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Turkey's Gap Project from the Perspective of International Water Law

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ABSTRACT

The Turkish government has had the greatest impact on the flow of the Tigris and Euphrates rivers by implementing huge development projects through the construction of large-scale dams under the Southeast Anatolia Development Project (GAP) and this has affected the access and use of Tigris and Euphrates rivers in other countries. On the other hand, the division and distribution of the water of these two rivers have been regulated with few and basic treaty provisions. Turkey refuses to recognize the international nature of these rivers and considers these rivers as national rivers; however, Syria and Iraq consider these rivers as international rivers and this has led to conflicts between the countries on the banks of these rivers.This article focuses on the effects of the GAP project, especially the effect of the Atatürk Dam and Ilisu Dam on the Euphrates and Tigris rivers, and examines their compliance with international law, including existing international treaty law and customary principles of international water law. The research utilizes library-documentary sources and employs a descriptive and analytical approach. It is concluded that the effects on the Tigris and Euphrates rivers are against the aforecited rules and laws. These effects lead to the violation of the principle of non-harmful utilization of territory, as well as the principle of equitable and reasonable utilization.

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Introduction

The Euphrates River originates from the northeastern mountains of Turkey,[1] and the main branches of this river are connected in the Keban region and form the river. After the Kaban region, this river flows southwards and enters Syria in the Jarabulus region. Along the territory of Syria, this river joins the three rivers of Sajur, Balikh and Khabour and then enters the territory of Iraq in the region of Al-Qaim. Finally, in the south of Iraq, it joins the Tigris River and forms the Arvand River (Shatt al-Arab), which forms a part of the border between Iran and Iraq in the southwest of Iran and flows into the Persian Gulf. The Euphrates River passes through 10 degrees of latitude (31 and 41 North) and through Turkey, Syria and Iraq for a length of about 2700 km, of which 520 km is in Turkey, 780 km is in Syria and 1400 km is in Iraq. The area of the Euphrates river basin is 444,000 square kilometers.[2]

The Tigris River originates from the southern slopes of the Taurus Mountains in eastern Turkey and covers an area of 472,606 square kilometers, which is shared between Turkey, Syria and Iraq.[3] Iraq's share is 78%, Turkey's share is 20% and Syria's share is 2% of the area of this river.[4] One of the characteristics of this river is the strong seasonal and even annual flow changes.[5]

The sources of these two rivers are only 30 kilometers apart, both of them flow towards the south and southeast of Turkey, and after crossing the territory of Turkey, they enter the countries of Syria and Iraq. Over the past 50 years, riparian states have significantly developed their utilization of the Tigris and Euphrates rivers and continue to do so. The Turkish government with the Southeast Anatolia project, which consists of 22 large-scale dams, Syria with 3 large dams built on the Euphrates River, Iraq with 15 large dams on the Tigris and Euphrates Rivers, are

1 . Hussein Omar Ahmed, Mohamed Khadijah, 'Legal Rights of International Water Resources: A Case of Tigris and Euphrates Rivers' (2021) 6 International Journal of Law, Government and Communication 131.

2 . John F. Kolars, William A. Mitchelell, the Europhrate River and the Southeast Anatolia Development Project (SIU Press 1991) 145.

3 . Ibid, 102.

4 . Mostafa Dolatyar, Tim S. Gray, Water Politics in the Middle East: A Context for Conflict or Co-Operation? (Macmillan Press, Basingstoke 2000) 121.

5 . Philipp Williams and Associates (PWA), 'A Review of the Hydrological and Geomorphic Impacts of the Proposed Ilisu Dam' (2001) Report for the Corner House, San Francisco, 88.

examples of this development.[1] Being aware of future changes in water resources and possible political conflicts over it, Turkey has been implementing a huge dam construction project since 1970, which is estimated to be the fifth largest dam construction project in the world. The implementation of this project has bad effects on the ecosystem of Turkey's neighboring countries, including the Islamic Republic of Iran, Iraq and Syria, and it has been done without considering the water rights of other countries and international conventions. Dams can be built for several purposes, in particular, guaranteeing and providing drinking water reserves in dry areas is one of the main purposes. The most important purpose of building a dam on the Tigris and Euphrates rivers is to provide fresh water for irrigation and agricultural programs.[2]

In addition to building dams, extensive irrigation programs require extensive infrastructure in the field of water transfer, canal construction and irrigation, and many irrigation programs in the Euphrates and Tigris rivers still suffer from inadequate infrastructure.

Considering the strong demand for water from the riparian states and the increasing utilization of these rivers, improper use of water is one of the important issues.[3] According to the evaluations, the amount of water demand of Turkey, Syria and Iraq for the water development project exceeds the amount of water flowing in the Euphrates River.[4] The condition of the Tigris River is slightly better than the Euphrates River in this respect.[5] Irrigation is not the only use of dams in this region. The seasonal flows of these two rivers can fluctuate greatly since their peak in spring, so flood control is still one of the applications of dams. However, compared to other applications and goals, energy production is considered a new application, and due to the ever-increasing human need for energy, many dams today are equipped with electricity production projects; However, the main goal in most cases is something else. Although there are various electric energy production projects related to dams, but all the hydroelectric projects in the Tigris and Euphrates rivers are of the type of electricity generation by means of water storage.[6]

The Tigris and Euphrates rivers are among the most important freshwater resources in the Middle East. Turkey's GAP[7], including large-scale dams that provide extensive irrigation programs and hydroelectric power projects, has greatly impacted the flow system and water quality of these rivers. neighboring governments, especially those of Syria and Iraq, have consistently objected to this matter.[8]The GAP is one of Turkey's endeavors to solve water problem and empower Turkey to play a greater political and economic role in the Middle East. It is noteworthy that Turkey receives a lot of encouragement and support from European countries to strengthen its position in the region, and the fact is that international actors acknowledge this project. Former US President Richard Nixon highlighted this and said, "We should encourage Turkey to

1 . Nicolas Bremer, the regulation of the non-navigational use of the Euphrates and Tigris river system international (Nethers lands: Eleven International Publishing 2017) 100.
2 . Ibid, 102.
3 . Bouhedda Kheireddine, 'Water Conflict Looming in the Twenty-First Century' (2023) 16 Journal of law and humanities Sciences 1201.
4 . Nurit Kliot, Water Resources and Conflicts in the Middle East (Routledge, 1993) 135.
5 . Ibid, 141.
6 . Ibid, 143.
7 . (GAP) is derived from the name of this project in Turkish (Guneydogu Anadolu Projesi).
8 . Yetim Muserref, 'Domestic institutions and international collective action problems: international water rights conflicts' (2023) Water Policy 9.

use its historical and cultural advantages to play a major economic role in the Middle East, and if the Arab-Israeli conflict is resolved, the water problem will be the most important problem in the region." This project is one of the biggest and most ambitious projects in Turkey and the world, proposed by Suleyman Demirel, former Turkish prime minister. Time magazine has described this project as one of the nine great projects of the world or one of the Seven Wonders of the World.

This project started as an idea in a book titled "The Euphrates River and the Development Plan for Southeast Anatolia" in 1971 by Dr. Kollars, Professor of Political Geography and Near Eastern Earth Sciences at the University of Michigan, USA. The first serious studies of this project date back to the 1930s, but the nature of the political conditions and the economic, social and military developments caused by World War II prevented the implementation of this project. In the 1960s, the implementation of some projects gained momentum and the huge capacity of the region was absorbed, and at first individual projects were connected in the form of a comprehensive plan. Then, in the 1980s, Turkey began to develop a detailed and comprehensive plan that connected a number of hydro projects, paving the way for the Southeast Anatolia Project, which included a series of dams, reservoirs, irrigation tunnels, and a power plant.[1]In this year, the Turkish army appointed Turgut Özal, a hydrological engineer known as one of the best economists in Europe, as the head of the state planning agency. Considering the merits of this engineer and economist and his personal desire to establish an economically and militarily powerful Turkey in this region of the world, Turgut Özal provided the opportunity to present the case of GAP. In this way, with the support of Özal, what was merely a project to develop agricultural production in the region became a reality and its purpose is to prepare an integrated and large-scale program with the aim of doubling electricity generation, efficient management of water resources and creating infrastructure to attract industrial and agricultural investors.[2]

According to Özal's orders, this development would diminish or eliminate the most important reasons for the rebellion of the local people (Kurds) in the southeastern Anatolia region against the central government and prevent them from seceding from Turkey. In addition, the influx of the non-Kurdish population that comes from all over the country drowns the Kurds among the masses of people and turns them into a minority.[3]

GAP is the most important and largest development project of Turkey in the Southeast Anatolia Plateau, which is a poor plateau where the Kurdish minority lives, with an area of about 7400 square km, which constitutes 10% of Turkey's area, and The Tigris and Euphrates rivers pass through it. This project is for exploiting the waters of the Tigris and Euphrates and covers all the lands of Orfa and Mardin provinces, as well as large parts of other provinces in the region, such as Gaziantep, Yaman Valley, Diyarbakir, etc.[4]

This project includes the construction of 22 dams, including 17 dams on the Euphrates

1 . Cemal Ozkahraman, 'Waterpower: the domestic and geostrategic dimensions of Turkey's GAP Project' (2017) 17 Conflict, Security & Development 417.

2 . Arda Bilgen, 'the Southeastern Anatolia Project (GAP) in Turkey: An Alternative Perspective on the Major Rationales of GAP' (2018) 21 Journal of Balkan and Near Eastern Studies 64.

3 . Ibid, 70.

4 . Dogan Altınbilek, Hande Akçakoca, 'Innovative Approaches in Water Resources Development in Southeastern Anatolia Project (GAP)' (1997) 13 International Journal of Water Resources Development 174.

River and its tributaries, and 8 dams on the Tigris River, and includes the construction of 19 hydroelectric stations with the aim of irrigating 1.7 million hectares and generating 25 billion kilowatts annually. The storage capacity is 128 billion cubic meters.

This project is characterized by its size, volume of expenses and financial need. Therefore, the Turkish government finances a large part of the project and is looking for other financial sources. Turkey has appealed to foreign countries and financial institutions to help provide financial aid to complete its projects.[1] The World Bank refused to finance several projects in the GAP because it adopted a policy of not financing projects related to international rivers unless the following conditions are met: A) All riparian countries agree to it. B) That none of the coastal countries object to it. C) As the World Bank has considered that the interests of the coastal countries will not be affected by this project and the objection is baseless. In addition to Iraq and Syria, the negative effects of the GAP also extend to Iran. 56% of Tigris water is imported from Turkey and if the GAP is completed, there will be many changes in Iran's environment, which will cause serious damage. In fact, upon completion of this project, Iraq's Mesopotamian wetlands, whose water originates from the Tigris, will dry up quickly. In this way, with the drying up of the central wetlands of Iraq and Syria, the Horul Azim wetland in Khuzestan will become the biggest center of micro dust crisis in the region, affecting 25 western and central provinces of Iran. The aggravation in this issue is due to the removal of the water rights of Syria and Iraq from the Tigris and Euphrates. Based on this, today, experts believe that the foreign origin of micro dust in the southwest and west of Iran is mainly the deserts of Arabia, Iraq and Syria, which is especially caused by the dry bed of Tigris and Euphrates due to the dam construction policies in Turkey. Therefore, the completion of the GAP will cause the Tigris River in Iraq and the Horul Azim Wetland in Iran to face dryness and water scarcity. Also, this will lead to the production of fine dust in the country of Iraq and its transfer to the border provinces of Iran.[2]

This article seeks to find out what effect the GAP has had on the Tigris and Euphrates rivers and what legal consequences these effects have created.

1. GAP from the Perspective of International Treaty Law

In this part, the international treaty laws governing the Tigris and Euphrates rivers, the compatibility of the Atatürk Dam on the Euphrates River and the Ilisu Dam on the Tigris River as two examples of the biggest dams of the GAP with the international treaty laws are discussed.

1.1. International Treaty Rules Governing the Tigris and Euphrates Rivers

The only convention governing the non-navigational use of international rivers at the international level is the United Nations Convention on the Law of the non-navigational Uses of International Watercourses 1997. Turkey is not a party to this Convention; therefore, its provisions are not applicable to the subject matter of the GAP. There is no comprehensive treaty between the riparian countries of the Tigris and Euphrates rivers that regulates the participation and exploitation of the

1 . Among these countries and institutions: Canada, Japan, France, America, Switzerland, Austria, and International Agriculg tural Development Fund.

2 . Ahmad Reza Tohidi, Mahdi Keykhosravi, 'The Absence of Treaties: The Need for Investigating States, International Obligations in the Dam Construction Process from the Perspective of International Law' (2019) 36(61) International Law Review 39.

water of these rivers between them. However, bilateral agreements have been concluded between the countries along the Tigris and Euphrates rivers regarding the non-navigational use of the Tigris and Euphrates Rivers. These agreements are limited only to the quantitative distribution of water and the exchange of information related to the utilization of the Tigris and Euphrates rivers, but they do not contain binding regulations regarding water quality.

The first water talks in the Tigris and Euphrates basin began with the Paris Agreement of December 23, 1920, between Britain and France. After the Second World War, Iraq and Syria gained independence, and subsequently, these talks and agreements were followed by Turkey, Syria and Iraq. The relations between these countries were relatively calm in the first half of the 20th century. However, bilateral or tripartite meetings between Turkey, Syria and Iraq began in the mid-1960s. Since 1980s, with the beginning of the competition over the exploitation of water resources, as well as Turkey's focus on completing the GAP, the relations between these countries has become tense over water resources.[1] In this section, the most important agreements concluded between the three countries will be mentioned.

1.1.1. Treaty of Friendship and Good Neighborliness between Iraq and Turkey, 1946

This is the first bilateral treaty between Iraq and Turkey regarding the Tigris and Euphrates rivers after the end of the British protectorate over Iraq.[2] It is a friendship treaty between Turkey and Iraq, one of the main instruments which helped foster political consensus between the monarchy in Iraq at that time and the Turkish government.

This treaty contains six protocols. The first protocol stipulates the regulation of the water of the Tigris and Euphrates rivers and their tributaries in such a way as to guarantee the right of the two countries to share the water of the rivers and exchange experiences between them in accordance with the common interests of the two countries.Under this protocol, Iraq was required to send experts to Turkey to conduct research, surveys, and collect hydrological, geological data, etc., in order to select sites for dams, measuring stations and other works and develop pertinent plans. These endeavors should correspond the needs of the Tigris and Euphrates rivers and their branches. Turkey organizes the maps prepared for review and Iraq bears all the costs of carrying out the works.[3]Iraqi experts work jointly with Turkish experts, and Turkey allows them to visit the necessary places and provides them with all the information, assistance and facilities in this respect.[4]

Turkey establishes and maintains permanent stations for water measurement and its discharge; Iraq bears the operating costs equally in the implementation of this protocol, and Iraqi or Turkish experts at regular intervals inspect the measuring stations. At the time of flooding every day at 8:00 a.m., the river level is informed by telegraph to the competent authorities designated by Iraq. This is the time when telegraph is available, and at other times, the river level is reported to the same authorities through monthly text reports.[5]

1 . Nicolas Bremer, Op.cit, 46.
2 . In 1932.
3 . Euphrates-Tigris Protocol – Treaty of Friendship and neighbourly Relations (Iraqi-Turkish) 1946, art.1
4 . Euphrates-Tigris Protocol – Treaty of Friendship and neighbourly Relations (Iraqi-Turkish) 1946, art.2
5 . Euphrates-Tigris Protocol – Treaty of Friendship and neighbourly Relations (Iraqi-Turkish) 1946, art.3

In principle, the Turkish government agrees to create works that appear necessary because of research, and each work is subject to an agreement on its location, cost, operation and maintenance. In addition, its utilization by Turkey for irrigation and electricity generation is held separately.[1] Turkey is required to inform Iraq of any projects that it might decide to establish on either of these two Rivers or their tributaries to ensure mutual benefits.[2] After signing this protocol, each contracting party should appoint a representative, and the representatives will consult on all matters necessary for the implementation of the protocol.[3]

It is worth noting that this treaty, with its protocols, has led to the recognition of Iraq's water rights in the Tigris and Euphrates basin by Turkey, and gave Iraq important rights that Iraqi monitoring experts were present at Turkish stations and all data and water parameters were provided to Iraq. The construction of dams in Turkey was according to the studies of Iraqi and Turkish experts, and that the location and purpose of each dam in Turkey was agreed upon by Iraq and it ensured that Iraq was informed about all the projects in order to secure its interests.

What is remarkable about this protocol is that it does not include Syria. Although this protocol is attached to the Treaty of Friendship and Good Neighborhood between Iraq and Turkey, it targets the important water issues of the three riparian countries, so it was necessary for Syria to be present in it. Another important aspect of this additional protocol is that it emphasizes the need for cooperation, information exchange and consultation in order to maintain the common interests of the two countries. However, no specific criteria were defined in the framework of these cooperations.

The goal of the aforementioned protocol is that Türkiye does not take more river water than it needsBecause of Turkey's overexploitation of the water of these two rivers, the relationship between the two countries changed, and in fact, the planned measures contained in this treaty and its additional protocols were never completed. Therefore, this treaty lost the importance of its implementation and ended up apparently ineffective.[4]

Turkey has violated this protocol several times by building the Atatürk Dam, Berjik Dam and Qaramish Dam without agreement with Iraq. While the Turkish embassy in Baghdad sent a note to the Iraqi government in 1957, which included the announcement of Turkey's desire to regulate the drainage of the Euphrates River, develop the river's resources and electric energy, as well as its intention to build the Keban Dam[5]. It is noted that Turkey's note corresponds to the first protocol of the 1946 Treaty of Friendship and Good Neighborliness.

1.1.2. Technical and Economic Cooperation Protocol between Turkey and Syria, 1987

Syria and Turkey signed a comprehensive technical and economic cooperation protocol in 1987, which sought cooperation in various fields of oil, gas, electricity, banking, communications, trade and transportation. Articles 6 to 10 of the protocol are related to water issues.

During the filling period of the Atatürk Dam and until the final distribution of Euphrates

1 . Euphrates-Tigris Protocol – Treaty of Friendship and neighbourly Relations (Iraqi-Turkish) 1946, art.4
2 . Euphrates-Tigris Protocol – Treaty of Friendship and neighbourly Relations (Iraqi-Turkish) 1946, art.5
3 . Euphrates-Tigris Protocol – Treaty of Friendship and neighbourly Relations (Iraqi-Turkish) 1946, art.6
4 . Adel.J.Kischner, Katin Tiroch, 'the Water of Euphrates and Tigris: An International Law Perspective' (2012) 16 Max Planck Yearbook of United National Law 346.
5 . The construction of Kiban Dam started in 1965 and ended in 1974.

water between the three countries, the Turkish side undertakes to guarantee an annual water rate of more than 500 cubic meters per second on the Turkish-Syrian border. And in cases where the flow of the Euphrates River is is less than 500 cubic meters per second, the Turkish side will compensate the difference in the following month.[1]

The two sides are cooperating with the Iraqi side to distribute water from the Tigris and Euphrates rivers as quickly as possible, and the two sides agreed to activate the work of the joint technical committees for water.[2] The two countries also agreed to establish joint projects in the Euphrates River for the purpose of irrigation and electricity generation, provided that technical and economic studies are carried out with the cooperation of experts from the two countries.[3]

The protocol also discussed the Peace Pipeline project, where Turkey informed Syria of the details of the project, and Syria agreed, provided that an international consulting firm conducts a technical and economic feasibility study. Syria also agreed to facilitate feasibility studies in the Syrian part of the project, and if the results of the studies are positive, Syria will enter into negotiations to establish this project.[4]

In 1993, Syria registered this protocol in the United Nations to guarantee the minimum rights of Syria and Iraq to the waters of the Euphrates River. This protocol is considered temporary until a final agreement is reached to divide the water of the Euphrates River between the three countries, and the final agreement to divide the Euphrates water has not yet been reached.[5]

Iraq opposed this protocol because it was not a party to it and it should have been trilateral, and Iraq did not agree to 500 cubic meters per second because the amount reaching Iraq would be less than half of the minimum requirement.

1.1.3. Joint Minutes Concerning the Provisional Division of the Waters of the Euphrates River between Iraq and Syria

In 1989, an agreement was signed between Iraq and Syria under the auspices of the Arab League, in which the two sides agreed to temporarily divide the water of the Euphrates River. Based on that, the two countries agreed that Iraq's share of the water of the Euphrates River on the border between Turkey and Syria will be 58%, and Syria's share will be 42% until the final agreement to divide the waters of the Euphrates.[6] In this agreement, the formation of a technical committee was also established to monitor the implementation of the technical and administrative details of the agreement.[7]

It is noted that according to this agreement, the amount of water in the Euphrates River is divided between Syria and Iraq based on what Turkey allows on the border between Syria and Turkey. But due to the different amount of water flow from Turkey from month to month or even day to day; There was no other than percentage sharing of water flow between the two

1 . Protocol on Economic Cooperation (Syrian-Turkish) 1987, art. 6
2 . Protocol on Economic Cooperation (Syrian-Turkish) 1987, art. 7
3 . Protocol on Economic Cooperation (Syrian-Turkish) 1987, art. 8
4 . Protocol on Economic Cooperation (Syrian-Turkish) 1987, art. 10
5 . Adele J. Kirscbner and Katrin Tirocb, Op.cit, p 371.
6 . Aysegül Kibaroglu, Ramazan Caner Sayan, 'Water and 'imperfect peace' in the Euphrates–Tigris river basin' (2021) 97 International Affairs 146.
7 . Iraqi-Syrian Joint Minutes Concerning Provisional of the Water of the Euphrates's River, 1989, art. 2

countries. In other words, the percentage of water flow between two countries is constant, but the amount of water flow is uneven.

In this agreement, it can be seen that the issue of the amount of water in the Euphrates River's tributaries in Syria has not been addressed. considering that these tributaries are part of the Euphrates river network, the amount of water should be calculated.

The difference between the 1987 protocol and the 1989 agreement is significant, and both agreements are in favor of Syria. The 1987 protocol carries the risk for Turkey of not being able to provide sufficient water, as it is obligated to guarantee the average annual flow based on a fixed share. In the case of the 1989 agreement, Syria agreed with Iraq on a more flexible mechanism for transferring risks to Iraq through Syria's commitment to provide a certain percentage of available water. Therefore, if Euphrates water is low in Syria, Iraq will receive less water. Regardless of what has been said, it can be noted that these two agreements in the water-related sections only dealt with the issue of water sharing among the countries sharing the Euphrates River, but did not discuss water quality issues or other environmental problems.[1]

With the exception of the 1993 Syria-Turkey Joint Statement on Cooperation, which barely addressed the water issue, no agreement on water issues was reached between the three countries during the 1990s.[2] . At the beginning of the 21st century, this cooperation witnessed a new movement that led to various memorandums of understanding, joint statements and other agreements on water issues. In 2009, Turkey and Syria signed two memoranda of understanding, one in the field of improving water quality and the other in the field of effective exploitation of water resources and dealing with drought.

1.1.4. Memorandum of Understanding in the Field of Remediation Quality of Water between Syria and Turkey (2009)

In this memorandum, the necessity of technical, scientific and technological cooperation is specified in order to reduce water pollution and improve water quality in order to maintain the well-being of the current and future generations. This memorandum has expressed the necessity of cooperation in several fields, including joint measures to prevent pollution caused by residential, agricultural and industrial areas, as well as the comparison of legal and institutional structures in the field of water quality. Cooperation between the two countries is carried out through joint scientific research, exchange of environmental technologies, exchange of experts and any other type of cooperation with the agreement of the parties.[3]

Each party will appoint a national coordinator who will be responsible for managing cooperative activities based on this memorandum. The coordinators prepare annual programs that contain a detailed description of the joint actions to be taken, and they may meet at any time to discuss the activities included in this memorandum or to discuss environmental cooperation.[4]

Any dispute arising from the interpretation or implementation of this memorandum will be resolved by negotiation between the parties, and this memorandum should not be interpreted in

1 . Adele J. Kirscbner and Katrin Tirocb, Op.cit, 372.
2 . Ibid, 373.
3 . Memorandum of Understanding in the Field of Remediation Quality of Water (Syrian-Turkish) 2009, art. 2
4 . Memorandum of Understanding in the Field of Remediation Quality of Water (Syrian-Turkish) 2009, art. 6

such a way as to harm the rights and obligations of the parties resulting from other agreements concluded by the parties in accordance with international law.[1]

This memorandum shall remain in force for a period of five years and will be automatically renewed for subsequent five-year terms, unless either party notifies the other party of its intention to terminate the memorandum in written at least six months before the memorandum expires.[2]

1.1.5. Memorandum of Understanding in the Field of Efficient Utilization of Water Resources and Combating of Drought between Syria and Turkey (2009)

This memorandum aims to optimally use water resources and deal with drought through the cooperation of the parties with the transfer of knowledge, experience and technology between the two parties. Both parties should seek financial resources for projects related to optimal use of water resources and drought reduction through new technologies. In this memorandum, the necessity of cooperation in several fields is emphasized, including the use of modern water purification techniques, the creation of early warning systems for floods, and cooperation in the development of early warning systems for drought.[3]

Each party will appoint a national coordinator who will be responsible for managing cooperative activities based on this memorandum. The coordinators prepare annual programs that contain a detailed description of the joint actions to be taken, and they may meet at any time to discuss the activities included in this memorandum or to discuss environmental cooperation.[4]

Any dispute that may arise from the interpretation or implementation of this memorandum will be resolved by negotiation between the parties, and this memorandum should not be interpreted in such a way as to harm the rights and obligations of the parties resulting from other agreements concluded by the parties in accordance with international law.[5]

This memorandum shall remain in force for a period of five years and will be automatically renewed for subsequent five-year terms, unless either party notifies the other party of its intention to terminate the memorandum in written at least six months before the memorandum expires.[6]

Unlike the 1987 protocol, which focused on the water sharing of the Euphrates River, these two memoranda emphasize the patterns of water development, use and management, especially drought management and environmental protection. However, due to regional instability and increasing political tensions between these countries, the implementation of these bilateral memoranda has become impractical. the Syrian conflict has further contributed to a stagnation in Euphrates water relations.[7]

1 . Memorandum of Understanding in the Field of Remediation Quality of Water (Syrian-Turkish) 2009, Art. 8
2 . Memorandum of Understanding in the Field of Remediation Quality of Water (Syrian-Turkish) 2009, Art. 10
3 . Memorandum of Understanding in the field of efficient utilization of water resources and combating of drought (Syrian-Turkish) 2009, art. 2
4 . Memorandum of Understanding in the field of efficient utilization of water resources and combating of drought (Syrian-Turkish) 2009, art. 5
5 . Memorandum of Understanding in the field of efficient utilization of water resources and combating of drought (Syrian-Turkish) 2009, art. 7
6 . Memorandum of Understanding in the field of efficient utilization of water resources and combating of drought (Syrian-Turkish) 2009, art. 9
7 . Aysegül Kibaroglu, Ramazan Caner Sayan, Op.cit, 150.

1.1.6. Agreements for the Construction of a Water Pump Station on the Tigris River

In 2002, Syria concluded an agreement with Iraq for the construction of water pumping stations on the Tigris River and a similar agreement with Turkey in 2009. These agreements included specific provisions of the allowed amount of water output for Syria. Instead, Syria was required to report all the stages of project implementation as well as the amount of water received. In the aforementioned cases, the parties agreed to jointly monitor the amount of water released from the Tigris River by establishing monitoring stations. It was also decided that a joint technical committee would regularly record the amount of water pumped out by the pumping devices.[1]

Under article 4(1) of the 2009 Syria-Turkey agreement regarding the pumping center on the Tigris River, Syria was granted the right to withdraw a maximum of 1.25 cubic kilometers of Tigris water every year using the pumping center. In spite of this general share, Syria has the right to receive a specific share of water on a monthly basis. The minimum monthly amount Syria has the right to withdraw from the Tigris water is 0.027 cubic meters in December and the maximum amount occurs in May, which reaches 0.268 cubic meters. Article 4(2) of the Agreement has limited the Syrian right of of withdrawal of the amounts stipulated in Article 4(1).[2]

Article 6 of the Agreement stipulates: "When Syria, Turkey and Iraq reach an agreement regarding the final allocation of water from the Tigris and Euphrates rivers, the total amount of water allocated to Syria from these two rivers will be reduced from Syria's share of the Tigris River in accordance with Article 4 of the agreement."

The Eastern Anatolia Project (DAP), a dam construction complex in Turkey, has planned to build more than 10 large dams, including the Karakurt Dam and the Süylmaz Dam. If implemented, the project will lead to a severe reduction of approximately 50% of water flowinto the Aras River.

1.2. Compliance of Atatürk Dam Impact on the Euphrates River with International Treaty Law

The initial dewatering of the Atatürk Dam reservoir had a serious impact on the amount of Euphrates water flow. The initial dewatering of the reservoir began in the beginning of 1990 and continued until 1992, and the initial dewatering of the reservoir seriously reduced the water flow of the Euphrates River on the border between Turkey and Syria and reached about 65 cubic meters per second from January 14 to January 31, 1990, and to an average of 50 cubic meters per second from February 1 to February 12, 1990.[3]

Atatürk Dam serves as a tool for implementing irrigation programs on a large scale and the largest hydroelectric power plants in Turkey. In order to irrigate a land with an area of 706,281 square kilometers connected to the dam, a large amount of water must be withdrawn from the Euphrates.[4]

Hydroelectric power plants are designed to store water and primarily to meet the peak energy demands; therefore, they do not produce energy continuously; rather, they store poten-

1 . Agreement on a Syrian Pumping Station on the Tigris (Iraqi-Syria) 2002, art. 5(5)
2 . Memorandum of Understanding on a Pumping Station on the Tigris (Syria –Turkey) 2009, art. 4
3 . Erdem Mete, 'The Tigris-Euphrates rivers controversy and the role of international law' (2003) 8 Perceptions: Journal of International Affairs 10. .
4 . Ibid, 11.

tial energy by keeping water behind the Atatürk Dam.[1] The water that has been stored can be released from the path of the turbines and the energy of water movement is converted into electrical energy at the time of high-energy demand. Subsequently, the amount of water released from the Atatürk Dam reservoir is largely dependent on the energy demand in Turkey. Because energy demand is generally higher in autumn and winter, it is expected that more water will be released from the dam reservoir in these seasons.[2] The natural flow of Euphrates water is low between September and February; therefore, the operation of the Atatürk dam and its hydroelectric power plant fundamentally changes the natural flow pattern of the Euphrates water. In addition, the energy demand is also different during each day; therefore, the activity of Atatürk dam hydroelectric power plant disrupts the flow of river water.[3]

The availability of fresh water is not solely limited to the reduction in the quantity of water. The effluents that enter the Euphrates River from agriculture, industry and domestic uses affect its quality. Both Iraq and Syria have stated that Turkey's developments on the Euphrates River have led to its pollution. Apart from the issue of pollution of the Euphrates, which is a dispute between these countries, the issue of salinization of the water of the Euphrates River is certain. The main cause of salinization of the Euphrates River is improper irrigation.

Water salinization is particularly important for both drinking and for agricultural purposes. Water with a salinity of more than 1000 parts per million is unsuitable for human consumption according to the standards of the World Health Organization.[4] When the water salinity is more than 2000 parts per million, it cannot be used for irrigation, and when the water salinity concentration reaches more than 3000 parts per million, it is unusable for most animals to use as drinking water.

The salinity level of Euphrates river source water is very low and has about 260 parts per million.[5] At the border between Turkey and Syria, the salinity of Euphrates water reaches more than 1040 parts per million.[6] The reason for this salinity is mainly improper and extreme irrigation as well as the drying of the infrastructure in the project area (GAP) of Turkey. As a result, we find that the Atatürk Dam affects the quantity and quality of Euphrates water entering Syria.

The Syria-Turkey Economic Cooperation Protocol 1987 contains several sections that Turkey and Syria have agreed upon. Article 6 of this protocol specifically refers to the distribution of Euphrates water. In Article 6(1) of this Protocol, the Turkish side undertakes to guarantee an annual waterflow rate of more than 500 cubic meters per second on the Turkish-Syrian border, during the filling period of the Atatürk Dam and until the final distribution of Euphrates water between the three countries. In cases where the flow of the Euphrates River is less than 500 cubic meters per second, the Turkish side is obligated to compensate for the difference in the following month.

Article 6(1) of the Protocol explicitly obligates Turkey to allow a minimum water flow of

1 . Nicolas Bremer, Op.cit, 260.
2 . Ibid, 262.
3 . Bagis Ali Ihsan, 'Southeastern Anatolia Project' (1989) the cradle of civilisation regenerated, Istanbul 47; Beaumont Peter, 'Restructuring of Water Usage in the Tigris-Euphrates Basin: The Impact of Modern Water Management Policies' (1998) Middle Eastern Natural Environment 168.
4 . WHO, Guidelines for Drinking-water quality(2011) 228
5 . Al-Layla MA, Fathalla LN, 'Impact of Lakes on Water Quality' (1989) 182 IAHS-AISH publication 169.
6 . Ibid, 171

500 cubic meters per second to flow towards Syria on an annual average basis. During the initial dewatering of the Atatürk dam reservoir, the water flow towards Syria on January 14 and February 12, 1990 has decreased from this amount.[1] In addition, paragraph 2 of Article 6 of the Protocol does not consider any limited period for measuring and calculating the average annual flow. This paragraph only requires Turkey to compensate for any decrease in water flow of less than 500 cubic meters per month, so that the average reaches 500 cubic meters per month.

The total water flow of the Euphrates River, which was sent to Syria in January 1990, was about 349 cubic meters per second, and therefore the initial withdrawal of water from the Atatürk Dam reservoir was a violation of Article 6 of the Syrian-Turkey Economic Cooperation Protocol. Atatürk Dam can be considered to be in violation of the economic cooperation protocol between Syria and Turkey due to the effect of its activity on the water flow of the Euphrates River. That is if the amount of water entering the Euphrates River into Syria is less than 500 cubic meters per second on an annual average basis.

Only the memorandum of understanding between Syria and Turkey in 2009 regarding water quality directly refers to the issue of water quality in the shared rivers between Syria and Turkey. In order to reduce water pollution, Syria and Turkey have agreed in Article 2(3) of this memorandum to cooperate with the establishment of pollutant emission standards and transition to environmental quality standards. Syria and Turkey have never established the standard of emission of the relevant pollutant after concluding this memorandum. These two countries have definitely not agreed on mutually binding standards. In addition, other objective provisions related to water quality are not included in the memorandum. Therefore, due to the absence of treaty provisions, the effect of Atatürk Dam on the water quality of the Euphrates River does not violate international treaty law.

1.3. Compliance of the effect of the Ilisu Dam on the Tigris River with International Treaty Law

The condition of the Tigris River is not as bad as the situation of the Euphrates River. This situation is because many tributaries of the Tigris River are added to it in the downstream and there is less development activity on it in the upstream.

Tigris River flows mostly originate from mountainous areas in Turkey; Therefore, Turkey has exploited the Tigris River less intensively. Syria is the only country on the banks of the Tigris River, where about 44 km of this river flows in its border areas, and therefore this river is not considered as an important source of fresh water for it. Iraq is dependent on the water of the Tigris River and about half of the water of the Tigris River reaches the territory of Iraq.[2]Despite all these, the utilization of Tigris water has consistenly been a source of conflict between Iraq, Syria and Turkey.[3] The focal point of the dispute is Turkey's Iliso Dam. Unlike other disputes over the Euphrates and Tigris rivers, the dispute regarding the Ilisu dam was not only raised and debated between the countries along the river and other countries in the region, but it was also

1 . Dogan Altinbilek, 'Development and Management of the Euphrates–Tigris Basin' (2004) 20 International Journal of Water Resources Development 19.

2 . Harris Leila M, Samer Alatout, 'Negotiating hydro-scales, forging states: Comparison of the upper Tigris/Euphrates and Jordan River basins' (2010) Political Geography 151.

3 . Tinti Alessandro, 'Scales of justice. Large dams and water rights in the Tigris–Euphrates basin' (2023) Policy and Society4 .

discussed with countries outside the region. For example, Iraq, Syria, and people from these two countries also protested some European countries that were involved in the construction of this dam.[1]

The construction of the Ilisu Dam would reduce the Tigris River water by 47% and deprive 50% of the residents of Mosul of access to water resources in the summer.[2] The construction of this dam will also cause 696 thousand hectares of Iraqi agricultural lands to be deprived of irrigation.[3]

Apart from the pollution caused by toxic substances and the problems caused by the discharge of fertilizers into the Tigris through the return flow from the irrigated areas, salinization can also add to the problems. Although the Tigris suffers from less salinity than the Euphrates, river salinity is an issue that will cause more problems in the future.[4]

There is no comprehensive treaty regulating and distributing Tigris river water between Iraq, Syria and Turkey. However, there are bilateral agreements related to the uses of this river. The agreement between Syria and Turkey regarding the pumping center on the Tigris in 2009 has regulated the quantitative distribution of the Tigris water flow between Syria and Turkey regarding the pumping center in the Syrian territory. Iraq and Syria have resolved the situation regarding this pumping center in the agreement of 2002. The only treaty governing non-navigational uses of the Tigris between Iraq and Turkey is the 1946 Turkey-Iraq Protocol on the Tigris and Euphrates.

In Article 4(1) of the Memorandum of Understanding on a Pumping Station on the Tigris between Syria and Turkey 2009, it was agreed that Syria could withdraw a maximum of 1.25 cubic kilometers of water from the Tigris River every year using the pumping center. Despite this general share, Syria has the right to receive a specific share of water on a monthly basis. The minimum amount that Syria is authorized to withdraw from Tigris water is 0.027 cubic meters per month in December and the maximum amount is 0.268 cubic meters in May. Clause 2 of Article 4 of the agreement between Syria and Turkey has limited this right of Syria and has limited the withdrawal of Syrian water to the amounts stipulated in Clause 1 of Article 4.

Article 4(1) of Memorandum of Understanding on a Pumping Station on the Tigris between Syria and Turkey 2009 states that the maximum amount that "Syria should use" is 1.25 cubic kilometers of water from the Tigris River annually, with monthly allocations specified in the accompanying table. The Article provides Syria with a certain monthly amount of water. The interpretation of this paragraph is that the quantitative distribution of Tigris water is completely binding due to the mandatory language of this Article. Therefore, paragraph 1 of Article 4 of this agreement is legally binding. It is unlikely that the operation of the Ilisu Dam violates Paragraph 1 of Article 4, of the Turkey-Syria Agreement due to the effect of its operation on the

1 . Elver Hilal, 'Peaceful Uses of International Rivers. The Euphrates and Tigris Rivers Dispute' (Brill 2021) 382.

2 . Mc Glade Katriona, Behnassi Mohamed, Environmental Change and Human Security in Africa and the Middle East (Springer Publisher 2017) 245; Ahmad Reza Towhidi, Mahdi Keykhosravi, 'The Absence of Treaties: The Need for Investigating States, International Obligations in the Dam Construction Process from the Perspective of International Law' (2019) 36(61) International Law Review 393

3 . Every cubic kilometer of the Tigris River's annual water flow decreases, an area of 625 square kilometers of agricultural land in Iraq cannot be used for agricultural purposes due to the reduction of water for irrigation. In addition, abandoning these areas can increase the speed of desertification in Iraq

4 . Al-Layla M.A., and Fathalla, L.N., Op.cit, 167.

quantity of Tigris water flow, because the expected annual flow of Tigris water on the border between Turkey and Syria during the operation of the Ilisu Dam exceeds 1.25 cubic kilometers.

The agreement between Syria and Iraq regarding the Syrian pumping center on the Tigris in 2002 is the same as the agreement between Syria and Turkey regarding the pumping center on the Tigris River. In clauses 1 and 4 of article 3 of this agreement, Iraq gives some of the Tigris water to Syria on a monthly basis. The wording of these clauses is mandatory and therefore regulates the distribution of Tigris water between the two countries of Syria and Iraq since 2002. Turkey has never adhered to this agreement, and therefore the Ilisu Dam or other Turkish projects for the Tigris are not subject to this requirement.

The only treaty governing the Tigris River between Iraq and Turkey is the protocol established by these two countries in 1946. This protocol is mainly related to the collection and sharing of data related to the development of Tigris and Euphrates. However, the protocol does not establish any specific regulations regarding the quantitative distribution of the Tigris water flow between Iraq and Turkey.

The only agreement concluded by the countries along the Tigris River that refers to the issue of water quality is the 2009 agreement between Syria and Turkey regarding water quality. Clause 3 of Article 2 of this agreement stipulates that the parties Syria and Turkey should cooperate in setting standards for pollutant emissions and environmental quality, but these two countries have not agreed on this issue. In addition, this document does not extend to Iraq either; Because Iraq is not a member of it. Therefore, due to the absence of treaty provisions, the effect of the Ilisu Dam on the water quality of the Tigris River is not a violation of international treaty rights.

2. GAP from the Perspective of Customary Principles of International Water Law

In this part, I will deal with the conformity of the effect of the Ilisu Dam on the Tigris River and the effect of the Atatürk Dam on the Euphrates River with the customary principles of international water law.

2.1. Compliance of the Effect of the Ilisu Dam on the Tigris River with the Principles of International Water Law

The most important principles of international water law are the principle of non-harmful utilization of territory and the principle of equitable and reasonable utilization.

2.1.1. Compliance with the Principle of non-Harmful Utilization of Territory

This principle means preventing harm to other riparian countries through activities related to an international river; As a result, damage may be caused by pollution or reduction of water volume.[1] The principle of non-harmful utilization of territory is often related to the rule of no harm[2], good neighborliness, or abuse of rights.[3]

1 . Stephen C. McCaffrey, The Law of International Watercourses – Non-Navigational Uses (second edition, New York: Oxford University Press 2007) 409.

2 . Use yourself in such a way that you do not harm others

3 . Gunther Handl, 'Transboundary impacts' (2008) The Oxford Handbook of International Environmental Law 533.

From the legal point of view, the harm must reach a degree of importance that it disturbs the interests of other governments. Therefore, the downstream government should ignore the minor negative effects of its neighbor's activities, because these are inherent and inevitable problems. For this reason, the plan of the International Law Commission includes significant losses, but choosing real and desirable criteria to recognize these losses is not so easy.The principle of non-harmful utilization of territory does not include an absolute standard. Several factors must be considered. First, the principle of non-harmful utilization of territory requires that the damage reach a customary threshold, meaning that it must be serious or significant enough.[1] The significance of harm caused is a central property of the no-harm rule. However, a number of treaties including the no-harm rule do not incorporate it. Still, the bare fact that these treaties do not limit the obligation not to cause harm to or on another state's territory to significant harm does not necessarily mean that such a limitation could not be an element of the no-harm rule as it is recognised as of international customary law. Therefore, these treaties would have to represent a quasi-universal state practice supported by a quasi-universal opinio iuris. Yet, there are a large number of agreements, merely providing for an obligation not to cause transboundary significant harm, and a variety of state explicitly stated they considered the no-harm rule as limited to significant harm. Thus there is a quasi-universal consensus in state practice and opinio iuris regarding the no-harm rule being binding international customary law; however, consensus only exists insofar as this rule is limited to prohibiting states to cause significant transboundary harm. Judicial decisions and legal scholars support this view.[2]

Second, the standard of proportionate behavior is an issues of concern, which means that the responsibility is not only in the event of a result, but the government must take all the conventional measures so as not to cause significant harm. The necessary specific measures should be determined by considering the facts and conditions of each specific situation as well as the capacities of the government in question.[3] according to state practice and opinio iuris, the no-harm rule is binding international customary law regarding non-navigational uses of freshwater. Numerous states regulated non-navigational uses of international freshwater systems in treaties including the no-harm rule. Also, many states explicitly declared to consider the no-harm rule as binding under international law. Judicial decisions and the vast majority of legal scholars also support this view.[4]

The United Nations Convention on the Law of the non-navigational Uses of International Watercourses 1997 refers to the rule of not causing significant and lasting damage to other countries.[5] Prohibition of non-harmful utilization of territory has its roots in the customary rule of international law that prohibits harm and harm to others. According to this customary principle of international law, governments are obligated not to use their territory for purposes that are contrary to international law. Article 21 of the Stockholm Declaration also states that, "[a]

1 . Owen McIntyre, 'The Role of Customary Rules and Principles of International Environmental Law in the Protection of Shared International Freshwater Resources' (2006) Natural Resources Journal 93.
2 . McCaffrey, Op.cit, 415.
3 . McIntyre, Op.cit, 102.
4 . McCaffrey, Op.cit, 417.
5 . Convention on the Law of the Non-navigational Uses of International Watercourses (adopted 21 May 1997, entered into force 17 August 2014) Art. 7

ccording to the United Nations Charter and principles of international law, governments have sovereign rights regarding the extraction of their resources, according to their environmental policies, and are responsible for ensuring or controlling activities within their territoriess in a manner that does not harm the environment of countries or regions outside their territorie."[1]

Based on the principle of non-harmful utilization of territory, every government must exercise due care when taking action in its territory to ensure that such an action does not lead to substantial transboundary damage. Therefore, this the principle obligates Turkey not to deprive other states of the water of the Tigris River due to its action and in fact not to cause them substantial damage.[2] Therefore, if Turkey takes all necessary measures to prevent transboundary fundamental damage, and yet the flow of Tigris water decreases due to the initial dewatering of the dam reservoir, Turkey has not violated the no-harm rule.

Iraq uses the Tigris extensively and has implemented extensive development projects on the Tigris River, which are related to large-scale irrigation and the operation of the hydroelectric power plant connected to the Mosul dam. Tigris is also considered as an important source of drinking water for Iraqi people. Decreasing Tigris water can cause serious damage to Iraq. It is predicted that if every cubic kilometer of Tigris water flow decreases, 625 square kilometers of agricultural lands will be deprived of irrigation. This action will lead to desertification. In addition, the Mosul dam hydropower plant cannot operate and there will be a shortage of drinking water in Nineveh and Mosul.[3] All these cases undoubtedly constitute substantial damages.The statement of the Minister of Resources of Iraq has predicted that if the GAP and the Ilsiu Dam, which is a part of it, are active, the amount of water in the Tigris River on the border between Turkey and Syria will decrease from 16.72 cubic kilometers to about 11.14 cubic kilometers per year. Given Syria's low reliance on the Tigris River, this reduction will not harm Syria, and this amount of water will allow Syria to operate its own pumping station. According to this forecast, the amount of Tigris water flow will be about 69.63% of its natural flow.[4]

Iliso Dam will have a fundamental effect on the Tigris River flow regime. Especially in the months of March to May, the amount of water decrease due to Ilisu Dam is much lower than the natural flow and may have some negative effects on Iraq. For example, it is possible that the Mosul dam and its reservoir, which is designed to hold water during high water flows so that the dam's hydroelectric power plant can work, will not be able to work for months with low water flows due to the Ilisu dam.[5]

The daily fluctuations of the Tigris River will be very variable due to the construction of Ilsio Dam.[6] Of course, the imbalance due to the water flow affected by the Ilisu Dam will affect the plant and animal life of the riverbed downstream.[7] As a result, it can be said that Ilsiu Dam

1 . Principle 21, Declaration of the United Nations Conference on the Human Environment (Stockholm Declaration, 1972).
2 . Hasan Qaraman, A trans-national analysis of equitable utilisation and minimisation of environmental harm under environmental laws at international, federal and national levels. (PhD Thesis. The University of Waikato2023) 13.
3 . Bagis, Ali Ihsan, Op.cit, 49.
4 . Ibid, 52.
5 . WCD (World Commission on Dams), Dams and Development: A new Framework for Decision-Making, (The Report of the World Commission on Dams, London 2000) 78.
6 . Stuart E. Bunn, Angela H. Arthington, 'Basic Principles and Ecological Consequences of Altered Flow Regimes for Aquatic Biodiversity' (2002) 30 Environmental Management 493.
7 . Nicolas Bremer, Op.cit, p 274.

can lead to considerable damage to the countries of Syria and Iraq due to the influence on the quantity of Tigris river flow.Regarding the water quality of the Tigris River, the principle of non-harmful utilization of territory requires that Turkey, when doing something in its territory, act in such a way that the water quality of the Tigris River is not affected in a way that causes severe damage to other countries along the river.

The effluents from the construction site of Ilisu Dam will affect the environment of the region, and therefore it is necessary to establish a facility to manage these effluents. Heavy metals that enter the Tigris River from industrial and municipal wastes are the main reason for concern.[1]

The presence of heavy metals in drinking water can severely affect human health. The amount of nitrogen and phosphorus that flows into the Tigris River from effluents and return flows from land irrigation leads to an effect on the biological mass of the river and a decrease in the level of oxygen in the water. These works may be considered as severe cross-border damage according to the principle of non-harmful utilization of territory.[2]

Apart from the pollution of the Tigris through effluents and return flows caused by irrigation, the changes in the Tigris water flow that will occur due to the activity of the Ilisu dam can affect the quality of the Tigris water. Changing the river flow regime not only causes a change in the dynamics of the river flow, but can also affect the water quality. The reduction of floods due to the balance of natural water flow can lead to sedimentation, which ultimately leads to the reduction of water depth and the filling of pores. Low summer flow and evaporation can lead to the concentration of nutrients, chemicals and salt in the water pits, which will affect the life of the fish living in those pits.[3] Such changes in the biological cycle of the river can affect its uses, which are closely related to the river's habitat dimension, such as the possibility of fishing and aquaculture farms. Because none of these uses exist in the Tigris, the change in the dynamics of the river and its biological cycle does not cause economic damage; rather, it leads to environmental damage. Because the principle of non- non-harmful utilization of territory is not limited to material damage, the change in the natural pattern of the Tigris flow can violate this principle.

The main reason for the salinization of rivers is improper and excessive irrigation. Therefore, because there is no irrigation program connected to Ilisu Dam; therefore, this dam will have a small effect on the salinity of the Tigris water. As a result, it can be said that the developments of the GAP on the Tigris River have an important effect on the quality of the Tigris water. The increase of nitrogen and phosphorus produced in urban sewage and the return of land irrigation flows in particular can cause significant transboundary damage.[4]

2.1.2. Compliance with the Principle of Equitable and Reasonable Utilization

One of the important and fundamental principles of contemporary international water law is the principle of equitable and reasonable utilization of resources. The principle of fair use of the in-

1 . Ibid, 276.
2 . Ibid, 278. .
3 . Stuart E. Bunn, Angela H. Arthington, Op.cit, 492.
4 . Nicolas Bremer, Op.cit, 297.

ternational river is based on the balance between the sovereign rights of the government over the waters of its territory and the interests of the downstream country in using these waters.[1]

From the legal point of view, the mentioned principle is a customary rule and it is included in various documents, including the 1966 Helsinki Rules, the 1992 Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes, the 1997 United Nations Convention on the Non-Navigational Use of International Waterways and the 2004 Berlin Rules. The principle of equitable and reasonable utilization has also been repeatedly recognized and emphasized by international judicial and arbitration authorities.[2]

According to Article 5 of the 1997 United Nations Convention on the Non-Navigational Use of International Waterways, riparian states must exploit the resources located in their territory in a reasonable and fair manner. Article 6 of this Convention provides several methods and ways of working in order to apply this legal principle. According to this Article, the riparian states of the river must protect the environmental resources of the river by observing the natural features and characteristics, economic and social needs[3] and considering the impact of these different uses of the resources shared with other countries.

According to this principle, every government along the river has the right to use a reasonable and fair share of the river's water flow. This reasonable and fair share must be evaluated through a comprehensive assessment of data related to distribution and use. There exists no universally binding catalogue of factors relevant to determining the riparian states' equitable and reasonable shares of an international freshwater system's water on grounds of the doctrine of equitable utilisation. This is not surprising. Since it is generally accepted that what is an equitable and reasonable share has to be determined on grounds of the specific circumstances of the individual case, a universally binding catalogue cannot be established as it could never be applicable to the specific circumstances of every individual case. Hence a catalogue of relevant factors can only be used as a guideline or to point out specifically important factors. This interpretation also is supported by the fact that the catalogues provided for in treaties and non-binding declarations are never conclusive. Thus, they remain open for specific factors and issues relevant in an individual case.[4]

As a result, the initial withdrawal of water from the Iliso dam reservoir can violate the principle of equitable and reasonable utilization if the amount of Tigris river water that is supposed to be stored behind the Iliso dam is more than Turkey's reasonable and fair share of the Tigris water. In other words, if the amount of water released from the Ilsio Dam cannot compensate the reasonable and fair share of Syria and Iraq, the Ilsio Dam's use will be an unreasonable and unfair. Therefore, an equitable and reasonable utilization share of the waters of the Tigris River must be determined for the countries of the Tigris River Basin. In order to determine if the initial extraction of water from the Ilsio Dam constituted a violation of principle of equitable and reasonable utilization. This work requires the evaluation of many data such as the climate

1 . Mete Erdem, Op.cit, 12.
2 . Nicolas Bremer, Op.cit, 155.
3 . Marcus D. King, 'Weaponizing Water: Water Stress and Islamic Extremist Violence in Africa and the Middle East' (2023) Lynne Rienner Publishers 15.
4 . McCaffrey, Op.cit, 406.

of the Tigris region, the water status of the Tigris River, the population dependent on the river, people's development and the availability of freshwater in general in the region.The GAP in Turkey is mainly for setting up hydroelectric power plants and providing energy needed by the population of certain regions of Turkey. With this explanation, Tigris is very important for Turkey from the perspective of human and urban development. On the other hand, the irrigation of many agricultural lands from the project area (GAP) helps the economic development of this country in the Southeast Anatolia region, creating jobs in the Ilisu dam power plant and the necessary trainings related to it are all other aspects of development in Turkey.[1]

Compared to Turkey, the Tigris River is less important for Syria. Only 44 km of the Tigris River flows in Syria. In the areas where the Tigris crosses Syria, there are only 30 inhabitants per square kilometer. However, Iraq depends on the Tigris as the most important source. Large urban areas in Iraq use the Tigris River as the only source of fresh water, especially in Baghdad and Mosul. Irrigation programs for areas of about 22,000 square kilometers, which constitute about 67% of the total arable areas of Iraq, are located along the Tigris. About half of the Tigris water flow is used in Iraq. The most important project in Iraq that depends on Tigris river water is the Al Jazeera project, spanning an area of about 1300 square kilometers. This region has a dry climate. This project is also related to agriculture, so the development of agriculture in Iraq is very dependent on the Tigris River. Mosul dam hydroelectric power plant with higher energy production capacity is also located upstream of the Tigris in Iraq, which is very dependent on the Tigris water coming from Turkey. Based on all available data, including human, economic, cultural and development, it can be said that Turkey and Iraq are more dependent on that Tigris than Syria.[2]

According to the principle of equitable and reasonable utilization, Syria has a small share of the Tigris river's water; Therefore, reducing the water flow of the Tigris River does not deprive Syria of its reasonable and fair share; However, the reduction of the Tigris water flow due to the development of the GAP will have a strong impact on Iraq. About 6960 square kilometers of Iraqi agricultural land will be deprived of water and 53% of the energy production capacity of the Mosul Dam power plant will be reduced.[3] These works will make Turkey's utilization of the Tigris River unfair and unreasonable.

2.2. Compliance of Atatürk Dam's Impact on the Euphrates River with the Principles of International Water Law

The most important principles of international water law are the principle of non-harmful utilization of territory and the principle of equitable and reasonable utilization.

2.2.1. Compliance with the Principle Non-harmful Utilization of Territory

Article 6 of the Economic Cooperation Protocol between Syria and Turkey only refers to the issue of the quantitative distribution of Euphrates water, and therefore it cannot be claimed that it has

1 . Nicolas Bremer, Op.cit, 90.
2 . Adele J. Kirscbner , Katrin Tirocb, Op.cit, 352.
3 . Ali Ihsan Bagis, Op.cit, 55.

abandoned the principle of non-harmful utilization of territory regarding the quality of Euphrates water.

The effect of the Atatürk Dam on the water quality of the Euphrates River and as a result the effect on Iraq and Syria can be a major damage, and therefore, it is considered a violation of the principle of non-harmful utilization of territory. Although water with a salinity level of 1000 parts per million can only be used for agricultural purposes and according to the standards of the World Health Organization, it is not suitable for human consumption. Subsequently, when the salinity of the sources of the Euphrates is taken into consideration, the increase of its salinity to about 1040 at the border of Turkey and Syria can be considered as a fundamental transboundary damage in what the principle of non-harmful utilization of territory has in mind.

Considering the fact that the Euphrates is considered as a very important source of fresh water for Syria and Iraq, the salinity occurring in Turkey should be considered more than a significant transboundary effect. Syria supplies 42% of its fresh water from the Euphrates; therefore, this source of water is the most important source of fresh water in Syria. In addition, about a third of Syria's agricultural areas are located along the Euphrates and its branches.[1] About 87% of the water entered into Syria is consumed in the agricultural sector. Agriculture is the most important factor regarding the use of fresh water in Syria. Due to Syria's arid and semi-arid climate along the Euphrates, irrigation is critical in Syria. In addition, the Euphrates provides the water needed for large urban centers such as Aleppo.[2]

Iraq gets only 12% of its fresh water from the Euphrates and is therefore less dependent on the Euphrates water flow. Of course, a large percentage of Iraq's population lives along the Euphrates and an important part of the agricultural production in Iraq is obtained along the Euphrates. Due to the dry weather in the vicinity of the Euphrates River in Iraq, these agricultural areas must be irrigated continuously. In fact, about 30% of artificial irrigation in Iraq is provided by Euphrates water; As a result, Euphrates water is considered an important source for agriculture and domestic consumption in Iraq.[3]

Since the Euphrates is a source of fresh water for irrigating crops and meeting the needs of animals, as well as human drinking, it is of special importance for both Iraq and Syria. Euphrates water salinization is considered a significant component for use in both countries; Since Euphrates water has a salinity of about 1000 parts per million at the border of Turkey and Syria, it is not suitable for human consumption according to the standards of the World Health Organization and is only limited to agricultural uses in the downstream. Such a reduction in the usability of Euphrates water should be considered more than a significant effect; In particular, the Euphrates is very important as a source of fresh water for agriculture and the interior of Iraq and Syria. As a result, the increase in water salinity in Turkey is a fundamental transboundary damage in a way that is considered the principle of non-harmful utilization of territory.

1 . Adele J. Kirscbner and Katrin Tirocb, Op.cit, 347.
2 . Mete Erdem, Op.cit, 11.
3 . Adele J. Kirscbner, Katrin Tirocb, Op.cit, 360.

2.2.2. Compliance with the Principle of Equitable and Reasonable Utilization

The headwaters of the Euphrates are comparatively low in salinity, with about 260 ppm. On the Syrian-Turkish border, however, the Euphrates's salinity rises to 1,040 ppm. This is mostly due to improper and excessive irrigation and insufficient irrigation and drainage infrastructure in the Turkish GAP region[1].The salinization of the Euphrates water at the border between Turkey and Syria has made this water only suitable for agricultural purposes. While the Euphrates is considered as a source of drinking water in Iraq and Syria, Turkey's extensive interest in using Euphrates water for agriculture in the Atatürk Dam area is undeniable. Consequently, it can be said that the Atatürk Dam activity has led to the violation of the principle of equitable and reasonable utilization.

Conclusion

The nature, scope and goals of the Turkey Southeast Anatolia Project (GAP) shows that Turkey seeks to bolster its economic and political power at the expense of ignoring the interests of the countries along the Tigris and Euphrates rivers. Despite the opposition from Syria and Iraq and the violation of international laws related to the exploitation of international rivers, Turkey insists on its approach in implementing water programs. Turkey's GAP entails political, economic and security implications.

The Turkish government introduces the GAP as the key to the future development of its economy. Nevertheless, the governments of Syria and Iraq, respecting the right of the Turkish government to develop, have expressed immense concerns about this project; they contend, the completion of the GAP will lead to severe impacts downstream. there are few treaty regulations regarding the distribution and allocation of the Tigris and Euphrates rivers. Article 6 of the Turkey-Syria Economic Cooperation Protocol of 1987 and Article 1 of the Iraqi-Syrian Joint Minutes Concerning Provisional Devision of the Water of the Euphrates's River of 1989 and Article 4 of the Turkey-Syria Memorandum of Understanding of 2009 regarding the Tigris River pumping station are the only provisions in this field.

No agreement has been concluded between the countries sharing the Tigris and Euphrates rivers regarding the water quality. The only existing regulation related to water quality is Article 3 of the Turkish-Syrian Memorandum of Understanding in the Field of Remediation Quality of Water 2009, which obligates these two countries to cooperate in establishing pollutant release standards.Due to the lack of comprehensive treaty provisions and the ineffectiveness of the existing treaty provisions between the riparian countries, the customary principles of international environmental law play an important role as the main source in the distribution and utilization of the Tigris and Euphrates rivers. Contrary to the Turkish government's position, Tigris and Euphrates are international rivers subject to the rule of international law without any restrictions.

The formation of two important principles in customary international law, i.e. the principle of equitable and reasonable utilization and the principle of non-harmful utilization of territory,

1 . Nicolas Bremer, Op.cit, 235.

are based on the concept of limited territorial sovereignty. Today, these principles are generally accepted in the international arena. The principle of not causing significant harm prohibits certain harmful actions and behaviors and provides certain minimum standards for cross-border actions by governments. The principle of equitable and reasonable utilization also provides a comprehensive distribution of the waters of an international river, which obligates governments to consider the interests of other riparian states when utilizing the river. Equitable and reasonable utilization mandates certain conditions of each river and a comprehensive evaluation of all criteria related to the non-navigational uses, such as the dependence of the population on the river as the source of that type of water, the availability of other fresh water sources, the climatic conditions of the region and the existing and potential pollution. The effects of the GAP on the Tigris and Euphrates rivers have some differences with the customary principles of international water law, leading to the violation of the principle of non-harmful utilization of territory and the principle of equitable and reasonable utilization.

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