

Water Dispute in the Middle East: The Euphrates-Tigris Basin

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In this study an attempt is made to find answers to the following Questions: What are the causes of conflict among the riparian states? How are the Inter-state relations? What efforts were made to solve the water sharing issue? How the ethnic issue and domestic constituencies are related? How the peace and stability in the region is important? What is the solution to this issue? The riparian states do not co-operate each other. Upper riparians use river water unilaterally. Turkey has abundant water resources. It produces maximum hydroelectric power. It has no oil resources. Syria is also developing state. Its economy is not strengthened. Its population is solely dependent on agriculture. Iraq is rich in oil. It can use thermal energy and can lessen reliance on agriculture with developing industry. But Iraq is a deserted state and water is required for domestic use and drinking for its growing population. For fairly water sharing, long term agreement is required.

[Key words: Euphrates, Tigris, single system, GAP, Ataturk Dam, hamsin, Kurd, riparian, historical rights, agreement]

I. The Euphrates-Tigris Basin

Water conflict is a term describing a conflict between countries, states, or groups over an access to water resources. The United Nations recognizes that water disputes result from opposing interests of water users, public or private. United Nations Secretary-General Kofi Annan said that, “fierce competition for fresh water may well become a source of conflict and wars in the future” (Postel and Wolf 2001:60). It is considered that water was ‘a principal cause’ or ‘a major factor’ behind the 1967 Arab - Israeli war or, that this war ‘was caused largely by competition for the waters of the River Jordan’ (Selby 2005:330). Water projects are designed for hydropower generation, irrigation, and flood control and storage. All riparians, in the major basins of the Nile, Tigris-Euphrates, and the Jordan-Yarmuk, want economic development through water development projects (Magilligan 1995:380).

The Euphrates basin has an arid and semi-arid climate. Precipitation drops from 500 to 1,000 millimeters in the upper basin to less than 200 millimeters in southern Syria and Iraq. One-third of the Syria is steppe and consists of desert and semi-desert regions. Two-third area of Iraq is desert and

much of the country gets less than 125 millimeters of rainfall per year. The source of the Euphrates River is two tributaries- the Kara Su and the Murat- in the Armenian mountains of eastern Turkey. The Keban dam was built at the point where these two tributaries meet in Turkey. The origin of the Tigris is also in the Armenian mountains, very close to the Murat River. It flows directly to the Mesopotamian plain and joins to the Euphrates to form the joint river, the Shatt al Arab. The Tigris flows parallel to Zagros Mountains and collects many tributaries (Soffer 1999: 75). The Euphrates basin lays 28% in Turkey, 17% in Syria and 40% in Iraq. The annual discharge of the river is 31.8 billion m³. 88 % is generated within Turkey and remaining 12% in Syria. Iraq makes practically no contribution to the river flow (Lowi 1993: 55-57). The Euphrates River basin spans 444,000km². The Tigris River basin spans 387,000 km², of which nearly 15% lies in Turkey and three-quarters in Iraq. Syria possesses a mere 1,000 km² of the basin area (Williams 2012: 29).

Both branches originate nearly 30 km from each other. Length of the Euphrates is 2,700 km and is the longest river in south-west Asia. Length of the Tigris is 1,840 km and the second longest river in south-west Asia. This river rises in eastern Turkey. It demarcates a 32 km section of the Turkish-Syrian boundary. It reaches in Iraq between Tikrit and Samarra, but, in contrast to the Euphrates, receives its larger increment of water from tributaries (Ibid: 31).

The Euphrates flows about 41% in Turkey, 24% in Syria, and 35% in Iraq. The Tigris flows about 21% in Turkey, 77% in Iraq, and 2% only in Syria (it constitutes 35 km Syrian-Turkish border, and 8 km Syria-Iraq border). Iran is the minor partner in the system. The Euphrates and Tigris have entirely separate drainage basins, but because their last section is united, so it is called as a single system (Soffer 1999:71).

In the months of *hamsin* (very hot, dry days- March to May), the snowmelt increases and the overflow turns into a heavy flood. In days of *hamsin* a flood of the Tigris can reach the outskirts of Baghdad within 24 hours, while the flood of the Euphrates will reach Iraq only within 10 days, during which time its flow weakens.

The Tigris and Euphrates unite and form the Shatt al Arab near the town of Qurna. The joint river's length is 180 km and it is about 1 km wide. The final tributary, the Karun, empties into the Shatt al Arab. The Karun has a wide drainage basin and an average annual discharge between 20 and 25 billion m³ of water. Before the construction of the dams during the 1970s and 1980s, the average annual discharge of the Shatt al Arab when it empties into the Persian Gulf was about 20 billion m³. The Tigris discharge is greater than that of the Euphrates. Tigris' annual discharge near Baghdad is 1240m³/sec (39.1 billion m³/ year), and the Euphrates' near Hit is 710 m³/ sec (25.9 billion m³). It is difficult to determine the average annual discharge of the two rivers together because of the large annual variation.

Turkey has the major share of the discharge of the Tigris and of the Euphrates. Iraq has nothing of the Euphrates discharge, but has the principal

share of the discharge the Tigris tributaries. Syria has nothing of the Tigris discharge, but has the chief share of the discharge of the Euphrates tributaries (the Khabur and the Balikh). Turkey contributes 72% of the total discharge, Iraq 18.5%, and Syria not more than 2%. If we regard the Karun as part of the Tigris and Euphrates system, then Iran is in third place and contributes about 7.5% (Ibid: 77- 81).

II. Projects: Three riparians constructed dams, tunnels and hydroelectric projects on the Euphrates-Tigris River. These projects became the cause of conflict.

Turkey: Its projects are being pursued in order to generate hydro-electric power, decentralize development, stop rural-to-urban migration, and appease the Kurdish population in the region (Lowi 1993: 60). At the end of the 1980s, 40% of the working population was farmers. Turkey is the largest wheat producer and the largest food exporter. It has a large amount of agricultural land, estimated at about 8.5 million hectares, including about 1.7 million in Anatolia (Soffer 1999:107). Between 1990 and 2008, Turkey's water consumption for irrigation rose from 22km³ to 34km³ and in 2023 it could increase by more than double to 72km³ per annum. Turkey seeks more electricity from hydroelectric power plant (HEPP). Turkey was reportedly operating 175 HEPPs. Total generation capacity increased by over 150 %, from 16,318 MW to 41,817 MW (Williams 2012:22- 25).

The GAP (Güneydoğu Anadolu Projesi-Southeast Anatolia Development Project) project was initiated in 1965. The development region under the project covers 28,520 square miles (9.5% of the total area of Turkey) including six regions. 5.5 million people inhabit in these regions (as of 1991): 50% Kurds, 40% Turks, and 10% Arabs. Through the development, Turkish government hopes that separatist movement of Kurds will end (Soffer 1999: 89). GAP host 13 projects (seven in the Euphrates basin and six in the Tigris basin) consisting of 22 dams and 19 HEPPs. These will have 7,490 MW of installed capacity and generate 27.387 TWh of HEP. 1.8 mha of cropland will also come under irrigation. GAP's hydropower target has come online more rapidly than its irrigation components. GAP's target for the irrigation is of one million hectares of land with Euphrates waters and 625,000 hectares with Tigris waters by the year 2002. Financial shortfalls plagued this project (Williams 2012:32-34).

The development plans on the Tigris has been postponed. There is growing conflict between the central government of Turkey and the Kurds who inhabit the Tigris basin. Principal water projects in the Euphrates basin are the Keban Dam, the Karakaya Dam, the Ataturk Dam, the Sunliurfa Tunnels, and the Birecik and Karkamish Dam. Water projects on the Tigris are the Dicle-Kralkizi Project, the Batman Dam, the Garzen Dam, the Ilisu Dam, and the Cizre Dam. The Ataturk Dam is the largest and most costly of the GAP dams. It is the fifth largest dam in the world. It is intended for irrigation and electricity production. Its production capacity is 2,400 megawatts of electricity and

irrigation of 5 million hectares. Sunliurfa Tunnels are constructed for irrigation. Its storage capacity is about 48.4 billion m³ of water with a surface area of 338 square miles. The construction of the dam cost \$3 billion (Soffer 1999:91-92).

Syria: The Euphrates is the main water source. Syria also has access to the Tigris along a very small section of its course. In Syria, the more area is irrigated by groundwater than that irrigated by rivers. The storage capacity of the water projects in Syria is about 14 billion m³, including (12 billion m³) Lake Asad formed by the Tabqa Dam. Syria is constructing and planning dams on the Yarmuk, the Orontes, and the Khabur and reservoir projects in the Akkar coastal plain. It plans to raise the Tabqa Dam another few feet. It also planning a dam on the Euphrates called "Sixth of Tishrein", about 50 miles from the Turkish border. Syria uses 3 billion m³ Euphrates water for irrigation and local domestic use. According to a Syrian source, Syria was using 4.79 billion m³ of water in 1980s. Syria would need about 21 billion m³ water to realize all its plans to irrigate about 0.6 million hectares. It has been estimated that in year 2025 Syria's demand will between 5 and 10.7 billion m³. (Ibid:96-99).

Iraq: The origin of irrigation in Mesopotamia is hidden in the mid, pre-Sumerian past, perhaps more than 6000 years ago. The plain of Mesopotamia nowadays called Rafidain. For the restoration of the Nahrawan system, water from the Tigris will be added to a quota from the Diyala. The Tharthar depression (if utilized as a reservoir) will be used in conjunction with the Habbaniyah and Abu Dibis reservoirs, so that Tigris water can supplement Euphrates, and vice versa. For the purposes of irrigation, the two river basins will be integrated (Lebon 1955:47).

In Iraq about 4.0 million hectares are irrigated (Euphrates basin-09.1 million, Tigris basin- 2.0-2.4 million, and in Diyala and elsewhere-0.2-0.3 million hectares). The daily al Qabas claimed that in 1980s only 90% of the discharge of the two rivers was used: 14-15 billion m³ from the Euphrates and 32-38 billion m³ from the Tigris, totaling 52-53 billion m³ out of volume 60 billion m³ of available water. According to an American source, the amount in fact is used is 41 billion m³.

As for the Euphrates, if Turkey allocates only 15 billion m³ to Iraq and Syria, and Syria uses only 6-8 billion m³ (and not 12 billion m³ planned), then Iraq will receive only 7-9 billion m³ of water sufficient to irrigate only 0.5-0.6 million hectares in the Euphrates basin. Irrigation and hydroelectric production and ecology will be damaged. The solution would be to transfer water from the Tigris to the Euphrates, but it would involve a cutback in the irrigated land in the Tigris basin.

About 50% of the electricity produced in Iraq in the 1970s (1,300 megawatts) was generated by hydroelectric power stations. After the Kadisiya (Hadita), the Eski-Mosul (Saddam), and other dams are completed, electricity production will rise by an additional 6,000 megawatts. On the Euphrates alone

there are four power stations, which will produce about 40% of all the electricity in Iraq. If the Euphrates dries up, there will be significant damage to the electricity production. (Soffer 1999:100-03)

Iraq's Lake Habbaniya and Lake Abu Dibis hold capacity about 46 billion m³. The capacity of Tharthar depression, between the Tigris and Euphrates, is about 30 billion m³. With this reservoir, water is transferred via canals from the Tigris to the Euphrates to regulate the water shortage. In 1958, a canal was built to direct excess water from the Tigris to the Tharthar depression and prevents flooding in the low lying areas of Baghdad. Turkey's storage capacity about 90 billion m³ (actual capacity used is about 47.6 billion m³). Syria's capacity is 14 billion m³, and that of Iraq is about 100 billion m³, including the salty depressions and storage dams (Soffer 1999:84).

III. Relations with each other

The relationship among the three states is connected not only by water rights but also by complex historical and political factors. In 1939, on the eve of the, World War, France transferred Hatay (Alexandretta) region from Syria to Turkey, and Syria wants it back. Tension between two is linked to the Kurds, who live in all three countries. Turkey oppresses this minority, as does Iraq. Syria has only a very small number of Kurds. It supports the Kurdish Marxist guerrilla movement. The target of the guerrilla group is the GAP. During the crisis of the early 1990s, it proved that water issues are not economical only, but are political also. Turkey's demand was to stop Syrian support to the Kurdish against Turkey from behind the Syrian borders; and that Syria cease aiding the Armenians training in the Beqaa in Lebanon for acts planned against Turkish diplomats throughout the world. Turkey declared, if Syria did not, Turkey will interrupt the flow.

Prior to the Gulf War, relations between Turkey and Iraq were good. The two states had a common interest in keeping the Kurds down. They were linked by close trade relations. Iraq exported its oil through Turkey and sold oil to Turkey. But, Turkey provided aid to US Air Force and UN units in their defense of the Iraqi Kurds. During the Iran-Iraq war Syria supported Iran. In the 1991 Gulf War Syria participated against Iraq. (Ibid:112-13)

There was political and ideological tension between Syria and Iraq. It was due to the inception of a B'athi regime in Baghdad in July 1968. The B'ath party had been in power in Syria since 1963, but in February 1966, the government of the "old guard" – the founding fathers of B'athism – was ousted by its dissenting younger members. Two years later, the "old guard" took power in Iraq. This posed threat to the Syrian regime, which was struggling with a pro-"old guard" (and hence, pro-Iraqi B'ath) contingent at home (Lowi 1993:58).

IV. Agreements and Fair Sharing of Water

According to Helsinki Accord "the states of the basin will not prevent the other riparians from using the water" (Soffer 1999:88). The Euphrates and Tigris Rivers are international rivers according to 1997 Convention on the Law of the Non-navigational Uses of International Watercourses. Iraq acceded to the

Watercourses Convention and Syria ratified it. Turkey voted against its adoption. There is no binding on Turkey for cooperation with its lower riparians (Benvenisti 2003:866).

Between 1965 and 1975 Turkey built the Keban dam. During this time, Syria had launched the Euphrates Valley Project for irrigation of 640,000 ha. Iraq was already operating the Euphrates Dam to divert water into Al-Habbaniya Lake. In the first of two bilateral meetings in 1964, Turkish officials pledged to Iraq to maintain a minimum flow of 350m³/sec water downstream from Keban, implying that Iraq could compensate for Euphrates shortages from the Tigris. The second meeting held between Turkey and Syria. By 1965, Ankara secured World Bank and USAID funding for Keban only by sticking to its previous 350m³/sec pledge (Williams 2012:41-42).

Tripartite talks took place in 1965. Turkey made agreement on the Euphrates water conditional upon an inclusive agreement on the distribution of waters of all rivers common to it and Syria. This put the later in a difficult position. There was implicit provision for Syria. It has to recognize Turkish sovereignty over Alexandretta (Hatay province), through which the Orontes River flows. This territory was ceded to Turkey by the French mandatory power in Syria. Syria would not sign an agreement on the division of waters that flow through contested territory. In 1966, Syria and Iraq began a series of bilateral negotiations. (Lowi 1993:58). The first crisis erupted in 1974, when Turkey filled the Keban Dam reservoir and Syria filled the Tabqa Dam reservoir at the same time. As 1974 was a dry year, the flow of the Euphrates in Iraq stopped. Iraq called up its army and concentrated it on the Syrian border; Syria hastily released about 200 million m³ of water from the Tabqa Dam. (Soffer 1999: 111)

In 1975, Iraq charged Syria with violating the agreement by reducing the flow. Iraq took the matter to the Arab League. During April and May 1975 the third parties- the Arab League, the government of Saudi Arabia, and President Sadat of Egypt- tried to mediate the conflict. In June, Syria had transferred troops to the Iraqi border, where allegedly, Iraqi forces were massing. Saudi Arabia made another attempt to mediate. Syria accepted Saudi Arabia's proposal. But, no agreement was signed. In 1980, all three riparians agreed to establish a technical commission for the exchange of information. In 1984, Iraq agreed with Turkey to accept a minimum flow of 500 m³/ sec, but Syria refused to negotiate at the time. Discussions between Syria and Turkey began in 1986. Some sources state that Turkey has signed a protocol with Syria, guaranteeing it 500 m³/sec. The later agreement makes no reference to the earlier agreement with Iraq (Lowi 1993:58-59).

In 1983, the level of the Tabqa Dam reservoir lessened, Syria blamed Turkey for it. Syria and Iraq protested Turkey's plans. In 1990 the fifteenth meeting took place, but it did not accomplish anything (Soffer 1999:111). In January 1990 Turkey stopped the flow of the Euphrates in order to fill the dam's reservoir. The stoppage lasted one month. Syria's power station at the Tabqa Dam produced only 12% of its capacity, and throughout Syria there was

even a shortage of drinking water. Due to the electricity shortage, the pumping of ground water was affected. In Iraq winter crops were also suffered. (Ibid:92-93).

Tension escalated when Turkey built its Ataturk Dam. This dam can supply 328m³/s to the Sanliurfa Tunnels for irrigation of 476,000 ha. Turkey lost its WB funding for GAP. Iraq claims that Iraq's spring water reserves had plummeted from 40 km³ to 11 km³ due to Turkish dams (Williams 2012:43).

Turkey was interested to join European Community. Turkish President Ozal visited Syria in 1987. It adopted a position of compromise in 1990, declaring that it was ready to sign agreements and to cooperate, and brought up the "Peace Pipeline" (Soffer1999:112). In 1990, joint Syro-Iraqi demand was of 700m³/second. Turkish leader Turgut Ozal's "Peace Pipeline" proposal pledges Turkey to deliver an average of 500m³/s. But, in 1992, Turkey's foreign minister stated that, "Turkey is not a country which has abundant water resources. We may soon face problem in meeting our own needs" (Williams 2012:21).

In 1996 Iraq and Syria signed a bilateral agreement fixing the distribution of the Euphrates between them 42% would go to Syria and 58% to Iraq. According to Koncagul, "Weather patterns determine energy demands in Turkey. When the weather is warm (as was in winter 2001), there is less demand put on energy; as a result, the production of hydropower is less and therefore less water is released (downstream to Syria)". (Zawahri 2006:1047-48).

In 2001, Turkey and Syria signed a joint communiqué, which accelerated contacts and dialogue. In 2005, Iraq, Syria, Turkey, and the United States formed the "Euphrates-Tigris Initiative for Cooperation". (Williams 2012:45) In September 2009 Euphrates-Tigris crisis summit among states, Turkey's energy minister said that, "Turkey could not allow our own water and energy to run into problems" (Ibid:19).

Miriam Lowi focused on four variables for the analytical framework: resource need, relative power, character of riparian relations, and efforts at conflict resolution (Lowi 1993:54). According to Arnon Soffer, to allocate the river water fairly, all the relevant factors must be reviewed: the relative contribution of each state to the rivers' flow, each state's climate, each state's historical rights to water use, alternatives to water use, other resources within each state, wasteful use of water, as well as the possibility of developing water projects without harming the other riparians (Soffer 1999:116).

Turkey and Iraq have the main rights to exploit the water of the Tigris, and Turkey and Syria have main rights to exploit the water of the Euphrates. A fair division of the Euphrates water would allocate about 40% to Turkey, about 50% to Iraq and about 10% to Syria. This distribution based on discharge, historical rights, and existence of other resources requires cooperation among the riparian. Iran has a certain advantage in the two tributaries of the Tigris, the Diyala and the Little Zab, which originates in its territory, but due to difficult

topography it has no intention for any projects. Iraq can transfer water from the Tigris to the Euphrates and back again. Iraq is completing water transfer project (Ibid:81- 82). Evaporation is problem in the large reservoirs. The evaporation in all of the countries reaches about 9-10 billion m³ (Turkey- 3-4, Syria- 1, and Iraq- 4.5-5 billion m³). Turkey has abundant water. Its water supply is estimated at about 110 billion m³. The discharge of two rivers is estimated about 81 billion m³ annually (Ibid:88).

Due to oil, Iraq's dependency on water could decrease. It should reduce its agriculture and develop its industry. But, Iraq has historical rights to water use. Iraq is also dependent on hydroelectric power produced by the rivers. Turkey does not have historical rights to use the water. But, Turkey is prime contributor to the river's flow; it has a large population, to export food, and to satisfy the Kurds. Therefore, the agricultural development plan is crucial. Equally crucial is hydroelectric power, as Turkey has neither oil nor gas. Turkey does have the right to utilize the rivers' water. Syria's financial situation is not well. From a socioeconomic perspective, it is a developing country, and it cannot eliminate agriculture. It is dependent on the Euphrates for agriculture and hydroelectricity, and the other two states are rich in other resources (Ibid: 117).

According to Zawahri, these riparians should make any arrangement like India and Pakistan. To him an agreement is possible if there are three conditions: 1) the riparian states have an interest in co-operating, 2) a neutral mediator and 3) an institution is established. Turkey, Syria and Iraq have an interest in reaching a comprehensive agreement. There is need of a neutral mediator, such as an international organization, who assists in the negotiation process and to co-ordinate funding to finance the agreement's implementation. The Indus Water Treaty-1960 was signed between India and Pakistan. World Bank was a neutral mediator, which assisted in negotiations and drafting Indus Treaty. Even after three wars between the two states Indus Treaty still exists. (Zawahri 2006:1042).

Turkey's Prime Minister Suleyman Demirel stated that 'neither Syria nor Iraq can lay claim to Turkey's rivers any more than Ankara could claim their oil. We have a right to do anything we like. The water resources are Turkey's, the oil resources are theirs. We don't say we share their oil resources, and they can't say they share our water resources' (Ibid: 1047).

The water issue is linked with the ethnic conflict between Turkey and Syria. Syria has complained water shortage in the Euphrates-Tigris basin. Turkey claims that Syria uses the 'ethnic card'. It support Kurdish separatists known by their acronym PKK (Partia Karkaren Kurdistan or Kurdistan Workers' Party), in order to induce Turkey to make concessions on the water issue. Turkey used military pressure, which brought the two sides to the brink of war (Carkoglu and Eder 2001:41). In negotiations, the opinion of the domestic constituencies is important. The state has to satisfy the domestic constituencies. Moravcsik describes this process with an image of 'Janus-faced executive-

forced to balance domestic and international concerns - in a process of double-edged diplomacy' (Carkoglu and Eder 2001:43).

Robert Kincaid's "constituent diplomacy" concept deals with the phenomenon of 'international activities of a foreign policy character undertaken by the constituent governments and local governments of federal countries and decentralized unitary states, as well as by citizen organizations and non-governmental organizations (Maini 2012:68). Specially, Turkey's GAP region and in Indo-Bangladesh negotiation West Bengal state have major concern. According to Paul Williams, the "zero problems" foreign policy pursued by Turkey's Justice and Development Party government should offer brighter vistas for water relations (Williams 2012:46).

The UN Security Council recognized the presence of American and British forces in Iraq as an occupation subject to the Hague Regulations of 1907. (Benvenisti:860) The occupant is allowed to implement existing legislation or amend those for the administration of Iraq's water resources. (Ibid 2003: 870). But, they could not solve the problem. Any type of development depends upon the stability.

V. Conclusion

Water should be divided among the riparians fairly. It will be reasonable that allow to Turkey and Syria to use the Euphrates River flow. Syria can use some sort of Tigris River flow. Iraq will use the Tigris River flow. Iraq could compensate the Euphrates' water using the Tigris. Iraq can transfer water from the Tigris to the Euphrates. These states should find long term solution like Indus Water Treaty-1960. World Bank provided assistance for making this Treaty. They can take assistance of any neutral agency. After Gulf war USA and United Kingdom were occupant states in Iraq. But they could not solve this conflict by making any long term agreement. Turkey provided air base to the US alliance against the Iraqi force. Making any agreement among the riparians means decreasing Turkey's water use. For any agreement, there are obstacles of ethnic conflict. Kurdish activities in the GAP are also an obstacle in the faire distribution of water. Since the Gulf war till date Iraq is not stabled. Recently the ISIS's activities in Syria and Iraq threatened the governments' sovereignty. After the peace in the region any solution is possible.

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