Evaluation of Turkey-Iraq relations in terms of hydropolitics

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ABSTRACT

World temperature averages are constantly increasing in parallel with global warming. As a natural result of this, World water resources are decreasing rapidly. Unless this situation changes, water will appear as a decreasing value. Water is a very serious problem due to high temperatures, especially for some generations closer to the equatorial area.

The richest country in water when the overall evaluation of the region is Turkey. Neighboring countries are dependent on Turkey, Syria and Iraq is a case in water. The problem stems from this situation. Turkey wants to exercise the rights conferred on it by international treaties on the sharing of water. The vast majority of Turkey owned water resources in the region stems from the mountains in eastern Anatolia. Therefore, Turkey is willing to have power over these waters. However, it also pays attention to the issue of equity by allowing the flow of water to its neighbors. With the dams it has built in the region, it has aimed at the regular flow of water and the storage of water for periods when it is insufficient. The GAP project plays an active role in sharing water in the region.

In this country, both bordered by Turkey, both under the project to sell water to other Middle Eastern countries. However, this causes projects not to be developed.

Keywords: Hydropolitics, Water, Turkey, Iraq

1.Water Resources In The Region

In the Middle East, which is known as the place where water scarcity is felt most, water is more precious than oil and constitutes the basic and most important building block of human life. Middle Eastern countries are located in the subtropical climate zone. Therefore, at least 80% of the total annual precipitation is lost by evaporation, and the amount of water that penetrates the soil is far from meeting the needs of people. For this reason, water constitutes the most important and vital issue in Middle East countries. In some countries, it is thought that there will be serious water crises in the next 25-30 years as water continues to be used in an incalculable and wasteful measure. It is calculated that the rapid population growth in the Middle East, more orientation towards agricultural irrigation, and the depletion of underground resources due to long-term use, will bring many countries in the region to the ranks of water-poor countries in the near future. As a matter of fact, with the end of the Gulf War, a water crisis emerged in the region. The Middle East water crisis has become a strategic game that no country or international organization can get out of it. Sustainable stability policies and new bureaucratic structures are required for the solution. (Star, 2001).

1.1. Iraq Regional Water Resources

While water resources in Iraq are classified as surface and underground waters, they can be considered as resources because they are used for water storage in reservoirs. Seasonal rivers, floods, and drought cause problems during irrigation periods. One of the best ways to overcome this problem is to build a dam. Iraq has built dams to generate electricity, flood control, irrigation, and supply water to cities. The Dokan Dam is in the province of Sulaymaniyah within the borders of the KRG and was built in 1961 for irrigation and energy purposes. Located 75 km northeast of Kirkuk, the dam has a height of 116 meters above the thalweg and has a lake volume of 6800 million cubic meters at normal water level. The Little Zap Water, on which the dam is located, originates from Iran. Küçük Zap Water, which is an important water source for Samad and thousands of farmers, passes through Kirkuk before it merges with the Tigris. The decrease in precipitation has also caused a decrease in the amount of water stored in the Dokan Dam. In February 2011, the water level of the Dokan dam decreased by 6 meters compared to the previous year. While the amount of water reaching the Kirkuk water project from the Dokan dam was 75 cubic meters per second in the normal period, it is now stated that this figure is 30 cubic meters per second. Farmers stated that this amount of water is not enough even for drinking water.

The Bakhma dam on the Great Zap and the Badush dam on the Tigris River are the two new dams built. In addition, according to the Ministry of Water Resources, 85,000 km of the drainage system and 43,000 km of irrigation network are being developed. The Third River, also known as the Saddam River and the Masab Elam Canal, was built in 1992 and is 565 km long and has a flow rate of 210 cubic meters per second. The purpose of this channel is to increase water transfer efficiency, reduce losses and soil water absorption, and improve water quality. It also collects the water returning from the 1.5 million hectares of irrigated agricultural land. In 1995, about 17 million tons of salt were transported to the Gulf by the Third River. With this canal, the water returning from irrigation reaches the sea without mixing with the main river. (Bağış,2017)

Figure 1: Iraq Regional Water Resources

Source: Hydropolitics academy Access Date:22.10, 2019

The effect of the regulations made by the countries bordering the Euphrates and Tigris Rivers on these river flows can be monitored from the monthly flow values observed at the Hit-Husaiba Flow Observation Station located upstream of the Ramadi basin (regulator, barrage) on the Euphrates River in Central Iraq.

1.1.1. The Euphrates River

The Euphrates stream is formed by the merging of two large branches, namely Karasu, which originates from Dumlu Mountain in the north of Erzurum, and Murat water, which originates from Aladağ in the north of Van Lake. Its length is approximately 2330 km until it reaches the Tigris River. The Euphrates River, which is mostly fed with snow in the Eastern Anatolia Region, is joined by the Tohma and Göksu rivers, which are two important branches under the Keban Dam. (Bilen, 2000)

It joins the Tigris River in the upper part of Basra and forms the Shatt-ül Arap river and pours into the Persian Gulf. Its length from Karasu to the Syrian border is 971 km, and its length from the Murat water source to the border is 1263 km. Since it is the longest river in our country, there are high-capacity dams and hydroelectric power plants on it. The Euphrates is one of the widest rivers not only in the GAP region but also in Turkey. The drainage basin is 22,100 km^2 starting over the Syrian border, and a total of 102,876 km^2 is within the borders of the GAP region. (Zehir, 1998)

The Euphrates River passes through the Syrian territory from the city of Jarablis with an average head of 2 m/km in Turkey. While the Euphrates River travels through Syrian territory, it is fed by two branches (Belih/Balık/Sincar and Habur) coming from the left coast. Together with the Habur branch coming from Turkey and the Sinjar Waters within the borders of Syria, it reaches an annual potential of 35 billion m^3 on the border between Syria and Iraq. It enters Iraqi territory from the ancient city of Al-Qaim/Hasibe and continues to flow towards the southeast. The Euphrates, which has a very flat slope in Iraq, reaches the giant alluvial delta in Ramadi, which is only 53 m above sea level, and its cross-section is very wide. After this point, the river passes through desert regions and splits into a series of desert trenches and channels, both natural and man-made. Since the currents of the Euphrates River affect very large areas around this point, it divides into several branches from the left side towards the Tigris River between the Fallujah dam and Hindiye dam (the most important branches are the Seklaviyye, Abu-Garib, Yusufiyye, Latifiyye and Alexandria channels). Downstream of the Hindiye dam, the Euphrates River splits into two branches; Tributaries of Hille and Hindiye. The river Hile, passing through the cities of Hille and Divaniyye, travels to the south and becomes narrower in the city of Rumeyte. Hindiyye branch is also divided into two branches; Kufa and Shamiyya branches. These branches converge in the city of Şennafiye and divide into Atşan and Sebil branches again. It rejoins in the north of the city of Semave and then travels to the southeast. The river waters pass through Hasiviyye, Suk el-Shuyuk, and flow into the Hammar marshes, where they split into five smaller tributaries; It is known as Akikiye, Beni Seat, Elheffar, Um Nekle, and Beni Hasan. The Euphrates River and its tributaries join the Tigris at Kermet Ali near Kurna to form the Shatt-ül Arab waterway (Buteyna, 2014). The distribution of the Euphrates River basin area with a total precipitation area of 576, 814 km^2 and the long-term average water potential by countries is summarized below. (Özdemir and Öziş,2002).

(a) 33.1 km^3/year (98.5%) from the precipitation area of 121,787 km^2 (21.1%) in Turkey;

(b) 0.5 km^3/year (1.5%) from the 95,405 km^2 (16.5%) precipitation area in Syria;

(c) 0.0 km^3/year (0.0%) flow from the 282,532 km^2 (49.0%) precipitation area in Iraq;

(d) Assuming that there is no significant flow from the 77,090 km^2 (13.4%) precipitation area in Saudi Arabia, the average water potential of the basin is determined as 33.6 billion m^3/year in total. Considering the water potential of the Euphrates in Turkey, the water

needs of the settlement and industry in the region will be met in Turkey. With the waters of the Euphrates, 1,600,000 ha of agricultural land in Turkey and 800,000 ha in Syria will be irrigated.

Table 1: Summary of water budget in the case of full development in the Euphrates River system (km³/year)

	Altınbilek 1997	Kolars 1994	Kliot 1994	US Corps of Engineers 1991	Belul 1996
EUPHRATES	**Euphrates**	**Euphrates**	**Euphrates**	**Euphrates**	**Euphrates**
Amount of water entering Iraq	13.48	6.559	4	6.9	11.7
Amount of water withdrawn Iraq	-15.5	-13	-16	-17.6	-19

1.1.2. Tigris River

The Tigris River, which has a flow length of approximately 523 km in Turkey, is the second-largest river in Western Asia. The Tigris River originates from a source near Yıldızhan, on the south side of Hazarbaba Mountain, in the Maden Mountains in the Southeast Taurus Mountains, from an altitude of 1150 m near the Hazar Lake (Elazığ) in the east of Turkey, and travels approximately 1900 km until it joins the Euphrates River (Bilen, 1996). The main water sources of the Tigris River are the waters coming from the Eastern Anatolian mountains and the Hazar (Gölcük) Lake near Elazığ by infiltration from the bottom. After coming out of the source, it passes near the Maden district, takes the name Maden Stream, and flows parallel to the eastern part of the lava shelf where Diyarbakır city is located, passing through narrow and deep valleys towards the southeast. In this section, the bottom of the river valley falls to 600 m.

The river runs eastward at a distance of about 8 km south of Diyarbakir. After that, it collects the waters coming from the Anbarçayı, Kuruçay, Pamukçayı, Hazroçayı, Batman, and Garzan creeks descending from the slopes of the Taurus Mountains in the north and originating from the Diyarbakır basin. The flood plains Göksu and Savur Stream descending from the south and from the Mardin threshold also join the Tigris River. Passing through narrow gorges on the southern skirts of Raman Mountain, it joins with the Botan Stream and turns south again in its direction (Toklu, 1999).

From the Iraqi border to Mosul, the river is bordered on both sides by rolling hills and is confined to a deep valley in the Mosul region. Iraq has tributaries that contribute significantly to the water potential of the Tigris River. The Tigris River joins the Euphrates at Kurna. After this point, a waterway with a width of about 1 km and a length of 190 km occurs, which is called Shatt-ül Arap. The long-term average water potential of the Tigris River with a total precipitation area of 371,561 km²:

(a) 27.2 km³/year (53.4%) from 53,052 km² (14.3%) precipitation area in Turkey;

(b) 0.0 km³/year (0.0%) from the 948 km2 (0.2%) precipitation area in Syria;

(c) 3.0 km3/year (40.7%) from 175,386 km² (47.2%) precipitation area in Iran;

(d) 20.7 km³/year (21.1%) from the 142,175 km2 (38.3%) precipitation area in Iraq; The flow is calculated as 58 km³ /year. (Özdemir, 2002).

Considering the water potential of the Tigris, it is predicted that 650,000 ha of agricultural land in Turkey and 3,500,000 ha in Iraq (partly along the Euphrates) could be irrigated, beyond the water needs of the settlements and industries in the region. Since the Small Zap and Diyala rivers that originate in Iran

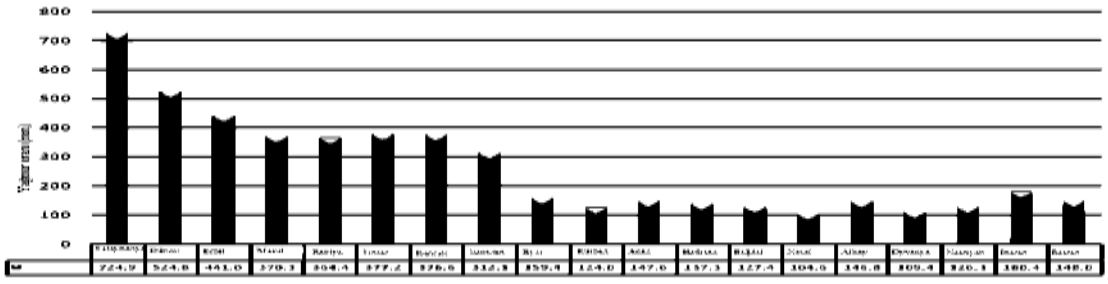
contribute to the water potential of the Tigris River and the Karun River to the Shatt-ül-Arab water potential, Iran is the country that has a coastline on the entire Euphrates-Tigris system. In addition, the Kharkeh river originates in Iran and flows into the swamps of Southern Iraq. The monthly average measurements of the Tigris River flow downstream of the Mosul Dam in Iraq between 1960 and 2012 are given in Figure 3. The effect of the dams built on the river and put into operation is clearly seen especially after 2000.

Table 2: Summary of the water budget in the Tigris River system at full development (km3/year)

	Altınbilek 1997	Kolars 1994	Kliot 1994	US Corps of Engineers 1991	Belul 1996
TIGRIS	**TIGRIS**	**TIGRIS**	**TIGRIS**	**TIGRIS**	**TIGRIS**
Amount of water entering Iraq	10.87	11.8	11.3	11.8	11.5
Amount of water added in Iraq	30.7	30.7	31.7	30.7	31.0
Amount of water withdrawn by Iraq	-31.9	-33.4	-40.0	-32.8	-33.5

Iraq is generally analyzed as Northern Iraq, Central Iraq, and Southern Iraq, as seen in Figure 3. In the tables below (Table 3, Table 4, Table 5), annual precipitation amounts measured between 1970-2012 at meteorological stations in these regions are given. When these tables are examined, the minimum amount of precipitation measured at the Najaf station was 23.8 mm (long annual average of 104.6 mm) in the 1972-1973 water year, and the highest amount of precipitation was observed at the Suleymaniyah station as 1245.8 mm (long annual average 724.9 mm) in the 1991-1992 water year.

Şekil 3. Irak'ta 1970 -2012 yılları arasında ölçülen Yıllık Ortalama Yağış değerleri



Resource: Rauf, 2012

1.2. Iraq's Use of Water Resources

Table 3. Average values of the annual total precipitation (mm) measured at meteorological stations in Northern Iraq between 1970 and 2012

Average Precipitation	Suleymaniyah	Duhok	Erbil	Mousul	Rabiyah	Sincar	Kirkuk
	724.9	547.8	441.0	370.3	364.4	377.2	376.6

Resource: Rauf, 2012

Table 4. Average values of the annual total precipitation (mm) measured at meteorological stations in Central Iraq between 1970 and 2012

Average Precipitation	Kanekin	Byci	Rütbeh	Aneh	Hadisah	Baghdad
	312.1	195.4	124.0	147.6	137.6	127.4

Resource: Rauf, 2012

Table 5. Average values of the annual total precipitation (mm) measured at meteorological stations in Southern Iraq between 1970 and 2012

Average Precipitation	Necef	Alhey	Divaniyah	Nasriyeh	İmareh	Basrah
	104.6	109.4	146.8	126.3	180.4	148.0

Resource: Rauf, 2012

Table 6: Amount of Rain Falling in 2013 by Certain Stations and per Month

	Zakho		Dohouk		Jamjamal	AL-Sulaimaniya	Salah Al-Deen resort	Erbil	Basrah *		Rutba		Baghdad		Mosul		Month
	كمية الأمطار		كمية الأمطار		كمية الأمطار	كمية الأمطار	كمية الأمطار	كمية الأمطار	المعدل العام	كمية الأمطار	المعدل العام	كمية الأمطار	المعدل العام	كمية الأمطار	المعدل العام	كمية الأمطار	
	Rainfall quantity	Rainfall quantity	Rainfall quantity	Rainfall quantity	Rainfall quantity	Rainfall quantity	General Ave.	Rainfall quantity	General Ave.	Rainfall quantity	General Ave.	Rainfall quantity	General Ave.	Rainfall quantity			
January	234.6	306.4	166.2	171.5	118.9	174.4	28.5	6.1	14.2	14.2	26.3	70.8	65.4	151.8	كانون الثاني		
February	92.2	100.0	58.2	54.4	103.0	55.8	17.3	0.4	17.2	4.4	21.1	4.9	62.3	69.9	شباط		
March	54.0	47.4	9.4	15.0	34.1	17.7	19.6	1.6	16.6	5.4	20.9	TR.	63.2	35.9	آذار		
April	46.5	26.7	13.6	22.1	30.6	37.4	15.8	TR.	15.6	1.4	18.1	TR.	47.1	33.3	نيسان		
May	48.6	28.4	20.2	30.3	34.4	40.6	5.4	40.2	9.4	13.9	5.5	23.4	18.8	24.3	أيار		
June	8.5	0.5	0.0	0.0	15.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.9	0.0	حزيران		
July	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	تموز		
August	0.0	0.0	0.0	0.0	0.0	0.0	0.1	..	0.0	0.0	0.0	0.0	0.0	0.0	آب		
September	2.4	2.2	0.0	0.0	2.5	0.0	0.0	..	0.5	0.0	0.2	0.0	0.5	0.4	أيلول		
October	0.0	0.5	0.0	0.5	6.1	0.2	3.6	..	8.9	0.0	3.8	4.0	10.9	TR.	تشرين الأول		
November	148.9	129.1	103.0	166.4	64.9	19.1	19.4	..	15.0	46.0	17.2	172.7	40.4	48.7	تشرين الثاني		
December	..	..	..	..	..	..	28.4	..	16.1	47.9	21.6	20.9	61.2	91.2	كانون الأول		
Total average **	635.7	641.2	370.6	460.2	409.6	345.2	138.3	..	113.6	135.2	134.6	296.7	370.8	455.5	المجموع **		

Source: Less than (0.1 mm) precipitation due to building rehabilitation. Overall average period (1940-2013)
Basrah station total e monthly total rate (August - December) due to ancestral rehabilitation.
Iraqi Meteorological Organization and Seismology.

Table 7: Amount of Rain Falling in 2014 by Certain Stations and per Month

	Zakho		Dohouk	Jamjamal	AL-Sulaimaniya	Salah Al-Deen resort	Erbil	Basrah		Rutba		Baghdad			
	كمية الأمطار	كمية الأمطار	كمية الأمطار	كمية الأمطار		كمية الأمطار	كمية الأمطار	المعدل العام	كمية الأمطار	المعدل العام	كمية الأمطار	المعدل العام	كمية الأمطار	المعدل العام	كمية الأمطار
	Rainfall quantity	Rainfall quantity	Rainfall quantity	Rainfall quantity		Rainfall quantity	Rainfall quantity	General Ave.	Rainfall quantity	General Ave.	Rainfall quantity	General Ave.	Rainfall quantity	General Ave.	Rainfall quantity
January	168.2	..	98.0	..	74.9	28.2	..	14.1	19.4	26.1	35.8	64.2	36.9	كانون الثاني	
February	8.2	..	12.0	..	8.2	16.8	..	17.3	10.3	20.7	6.8	61.6	4.0	شباط	
March	134.5	..	174.0	..	93.4	19.7	..	17.0	36.5	22.1	23.6	64.0	94.0	آذار	
April	23.1	..	56.9	..	14.7	16.0	..	15.5	5.2	19.8	14.3	46.4	14.2	نيسان	
May	0.0	..	0.0	..	0.0	5.5	..	9.9	34.1	7.6	TR.	18.8	4.5	أيار	
June	0.0	..	0.0	..	0.0	0.1	..	0.1	0.0	0.1	TR.	0.9	..	حزيران	
July	0.0	..	0.0	..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	..	تموز	
August	0.3	..	0.0	..	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	..	آب	
September	2.5	..	0.0	..	0.0	0.0	0.0	0.5	..	0.2	0.0	0.5	..	أيلول	
October	111.9	..	64.4	..	68.7	3.6	0.0	8.8	..	5.2	4.6	10.6	..	تشرين الأول	
November	153.5	..	153.0	..	69.2	19.0	66.0	14.9	..	19.0	18.5	40.5	..	تشرين الثاني	
December	75.9	..	118.3	..	56.0	28.4	0.5	16.2	..	21.8	3.9	61.3	..	كانون الأول	
Total average *	677.1	..	677.4	..	385.2	137.4	..	114.3	..	142.6	107.5	368.9	..	المجموع *	

Source: Less than (0.1 mm) precipitation due to building rehabilitation. Overall average period (1940-2014)
Basrah station total e monthly total rate (August - December) due to ancestral rehabilitation.
Iraqi Meteorological Organization and Seismology.

1.2.1. Development Process and Basic Strategies of GAP (Southeastern Anatolia Project)

When the Euphrates and Tigris Basin projects are realized, 1,637,549 hectares of land will be irrigated, 7476 electrical energy capacity will be obtained and 27 billion kWh annual electricity will be produced.

59 percent of GAP's energy projects are in operation and 15 percent of them are under construction. As of the end of 1998, approximately 145.6 billion kWh and as of May 1999, a total of 151 billion kWh energy was obtained from the Karakaya and Atatürk Dam hydroelectric power plants, which produce a significant part of the energy entering the Turkish interconnected system. As of 1998, approximately 20 billion kWh of energy produced in the GAP constitutes 47.4 percent of the 42.2 billion kWh of energy produced throughout Turkey. During the same period, the share of GAP in Turkey's total energy production of 68.7 billion kWh was 18%. (Forum, 1999).

GAP is the most detailed integrated regional development project attempted in Turkey or developing countries. The total cost of the project is calculated at $32 billion, of which $12.6 billion was previously spent on the project as of the end of July 1997. Construction of dams, hydropower facilities and irrigation networks continue. When the project is completed, it will generate 27 billion kW/h of electricity every year. Hydroelectric energy produced from GAP projects in 1997 is 19.4 billion kW/h. More than 154 080 hectares of land are now irrigated and preparatory work has been started these days to irrigate another 200 000 hectares of land. (Ünver,1999)

According to the latest data of the GAP Regional Development Office, 32 billion dollars of public expenditure is planned for the GAP, and 13 billion dollars has been spent for the project so far. The total investment amount of irrigation, energy and drinking water projects, which are included in the (ongoing) investment program and are the main projects of the GAP, is approximately 29 billion TL in Turkish liras. As of the end of 1997, 12 billion TL were spent on these projects, and 858 million TL was allocated in 1998. Realization rates of investments is 42.8 percent.

1.2.2. Effects of GAP in Iraq

Another reason for the Southeastern Anatolia Project is to ensure that the flows of the Euphrates and Tigris Rivers, which show an irregular flow throughout the year, are regulated by means of dams and adapted to the needs. For this reason, the Southeastern Anatolia Project is a successful project that has been started to regulate and evaluate the flows of the Euphrates and Tigris Rivers, among other purposes. With this project, the flow of the rivers will be regulated in summer and winter, so it will benefit Iraq as well as Turkey.

A "Friendship, Good Neighborhood" agreement was signed between Turkey and Iraq in 1946 in order to inform Iraq of flood times in order to protect Iraq from floods. Turkey regulates the flow of the river by preventing the sudden rise and fall of the waters with the Keban, Karakaya and Atatürk dams built on the Euphrates River. With the construction of these dams, the people of Syria and Iraq were saved from the destruction of flood disasters. (Tiryaki, 1994).

The plains surrounding the Euphrates and Tigris Rivers in Iraq turn into floodplains with the increase in water levels. The lake and wet areas near the Persian Gulf shrink to 8,288 km2 in the dry season, while it increases to 28,490 km2 in spring floods.

An example of the biased approach to the works carried out by Turkey, which ultimately benefits for Iraq and Syria, was written by N. Beschomer in the publication titled "Water and instability in the Middle East", as the regulation of flows is hydrologically beneficial but politically invalid." (Bilen, 2000)

Regulating the flow of water with dams is not only in Turkey's interest, but also contributes to the water needs of neighboring countries Syria and Iraq. The existence of dams allows Turkey to regularly supply its neighbors with 500 cubic meters of water per second throughout the year. This was the case with the successive droughts in the summers of 1989, 1990, and 1991. It is clear that the main beneficiaries of this continuous flow of water are Syria and Iraq, which have not been affected by the severe consequences of the

drought. However, it seems that Syrians and Iraqis prefer the irregular flow of water to Turkish control.

The most important negative effects of the GAP project in Iraq:

This project poses a great danger to the water of the Tigris and Euphrates Rivers because the water of the Tigris will be reduced. The water of the Euphrates, which has increased from 5.13 billion cubic meters to 17 billion cubic meters from Turkey, will decrease, and water between (5.28-5.32) and (5.13-11) billion cubic meters will come to Syria and Iraq.

The shortfall in the volume of water flowing into Iraq will hinder the use of the remaining good land.

More than (6) million Iraqis dispersed along the Euphrates will suffer from water shortages and over (3) million fertile agricultural lands will be affected.

We state that the economic relations between Iraq and Turkey depend on the oil exported from Iraq.

Gasoline is usually sold to Iraq. The establishment of economic relations Ceyhan oil line and Turkey's refining requires a robust exchange between the two countries, compliance with the allocated water share in accordance with international law.

There must be a balance between the course of international rivers and exports and imports between the two countries. Turkish water projects are not limited to economic and development aspects, but have security dimensions. This is incompatible with Syria in politics as it uses a tool of pressure to threaten development plans in all of Iraq.

1.2.3. The Results of the GAP

The GAP is a very important opportunity for the Southeastern Anatolia Region. The project reflects the determination of the Turkish Governments to achieve balanced regional development, focusing on the advancement of social and economic indicators.

What is known and observed is that the GAP has caused deep concern that it will cause a reduction in the flow of the Euphrates and Tigris Rivers in Turkey's down neighbors Syria and Iraq, which will harm the agricultural and energy projects of these countries. The hydropolitical phases of the GAP were described as a threat to the balances in the region in the Arab media, and this culminated with the construction of the Ataturk Dam and was presented as an aggressive move. Beyond these, Turkey's thoughts within the framework of GAP transactions were perceived as aggressive and aggressive by its down neighbors. (Bağış,2017)

The important results of the GAP can be summarized as follows. First of all, economic and social activities will increase rapidly as a result of the development of soil and water resources in the Southeastern Anatolia Region of Turkey and the northern part of Iraq with the Project. With the start of irrigated agriculture, a large increase in production is expected in the agricultural sector. This change in agricultural production will affect the non-agricultural sector. With the development of agriculture and non-agricultural sectors, there will be developments in foreign trade and services, and new export opportunities will emerge. (Gökçen,1989)

The second important result of the project is sociological. National integration in the Southeastern Anatolia Region of Turkey and the northern part of Iraq is not at the desired level. At the end of the GAP, central villages will be formed with the land reform to be made in the areas to be opened for irrigated agriculture, and people will be settled in central places. Small industrial establishments, schooling, health facilities and workshops to be established in the central villages will ensure the emergence of agricultural industry. While the villagers are dealing with their profession, they will also increase their knowledge and manners by making use of social facilities and communication opportunities (Türkdoğan, 1989).

Iraq has 32 irrigation projects with a total area of 1,952,000 hectares on the Euphrates Basin from the Syrian border to the Shatt al-Arab River. Some of these projects have been built. Construction of others was halted due to the war. Iraq built the Rawa, Hadita, Harbaniye, Ramadi, Darbandikan, Dohan, Saddam and Samara dams on the Euphrates River. These dams are planned to provide irrigation,

electricity power generation and drinking water.

Iraq irrigates 105,000 hectares of land through the Shatt-UL Arap River, which is formed by the confluence of the Tigris and Euphrates Rivers. Iraq managed to use the two rivers more efficiently by building an artificial Saddam River, which combined the Euphrates River and the Tigris River (Dellapenna, 1996).

Iraq meets its agricultural water needs and energy needs in the eastern and northern parts of its country through the Saddam, Bekme, Dokan and Darbandikan Dams that it has built on the Tigris River within its own territory.

Saddam River was made artificially in Iraq. By combining the Tigris and Euphrates Rivers, the use of the Tigris in Iraqi lands has been expanded. When the Saddam River is completely finished, 6 million acres of land will become suitable for agriculture. With the dams that Turkey built on the Tigris River within the framework of the Southeastern Anatolia Project, the irregularly flowing waters of this river will be regulated. Thus, Iraq, whose agricultural lands are damaged due to increased precipitation in the first and autumn months, will also benefit from this project (Dellapenna, 1996).

2. Hydropolitical Approaches and Conflict Potentials

2.1. Hydropolitical Approaches

2.1.1. Turkey's Approach

Turkey considers the Euphrates and Tigris Rivers not as "International rivers" as claimed by Syria and Iraq, but as "Transboundary rivers". Therefore, according to Turkey, it is not possible to talk about equal sovereignty and equal sharing between the countries that source water and the countries from which it flows. In other words, the Euphrates and Tigris Rivers should not be considered as shareable natural resources. The waters of these rivers, fed by the snow falling on the Palandoken Mountains, primarily belongs to Turkey. The Euphrates and Tigris Rivers are the dominant sources. Turkey has the right to freely dispose of its underground and surface resources. In International Law, there is no rule restricting Turkey's sovereign right over the waters of the rivers in question. The Tigris and Euphrates are sovereign resources, and Turkey has the right to make use of it as it sees fit, over the parts within its borders. Turkey decides the facilities to be built on the Tigris and Euphrates Rivers and their priorities.

The Euphrates and Tigris Rivers should be considered together as rivers forming a basin, and should be considered as a single transboundary water system or a common basin.

A joint inventory of all regional water resources of the parties should be drawn up, and arable land in the basin should be reviewed and classified.

Depending on the land use and the product pattern, the total water consumption requirement of the basin should be determined.

By evaluating the water and soil resources of the basin together, it should be determined which agricultural projects can be applied where and with which irrigation conditions in the most rational way.

In the light of the data revealed, the water needs of each country should be determined and measures should be taken to minimize water loss. (Dış İşleri Bakanlığı Bülteni,2018)

This proposal of Turkey was rejected, especially by Iraq on the grounds that it would greatly hinder the demand for water in the Euphrates. The fact that this approach, which was prepared in accordance with the international principles and rules regarding the solution of the water problem, has not been accepted, prevents progress towards the solution of the problem.

It should be known that the subject is not a political one, but a technical one, and therefore joint technical studies of the relevant countries are required. Joint technical studies related to meteorological, hydrological and soil should be considered as the starting point.

No attempt should be made to put pressure on Turkey by supporting separatist terrorist organizations, and efforts and attempts to prevent or delay the Southeastern Anatolia project should be stopped.

Turkey accepts that the problem can be resolved with the mutual goodwill and cooperation of the relevant countries and thus

it is possible to use the waters in a rational, fair and optimum way.

Turkey cannot obtain sufficient income from the Kirkuk-Yumurtalık oil pipeline because the Gulf is constantly hot. Turkey has suffered a serious financial loss for many years due to this situation. In these days when the economic hardship has reached its peak, it is not heartwarming that Turkey cannot benefit from this income. After the 1991 Gulf War, France and Russia broke the UN embargo for economic and political reasons.

The natural gas agreement signed between Turkey and Iraq in July 2001 is important in terms of both Turkey's economic agreements with its close neighbor and laying the groundwork for political rapprochement. On the other hand, the authority vacuum in Northern Iraq threatens the territorial integrity of Turkey as well as Iraq. It is known that the secret services of various countries in this region are working against both Turkey and Iraq (Bağış, 2017). If it can recover itself, Iraq is extremely important for Turkey against Syrian terrorism. In this respect, it is beneficial for Turkey to develop cooperation with this country in economic and political fields. Turkey should try to take part in every field in the restructuring of Iraq. This will provide both economic opportunity and Iraq's rapprochement with Turkey. It should match its interests with this country in the medium and long term. Again, Turkey can ensure that Iraq can benefit from the Tigris a little more in the future, in order to prevent Iraq from forming an alliance with Syria on the water issue. In this way, it will be ensured that Syria is left alone in the water issue.

2.1.2. Iraq's Approach

In Iraq's approach to the Euphrates and Tigris waters, it is aimed to reach a political solution together with Turkey. They frequently talk about the thesis that Turkey is trying to use the "water" trump card against oil, has excess water and has chosen to use water as a wealth. In this way, they want to force Turkey to come to an agreement with the qualifications they want. On the other hand; While they are processing the thesis that Turkey has a surplus of water, they base their claims on the Peace Water Project and other water projects developed by Turkey.

They want to draw attention to the fact that Turkey is trying to influence the countries of the region politically and economically by making them dependent on it, through these projects put forward to solve the water problem of the Middle East.

Syria and Iraq, which are in the status of Lower-Riparian states, constantly claim that Turkey's actions to take advantage of the Euphrates and Tigris waters, harm them, they strive to create a public opinion in their favor in the international arena, and with their behaviors about the Tigris and especially the Euphrates waters, they argue about Turkey's sovereign rights.

It is possible to summarize Iraq's approaches to the Euphrates-Tigris waters and their views on the use of waters as follows:

The Euphrates and Tigris rivers are international rivers. Therefore, Turkey does not have full sovereignty over these rivers. The waters of the Euphrates and Tigris should be shared fairly through an agreement to be concluded between the three countries, within the framework of the principles stipulated by international law. Until the agreement is made, Turkey should supply 700 m3/s of water from the Euphrates.

Turkey is the richest country in the region in terms of water resources. For this reason, Turkey should not see the water in excess of its needs as an economic commodity to be sold to its neighbors, and should not use it as a weapon or a policy tool.

The Euphrates and Tigris Rivers are a matter of being or not for Iraq and Syria. Turkey should not use these rivers beyond its international right. Dams above rivers should not be a tightening device.

The Euphrates and Tigris should not be considered as a single water system or a common basin, but should be handled separately in the negotiations.

All facilities to be built on the Euphrates and Tigris and their order of priority should be jointly decided by the three countries.

Iraq's right to demand more water from the Euphrates and Tigris Rivers is based on these

two basic considerations. (Dış İşleri Bakanlığı Bülteni,2018)

Iraq has "Acquired Rights" due to "Ancient Irrigation" on the Euphrates and Tigris Rivers. The Acquired Right has two dimensions. First, it is a vested right as the Euphrates and Tigris Rivers have given life to Mesopotamian lands for thousands of years, and the second dimension is that Iraq has built many operating facilities to irrigate 1.9 million hectares of agricultural land. Therefore, Turkey should not take away this right of the people in question.

The other second opinion that Iraq advocates is; These two rivers are international waterways. It is a "Common Resources" among riparian countries. Therefore, the water resources of the Euphrates and Tigris should be shared between the riparian countries with a mathematical formula.

According to the mathematical sharing;

Each country will separately report the amount of water it needs from the two rivers.

The capacity of the two rivers in each country will be determined separately.

If the total amount of water that the riparian country wants to take from a particular river is more than the flow of that river, the remaining amount will be proportionally deducted from the amount demanded by each country. Thus, the waters of the rivers are shared.

Iraq opposes making the Tigris River issue the subject of joint discussion between Turkey, Syria and Iraq. It is requested that the Euphrates and Tigris River problems be discussed separately and that Syria should not have a say in the Tigris River (Kut, 1991) Because, according to Iraq, the Euphrates and Tigris Rivers are two separate basins. Iraq claims that it has a pre-existing right of use on the Tigris.

On the other hand, Iraq is disturbed by the projects that will reduce the water of Turkey's Tigris River. It is not in favor of negotiating a minimum water flow rate through negotiations. However, it will not cause a significant decrease in the water received by Iraq due to 6 projects included in the GAP on the Tigris. (Savage, 1991) Because the Tigris River basin is not suitable for irrigated agriculture. The dams built by Turkey are for electricity generation. These dams will regulate the waters of the Tigris River. This situation benefits Iraq.

2.2. Basic Approaches to Hydropolitical Issues in International World Law

Today, it is seen that the international terminology on rivers is extremely complex. In this respect, the definition of rivers and international waters can be made from various aspects.

It is the International Law Association that put forward the definition of international river basin for the first time. According to the International Law Association, an international river basin is "*the region within the countries of two or more states, where all rivers, both natural and artificial, on the surface, flowing the waters of a certain area and ending in common outlets opening to the closed inner parts of the country that have no outlet to the sea*."

On the other hand, it is possible to describe the international waterways, lakes and canals as follows. International waterways, "*The rivers that pass through the territory of a state and form a border between two or more states after originating from the country of that country are accepted as international waterways."* The suitability of this waterway for transportation is also a criterion for being considered an international waterway in terms of international transportation. International lakes, on the other hand, are called *"lakes shared by more than one state, international lake"*, and international channels are called *"International channels are channels opened for use as a waterway"*. The United Nations International Law Commission defined the terms waterway and waterway state in relation to international waters in its Declaration No. 43.

While the amount of water in the world does not change, its quality tends to decrease, the nutritional and other needs of the increasing population, deteriorating towards the negative due to reasons such as urbanization and industrialization, and the abundance of water-related issues that start to give a danger signal in certain parts of the world due to its unbalanced distribution can cause conceptual confusion.

Concepts and definitions in international relations can sometimes change according to discipline or sector, sometimes according to the country and sometimes according to time. The definitions of these concepts, which bring various responsibilities and obligations to the relevant country according to their expressions in international law, should be known very well and used consciously at the initial stage. For this reason, it was necessary to explain some of the concepts in the thesis:

National Rivers are the rivers within the borders of the same states from their source to the place where they flow into the sea.

International rivers are rivers that pass through the territory of two or more states, reach the seas or form a natural border between these states. In general, there are freedoms of passage due to their legal status determined by the "Barcelona Convention" of 20 April 1921. Coastal states cannot take measures to prevent transportation and cannot demand any fee other than for their special services. Transboundary Waters are waters that arise from the territory of one state and cross the borders of another state or states and flow in its territory. (Ünver,1999)

2.3. Basic Approaches to the Problem of Water in International Law

The problem of determining the boundaries of the rivers between countries has been brought to a certain basis by the acceptance of the middle line principles or whether the rivers are suitable for transportation. Until the end of the 19th century, the acts of transportation, fishing, logging, and small-scale irrigation were important forms of use, and their effects were within the same national border areas. Except for the discussion of freedom of transport, it did not create significant conflicts of interest among riparian states, so it was not considered a problem to be resolved by international law. The problems of free transportation on transboundary rivers between countries have been largely resolved by agreements made at different times and by legal regulations. (Tiryaki, 1994)

The proposal taken by the International Law Association on water is open to interpretation and is seen as legitimizing any violation.

The International Law Commission of the United Nations General Assembly regulated the non-navigational use of international waterways with a law on 15 December 1980. The International Law Commission has prepared a 17-item draft. This draft has been prepared to resolve existing water debates and reduce new ones, from using the waters of shared resources, exchanging information on transboundary river ups and downs and other situations, establishing basic legal measures for the control of river flow, protecting water and water-related facilities. (Bulloch and Darwish, 1994)

Since the beginning of the 20th century, the possibilities of storing the waters of the rivers and diverting their beds have increased with the use of transboundary waters. With the technological development, the need for water in industry and agriculture has increased. As a requirement of this need, hydroelectric power plants were built on transboundary waters for industrial and agricultural purposes. On the other hand, integrated water use projects related to the use of transboundary waters come to the fore as an international legal problem.

In terms of international law, there are two important problems that need to be resolved regarding transboundary rivers. The first of these is related to the determination of the sovereignty areas in the rivers that separate the states, and the second is related to the regulation of industrial or agricultural use activities on the cross-border rivers passing through the lands of two or more states.

Today, it is seen that a basic provision accepted in international law regarding the industrial or agricultural use of international waters is in the process of formation. Only if there is transboundary water and waters between two or more countries, these countries hold bilateral talks on water and its use. If there is a disagreement about water and water, they try to resolve it in accordance with the mutual benefit of each state.

2.4. Proposed Doctrines Regarding the Scope of the Right to Benefit

2.4.1. Absolute Sovereignty (Harmon) Doctrine

In general, this doctrine is defined as the ability of the upstream state to divert or use the river waters as it wishes, without restriction, without considering the influence of the downstream state. The view of absolute territorial sovereignty was put forward in 1895 by US Attorney General Judson Harmon. Judson Harmon's view on the dispute between the USA and Mexico regarding the Rio Grande River was put forward as a long-established international law rule by the USA and took a classical form. (Bir, 1986)

"The rules of international law do not impose any obligation on the USA to deny its citizens the opportunity to benefit from the Rio Grande River (even if the amount of water in the lower part of the river below the point where the river remains in the USA has decreased as a result of the so-called benefit). The assumption that such an obligation might exist runs counter to the existing sovereignty of the United States over its national territory.

Responding to the Mexican Government's complaints, again regarding the Rio Grande, the US State Department, in a second note dated May 1, 1905, defended the Harmon doctrine as follows.

"Examining the issue of the civil liability of the US Government to the Mexican Government, due to the diversion of the waters of the Rio Grande to irrigate the lands belonging to the American citizens residing in the USA, and as a result, the Mexican citizens cannot find the necessary water to irrigate their lands in the country of Mexico, our Ministry has the opinion that the grounds for such liability are not found in international law. However, the US Government is determined to identify its course of action in accordance with the highest principles of fairness and the friendly feelings that should be established among good neighbors" (Toklu, 1999).

With the considerations contained in this second note, the United States signed an agreement with the Mexican Government in 1906 on the equitable distribution of Rio Grande waters for irrigation purposes. The USA had committed to deliver a certain amount of water to Mexico, taking into account the drought season, however, the USA also clearly stated that it did not recognize any legal precedent for the said treaty, for the reasons set forth in other articles of the same treaty. That is, in the fifth article of the treaty, "The United States does not accept, in any way, the creation of any principle or exemplary case due to the conclusion of this treaty..." was included. The dispute regarding the Colorado river ended only by a treaty signed on February 3, 1944. After this date, the USA started to change its attitude and made statements contrary to the Harmon doctrine. The first sign that the USA started to abandon the Harmon Doctrine was given during the work during the ratification of this treaty in the Senate. (Bir, 1986)

The USA generally did not support this view because it created situations contrary to its national interests. Internationally, however, the Harmon View has found support by many authors (Tiryaki, 1994)

Instead of this view, it has been argued by the USA that there is limited sovereign sovereignty in transboundary waters. The Harmon doctrine has been highly criticized, first of all, for espousing the absolute sovereignty of only one state.

2.4.2. The Doctrine of the Integrity of the Natural State

Swiss jurists Max Huber and English Oppenheim are the leading jurists who expressed and supported the doctrine of the integrity of the natural state in the use of transboundary waters for industrial and agricultural purposes. Oppenheim states his view as follows:

"Territorial sovereignty does not provide unlimited freedom of movement. Despite the sovereignty of the country, the state is not authorized to change the natural conditions in its own country against the natural conditions of the neighboring states, to stop or divert the current of the river flowing from its own country to the neighboring country. Non-national rivers, transboundary waters and bordering rivers are not under the arbitrary control of any of the riparian states. Because, in accordance with the rule of international law regarding transboundary waters, no state can change the natural conditions in its own country against the natural conditions of the neighboring state.

Therefore, no state alone can stop and divert the waters of a river flowing from its own country to the neighboring state. But at the same time, the use of river waters in a way that harms the neighboring state or prevents that state from benefiting from the river's current in its own section is also prohibited (Tiryaki, 1994).

If this doctrine is accepted and implemented, three consequences emerge. The Upper Riparian State cannot make any change in the physical quality of the waters in the part of the international river located in the country of the lower Riparian State. The downstream state has the right to veto on the upstream use of the international stream. Possible future uses of the lower riparian state are protected (Sar, 1970).

The upstream state has the ability to change the natural state of the waters in the parts of the transboundary waters located in the territory of the riparian states. In this context, the prohibition is directed only at the upstream state. The doctrine of the integrity of the natural state abolished the right of the state through which transboundary waters flow, to make any changes in the natural state of its territory. From here, a situation emerges in favor of the completely downstream state.

2.4.3. Pre-Use Supremacy Doctrine

Although they are expressed in different terms as "natural or historical", "acquired" and "ancient" rights in the international arena, they all express the same concept. It is E. Vattel who reflects this view on international law. If a country has started to use the transboundary waters on its territory before the other riparian countries, this country has a pre-use advantage over the relevant waters as long as the water use of this country continues. However, not all waters flowing into the territory of the country are covered by this vested right. In other words, there are waters that are actually subject to pre-use (Zehir, 1994).

The obligation not to harm vested rights, which is the essence of the doctrine, is usually in question for the upstream state. It is constantly the upstream state that is in a position to undermine vested rights. The lower-riparian state hardly has such an opportunity. From this point of view, legal problems related to harming the use of riparian states mostly arise in terms of downstream states. On the other hand, it is a fact that the downstream states have already started to benefit from the rivers. Because, settlement and industrial activities around any stream usually start near the mouths of the streams, below the channels. Population concentration and industrial development rarely develop upstream.

2.4.4. Fair (Equitable) Use Doctrine

It was American scientist C. Eagleton, who brought the doctrine of fair use of transboundary waters into international law. US lawyer Lipper defined the view of equitable use of transboundary waters as follows: (Bir, 1986).

In practice, the fair use doctrine, as it happens in the pre-use doctrine, is a view being applied by the downstream state, which has to protect its right to benefit against the actions of other riparian. The downstream state, in conflict with the upstream state, will argue that their use is reasonable and equitable, and will seek to protect the right to benefit in this way against the upstream state. This view can partly be interpreted in favor of the lower riparian state. Due to this aspect, it has been criticized by some jurists in terms of international law. In order for this doctrine to make sense in practice, it is necessary to answer the question of what is the reasonable and fair share that gives immunity to the beneficiary right of the downstream state. It is argued by some authors that in accordance with the fair use doctrine, what is a reasonable and fair share should be determined in the light of the factors presented by each particular case. However, it is difficult to generalize these factors, which depend on the specific circumstances of each particular case, to apply to all disputes (Bilen, 2000).

3. Transboundary Water Problems and Agreements in the World

The positive effects of the dams built in the source country have always been emphasized in the negotiations between the upstream and downstream countries regarding the changing waters. In the official negotiations between the United States of America and Mexico regarding the Colorado River, only 1.85 billion m^3 of water was allocated to Mexico against the

annual 4 billion 400 million m^3 water demand; this amount corresponds to 42% of Mexico's proposal. In addition, approximately half of the allocated 1.85 billion m3 is comprised of the return waters from the uses in the basin. Under specified conditions, the United States gave only 5% of the natural currents of the Colorada River to Mexico. The rationale for the allocation of less than half of the demand for water on the US side was explained in the June 1941 note as follows. (US Department of State, archive no. 711/12155/1915).

"The proposed water from the Colorado River to Mexico is worth more than the 3,600,000 acre-feet (4 billion 400 million m^3) demanded by Mexico in 1930 from large amounts of erratic natural flow. Consideration should be given to large variations in the annual flow of the river and the impact of Boulder Dam in preventing drought.

Without the Boulder Dam, there would have been a more severe drought than the drought in 1937, 1939, and 1940. In addition, the water to be supplied to Mexico in accordance with the presented plan does not include the construction and maintenance costs of the dam for storage in Boulder Dam, and these costs will not be claimed. (Bilen, 2000)

Libya has initiated the large artificial river project called GMR (Great Man-Made River) to meet the water needs of its rapidly urbanizing lands on the Mediterranean coast. With this project, Libya planned to transfer the underground waters from the Libyan Desert in the southern part of the country to the Tripoli region with a 683-mile water pipeline. The first part of this project, which cost 11 billion dollars, was completed in the summer of 1991. The entire project will cost $25 billion. Thus, Libya calculates that it will double its current water supply. (Falkenmark, 1990)

A trade union (a kind of common market) consisting of Argentina, Brazil, Uruguay, and Paraguay, in order to supply water power to the potential energy market, they opened a tender for the private sector to build a hydroelectric power plant project on the Parana River, where Argentina and Paraguay are riparians.

India and Bangladesh have agreed on a comprehensive plan to divide the Ganges, Meghna, Teesta and Bruhmaputra rivers, of which they are riparians. By consensus, they have realized the principle of "equitable sharing" and decided to make joint observations at stations close to their borders in order to have information about the river flow in dry seasons.

Thailand and Burma have decided to build eight hydroelectric power plants on their riparian Sahveen and Moei Rivers. Thailand, Laos, Vietnam and Cambodia have made an agreement for the cooperative development of the resources on the Mekong River, on which they are riparians. Thailand and Cambodia have agreed on a project where the dam will remain in Cambodia and the hydraulic power plant will remain in Thailand on the Mekong River, where they are riparians.

As can be seen from the examples above, disputes regarding transboundary waters in many countries around the world have been resolved peacefully. This situation should be achieved by the other upstream and downstream countries of the world, which are in disagreement, by forcing the geographical and economic conditions. Water is a strategic item that can enable peace and cooperation agreements between countries.

•• United Nations Convention on the Non-Maritime Uses of International Waterways (21 May 1997)

Disputes regarding the rivers used by more than one state were resolved with the approaches determined by the political structure in the international arena, until the creation of the convention on the use of international waterways for non-transportation purposes, prepared by the UN and presented to the international community. Since it is not possible to say that the international environment produces viable solutions for all disputes that are binding for each state, the determination of the current situation is of particular importance.

Since the 1950s, the efforts to establish rules for benefiting from rivers that concern more than one state have come out of the dimension of unwritten legal rules that are tried to be created by the countries that are party to any

conflict, and they have followed a course in the direction of efforts to establish general principles for the countries that are party to such disputes. During these years, some authors who examined the view of fair use in the doctrine argued that the doctrine was a developing legal rule; In contrast, private organizations such as the International Law Institute and the International Law Association have advanced the Fair Use Doctrine. (Water Power and Dam Consruction,1992)

Again, with the initiative of the UN, the UN Convention on the Law of the Sea was prepared and submitted to the vote of the conference participants on 30 April 1982. This convention, like the draft adopted by voting on May 21, 1997, is far from reflecting the will of the majority of states in terms of vote distribution. This agreement is in the nature of a framework agreement and this issue has already been stated in various general assembly resolutions.

Since international law binds the right to use and benefit to the sovereignty of each state, each state will use the right to benefit from the part of the water in its own country, taking into account some criteria determined by international law, but in any case, at its own discretion and evaluation. However, while riparian states benefit from these waters, they will take care not to cause substantial damage to downstream states. International law and current practices show that every state in the transboundary waterway system has the right to benefit from the water of such a waterway system in its own country. In this case, the concept of international water; includes both transboundary water and border-forming water.

By stating that "*watercourse states shall use the international waterway in their countries equitably and reasonably"*, the 5th Article of the Convention clearly states that a transboundary stream is not a shareable property, but can only be used in an equitable, reasonable, optimal, and sustainable manner. Today, the meaning of fair and reasonable use is to prevent the use of water in a way that will harm other states, apart from its general approach; Although there are some criteria in international law that the concept of fairness should be defined, there are also authors who argue that this concept is difficult to understand and is suitable for different interpretations.

Article 6 of the Convention states that which principles will be taken into account in determining the equitable and reasonable use will be determined according to criteria such as geographical, climatic, ecological factors, social and economic needs, population, current and potential use, referring to the Helsinki Decisions. However, it was also emphasized that all of these factors would be considered as a whole and a holistic conclusion would be reached (Aydoğan, 1998).

The international law applied today is closely tied to the degree of social solidarity and will agreement between international units, both in terms of its origin and its application to concrete events. The applied international law does not set any general rules other than those states should resort to peaceful means for the resolution of disputes, and leaves the issue of which peaceful means to be chosen to the common consent of the states. It is clear that contracts will bind parties and not non-parties. (Çelik,2017).

In this case, the answer to the question of what will be the rules that will be used by the states that are not parties to the convention together, but creates a border between them or have a cross-border water conflict, should be found. Although the answer to the question is international law, the parties will be able to benefit from all sources of international law. Although it is not binding, it is possible to benefit from the convention on the use of international waterways for non-transportation purposes to the extent that it reflects.

3.1. The importance of Turkey in Water Problems in Iraq and the regulation studies on Turkey

The Republic of Turkey has so far signed a number of agreements with the relevant neighboring countries regarding the transboundary rivers that originate from outside its own territory and flow into its country, or that originate from its own territory and flow into the sea through the

territory of other countries. Again, due to the aforementioned agreements, some of them have entered into legal commitments on water. Legal regulations regarding the Tigris and Euphrates are discussed below.

3.1.1. Legal Regulations Regarding the Tigris and Euphrates Rivers

The Tigris River, arising from the Eastern Anatolian Mountains and Hazar Lake seeps, with a length of 523 km and a total length of 1900 km within the borders of Turkey flows into the Persian Gulf. The Euphrates, on the other hand, originates from the Dumlubaba spring 30 km east of Erzurum, determines the provincial borders of Gaziantep and Adıyaman, and enters first into Syria and then into Iraq. At a point not far from the sea in Iraq, it joins with the Tigris to form Shatt'ül Arab and pours into the Persian Gulf. The total length of the Euphrates, which is 971 km within the borders of Turkey, is 2800 km.

The Lausanne Peace Treaty is the first treaty in which the Republic of Turkey is under obligation regarding the Tigris and Euphrates rivers. The article containing the provision regarding the rivers in question is Article 109 of the agreement. In the specified article of this agreement, "*Related states shall take care of each other's interests in order to protect the rights acquired in the waters located on the territory of the relevant states before the First World War.*" provision was accepted (Esenyel, 2001)

A total of three agreements regarding these two rivers, "Friendship and Good Neighbor Agreement between Turkey and Iraq" on March 29, 1946, "Protocol for Regulating the Waters of the Tigris, Euphrates and Tributaries" in 1947, and "Agreement on Economic and Technical Cooperation" on February 7, 1976, were mutually signed. There is no binding provision in these agreements that prevents Turkey from making use of the waters of the Tigris and Euphrates Rivers for industrial and agricultural purposes and leaves Turkey under obligation. It has decreed that the relevant countries will exchange information mutually in order to protect themselves from flood waters and that the parties will be represented in equal proportions in any conflict between the countries. (Bir, 1986)

Before the Keban Dam was planned, Turkey made negotiation offers to Syria and Iraq in the early 1950s, and these countries opposed all these proposals. In 1966, an agreement was signed in Ankara, and it was decided that 350 m^3 of water and then 450 m^3/sec from the Euphrates waters would be supplied with the impoundment of the Keban Dam. This amount was increased to 500m3/s with the impoundment of the Karakaya Dam (1976) and the construction of the Ataturk Dam (1990).

The relevant section of the protocol is as follows;

(a) Both parties will cooperate to ensure that the common water is not polluted.,

(b) (b) All three countries will hold talks at the Ministry level for the formation of the CRA, the pathways and methods to be followed will be decided, and the actual amount of water needed by each country will be determined.

During the filling of the Ataturk Dam basin and until the final allocation of the Euphrates waters between the three countries, the Turkish side undertakes to release more than 500 m^3/s of water on average annually from the Turkey-Syria border. In cases where the monthly flow falls below 500 m^3/s, it agrees to close the difference in the next month.

The parties will work together with the Iraqi side for the allocation of the waters of the Euphrates and Tigris rivers as soon as possible.

The two Sides agreed to accelerate the work of the Regional Waters Joint Technical Committee.

Conclusion

There is a danger of a rapidly approaching water crisis in the Middle East geography and it is making itself felt more and more every day. Considering the current situation of water resources and the rapidly decreasing trend and increasing consumption needs, it is highly probable that water wars will occur in the future. However, it is in the hands of the people of the region to prevent or at least delay this.

It is essential to resolve the political disputes between the countries of the region, especially the bordering countries, by making legal

agreements under which the parties are obliged to comply, of their own free will. In addition, there are many measures that the countries of the region can take to stay away from the upcoming "water problem" disaster.

To summarize them briefly;

It has become necessary to use the drip method instead of spraying and filling with water in the field of agricultural irrigation. The widespread use of this method can result in significant water savings.

It has been necessary to reuse the lost drainage waters without any use.

Reducing the water flowing into the sea by building dams can provide serious relief in periods when the water is low.

If the water problem has descended on humanity like a bad cloud, modern technology has a long way to go. Building dams to store rain water, in some cases to be used as permanent storage, is one of these solutions, the dam must be designed in such a way that it does not lose water.

It is important to establish data banks, to collect regular information periodically, to have equipment for organizing and publishing the collected information, to periodically evaluate surface waters, and to renew these studies as information is released.

It is important to evaluate each of the surface waters and groundwater in rural areas, cities, industry, agriculture, irrigation and electrical energy production areas separately in river basins and in terms of use.

It may be useful to evaluate the amount of water needed for various purposes such as industry, agriculture, irrigation and electricity generation in rural areas, cities, in order to target groundwater and surface water resources in parallel with the national development targets for future developments.

To control the pollution of ground and surface waters, it may be useful to scan the various levels of the water and to establish networks to detect water pollution.

It is necessary to have equipment, capital and workers clean up the pollution of water sources and supply channels.

One of the much-discussed alternatives is to import icebergs floating in the Arctic, but that would require huge giant ships and private ports.

It is necessary to create an atmosphere of trust between the countries of the region, and this is possible by the enactment of international laws and laws regulating the rights of countries on the waters.

The concrete suggestions and recommendations expressed above will be doomed to remain only as a recommendation without the good-willed approaches of the countries. The water problem is a common problem and one that must be tackled together. It would be a utopian approach for a single country in the same geography to struggle with this problem. Because, many water resources are not national but international and represent a common value in terms of use.

It is also of great importance that Iraq and its neighbors stay away from vicious political approaches and domestic political calculations regarding water. Because water is an irreplaceable value, it is too valuable to be used as a political material. Water is the source of life and will remain so. With equitable sharing, fair use and savings measures, water will not be a potential for conflict, but a value that will contribute to peace.

Resources

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