities in the region and also the innovative creator of training program among the water engineers of the region.

Conclusion

The article presents an historical overview of the evolution of the transboundary river disputes in the major watersheds of the Middle East with particular attention to the hydropolitical relations since the early 20th century. The Nile Basin Initiative (NBI) has been successful in institutionalizing cooperation in the basin through the formation of a set of formal organizations. In addition to these governmental institutions, a non-governmental discussion forum, namely the Nile Basin Discourse (NBD) was established in 2003 with a view to providing institutional support at all levels, including the civil society, to the governmental initiatives.[78] Yet, there are critical concerns about the overall achievements of the NBI in terms of its two basic objectives/pillars: "socio-economic development in the region", and "the equitable utilization of the river." As regards to the former pillar, even though the NBI has been, so far, an exemplary case of cooperation, the tangible outcomes of this cooperation are not fully achieved, and distribution of the benefits of the NBI projects to the populous poor communities in terms of socio-economic development are

[77] «http://www.eticorg.net»
[78] Peichert, "The Nile Basin Initiative: A Promising Hydrological Peace Process," pp. 128-130.

yet to be seen. The second parallel pillar, namely "water sharing" has been mostly handled through closed bilateral talks particularly between Egypt and Ethiopia. Little is known about the progress of these talks. Hence, status quo continues for the time being, where the 1959 Agreement stipulates the water supply to be shared between Sudan and Egypt, excluding the east African riparians. One other concern is that: despite the upheld multilateral nature of the NBI, both Egypt and the Ethiopia continue to pursue unilateral projects, which are said to have an impact on the demand for water in the long term and might have a largely counterproductive effect on cooperative efforts.[79] Moreover, water conflicts at sub-national level act as a precipitating cause of instability and humanitarian crises in the region. To illustrate, even though the Darfur conflict is a complex crisis with many interwoven causes, it is originally, in part, about water. Lengthened drought cycles provoked outbreaks of violence. In northern Kenya close to the Ethiopian border competition over water between pastoralist communities ended up in violent clashes, causing hundreds of people killed and thousands of them displaced in 2005. So far, the NBI did not develop any effective mechanism to deal with this localized water-related violence.

Similarly, structural scarcity continues to be the major source of inequitable and ineffective water use and management in the Jordan basin. Since the Oslo peace process in 1993, Israel acknowledges the Palestinian water rights but made clear that this would not lead to practical implications in the field.[80] Since then, the Joint Water Committee keeps functioning to supervise the implementation of the engagements, yet it constitutes a platform where Israeli dominance continues. Deconinck emphasizes that without a sustainable solution for the water conflict, Israelies and the Palestinians are heading for a disastrous water crisis in the first quarter of this century. In the peace treaty of 1994 between Israel and Jordan, both countries have settled their differences over the use of the shared water resource. Yet, the treaty had faced challenges during its implementation, as illustrated in the 1999 drought crisis. All in all, these are partial arrangements in the absence of Syria and Lebanon in the picture. A sustainable water policy can only be achieved on a regional level, and has

[79] Ibid., p. 129.

[80] Stephan Deconinck, "Israeli Water Policy in a Regional Context of Conflict: Prospects for Sustainable Development of Israelis and Palestinians," *Selected Papers of the International Conference From Conflict to Co-operation in International Water Resources Management*, UNESCO-IHE Delft, Holland, 20-22 November 2002, UNESCO-IHP, pp. 287-301.

to include all the riparians in the basin in a cooperation scheme. A prerequisite for success is the joint administration of the existing water resources. Of course, this cannot be achieved without regional peace.[81]

On the other hand, the 1987[82] and 1990[83] bilateral agreements constitute the basic legal documents which set existing water use rules in the Euphrates-Tigris river basin. These bilateral accords were interim measures, which were largely products of the then-prevailing political atmosphere in the basin and have not served the goal of achieving efficient and equitable allocation and management of the water resources in the basin. Moreover, these agreements have shortcomings in responding to the growing challenges in the region. Water quantity has been almost depleted and the flows in both rivers are subject to severe fluctuations. Water quality has been degrading as well. The changing physical conditions were not taken into consideration in either protocol. The impacts of the climate change will likely challenge the existing water use patterns in the region. Furthermore, these protocols did not comprise stipulations to deal with the growing social and economic needs of the respective populations. In this respect, Turkish-Syrian rapprochement may pave the way for coordination in water-based development fields. Still, it is a partial cooperative attempt since Iraq has been under occupation and destabilized since 2003. Turkish-Iraqi political relations have been deteriorating since 2004.[84] Yet, the article argues that, against all the odds, piecemeal efforts of investigating opportunities of cooperation in water-based socio-economic development fields such as the ones taken by the ETIC could provide a sound beginning to build trust and collaboration in the region.

[81] Ibid., p. 301.
[82] The 1987 Protocol was concluded between Turkey and Syria. The protocol is as an interim agreement which stipulates that "during the filling up period of the Atatürk dam reservoir and until the final allocation of the waters of Euphrates among the three riparian countries, the Turkish side undertakes to release a yearly average of more than 500 m3/sec at the Turkish-Syrian border and in cases where monthly flow falls below the level of 500 m3/sec, the Turkish side agrees to make up the difference during the following month."
[83] The 1990 Protocol was signed between Syria and Iraq according to which 58 percent of the Euphrates water coming from Turkey would be released to Iraq by Syria.
[84] For further discussion see the articles by M. Altunışık and G. Çetinsaya in this Issue.