

Türkiye's Water Security Policy: Energy, Agriculture, and Transboundary Issues

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ABSTRACT *Water security refers to the availability of adequate quantities and qualities of water for societal needs and resilient ecosystems in the context of current conditions and future global change. Achieving water security is directly linked to food and energy security, protecting and preserving ecosystems, and addressing key vulnerabilities and risks from climate change. Good water governance –including transboundary cooperation– is a critical feature of any effort to achieve water security. Yet the concept of water security remains abstract and broad. In an attempt to make the concept of water security-relevant in practice, this paper delineates Türkiye's water security policy and practices through institutional and cross-sectoral (energy and food) analysis. Specific attention is paid to Türkiye's transboundary water security policies.*

Keywords: Türkiye, Water Policy Institutions, Water and Agriculture, Transboundary Water Security

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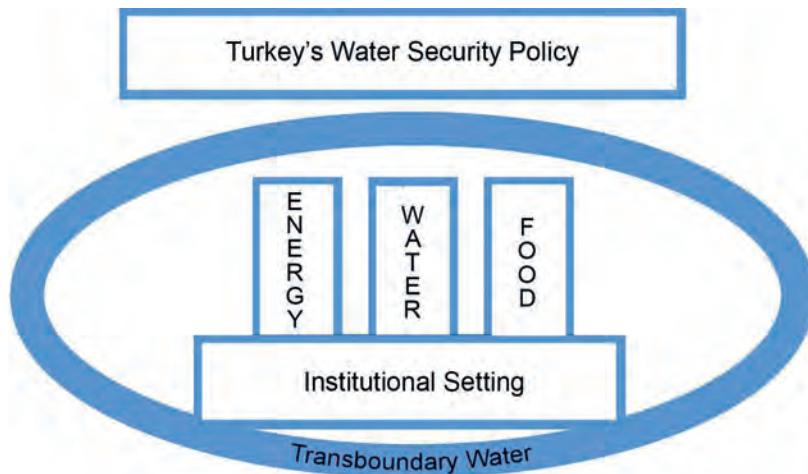
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Introduction

One of the most pressing issues of the 21st century is the management and allocation of limited freshwater resources as they become more and more scarce globally. Water resources are essential for satisfying basic human needs, promoting social and economic development, and conserving ecosystems. Water crises occurring at various levels (local, national, global) are the result of a rapidly growing population, changing levels of economic development, poor water management, and allocation practices, unfair access to and inequitable distribution of already scarce surface and groundwater resources and the burgeoning impacts of climate change. Hence, for many countries, ‘water security’ has become a key policy concept in developing sustainable use policies and managing water resources.

Water security is defined as “the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability.”¹ Achieving water security is directly linked to food and energy security, protecting and preserving ecosystems, and addressing key vulnerabilities and risks from climate change. Good water governance –including transboundary cooperation– is a critical feature of any effort to achieve water security. Yet the concept of water security remains abstract and broad. In an attempt to make the concept of water security relevant in practice, this paper delineates Türkiye’s water security policy and practices in the energy and food sectors through institutional and cross-sectoral analysis. Specific attention is paid to Türkiye’s transboundary water security policies.



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Institutional Development for Water Security

The development of water resources was one of the key sectors institutionalized in modern Türkiye. Its role in driving economic growth and social development has been constantly emphasized at the political level.² Türkiye's water security policy comprises a set of strategic objectives, such as increasing agricultural production and ensuring food security, meeting the growing water needs of urban and rural populations as well as industry, phasing out dependence on imported energy sources, eliminating regional, economic and social imbalances within the country and raising the population's living standards.

Nearly a century ago, one of the most pressing undertakings of the young Republic was to improve public health. Thus, as early as 1926, the Ministry of Health formulated the Law on Waters, which led to significant investment in the drinking water supply and the draining of swamps.³ Determining the quality standards for drinking and domestic water, monitoring these standards and preparing legislation in these areas, and controlling environmental protection and urban wastewater collection and treatment in accordance with public health continue to be among the major undertakings of the Ministry of Health.

In hydrological terms, Türkiye's territory features 25 major river basins that exhibit a large variation in average annual precipitation, evaporation, and surface run-off parameters. In total, the average annual run-off is approximately 186 billion cubic meters (bcm), of which 112 bcm could be collected for use at a reasonable cost. Surface water contributes 98 bcm and groundwater 14 bcm. In other words, Türkiye is not a water-rich country. Its population will reach 90 million by 2030, and the available water will drop from the current $\sim 1.350 \text{ m}^3$ to $\sim 1.240 \text{ m}^3$ per capita per year.⁴

Türkiye's water security policy framework delineates clearly identifiable parameters and is implemented by well-established institutions. A series of public, private, and non-governmental institutions has been established for securing water for agricultural and hydropower development, domestic and industrial uses, and the protection of the environment. First and foremost, among these institutions is the Directorate General of State Hydraulic Works (*Devlet Su İşleri*, DSI), which has been responsible for the development and management of Türkiye's water resources since 1954. The mission of the DSI,

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under the Ministry of Agriculture and Forestry (MAF), is to utilize Türkiye's water resources, safeguard against losses due to floods and droughts and develop land and water resources –a broad task that takes into account scientific and technical principles and the nation's interests.

As the government agency primarily responsible for developing the water resources in the country, the DSİ is in charge of the planning, construction, and operation of water-related structures. A series of dams and hydroelectric power plants have been constructed and a large system of irrigation and drainage has been built throughout the country, along with comprehensive projects for energy generation, flood control, irrigation development, and drinking water provision. As a result of the economic liberalization policy adopted by the Turkish governments in the 1980s, some of the DSİ's principal responsibilities have been transferred to irrigation associations and the private sector.⁵

Over the past decades, an institutional structure of sustainable development, water quality management, and environmental protection emerged in Türkiye, driven primarily by domestic social and economic changes. Added to these, the expansion of activity stemming from the terms of various international agreements signed at the bilateral and multilateral level, and efforts to meet the criteria set out by the EU for full membership, have altogether provided impetus to the ongoing process of ensuring the country's water security.

It is worth noting that the Ministry of Environment, Urbanization and Climate Change, which is responsible for the protection and improvement of the environment, sets the principles and policies, develops criteria and standards, and prepares the relevant programs for environmental pollution prevention and protection. The ministry is also the coordinating authority in climate change negotiations as well as adaptation and mitigation policies.⁶

The General Directorate of Water Management (*Su Yönetimi Genel Müdürlüğü*, SYGM), under the MAF, is responsible for developing policies for protecting and sustaining water resources as well as coordinating and preparing river basin management plans in partnership with relevant stakeholders. Determining policies for developing water resources, achieving coordination both at the national and international level, carrying out studies for drawing up legislation on the coordination of sectoral water allocation in accordance with river basin management plans, developing water quality standards and monitoring systems, developing strategies for flood control and flood management plans are among the main duties and responsibilities of the SYGM. Similarly, developing the National Water Database Information System, identifying and monitoring areas that are sensitive regarding water pollution and nitrate, and conducting studies on the boundary and transboundary waters in relation to international water conventions in coordination with other government institutions, such as

the Ministry of Foreign Affairs, fall within the scope of the main duties and responsibilities of the SYGM.⁷

The Ministry of Energy and Natural Resources is responsible for the protection and development of geothermal sources and natural mineral waters and, in cooperation with the DSI, the development of hydropower projects.⁸ Furthermore, the Ministry of Industry and Technology plays an important role in securing industrial water and wastewater management, so that the share of industrial water demand in total consumption amounts to 13 percent.⁹

Local governments, i.e., municipalities, carry out numerous roles within the institutional water security framework, such as the construction of urban water supply and sewerage systems and wastewater treatment plants.¹⁰ The primary concern of local governments in non-metropolitan areas is supplying water, rather than the disposal and treatment of wastewater. The country's metropolitan areas have faced serious sewerage problems as a consequence of population increases from the 1980s onward, paving the way for the establishment of new organizational models that link the management of water and wastewater issues. In 1981, the İstanbul Water and Sewerage Administration (*İstanbul Su ve Kanalizasyon İdaresi*; İSKİ) was established as an autonomous entity for planning, designing, constructing, and operating water supply and sewerage services in the greater İstanbul metropolitan area. İSKİ became a model for water and sewerage administration for other metropolitan municipalities, such as the capital city Ankara in 1987 and Türkiye's third-largest city, İzmir, in 1989. Currently, there are some 30 metropolitan municipalities with their own water and sewerage administrations.¹¹ The Ministry of the Interior has the power of tutelage over local governments as well as the authority to administratively audit them in the event of malpractice. Special Provincial Administrations affiliated with this ministry are responsible for water supply to non-metropolitan areas.

With the development of the Southeastern Anatolia Project (*Güneydoğu Anadolu Projesi*, GAP) in the 1980s, which encompasses the building of large-scale dams and extensive irrigation systems in the Tigris-Euphrates river basin, water has become a major issue within the realm of Turkish foreign policy. While the Ministry of Foreign Affairs became the primary government body responsible for the formulation and implementation of Türkiye's transboundary water policy, GAP was systematically developed as a bureaucratic structure that determines principles, policies, and practices in regard to transboundary river basins, due to the increasing profile of this issue in the international arena.¹² A separate unit in the Ministry, the Unit for Regional and Transboundary Waters, was formed under the directorate general and put in charge of regional

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and transboundary waters and issues pertaining to energy, water, and the environment; it has formulated Türkiye's transboundary water policy according to the national interests of the country stemming from both the geography and history, diplomatic and political relations at bilateral and regional levels, and the social and economic development needs of the Turkish population. Regarding transboundary water issues, the Ministry of Foreign Affairs has assumed a guiding role by providing reference points for other government bodies, namely the DSİ, the MAF, and its affiliated institutions, and is a key actor in negotiations concerning transboundary waters and the preparation of water treaties, agreements, and protocols with Türkiye's neighbors.¹³

With a view to achieving cooperation among national and international water-related institutions on a variety of issues, including sustainable water management, developing water policies, capacity building for solving local, regional, and global water problems, sustainable energy, and the like, the Turkish Water Institute (*Türkiye Su Enstitüsü*; SUEN) was established in 2011 as a national think tank under the MAF.¹⁴ SUEN has been entrusted with the objective of conducting and supporting scientific research that contributes to the formulation of Türkiye's national and international water policy.¹⁵

Water and Energy Security

One of the main goals of Turkish policymakers is to reduce the country's dependence on external energy sources. In this context, hydropower is considered to be an essential domestic source in the water-energy security nexus. Moreover, hydropower is considered to be the most reliable and economically feasible energy source among the renewable energy sources available for Türkiye.¹⁶ Türkiye has the highest technical potential for electricity generation in Europe with 216 trillion watt-hours per year (TWh/year). Türkiye utilized only 30.83 percent (55.51 TWh) of its 180 TWh/year economic hydropower potential in 2021.¹⁷

Hydropower projects have become an integral part of Türkiye's socio-economic development. Between the 1960s and 1980s, the DSİ's policies led to massive water development projects in Türkiye, mainly for hydropower generation and agricultural development.¹⁸ As part of these development plans, a series of Turkish governments invested in the construction of hundreds of large-scale dams and reservoirs and launched a mega hydro-development project, GAP,

for the benefit of the entire country.¹⁹ Alongside the country's broader objectives regarding hydropower generation and agricultural productivity, GAP also aimed to improve socio-economic conditions in Türkiye's economically underdeveloped southeast. Although GAP had a hybrid agenda with both social and technical objectives, the cadres working on its planning and implementation were acculturated to the Turkish water bureaucracy's technocratic approach. Driven by a top-down policy process that failed to fully appreciate the complexities behind the region's socio-economic underdevelopment, GAP mostly achieved its technical objectives in terms of hydropower generation and agricultural productivity but fell short of its social agenda.²⁰

Prior to the 1980s, the construction of hydropower dams was realized through public investments. The private sector became involved with the adoption of Electricity Market Law No. 4628 in 2001. The Energy Market Regulatory Authority (EMRA) was established as an independent public institution with the responsibility of issuing licenses for production activities in the electricity market, including hydropower generation. Hence, the national energy sector, including hydroelectricity production, which was deregulated until then, became regulated.

Accordingly, for the private sector to get licenses for hydropower projects, a Water Use Right Agreement must be signed between the DSI and the private party. The Law on the Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy (No. 5346), which entered into force in May 2005, entails "the guarantee of purchase" principle, i.e., it guarantees the purchase of a company's service by the government, which provides strong incentives for private investments. Both the Electricity Market Law No. 4628 of 2001 and the Renewable Energy Law No. 5346 of 2005 enabled the Turkish government to speed up the development of hydropower potential by involving private investors and financial service institutions.²¹ As of 2019, 616 small-scale, private-sector hydropower projects were in operation and 520 projects were in the construction or planning phase, amounting to a total capacity of over 32,000 megawatts.²²

Türkiye's recent water development policies aim to maximize the country's hydropower potential by developing more small-scale hydropower projects. Indeed, since the 2000s, these projects have become the norm in Türkiye's water and energy policies; their market-centric, profit-oriented outlook has further entrenched the technocratic approach to water.²³ This neoliberal shift placed a premium on private sector participation and resulted in policy changes like the transition from large-scale hydropower projects (that very few private sector companies had the financial resources and technical know-how to successfully execute) to small-scale hydropower projects that are relatively easier to fund, build and manage. These policies, however, have stirred controversy due to



An aerial view of the Dicle Dam on the river Tigris, a major water resource for Türkiye, in the region of Diyarbakir on March 20, 2020.

The General Directorate of State Hydraulic Works (DSİ) of Türkiye continues investments to improve the capacity of water reservoir installations as a precautionary measure against climate change.

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the socio-ecological impacts associated with construction sites, the top-down approach to implementation, and the perception of inequity and corruption.²⁴

Water and Food Security

Agricultural production has been the primary source of food security in Türkiye since the establishment of the Republic. Although the share of agriculture in the Turkish economy has been falling, it still accounts for a relatively larger share of total output and employment as compared to the EU and North American countries.²⁵ The share of agricultural employment decreased from 50 percent in 1980 to 20 percent in 2017, whereas in the same period the contribution of agricultural production to Gross Domestic Product (GDP) decreased from 23 percent to 7 percent.²⁶ Nevertheless, thanks to significant export revenues generated from agricultural products, agriculture still constitutes a major place in Türkiye's national economy.

The agricultural sector plays a key role in Türkiye's social and economic development. However, water is a limiting factor for agriculture throughout much of the country. The average annual precipitation is 643 mm, ranging from 250

mm in the southeastern part of the country to over 3,000mm in the northeastern Black Sea coastal area. Turkish agriculture depends heavily on climatic conditions.²⁷ Therefore, irrigation is needed to improve agricultural yields. Türkiye's irrigated agriculture is expanding and now accounts for the largest allocation of water by sector at 74 percent.²⁸

Because irrigated agriculture has been associated with certain institutional, technical, economic, social, and environmental problems, over the past decades, significant investments have been made in water-policy reform in agriculture as means to improve productivity, sustainability, and equity. Typical reform elements include decentralization, making room for the involvement of more water users (farmers) in the operation and management of irrigation systems, and introducing modern technologies in conveyance systems and on-farm water-saving irrigation technologies.²⁹

Structural, institutional (governance), and technological factors are the key determinants of water policy changes in the agricultural sector. Some of these factors facilitate, while others inhibit the implementation of these changes. In terms of structural factors, one should focus on macro-level planning for policy changes and investments in infrastructure and techniques. The latest (11th) Development Plan, covering the period of 2019-2023, foresees actions toward improving the competitiveness of the agricultural sector by strengthening producers' organizations and agricultural enterprises and the sustainable use of soil and water resources.³⁰

The declared priority of Türkiye's "Vision 2023" –the year the country will celebrate the centennial anniversary of the founding of the Republic– infrastructure investments in sectors like irrigation and drinking water supply and treatment.³¹ The size of Türkiye's irrigated areas has been expanding substantially over the past three decades, reaching 6.4 million hectares through investments in irrigation infrastructure. The government emphasizes the importance of expanding the irrigated areas to the maximum possible level of 8.5 million hectares by 2023, a strategic and symbolic goal that coincides with the 100th anniversary of the Republic.

In parallel with the expansion of investments for irrigation infrastructure, improving the efficiency and management of irrigation is even more important in countries such as Türkiye that face increasing water scarcity. Hence, the country's development plans underline that priority will be given to increasing irrigation efficiency and land consolidation by making off-farm and on-

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farm services more effective. Since water scarcity is a pressing issue for all water-user sectors, water-saving irrigation methods such as drip and sprinkle irrigation are promoted, especially by the DSİ. Successful implementation of this instrument depends on farmers' adoption, which is related to training and extension services, as well as suitable irrigation infrastructure and economic

incentives. Various organizations provide training to farmers. There is, however, little evidence of communication and coordination among these organizations about the planning, implementation, and evaluation of these training.³²

The majority of Türkiye's irrigation infrastructure is open canals, which are not suitable for the direct installment of drip or sprinkle systems since pressure is needed to transfer the water from the canals to the field. However, since 2003, the DSİ has been constructing pressurized pipe irrigation systems. If expanded into larger areas, these systems could facilitate water-metering and contribute to the diffusion of water-saving irrigation methods by eliminating extra energy costs.³³

The adoption of water policies at the national level is actually the start of a longer process that requires heavy investments and commitments in financial, social, and political capital. Moreover, laws and policies are not automatically implemented, administered, enforced, or complied with. They require operationalization through the development of adequate institutions. Hence, among those institutions, the DSİ stands out as the main public agency that builds, operates, and maintains large-scale irrigation systems in Türkiye. However, Establishment Law No. 6200 (1953) entitles the DSİ to transfer the operation and management of irrigation systems to irrigation management organizations such as village administrations, municipalities, cooperatives, and other private legal entities. Within the framework of an accelerated program of irrigation management transfer, which kicked off in 1993, irrigation associations (IAs) were established to operate and maintain the country's irrigation systems. Since then, the management of irrigation systems covering more than 2.5 million hectares has been handed over to IAs, which were introduced as an innovative institutional mechanism formed to manage irrigation schemes covering more than one local administrative unit (village or municipality).³⁴

Key background conditions leading to the irrigation management transfer included a national budgetary crisis that led to severe limitations on financial allocations to the DSİ and the progressive deterioration of the irrigation infrastructure due to deferred maintenance.³⁵ The motivation of international

agencies such as the World Bank were also instrumental in the transition in irrigation management. From the mid-1980s, World Bank authorities began pushing Turkish governments to take measures to reduce the operation, management, and investment costs of the country's irrigation facilities.³⁶

Most of the review studies on the transfer program emphasize that IAs have helped to overcome some of the problems, such as the low collection rates of irrigation fees, maintaining the secondary and tertiary canals, and even simply operating the irrigation network. The DSI paid all of the operation and management expenses before the accelerated program of irrigation management transfer, but only about 15 percent afterward, so the transfer succeeded in reducing the government's economic burden. However, improving water use efficiency remains a challenge. Both government and independent research studies demonstrate that irrigation efficiency has not improved and has in fact stagnated around a low 40 percent in irrigated areas managed by the IAs – about the same as before the transfer.³⁷

Moreover, climate change impacts, including diminishing water resources and increases in the frequency and severity of extreme climatic events like droughts, have become prevalent in irrigation areas. Many key adaptation measures that would increase the climate resilience of water-dependent sectors fall within the domain of sustainable water management, including management methods and technologies for using water more efficiently, which are largely lacking in the IAs' current management of Türkiye's irrigation systems.

The pricing of irrigation water by the IAs does not support the diffusion of water-saving methods either. The IAs collect irrigation fees to cover operation, maintenance and administration costs; there is no charge for the amount of water used by the farmers. In many regions, the irrigation fee is based on the type of crop cultivated and the square footage of the irrigated land. With the existing canal irrigation systems, it is impossible to measure water consumption at the farm level, or to implement volumetric prices.

Thus, the widespread adoption of water-saving technologies does not seem probable in the short term due to the lack of an enabling combination of training, economic incentives, and infrastructure. At the national level, the irrigation ratio, i.e., the percentage of irrigation infrastructure actually used by the farmers, is reported to be 65 percent.³⁸ This low number is attributed to social and economic factors, such as the reluctance of farmers to switch from rain-fed to irrigated agriculture and the conversion of agricultural land to urban land. Despite the low irrigation ratio, the DSI aims to open all irrigable land to irrigation – a goal that would entail massive investments. The DSI's main argument for sticking to its ambitious target is that the economic benefits of irrigated agriculture justify the cost of investments. However, there is no men-

tion of the negative social or environmental impacts of irrigation, which are also the 'costs' of irrigation. It is essential to evaluate and reflect on social and environmental factors so that the irrigation ratio can be improved. Then the rationality of the target to irrigate all the irrigable land can be revisited, and food security could be sustained.³⁹

Transboundary Water Security

The fact that a significant number of the world's freshwater resources, which are adversely affected by the increasing temperatures and decreasing precipitation resulting from climate change, overlay, and crisscross political borders increases the competition over these scarce resources. Transboundary water security involves the necessary political, legal, economic, social, and cultural tools for the settlement of disputes over transboundary waters before they become conflicts. It calls for the coordinated and cooperative management of transboundary waters between the riparian states.

A country's transboundary water policy comprises the principles and institutions developed within the framework of its geography and historical relations with its neighbors. Türkiye's transboundary water policy was formulated in accordance with its national socio-economic development goals, taking into consideration its specific geographical and historical context. Türkiye's fundamental foreign policy principles with respect to transboundary waters have been determined and institutionalized in bureaucratic circles, especially since the 1980s, within the framework of conditions shaped by both physical and human geography, and the influence of the global, regional and bilateral relations that have evolved in the second half of the twentieth century.

Türkiye lies at upstream of several transboundary rivers –the Tigris-Euphrates, the Çoruh, and the Kura. It is a source of some of the many transboundary tributaries of the River Aras and is downstream of the Orontes (Asi) and Meriç rivers. The total surface area of the drainage basins of these rivers amounts to 256,000 km², which constitutes around one-third of Türkiye's total surface area. The average water supply of these rivers within Türkiye is 70 billion m³ per year, equivalent to 30 percent of the overall water potential of the country. Transboundary rivers constitute 22 percent of Türkiye's borders and at least some of the dividing markers with all of Türkiye's neighbors –Greece, Bulgaria, Georgia, Armenia, Azerbaijan, Iran, Iraq, and Syria. Moreover, Türkiye presides over a significant amount of arable and irrigable land in these river basins, the Tigris-Euphrates river basin alone constitutes 20 percent of the country's arable land. Considering the growing demands of the increasing urban and rural populations of these basins, geography clearly lies at the forefront in the formulation of transboundary water policies.⁴⁰

Since the first years of the Republic, the changing nature of relations with various neighbors has determined the subsequent evolution of transboundary water policies. Hence, from the early 1920s until the late 1950s, when Türkiye and its neighbors were all engaged in establishing state bureaucracies, their aligned concerns and a similar need for socioeconomic development paved the way for generally productive relationships.

Throughout this period, Türkiye signed various bilateral treaties, which mostly concerned the delimitation and use of boundary rivers.⁴¹ Also significant is that, at the time, none of the relevant countries pursued any major development projects that would have resulted in the utilization of water by one to the detriment of the others.

From the 1950s onward, however, Türkiye, along with its neighbors, built up the technical and financial capabilities to carry out large-scale water development projects, which put many states at odds with others, particularly regarding the Tigris-Euphrates river basin, where uncoordinated and competitive transboundary water policies became the norm.⁴²

Furthermore, the geopolitical dynamics of the Cold War period began to have a decisive impact on Türkiye's regional and bilateral relations with its neighbors—no less in its transboundary water policies than in other spheres of foreign policy. Although Cold War conditions were not conducive for Türkiye, as a NATO member, in fostering fruitful transboundary water relations with Syria, Iraq, the Soviet Union, and Bulgaria as members of the 'enemy camp,' Türkiye pursued transboundary water policies that centered around the building of institutional structures with neighbors through diplomatic mechanisms and the instruments of international law, whether by negotiations, treaties or the peopling of technocratic water committees. In this context, the Arpaçay Dam, which was constructed jointly with Soviet Armenia in 1980, the 1987 protocol signed with Syria as an interim agreement for allocating the waters of the Euphrates (Protocol 1987), and a series of protocols and agreements signed with Bulgaria, are testaments to Türkiye's determination to solve disputes with its neighbors over transboundary water resources in a peaceful manner through diplomatic mechanisms, as envisaged in the UN Charter, as well as through customary international law.

Despite these efforts, the outstanding issues that remained concerning Türkiye's various transboundary rivers were overlaid, or at least influenced, by multifaceted interstate conflicts involving other core political issues, such as

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While national political and economic interests have played a direct role in the formation of Türkiye's transboundary water security policy, international water law principles and rules have also had important effects

terrorism, the recognition of borders, and territorial disputes. River basins in general seem to be located in areas traditionally characterized by political tensions. These political circumstances aggravated disputes, such as those concerning water policy that, in a more favorable political climate, would have been solved with relative ease.⁴³

The precise nature of the disputes over Türkiye's transboundary water resources vary. While those related to the Tigris-Euphrates, the Kura-Aras basin, and the Orontes Rivers mainly concern guaranteed river flow, the issue at hand pertaining to the Çoruh River is sediment flow. Between the Meriç riparians, flood protection is a matter of concern, as is water quantity and quality. However, water quality generally plays a minor role, while quantity/water flow issues still dominate, mirroring respective weak national water quality provisions or their weak enforcement measures.⁴⁴

In addition, classical upstream-downstream conflicts have occurred, characterized by the divergent interests of the riparian states, wherein Türkiye generally represents the upstream country. The cases of the Meriç and Orontes rivers are important exceptions, with Türkiye as a downstream riparian. The knowledge that Türkiye lies upstream at several important transboundary rivers (Tigris-Euphrates, Çoruh, etc.) goes hand-in-hand with the widespread international perception of (powerful) upstream states aggravating conflicts or being reluctant to cooperate; this perception has clearly contributed to Türkiye's rather dubious 'international water cooperation reputation.' However, Türkiye's water diplomacy practices in both constellations illustrate that cooperation can be developed in upstream-downstream relationships, and that location is not the only nor necessarily the decisive factor in explaining whether and when cooperation takes place.⁴⁵

While national political and economic interests have played a direct role in the formation of Türkiye's transboundary water security policy, international water law principles and rules have also had important effects. Both customary international law and multilateral conventions, particularly the 1997 UN Convention on the Law of the Non-navigational Uses of International Watercourses (UNWC), lay down the basic legal principles for equitable and reasonable utilization of transboundary waters (Convention 1997).

Türkiye rejected the UNWC due to concerns that certain articles, especially in Part III of the convention, might constrain its official stance in future negotia-



tions over the allocation and management of transboundary water resources. Turkish officials were very keen on the point that the UNWC should keep the original aim of constituting a framework document. They stressed that the UNWC should be confined to setting forth the conceptual framework and principles regarding international watercourses. As to specific watercourses, bilateral and regional arrangements between watercourse states should be concluded by considering the individual characteristics of each river system. For example, the principle of “equitable and reasonable use,” which is the foremost principle of international water law, defines the equitable and reasonable use, development, and protection of transboundary waters only in general terms. Thus, it only outlines the actions to be taken. Riparian states should make these main principles of international water law applicable through rules and decision-making mechanisms established through international transboundary water treaties, which are drafted according to the specific conditions of the transboundary water resources.

Nonetheless, the basic principles of customary international water law: the right to “equitable and reasonable use,” the obligation not to cause “significant harm” as well as the “duty to cooperate” and the “regular exchange of hydrological and other relevant data and information” constitute the basic principles of Turkish transboundary water policy. These principles provide useful references for achieving cooperation in disputed transboundary river basins. However, they need to be operationalized through rules that include the mutual rights and obligations of the parties in the treaties covering transboundary

Turkish President Erdoğan attends the inauguration ceremony for the newly constructed power plants of the Energy Market Regulatory Authority in Ankara, Türkiye, on November 9, 2021.

DOĞUKAN KESKİNKILIÇ / AA

Türkiye's major focus continues to be the development of water resources because of their potential economic and social benefits

Türkiye and Syria through cubic meters, and the 1990 Protocol, which includes the sharing of the waters of the same river between Iraq and Syria in percentages, do not provide any conditions for the efficient and equitable use and management of transboundary water resources in the Tigris-Euphrates basin. By focusing narrowly on water quantity issues, both protocols fall short of adopting Integrated Water Resources Management. Furthermore, they lack institutional mechanisms for overseeing the implementation of their provisions. Specifically, the protocols are inadequate for addressing variability in the flow of the Euphrates River. Droughts and floods, which occur frequently in the basin, produce substantial changes in the river flow regime, but the protocols do not include clauses that provide for adjustments under the impact of climate change.⁴⁶

On the other hand, the bilateral memoranda of understanding (MoU) signed between Türkiye-Syria in 2009 and between Türkiye-Iraq in 2009 and 2014 are contemporary in the sense that they encompass stipulations for 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 contrast to the 1987 and 1990 Protocols, which concentrated on sharing the Euphrates waters, these memoranda emphasize the patterns and levels of water development, use, and management and deal particularly with drought management and environmental protection. Despite their merits, however, these bilateral memoranda could not be put into practice due to regional instability and increased political tensions between the riparian states. Both the internal turmoil in Syria and the unsteady political relations between Türkiye and Iraq have destroyed the political environment of mutual trust and peace necessary for the implementation of these new agreements.

By signing those MoUs with its southern neighbors, Türkiye had aimed at turning this bilateral cooperation on water use and management into a more comprehensive regional cooperation in the Middle East, where all pivotal sectors of sustainable development, including food, energy, and water policies, could be pursued among the regional states in a coordinated and cooperative

river basins. Bilateral or multilateral transboundary water agreements should consistently include all affected parties, as well as a joint monitoring technical committee authorized to negotiate any disputes that might arise due to changing economic or social needs or environmental conditions and be flexible enough to adapt to long-term changes in hydrological and climatic conditions.

In this context, the 1987 Protocol, which includes the allocation of the Euphrates river waters between

manner. Thus, even though such regional cooperation efforts could not be fully achieved mainly due to the political volatility in the region, Türkiye maintains a strategic stance toward broader regional cooperation whereby trade and investment opportunities can be realized and regional water cooperation could foster regional economic integration and generate the benefits of peace and security that derive from the enhanced trust.

Conclusion

Türkiye's major focus continues to be the development of water resources because of their potential economic and social benefits. In this context, hydropower has been determined a vital national energy source for economic development, while water for agricultural development is considered essential for food security. However, water pollution control and the protection of water-based ecosystems, while increasingly acknowledged as important, have yet to reach satisfactory levels. To accomplish Türkiye's overall socio-economic development objectives, which rely on water and land resources development, a robust institutional framework has been established, particularly at the state level. Yet various types of increasing pressures on limited water resources call for better governance with proper coordination and cooperation among the public, private and non-governmental institutions in charge of securing water for agricultural and hydropower development, domestic and industrial uses, and the preservation and protection of the environment.

Türkiye's recent water development policies aim to maximize the country's hydropower potential by developing more small-scale hydropower projects. However, these projects have had negative socio-ecological impacts; local people living near the construction sites have become systematically critical of those projects because they did not involve any meaningful participation during planning, construction, or implementation.

In Türkiye, water is a limiting factor for agricultural development. The irrigation sector, which is considered a key to support agricultural development, is associated with institutional, economic, social, and environmental problems. The Turkish case of hydropower and irrigation development demonstrates that a broader consensus among major stakeholders, namely farmers, the government, the private sector, civil society, and academia, is an absolute necessity for any reform to have a positive impact on equity and efficiency in management.

Türkiye's water security in many of the transboundary basins must be understood in the context of the limited water availability suffered by several (possibly all) riparian countries, making the allocation of water quantity, i.e., agreements on guaranteed river flow, an important and potentially discordant issue.

Because of natural conditions and basic political decisions on national development, Türkiye, like its neighbors, relies heavily on water for irrigation and hydropower production –with water being an important and, in some respects, strategic resource for the national economy. Consequently, regional water negotiations are frequently contentious and dominated by states that insist on their sovereign right to water due to economic needs. Although a number of bilateral protocols and other arrangements have been successfully agreed upon and signed, they are mostly outdated and fail to respond to current needs and issues regarding usage and protection. Bilateral negotiations at various levels have failed to blossom into comprehensive transboundary agreements or treaties that could help regulate potentially inharmonious claims by riparian states. Similarly, the water diplomacy practices of these states have not been successful in creating a comprehensive river basin organization or committee that might serve as a permanent forum for the accommodation of water disputes nor for fostering healthy cooperation over water.

Even though Türkiye's robust water policy institutions have planned and implemented water security policies concomitantly with energy and food policies there are rising challenges ahead in terms of environmental, climatic and social changes. The concerned institutions have also formulated consistent and predictable transboundary policies, yet concerted efforts are still needed to turn those efforts into durable, comprehensive river basin institutions to tackle challenges of transboundary water management and protection. ■

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