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Chapter 8

Historical Review of Formal and Informal Water Institutions in the Euphrates-Tigris Region with a Specific Focus on Water Relations between Turkey and Iraq

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1. Introduction

Transboundary river basins have certain characteristics, such as conflicting national interests, power disparities, and competitive national water policy and practices that make their management difficult, particularly in volatile regional political settings, which exacerbate the already daunting task of managing the complex human and natural systems. In such regions, water policy and management institutions can be useful for facilitating communication, coordination, and cooperation over the disputed water resources. As such, they can be anchors for initiating dialogue even in the midst of overarching political conflicts. Transboundary water politics in the Euphrates-Tigris (ET) basin are often marked with political confrontations among its major riparian states, namely Turkey, Syria, and Iraq. However, a closer look into the basin, which is situated in a politically volatile region, demonstrates that the basin also hosts a complex array of formal and informal water management institutions that are functioning at various levels. There were times those institutions operating at national (i.e., water ministries), transboundary (i.e., joint technical committee, informal initiatives), and

local (i.e., civil society organizations, farmer groups) levels have become instrumental and facilitative for water cooperation when the overall political conditions were conducive, however, there were also times when those institutions became dormant and ineffective due to mainly unfavorable political atmosphere as well as structural institutional deficiencies.

In the ET river basin no formal entity exists that is responsible for the management of the entire river basin. In other words, the basin lacks a multilateral basin-wide body that represents the interests of all of the basin stakeholders at all levels. In the late 1960s, transboundary water relations in the basin have become competitive with the initiation of major water development projects by each of the major riparians. Moreover, in the 1980s, a series of non-riparian national security issues further exacerbated the water-related tensions. Yet, in the absence of harmonious transboundary water relations and fierce political rivalry, negotiations have nonetheless culminated in the establishment of joint institutional mechanisms, such as the Joint Technical Committee (JTC), and bilateral (water allocation) protocols back in the late 1980s as well as more contemporary forms of water agreements, such as a series of Memoranda of Understanding (MoU). Since the early 2000s, the basin has also accommodated informal transboundary water institutions initiated by regional or international actors. In these informal processes, multiple actors, ranging from professionals and former diplomats, to experts and academics, have focused their attention on cooperative socio-economic development and water management rather than the divisive issues of water sharing in the basin.

ET basin case study demonstrates that even in the absence of harmonious relations and political stability, various institutions among concerned actors have been built in the ET basin. Riparian states have maintained contact over the ET basin at different levels by establishing and revitalizing those governance mechanisms, such as the JTC, MoU, and informal science-diplomacy initiatives. In these processes, multiple actors — ranging from bureaucracies and heads of state to epistemic communities — have focused on cooperative socio-economic development issues over divisive issues of water sharing in the basin, which have proved to be progressive and facilitative in sustaining cooperation in the basin.

Against this background, this chapter will portray and critically analyze water institutions in the ET basin, be they intangible principles and rules that are adopted in stakeholder practices, or formal or informal organizational structures that have been established by the respective states or non-governmental entities. Particular attention will be paid to the current institutional frameworks, such as bilateral high-level political and bureaucratic dialogue between Turkey and Iraq as well as the science-diplomacy and capacity development initiatives that have been developed in the midst of the prolonged crisis in the region. The chapter will also analyze the evolution of national water management institutions, particularly as they relate to river basin planning and sectoral (i.e., irrigation) water policy and management issues. The analysis of interactions between transboundary and

national water management institutions will be enriched by focusing on the growing role of civil society organizations in war-torn Syria where national and transboundary institutions did not have significant weight during the ongoing conflict.

2. Origin and Evolution of the Joint Water Institution

There are very few areas of interstate relations where the presence of a permanent institutional mechanism would be as important as in the area of transboundary waters. Riparian states tend to rely on joint bodies as the most appropriate forum where potential conflicts over water can be diluted by diplomats and technical experts. In addition to their main function of coordinating the participating states' efforts in developing and managing their waters, institutional mechanisms contribute in many ways to dispute prevention and conflict management. They allow technical specialists to study a potentially controversial issue and make recommendations before the issue turns into a controversy requiring formal political involvement (UNECE, 2017). Apparently, institutionalized cooperation through a joint technical body or river basin organization is more successful in preparing the necessary data for decision-makers: collecting and standardizing information, investigating facts, and considering special circumstances which are prerequisites of a more equitable determination of shared water benefits (Kittikhoun and Schmeier, 2021). Moreover, as most of the transboundary river basins, like the Euphrates-Tigris, begin to reach the limits of supply due to augmented rates of demand; the flexibility of decision-making procedures to respond to the water stress becomes crucial. This flexibility is most needed to provide new forums for dealing with water allocation problems, which cross both time and space (Le Moigne *et al*., 1994).

Water and land resources of the Euphrates-Tigris basin had been deemed vital for the socio-economic development of growing modern states in Iraq, Syria, and Turkey. In this context, large-scale dams and irrigation systems have been initiated by the early 1960s. Owing to the competitive nature of those uncoordinated national water development projects, disagreements over transboundary water uses surfaced in the late 1960s. Riparian states have opted for diplomatic negotiations to deal with those disagreements. The main theme of these negotiations was the impact of the construction of the Keban Dam in Turkey and the Tabqa Dam in Syria on Iraq's historical water use patterns. The establishment of a joint body or an institution that would enhance cooperation in water issues came up for the first time in the 1960s when the riparians started to meet on a trilateral basis due to upcoming plans to construct these large-scale dams along the Euphrates. While Turkey suggested the establishment of a joint technical committee to determine the water and irrigation needs of the riparians (Kibaroglu, 2002), Iraq, first and foremost, insisted on a guarantee of specific flows and a water-sharing agreement before joining in any joint technical body for coordinated development and

management of transboundary water resources. Turkey released certain flows during the construction and filling of the Keban Dam, yet no agreement was reached on the modalities of transboundary water relations, even after numerous *ad hoc* technical meetings.

However, the issues triggered by water development schemes along the Euphrates and Tigris became complex and far-reaching in the late 1970s. Thus, the three riparians had to find ways to structure their transboundary water relations. To this end, Iraq took the initiative in the formation of a permanent joint technical body (Kibaroglu and Scheumann, 2013). The first meeting of the Joint Economic Commission between Turkey and Iraq in 1980 led to the establishment of the Joint Technical Committee (JTC) in 1983, whose members included diplomats and technocrats from all three riparians assigned to lay down methods and procedures that would lead to the definition of a reasonable and adequate quantity of water for each country. Having had 16 unproductive meetings, however, the JTC meetings were suspended in 1993 (Kibaroglu, 2002).

The joint bodies created among the riparians can be used as a focal point of interstate cooperation and, more specifically, as an important tool for identifying and managing competing interests, and thereby facilitating cooperation (UNECE, 2017). Yet, the analysis of the minutes of the JTC meetings, which took place between 1983 and 1993 suggests that no significant progress had been achieved in terms of identifying a reasonable and appropriate method for water allocation mainly because of the riparian states' diverging positions on the scope and objectives of the negotiations within the framework of the JTC (Kibaroglu, 2002). Turkey insisted that the negotiations should comprise the regional waters, namely the entire ET basin as well as the Orontes River. The Orontes River (Asi) rises in Lebanon and flows through Syria and Turkey. Turkey is the riparian farthest downstream in the river basin and faces chronic water shortages due to prolonged droughts as well as the devastating impacts of intermittent flooding. Since the early 1960s, Turkey has called for the Orontes to be included in its water negotiations with Syria. For this purpose, Turkey has set up a division in the Ministry of Foreign Affairs to take charge of "regional waters," including the Euphrates-Tigris river basin and the Orontes. However, Syria continues to refuse to discuss the Orontes, claiming that it is a national river because Hatay (Alexandretta) belongs to Syria even though it became part of Turkey following a plebiscite in the early 1930s (Kibaroglu and Scheumann, 2013). Iraq and Syria, on the other hand, maintained that talks should focus particularly on the Euphrates. The positions of the upstream riparian (Turkey) and downstream riparians (Syria and Iraq) were largely shaped by the water and land resources development plans. That is to say, while Syria and Iraq tried to protect their existing water uses and resisted any change in the flow of the Euphrates River in particular, Turkey emphasized its increasing needs from the whole regional rivers (i.e., Euphrates, Tigris, and Orontes) and the necessity of developing new water structures.

Moreover, a common understanding of the goal of the negotiations was also lacking. While Turkey proposed a trilateral plan (i.e., Three-Staged Plan) for determining the "utilization of transboundary watercourses," Iraq and Syria strongly insisted on reaching a "sharing formula" of the "international river." That is to say, the two downstream riparians insisted on an immediate agreement under which the waters of the Euphrates would be shared on the basis of the water rights claimed by each country. Both countries asserted that, as the annual average flow of the Euphrates River was around 1,000 m^3/sec, Turkey should keep only one-third of the flow for itself and allow the remaining two-thirds to be shared by Syria and Iraq (Kibaroglu, 2002).

The difference in the positions of the riparians can be explained by the fact that each side hoped to gain the most benefits from its respective arguments. On the one hand, Syria and Iraq feared that their claims to a larger share of the Euphrates River would be weakened if they were to consider the rivers as part of an integrated transboundary river system. Since the late 1980s, Turkey, on the other hand, tried to retain its development schemes for the Euphrates since it is more suitable for agricultural water development projects than the Tigris due to favorable topographic conditions (Kirschner and Tiroch, 2012). Moreover, Turkey asserted that the Euphrates and Tigris have to be considered as forming one "single transboundary watercourse system," not only because they are connected by their natural courses when uniting at the Shatt-al-Arab but also because Iraq uses the waters of both rivers interchangeably through its Thartar Canal Project which transfers the Tigris waters to the Euphrates. Consequently, all existing and future agricultural uses from the Euphrates, irrigation requirements of the same areas fed by the Euphrates, could be commanded by waters transferred from the Tigris (Ministry of Foreign Affairs, 1996).

Though the JTC was envisaged as a tripartite body comprising Turkey, Syria, and Iraq, most of its meetings turned out to be bilateral, thus failing to bring all riparians together. Moreover, JTC was not able to agree on any substantial resolution even after 16 meetings. Negotiations were suspended in 1993 until it was revitalized in 2007 (Kibaroglu and Scheumann, 2013). Unlike the many existing joint water institutions in various transboundary river basins around the world, the JTC in the ET basin did not originate from an underlying transboundary water agreement that might have been instrumental in setting out the agenda and operational rules of this body. In fact, issues addressed by the JTC were mostly determined by the riparians' unilateral claims from the transboundary waters as well as by the overall political situation in the region. Unlike some other functional transboundary joint bodies, such as the Minutes system of the International Water and Boundary Commission between the United States and Mexico, the JTC was not envisaged to play an important role in adjusting transboundary water management processes and allocations in response to hydrological, climatic or demographic and utilization changes (Chitan, 2016).

With its uncompromising structure and imperfect functioning, the JTC failed to create a proper setting for fruitful discussions over the riparians' prime concerns and requirements as a basis for addressing regional water problems. In this respect, water use patterns and related legislation and institutional structures at national levels did not have a chance of being discussed at the JTC meetings. No progressive exchanges took place over how legislative and institutional structures were to be harmonized (Kibaroglu and Scheumann, 2013). The meetings were attended by officials (technocrats and diplomats) from the concerned ministries in the absence of stakeholders from relevant sectors. In fact, the riparian states did not share any information and experience on their sectorial water use and management practices.[1] All in all, the JTC did not become a medium for integrated transboundary water resources management in the basin. One should also add that the JTC meetings were closely related to the overall political relations in the region at the time and that the overarching Cold War framework with its imposed tense political atmosphere had a negative impact on the performance of the JTC (Kibaroglu and Scheumann, 2013).

3. Legal Institutions with a Limited Focus: Water Allocation Protocols

Even though the ET basin riparian states have managed to establish a joint institution, namely the JTC, negotiations and decision-making at the highest political level rather than the technical or diplomatic negotiations around the JTC, proved to be essential in determining water allocation rules via the signing of bilateral protocols. Historical bilateral treaties included some clauses on water usage and development, including the comprehensive 1946 Protocol between Turkey and Iraq. Yet, the current legal framework for transboundary water governance in the ET basin is basically bound by the 1987 Turkey–Syria and the 1990 Syria–Iraq bilateral protocols as legally binding instruments of international law (Kirschner and Tiroch, 2012).

Turkey and Syria signed the Protocol on Economic Cooperation in 1987, which contained, among other things, provisions related to the allocation of the waters of the Euphrates River (Protocol, 1987). According to the Protocol, Turkey guaranteed to release 500 cubic meters of water per second from the Euphrates with deficiencies in any month to be compensated the next month (Art. 6). It was also agreed that "Turkey and Syria would invite Iraq for reaching an agreement to allocate the waters of the rivers Euphrates and Tigris in the shortest possible time" (Art. 7).

[1] The final communiqués of the 16 Joint Technical Committee meetings were reviewed with the permission of officials of the State Hydraulic Works and revealed the above arguments (on file with the author).

Article 8 sets forth that "the two sides agreed to expedite the work of the Joint Technical Committee on Regional Waters." Both states also agreed "to build and jointly operate irrigation and hydroelectric power projects" (Art. 9). Scheumann analyzes how high-level Turkish decision-making structures established a link between water and security when concluding the 1987 Turkish-Syrian Protocol on Economic Cooperation: its conclusion was made possible by simultaneous negotiations on security matters and water issues. Then Turkish Prime Minister Turgut Ozal, the decisive political actor at the time, promised a certain flow of the Euphrates River over the Turkish-Syrian border, with the intention of reaching an agreement with Syria on security matters (Scheumann, 1998). At the same time, they signed a Mutual Security Accord, setting out that each state would prevent activities against the other from originating in its territory and that criminals responsible for terrorist activities would be extradited (Kibaroglu, 2019).

In 1989, Turkey had to interrupt the flow of the Euphrates for some weeks when the Atatürk Dam reservoir was filled. This caused anxiety on the Syrian and Iraqi sides. They agreed to determine their bilateral shares from the Euphrates before such interruptions would occur again as Turkey's Southeastern Anatolia Development Project (GAP in Turkish acronym) progressed. At the 13th meeting of the JTC in Baghdad, therefore, a bilateral agreement between Syria and Iraq was signed on April 16, 1990, according to which 58% of the Euphrates waters coming from Turkey would be released to Iraq by Syria (Law No. 14 of 1990). The Protocol stipulates that "The contingent of water to Iraq passing through the Syrian-Iraqi border is to be a permanent annual total rate of 58% of the river water passing into Syria at the Syrian-Turkish border. The Syrian contingent of the river waters is to be the rest of the waters, totaling 42% of the waters passing through the Syrian-Turkish border" (Law No. 14 of 1990).

Those water allocation/sharing protocols were signed with linkages with non-riparian political and security issues. That is to say, along with the 1987 Turkey–Syria Protocol on Economic Cooperation, a Mutual Security Accord was signed between Turkey and Syria, setting out that each state would prevent activities against the other from originating in its territory and that criminals responsible for terrorist activities would be extradited (Scheumann, 2003). On another front, the 1990 Syria–Iraq Protocol was also signed in the midst of the deteriorating political and security relations between the two Baathist regimes that have been in fierce rivalry since their coming to power. Those high politics-water politics linkages ended up with hasty and poorly crafted water protocols with various shortcomings and loopholes in addressing the fundamental complexities in transboundary water management such as handling of water quantity and quality issues concomitantly with the protection of environmental resources as well as addressing variability in the flow and providing for adjustments under the impact of climate change. Moreover, immediately after signing the protocols, water technocrats in all riparian states started to complain about the implications of these protocols on water

quantity and quality in the Euphrates River (Kibaroglu, 2002). For Turkish engineers, it had immediately become a very challenging task to keep up with the release of 500 cubic meters per second during many months throughout the year particularly under the condition of severe drought. For Iraqi water engineers and water users, the water that they had been receiving from Syria, though guaranteed in percentages, had been of worsening quality (Kibaroglu, 2008).

Furthermore, both protocols are bilateral and pertain only to sharing the waters of the Euphrates River. They do not provide any necessary conditions for efficient and equitable use and management of transboundary water resources in the ET basin as a whole. It goes without saying that, by focusing only on water quantity issues, both protocols fell short of adopting integrated water resources management. Furthermore, they lacked institutional mechanisms such as an international water body for monitoring and facilitating the implementation of the provisions of the protocols. Hence, the protocols are inadequate for addressing variability in flow of the Euphrates River because of the fixed allocation mechanisms without providing flexible water allocation regime to respond to seasonal and annual fluctuations in the flow. Droughts and floods, which often happen in the basin, produce substantial changes in the river flow regime, but the protocols do not entail clauses that could provide for adjustments to be made under the impact of climate change (Kibaroglu and Scheumann, 2013). A flexible and integrated approach should be adopted in transboundary water management in order to be able to respond to the challenges and needs, allowing, for example, water quantity and quality issues to be handled concomitantly with the protection of environmental resources.

4. Legal Institutions with a Broader Focus: Memoranda of Understanding

In the first decade of the 2000s, transboundary water relations in the ET basin began to take place in a more cooperative environment. Political will expressed at the highest decision-making levels has been decisive in building these cooperative frameworks. Transboundary water relations have never existed in a political vacuum. A serious political crisis between Turkey and Syria developed in October 1998, when high-ranking Turkish military officers and politicians in Ankara made public statements requesting that their counterparts in Damascus cease to support non-state armed groups responsible for subversive actions against Turkey, who had taken refuge in Syria. Ankara's coercive diplomacy, the political and military implications of which seemed to be acknowledged by Damascus, produced a framework security agreement, also known as the Adana Accord, signed on October 20, 1998 between the two states (Kibaroglu and Sayan, 2021). Relations between Turkey and Syria improved considerably after the signing of the Adana Accord, and new and promising initiatives were undertaken on both sides.

In this context, the first Turkish-Syrian High-Level Strategic Cooperation Council (HSCC) meeting took place in Damascus in 2009 as well. These cooperative initiatives taken at the highest political level made it possible to resolve a number of outstanding disputes between Turkey and Syria. Accordingly, under the chairmanship of two ministers, Syria's minister of irrigation and Turkey's minister of the environment and forestry, a commission composed of technocrats and diplomats from the two countries met in Ankara to prepare the framework and contents of the series of protocols, Memoranda of Understanding (MoU), on the modalities of development, management, and use of the waters of the Euphrates, the Tigris, and the Orontes rivers. This period of rapprochement demonstrated that, when led by politicians at the highest level, the riparians preferred functional cooperation and a benefit-sharing approach.

On the other front, Turkey and Iraq signed a Joint Political Declaration on the Establishment of the HSCC in 2008. The first ministerial meeting of the HSCC, a forum for joint meetings of the Iraqi and Turkish cabinets, was held in Istanbul in 2009. The Turkish foreign minister was accompanied by seven executive members of the cabinet, including the ministers of trade, energy, transport, agriculture, and the environment (water) while the Iraqi minister was accompanied by nine executive cabinet members, the counterparts of the Turkish ministers, and their deputy ministers.

According to the strategic partnership agreement signed between Turkey and Iraq, the HSCC was to meet at least once a year, with the prime ministers of the two countries chairing the meetings. Ministerial meetings, on the other hand, would be held at least three times a year and technical delegations would come together four times a year. Decisions made by the HSCC would be implemented within the framework of an action plan (Kibaroglu and Scheumann, 2013).

Cooperative initiatives related to transboundary waters were agreed to by signing a series of bilateral MoUs on the protection of the environment, water quality management, water efficiency, drought management and flood protection with a view to addressing the adverse effects of climate change. In this context, the Memorandum of Understanding signed between Turkey and Iraq in 2009, included issues such as sharing hydrological and meteorological data; efficient use and management of regional waters; appraisal of water resources that are under stress due to increasing water use and climate change; harmonization of existing hydrological measurement facilities; modernization of existing irrigation systems; avoidance of losses in the domestic water sector; building water supply and water treatment infrastructure in Iraq with the involvement of Turkish companies and joint investigation, planning and implementation for flood control and drought management. The protocol demonstrates that the authorities concerned emphasized various aspects of water management particularly at national levels rather than insisting on corresponding water rights which proved to be a divisive issue in the history of water negotiations.

Turkey and Syria, on the other hand, also signed four protocols involving the waters of the Euphrates, Tigris, and the Orontes rivers. These protocols encompass issues such as jointly building a dam on the border where the Orontes flows from Syria into Turkey, utilization of water by Syria where the Tigris River makes the border between Turkey and Syria, drought management, efficient water management, improved water quality management and protection of the environment (Memorandum of Understanding, 2009b; Memoranda of Understanding, 2009c). In contrast with the 1987 Protocol, which concentrated on sharing of the Euphrates waters, these MoUs emphasized the patterns and levels of water development, use, and management, and dealt particularly with drought management and environmental protection.

Thus, after several years of adopting reserved and rigid positions on their water shares and rights, the two countries were then engaged in openly discussing new and efficient methods and procedures for managing the supply of and demand for water for agricultural, industrial, and domestic purposes. The MoUs covered a range of issues, including various forms of supply management, such as cloud seeding (artificial rain) to increase precipitation, the installation of early flood warning systems and flood protection measures, and agricultural practices with drought-resistant crops. They also included various forms of demand management, such as sharing of knowledge and experience about modern irrigation techniques; prevention of water losses in domestic water supply; organization of training programs relating to the operation of dams and the efficient utilization of water resources; sharing of knowledge and technology pertaining to wastewater storage and the reuse of treated wastewater in agriculture and industry; and cooperation on the development of land use techniques to increase the amount of soil and water saved.

These bilateral MoUs could not be put into practice due to regional instability and increased political tensions between the riparian states, particularly between Turkey and Syria with the cutting of diplomatic relations as Turkey condemned the Syrian government over the violent crackdown on protests at the outbreak of civil unrest in Syria in spring of 2011. The MoUs also faced the ever-present challenges of incompatibilities within the national, institutional, and legal frameworks, complex national water management systems, and uncoordinated water management practices among the basin countries. The existing water protocols, therefore, can only be properly implemented when the riparians' institutional capacities are upgraded and also harmonized in more conducive political circumstances (Kibaroglu, 2019).

5. Interactions between New Formal and Informal Transboundary Water Institutions

The Syrian civil war disrupted the political environment that was necessary for the implementation of the bilateral MoUs mentioned previously. The revitalized JTC

meetings were also halted with the eruption of conflict in Syria. Yet, Turkish and Iraqi water bureaucrats, professionals, and experts continued their contact through formal and informal platforms. The motivations behind the continuation of the water dialogue between Turkey and Iraq could be found in the relatively stable nature of the bilateral political relations. Though long marred by border security issues, political relations between Ankara and Baghdad have been less problematic than one might expect, with hardly any direct confrontations between the neighbors. Moreover, Turkey–Iraq trade relations have been very promising with its complementary characteristics despite repeated interruptions by wars and sanctions in the 1990s and 2000s. That is to say, bilateral trade between the two states has increased with a favorable trend through delivering Iraqi petroleum to Turkish Mediterranean ports and the exportation of a wide range of industrial products and consumer durables from Turkey (Ministry of Foreign Affairs, 2022).

Hence, under such a political environment, official dialogue on transboundary water resources developed and culminated in the signing of the minutes of the bilateral cooperation meeting in 2014, a document that encompassed the principles, modalities, and issues pertaining to bilateral water cooperation (Minutes of the Bilateral Cooperation Meeting between Turkey and Iraq, 2014). According to this official document, both sides agreed in principle to continue to hold meetings aiming to further develop transboundary water relations. Hence, the two sides decided to advance technical collaboration by engaging in technical trainings on issues relating to irrigation and domestic water systems. It was decided to establish a joint working group with a mandate to prepare water storage projects on the Tigris River tributaries (i.e., Hacibey and Lesser Zab). This working group would prepare a report to be presented to the ministers of both countries. Turkey agreed to notify the Iraqi side six months prior to impoundment of the Ilisu Dam and further agreed to provide an impoundment plan to the Iraqi side. A visit by the Iraqi delegation to the Ilisu Dam site was also planned for.[2] It was agreed that the Iraqi side would extend official demands to the Turkish side concerning technical help for preventing water losses in the Mosul Dam. It was also decided to establish bilateral cooperation on environmental matters relating to the Tigris River (Kibaroglu, 2019). Built on these modalities of cooperation, Turkey-Iraq bilateral water diplomacy comprises policies and projects for efficient use and management of transboundary rivers, which, in turn, serve national interests of both countries.

Furthermore, in 2014 the Turkish-Iraqi MoU in the Field of Water (Memorandum of Understanding 2009a) was revisited, and Art. 2 (paragraph "A") was amended. It was decided that 'Cooperation on joint projects on the water resources management in the Euphrates and Tigris shall further be developed.

[2] Later on, in this context, in June 2021 Turkey's State Hydraulic Works (DSI in Turkish acronym) hosted an Iraqi delegation, composed of water resources and dams experts, at the Ilisu Dam site in Turkey (Palabiyik, 2021).

This cooperation will include the assessment of water resources and the increase in water use (agricultural, industrial, municipal, and drinking water) and climate change. Turkey will release an equitable and reasonable amount of river water to Iraq according to the above assessment. During the joint studies, the current situation of the water resources with respect to the meteorological and hydrological conditions in the Euphrates and Tigris will be determined' (Memorandum of Understanding, 2014).

As follow-up activities, water technocrats and experts from concerned ministries in Turkey and Iraq met several times for training programs and short courses on the planning of water resources, water and wastewater treatment as well as water quality management. To illustrate, in March 2017, a delegation of Iraqi engineers from the Ministry of Water Resources attended a short course at the Turkish Water Institute (SUEN, Turkish acronym), which was founded in 2011 as a national think-tank under the Ministry of Agriculture and Forestry, with a program covering field trips to the drinking water and wastewater treatment plants in Istanbul (SUEN, 2017). Around the time of these meetings, parties also agreed to form a joint expert committee to study and investigate the proposed Hacibey and Karadag friendship dam projects on the Turkish-Iraqi border as well as complete the legislative processes required for putting the Memorandum of Understanding (2014) into force (SUEN, 2016). Even though "building joint dams on the border" had become a significant component of transboundary water diplomacy in the basin due to joint benefits of the dams in terms of energy production, flood control, drought management as well as provision of domestic and agricultural water, those projects are still pending due to political and bureaucratic hurdles at domestic level particularly in Iraq.

As a consequence of the positive political atmosphere, created by the respective state institutions, various other actors of transboundary water governance have taken initiatives to foster cooperation between Turkey and Iraq. With the support of the Swiss Agency for Development and Cooperation (SDC) in the dialogue between Iraq and Turkey, the Strategic Foresight Group (SFG), a Mumbai-based think tank, organized a series of Blue Peace in the Middle East meetings, with stakeholders deciding to focus on the Tigris as the situation in Syria did not allow any basin-wide cooperation incorporating the Euphrates. The delegations, composed of former cabinet ministers, members of parliament, senior advisers to prime ministers, officials of water ministries and water authorities, and experts from Iraq and Turkey, established a consensus on a plan of action to promote the exchange and calibration of data and standards pertaining to Tigris River flows (Kibaroglu and Sayan, 2021). Although this informal plan is yet to be fully implemented, subsequent technical meetings between Iraqi and Turkish water agencies have included that area of cooperation — data exchange and harmonization — in their formal discussions on the possibility of building joint dams on the border.

Moreover, in 2018, the Blue Peace Initiative evolved into a new permanent unofficial regional body with a main objective to enhance cooperation and coordination on transboundary water resources in the Middle East. The structure of the new regional initiative includes water experts and decision-makers from Turkey, Iraq, Syria, Jordan, Lebanon, and Iran, who underlines that the decisions on the future of water resources will always be taken by the regional countries while international donors might also support joint water projects. This regional informal initiative includes a Coordination Office, Thematic Activity Centers, a Managing Committee, and also a Policy Advisory Committee. SUEN has been chosen to be the host of the regional initiative's coordination office. Since 2018, Blue Peace in the Middle East Initiative regional office conducts capacity development projects in areas such as improving irrigation water use efficiency, water reuse and treatment as well as dam safety. To illustrate, as part of this regional initiative, the second of the capacity development program was held in Izmir Turkey in October 2021 under the theme of "Modern Approaches to Improving Irrigation Water Use Efficiency" with the participation of irrigation experts from partner countries, namely Iraq, Jordan, Lebanon, Syria, and Turkey (Blue Peace in the Middle East, 2021).

Furthermore, in 2019, Turkey and Iraq agreed to establish a water resources research and application center in Baghdad to address water issues in the region. Addressing a press conference in the Iraqi capital, the Turkish president's special envoy to Iraq in the field of water, Professor Veysel Eroglu, former Minister of Forestry and Water Affairs, stated that the two countries had drafted an action plan on the subject. At the same time, the Iraqi water resources minister stressed that Iraq was pleased with the Turkish president's "constructive" attitude toward the country's water issues (Alhas, 2019).

The main challenge, however, remains how to translate such general manifestations of political will into a tangible long-term agreement that will also take into consideration future water availability and demands across the region (Kibaroglu, 2019). Although both Iraq and Turkey support intergovernmental cooperation in finding sound technical solutions to their future water needs and challenges, there remain issues of contention between the two, in particular as regards the Ilisu Dam on the Turkish portion of the Tigris. Turkey completed the construction of the dam in 2018; however, upon the request of the Iraqi government, Ankara agreed to temporarily stop filling the reservoir behind the dam in June 2018 at a time of severe drought and water scarcity in Iraq. At a later stage, the two countries reached an agreement establishing that Turkey would release certain amounts of water into the Tigris River while filling the reservoir. Nevertheless, Turkey's water development ventures continue to raise concerns in Iraq, while the former has called for increased water efficiency in downstream countries (Klimes, 2020).

Iraq has recently taken the initiative to organize an international water conference, which might give this country the upper hand in getting support of various

actors for its needs and aspirations in the ET basin. Hence, the 1st Baghdad International Water Conference was held in Baghdad on March 13–14, 2021 with a specific focus on Iraq's water situation and cooperation with neighboring countries, as well as capacity building in the country for improved management of water resources (1st Baghdad International Water Conference, 2021). Turkey actively participated in the conference with a delegation composed of high-level representatives (i.e., the special envoy) as well as technocrats from the concerned institutions, such as the Ministry of Agriculture and Forestry, and SUEN. During an interview at the Conference, Turkish ambassador to Iraq shared the news that Turkish Grand National Assembly approved the Turkish-Iraqi MoU (2014) on March 11, 2021 just a few days before the event in Baghdad (TBMM, 2021). Once again, the essential role of the MoU in sustaining bilateral water cooperation is underlined with this Turkish move. As a follow-up to the meetings in Baghdad, Turkey's State Hydraulic Works (DSI in Turkish acronym) hosted an Iraqi delegation, composed of water resources and dams experts, at the Ilisu Dam site in Turkey (Palabiyik, 2021). During the visit, two sides evaluated the increasing negative impacts of prolonged droughts in the ET basin and discussed how to cope with this worsening drought situation with possible joint projects. Also, during the meeting, an action plan was presented to the Iraqi delegation, which contained possible joint projects in the areas of water supply management, wastewater treatment, modernization of irrigation systems, flood control, and drought management. Another major issue addressed in the meeting was the preparations for the establishment of the Iraq–Turkey Water Resources Research Center in Baghdad. Turkish authorities emphasized that they are ready to extend any kind of support to establish the center and conduct joint technical projects in this center.

Turkish-Iraqi water cooperation relies on a legislative framework (MoU), which enables the riparian states to continue talks on transboundary waters at a bilateral level when multilateral negotiations become difficult to pursue owing to the political volatility in the basin. The current form of bilateral cooperative framework brings together a wide spectrum of institutions including presidential and prime ministerial offices and the concerned ministries as well as informal institutions in which both official and non-official actors have been conducting various activities, such as capacity development programs and projects with a broader regional focus. These formal and informal processes have been in regular interaction and feed off each other, which, in turn, makes water cooperation between Turkey and Iraq durable since the early 2000s.

6. Water Institutions at the National Level

The 2009 bilateral MoUs and the subsequent 2014 renewed bilateral protocol between Turkey and Iraq comprise clauses calling for coordinated action and

collaboration among the public and private institutions of the riparian countries (see Art. 5 Memorandum of Understanding, 2009a). Thus, the implementation of such legal instruments depends on the robustness, capacities, and compatibilities of those institutions in charge of water development, management, and protection at the national level. With the increasing role of water resources in the socio-economic development of riparian countries, organizational structures that are critical for effective water governance have also developed. All three riparian countries have water-related ministries and institutions in place, including central water agencies responsible for water development, management, and protection. However, those water institutions have faced common challenges such as insufficient capacity and resources, a lack of horizontal and vertical coordination between different ministries or agencies, and poor data management and sharing between different ministries and with the public. To illustrate, Turkey's water policy and management is a culmination of various laws and regulations governed by a range of national ministries and executive administrations. Over time, several changes were made in the existing legislation and institutions, which ended up with complex water management system in the country (Delipinar and Karpuzcu, 2017). Similar problems have been also observed in national water management in Syria and Iraq (Republic of Iraq, 2014; Daoudy, 2020).

On the other hand, wide differences regarding the water governance systems between the riparian countries are prevalent when it comes to basin-wide planning and management. In this context, in Turkey, efforts have been made to adopt river basin planning in accordance with the requirements of the EU Water Framework Directive, which requires the EU member states and candidate countries to produce and implement river basin management plans (European Parliament and The Council of the European Union, 2000). In this context, River Basin Protection Action Plans have been completed in the designated twenty-five river basins of the country in the past decade. These plans are converted into EU-compliant River Basin Management Plans (RBMPs). RBMPs will enable Turkey to improve considerably the ecological, chemical, and quantitative status of surface and groundwater resources in river basins. Moreover, river basin organizations, which are deemed fundamental for sustainable management of water resources, exist in Turkey in the form of Basin Management Committees (BCMs) acting as horizontal and vertical coordination networks between ministries, local governments, and other concerned stakeholders (Delipinar and Karpuzcu, 2017). BMCs have responsibility for preparing river basin protection and management plans with drought and flood management reports, monitoring their implementation, and providing public participation. A total of 26 BMCs have been established in 25 river basins across the country. In this context, the Turkish portion of the ET basin has two BMCs because of its large surface area. The concerned non-governmental organizations, organized industrial zones, and irrigation associations have also participated in the BMC meetings in accordance with the related

legislation. However, there are still some deficiencies in stakeholder representation and meaningful participation (Delipinar and Karpuzcu, 2017).

The riparian states have issued a range of important water-relevant strategies. Iraq, for example, has developed a comprehensive national strategy for the management of water and land resources (Republic of Iraq 2014). The strategic change in water policy and management in Iraq, in fact, occurred with the regime change in the 2000s. The U.S. State Department, U.S. Army Corps of Engineers (USACE), U.S. Agency for International Development, as well as research and education institutions have played significant roles in reformulating water policy and management in Iraq, particularly in the area of reconstruction and development. Priority had been given to the provision and distribution of water within the context of Iraqi reconstruction activities. In the south, rehabilitation of the Mesopotamian Marshlands, and in the north, new water resources development projects, namely dam-building, have moved high on the agenda. In this context, the international community extended financial and technical support for these priority projects. Additionally, with an aim "to manage waters of the Euphrates and Tigris in an optimum manner," the concerned U.S. institutions initiated studies to prepare strategic (master) plans for the Iraqi waters (Kibaroglu, 2008).

The Ministry of Water Resources (MoWR) in Iraq, in close collaboration with the USACE, was reorganized in a different format than the earlier bureaucracy. In dealing with the administrative and technical aspects of water resources management, new approaches and practices have been adopted. Within this new institutional framework, the establishment of a complete and updated information database, which comprises information about water quantity and quality, particularly as it relates to water supply and management, as well as the implementation of integrated water resources management at the river basin level, became the main objectives. More recently, a consortium of technical consultants from Italian, American, and Jordanian engineering and consulting firms, as well as the USACE Hydrological Engineering Center, and Sandia National Laboratories have been working with Iraq's MoWR to prepare the Strategy for Water and Land Resources of Iraq (SWLRI). The SWLRI consortium has worked extensively with key staff of the MoWR in order to give the optimal recommendations for the most beneficial use of water and land resources in Iraq for the next 20 years (2015–2035). The report asserts that "by 2015, Iraq will begin a steady decline in its ability to meet its water needs" and that "by as early as 2020, the country will hit a wall: it will not have enough quantity and good quality fresh water to meet its development needs." Accordingly, the report suggests "this alarming trajectory can be averted only with major reform of water usage and allocation, and fully resolved only by reaching an agreement with Iraq's upstream riparian neighbors." The SWLIR Final report intends to provide the building blocks for needed reform and the data and analytical tools necessary to negotiate, adapt, and plan (Republic of Iraq, 2014).

In the early 2000s, all riparian countries began to streamline an Integrated Water Resources Management (IWRM) approach into respective policies, laws, and management practices. The implementation of this concept could indicate to what extent water resources are managed sustainably. This could be evident, for example, if an enabling legal environment for sustainable water resources was in place. In this respect, the riparian countries have developed complex legal frameworks. A plethora of water-related legislation including comprehensive national water laws exist in all three countries. Water laws in the riparian countries have, however, considerable weaknesses (Economist Intelligence Unit, 2021). For instance, in Syria, although Law No. 16 of July 11, 1982, unified all decrees relating to water management covering development, conservation, and investment, there still remained a large number of administrative bodies in charge of water management. Roles were redundant and overlapping, and most employees had low levels of expertise (Daoudy, 2020).

In general, in all riparian countries, stakeholder participation in water sector decision-making processes is limited. This pertains to the involvement of regional and local stakeholders, as well as to the general public. Water User Associations, namely Irrigation Associations are deemed important institutions in the involvement of water users (farmers) in the operation and management of irrigation systems. Traditionally, central water authorities have been in charge of building, operating, and maintaining irrigation systems in the riparian countries. However, in Turkey, including the Euphrates-Tigris basin, operation and management responsibility of 98% of the irrigated area that is equipped with irrigation facilities by DSI has been transferred to the water users, namely the irrigation associations (IA). The Turkish experience of water user associations can be shared with other riparian countries to increase water use efficiency, to ramp up water revenue collection rates, and to save water. However, both positive and negative experiences should be shared. Following the transfer of irrigation schemes to the user organizations, some improvements are recorded in irrigation ratios, irrigation water fee collection rates, and financial cost reduction in irrigation systems operated by the IAs. However, system performance remained almost at the same level. The participatory aspect of the transfers in particular has been questioned, owing to the exclusion of irrigators from IA general assemblies and boards. The top-down approach which was adopted, rather than a grassroots approach that is generated by farmer interest and involvement, has caused fierce debate over the characterization of the associations as democratic. Critics also stress that maintenance, rehabilitation, and modernization of the irrigation canals, some of which are 50 years old, cannot be accomplished due to technical, administrative, and legal capacity deficiencies of the IAs (Kibaroglu, 2020). There is also a need for improved engagement of stakeholders at the transboundary level.

Overhauling water policies and laws in riparian states will be necessary, in view of the critical state of their respective environment and water systems, as

well as growing anthropogenic pressures. Given their distinct policy situation, the riparian countries need to focus on different measures (Müller and Detges, 2021). For Turkey, strengthening checks and balances to reduce the cross-border impacts of domestic development projects will be important. In all countries, especially in Syria and Iraq, it will be critical to introduce policy provisions that effectively regulate over-exploitation of aquifers and rivers (Voss *et al*., 2013), as well to implement environmental flows (Jägermeyr *et al*., 2017).

7. Emergence of Civil Society Organizations in the Syrian Conflict and Water Management

Discussions on "institutions" in the Euphrates-Tigris basin should also include one significant phenomenon: the emergence of civil society in Syria during the civil war. Syrian civil society organizations (CSOs) historically were predominantly underdeveloped, fragile, and highly controlled. As the conflict became protracted and created an overwhelming amount of needs, CSOs became important institutions in the prolonged crisis and had to largely focus on humanitarian relief activities. Rana Khalaf, an independent Syrian researcher and consultant, active in Syrian civic organizations, focuses on the understudied dynamics of governance during the Syrian conflict from years 2011 to 2014. Her research relies mainly on primary sources, benefiting from fieldwork involving discussion groups and face-to-face interviews with key Syrian civil society activists, politicians, Local Council members, staff in the National Coalition and in international and private organizations, researchers, and intellectuals based in Turkey, Lebanon, and Syria (Khalaf, 2015). Khalaf describes that with the eruption of the uprising in Syria, there was a revival of civil society represented by youth groups, grassroots civil society movements, local coordination committees, leaders, activists, religious groups, civil courts, religious courts, local councils, humanitarian support groups, and media groups. She adds that the nature and the role of civil society during conflict is in continuous change and depends on the context in which it exists (Khalaf, 2015).

On the other hand, a group of researchers from the Geneva Graduate Institute of International and Development Studies conducted a study on Syrian CSOs, which have offices in Turkey's Gaziantep province, one of the humanitarian response hubs of the UN Office for the Coordination of Humanitarian Affairs (Dixon *et al*., 2015). For the purpose of that study, civil society is defined "as a group of networks and grassroots movements working in Syria, with the purpose of providing humanitarian services, ranging from emergency relief to more long-term sustainable projects." The majority of the data gathered by this study came from a series of interviews held with representatives from Syrian CSOs, INGOs, UN agencies, and development/aid agencies. The study finds out that most of the

Syrian CSOs were established after 2011, and have operated in regime and non-regime-controlled areas. Generally, they had offices in humanitarian aid hubs in Turkey, Syria, and Jordan; and had an operational presence inside Syria. They work, among others, in the sectors of water, health, food security, education, shelter, agricultural and livestock projects (Dixon *et al*., 2015).

As the Syrian state institutions have become increasingly ineffective particularly in the crisis zones, local and international CSOs have largely taken up the provision and management of water resources. Ahmed Haj Asaad, the co-founder of the Geo Expertise, an NGO which specializes in developing and re-establishing water supply networks and adapting to new governance mechanisms in conflict societies by strengthening the local communities, underlines that "local management of water supplies and 'strengthening the role of the local community' is an important way to combat Syria's water crisis, while also promoting social cohesion in communities torn apart by war." With these in mind, Geo Expertise has initiated the project entitled "Towards Social Cohesion: Sustainable Water Financing in Conflict," which comprised a detailed analysis of the water–society relations and the post-conflict social structure at the local level in the implementation of water projects in the Afrin area, in northwestern Syria. In collaboration with local stakeholders, Geo Expertise has led the repair of damaged infrastructure to provide northwestern Syria with more affordable and regular water (Haj Assad *et al*., 2020). This project was, hence, built on the pillars of participatory resource governance, community interaction, capacity building, and creating newer social spaces. Water user associations were created by Geo Expertise including both the local and displaced populations. The local community was engaged in the resource governance process either as representatives of the water user associations or as volunteers in the maintenance and cost-recovery processes. Geo Expertise has developed a strategy with the water user associations ensuring the alternation — complementary between the financing of NGOs operating in the area, and the contribution of beneficiaries. The establishment of local water associations has become central to the project. Most water supply network projects fail because when the NGOs leave the area of operation, they lack the funds and resources to keep the infrastructure up and running. As Mukta M. Dhere puts it the Geo Expertise model tackles this very issue by ensuring that the project remains sustainable and self-sufficient even in the absence of an external governing body (Dhere, 2021).

8. Conclusion

This chapter analyzes the role and the impact of the water institutions that operate in the ET basin at transboundary, national and local levels. Water institutions, particularly at transboundary level, have been introduced with an aim to reach agreeable solutions between the parties that had diverging interests as well as competitive water development schemes. By means of formal institutions, such as

the JTC, high-level water diplomacy frameworks, water sharing protocols, and the MoUs, national interests and identities of sovereign states are represented to one another. These institutions, though may not have been effective in most of the times in terms of protection and efficient use and management of water and other related resources, have served to place "transboundary water issues" within a legitimate and peaceful realm rather than mixing them with potentially conflict-laden issues, such as border security, territorial disputes that might otherwise escalate into a hot confrontation.

Some of those institutions carry organizational structures while others represent intangible principles and rules contained in bilateral protocols and memoranda of understanding. The formal transboundary organizational structures in the basin, of which the JTC stands out as the most significant one, have failed to be active all the time and have also become ineffective in responding to the concerns and the needs of the riparian states. Other institutions in the form of bilateral water allocation treaties face various challenges particularly in relation to sustainable management and protection of transboundary water resources under the growing impacts of climate change. Compared with the current array of unproductive institutions, a transboundary river basin organization would have several advantages as a platform through which the riparian countries can establish sustainable water management at the basin level. This could spearhead adaptation efforts for future hydrological changes or resolve conflicts over water (Blumstein and Schmeier, 2017). However, the likelihood that the riparian states make significant headway on establishing a river basin organization in the near future appears slim under the current state of volatile cross-border political relations due to on-going conflict in many parts of the basin (von Lossow, 2018). It will therefore be necessary to support existing institutional structures (i.e., JTC) that can perform similar functions to those of a river basin organization.

The chapter also elaborates on the current form of bilateral cooperative framework between Turkey and Iraq, which brings together a wide spectrum of formal and informal institutions that have been in interaction and fed each other, which, in turn, made this form of bilateral water cooperation durable since early 2000s.

On the other hand, the chapter also demonstrates that riparian states have developed complex national water policy and management policies which calls for the harmonization of those national policies at transboundary level. Thus, effective functioning and implementation of commonly adopted rules, such as the ones contained in the series of MoUs would mainly depend upon the institutional capacity of national and local water institutions as well as the proper coordination of national water policies.

Lastly, the chapter highlights how local and international CSOs in Syria have largely taken up provision and management of water resources as the state institutions has become increasingly ineffective particularly in the crisis zones. In this context, a strategy should be adopted by the riparian states, local and international

funding agencies that focuses on the strengthening of CSOs, supporting their actions in the water sector and enhancing their ability to obtain funds for rehabilitation and reconstruction. With the civil war ongoing, there is a need to consider the conflict since actions during the conflict and after the conflict are closely linked. During the conflict, there is an immediate need to improve drinking water supply and to support agriculture in areas (less) affected by the fighting. From a post-conflict perspective, rehabilitation of the domestic and agricultural water infrastructure will be a priority to ensure the sustainable return of displaced populations. Beyond emergency relief interventions, the prioritization and allocation of resources for reconstruction will be determinant factors in the reconciliation process.

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