

Water Diplomacy in the Land of Two Rivers

**Safeguarding Iraq's Water Security
amid the Climate Crisis**

July 2023



Acknowledgements

We express heartfelt gratitude to the environmentalists, international law experts, and analysts for their valuable contributions. We also extend our thanks to the report's reviewer, Lynn Fredriksson, the designer, John Filson, and the photographers, including the Norwegian Refugee Council (NRC), for allowing us to use their photos to enhance the clarity and richness of this report. Last but not least, we wish to especially acknowledge EPIC's friends and supporters who helped make this work possible. Thank you.

*Cover photo: An upstream view of the Tigris river
from Baghdad's Shuhada (Martyrs') Bridge © Erik
Gustafson/EPIC, March 20, 2023.*

ABSTRACT

In recent years, Iraq has been afflicted by severe water shortages. With climate change and upstream water management practices as major factors, these shortages are further complicated by geopolitical realities. Iraq is a weak state dependent on upstream countries – namely Türkiye, Iran, and Syria – that have been damming or redirecting the paths of shared rivers to secure their own needs, thus reducing the amount of water flowing to Iraq. Over the decades, successive Iraqi governments have used different strategies to secure the country's share of water, ranging from collaborative diplomacy to threats of military conflict. Yet so far none of these strategies have been successful at preserving Iraq's long-term water interests. Remarkably, to this day, Iraq remains without enforceable water-sharing agreements with its riparian neighbors.

This report delves into Iraq's relationship with Türkiye, Iran, and Syria, shedding light on the country's water disputes in the context of an unfolding climate crisis. It also explores the pathways Iraq has taken, or neglected to take, to secure its rights against a backdrop of international law concerning shared watercourses. The report concludes with suggestions for practical ways in which Iraq can leverage its influence, and potential, as an energy producer, trade partner, and key ally in security affairs to reach mutually acceptable water sharing arrangements with its upstream neighbors.

Photo: A boy tries to navigate his boat in the drying marshes in Basra governorate. © Caroline Zullo/NRC, October 2022.



EXECUTIVE SUMMARY

- As a country with a hot and dry climate, Iraq depends on upstream countries for much of its water. State weakness, particularly since 2003, has complicated responses to water shortages, as Türkiye and Iran have dammed or redirected shared rivers to secure their own needs.
- The consequences of inaction are grave: repeated intense droughts have decimated Iraq's arable land and agricultural output, and caused many of its lakes and marshes to shrink or even to altogether disappear. As populations grow and the planet warms, the Tigris and Euphrates Rivers are at risk of virtually disappearing in parts of southern Iraq by 2035.
- Iraq's diplomacy has been ineffective at securing the country's water needs due to lack of engagement by top leaders, reluctance to confront powerful neighbors, confusion over roles and authority, and the focus on oil to the detriment of other sectors.
- Furthermore, the international laws and conventions on using shared waters lack enforceability, are not universally recognized, and are based on principles open to interpretation, making them of limited utility at times of crises.
- Despite lingering weakness and disunity, the government of Prime Minister al-Sudani enjoys stronger diplomatic relations and regional acceptance than predecessors in the early post-2003 period— as underscored by Sudani's recent meeting with Türkiye's President Recep Tayyip Erdoğan.
- Active diplomacy is crucial to Iraq's ability to address water problems. Iraq's leaders must demonstrate the political will to consistently assert Iraq's reasonable demands and to capitalize on its role as an important partner in security, trade, and energy sectors, where Iraq possesses elements of leverage that can be useful when engaging upstream countries in negotiations.
- In trade relations with Iran and Türkiye, Iraq can strategically utilize the offer of new transit routes and the potential imposition of tariffs as effective incentives for engaging with these countries, both of which highly value Iraq as a crucial export market. Trade is inseparable from border security, where Iraq's cooperation in addressing Iran's and Türkiye's concerns about cross-border militant activity can be another valuable tool in the hands of determined Iraqi negotiators.
- Particularly timely, a resetting of energy relations with Türkiye— to include resuming northern oil exports, offering discounted oil, and reviving gas export schemes with Baghdad's blessing— could be part of a broader diplomatic effort in which achieving progress in water sharing and management is one of the highest priorities.
- A deal with Türkiye could include innovative approaches, such as a system of water credits that reduces severe losses to evaporation from Iraqi reservoirs and promotes joint financing and modernization of water management infrastructure.
- To avoid the confusion and blame-shifting that has plagued past communications with Iraq's neighbors, the prime minister should unequivocally empower leaders in the Ministry of Water Resources (MoWR) to represent Iraq directly with its neighboring countries. Promoting the head of the MoWR to the rank of Deputy Prime Minister, similar to ministers in charge of oil and other key portfolios, would reflect the government's recognition of water as a priority.



An Iraqi farmer checking the cactuses he planted after he had to abandon the crops that he usually plants on his land due to lack of water. © Ahmed Kaka/NRC, October 2022.

GEOPOLITICAL CONTEXT

Iraq's predicament lies in the fact that it is a downstream, mostly arid country that relies heavily on surface water that originates from other countries. This disadvantage is exacerbated by the poor relations Iraq has had with its neighbors, ranging from tumultuous and contentious to weak and subservient.

After Iraq gained independence in the early 20th century, the country's relations with Türkiye were uneasy, due to the legacy of Ottoman rule and Ankara's lingering territorial claims to Mosul and Kirkuk. More recently, since the 1980s, the key driver behind Türkiye's Iraq policy has been its security concerns about the separatist Kurdistan Workers' Party (PKK) presence in northern Iraq, from where it has long sustained its insurgency against the Turkish state. Since 2003, relations have also been shaped by Türkiye's concerns

about Iraqi Kurdish autonomy and its potential for energizing separatist feelings among the Kurds of southeastern Türkiye. Those concerns are balanced by Ankara's interest in growing its energy relations with the Kurdistan Regional Government (KRG). Its relationship with the rest of Iraq has also been influenced by skepticism about the intentions of a Shia-dominated government in Baghdad drifting into Tehran's zone of influence.

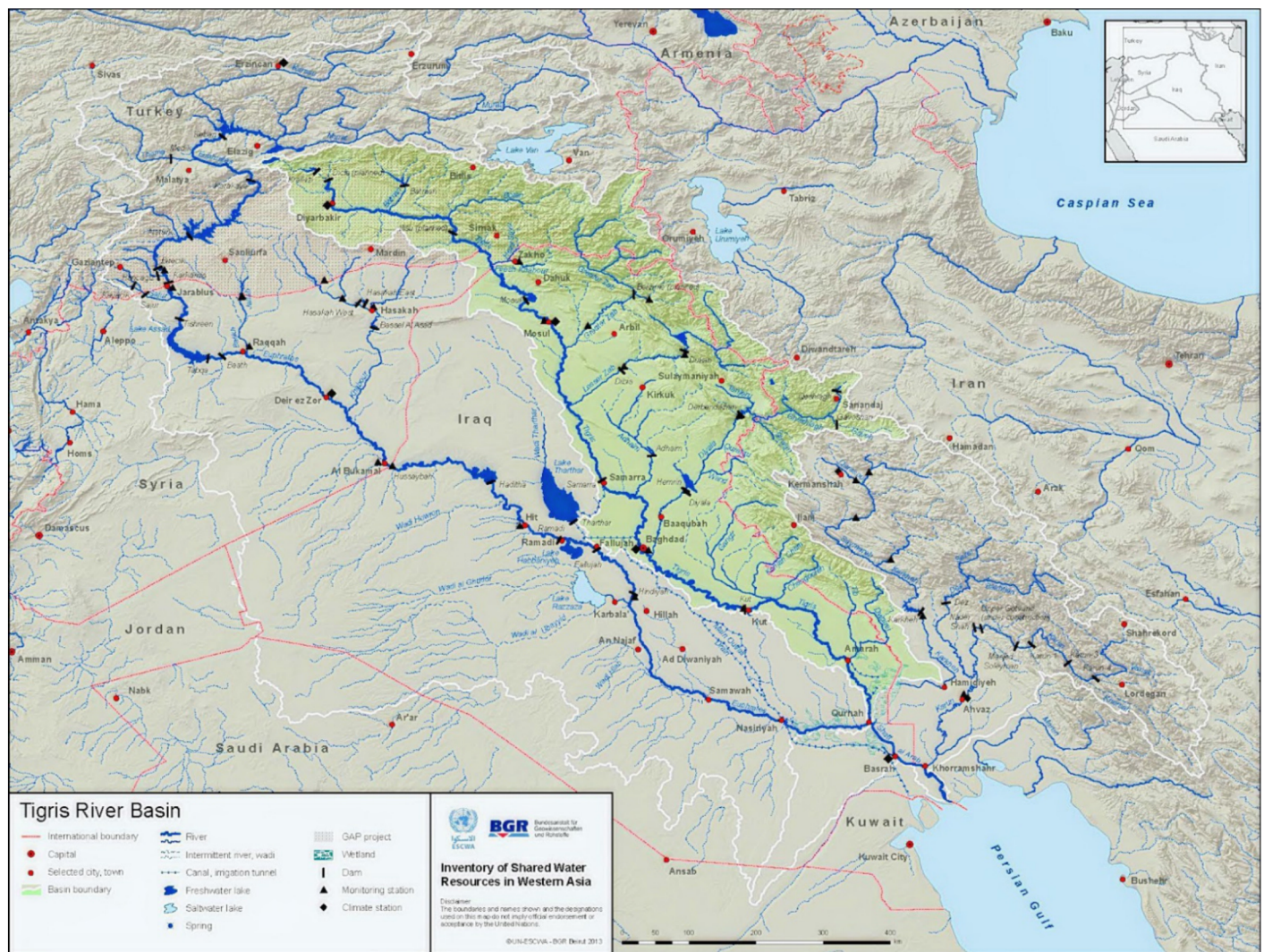
Iraq's relations with Iran have been even thornier, characterized by deep concerns about hegemonic and territorial ambitions. These concerns exploded into war in 1980 as Saddam Hussein grew anxious about Iran seeking to "export" the Islamic Revolution to the sizeable Shia population in Iraq's south.

The fall of Saddam's regime in 2003 removed Iran's immediate nemesis and provided Tehran with an opportunity to capitalize on relations with former Iraqi opposition groups that moved in to form the core of a new government. These were primarily Shia—and to a lesser extent Kurdish—political powers that were grateful for Tehran's past support. After Saddam's fall, Iran

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built coercive capability inside Iraq by sponsoring allied militias that worked against the U.S. military presence and extended its reach in Iraq and beyond. Tehran's influence grew stronger across Iraqi institutions as it became heavily involved in shaping successive Iraqi governments, and helped powerful militia-backed political factions become dominant players in Baghdad. Currently, these are organized under the umbrella of the Coordination Framework, which encompasses factions led by former Prime Minister Nouri al-Maliki and militia leaders Hadi al-Amiri and Qais al-Khazali, and their allies.

Over the past five decades, Iraq's relations with Syria, the third upstream country, have been mostly characterized by tension and hostility. This



Map credit: UN-ESCWA (United Nations Economic and Social Commission for Western Asia) and the BGR (Bundesanstalt für Geowissenschaften und Rohstoffe), Germany's Federal Institute for Geosciences and Natural Resources. 2013. Inventory of Shared Water Resources in Western Asia. Beirut.

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history of animosity can be traced back to the intra-Ba'ath party rivalries of the 1970s. Relations further deteriorated in the following decade after Syria sided with Iran during the 1980s war. That episode was soon followed by Damascus' participation in the 1991 Gulf War as part of a UN-backed coalition of 39 countries following Iraq's invasion of Kuwait, and later, its support of Ba'ath party insurgents and foreign extremists during the insurgency that followed the 2003 U.S.-led invasion. Relations changed dramatically after the eruption of civil war in Syria in 2011 that deepened the region's polarization along sectarian lines. That conflict soon pulled in Iran and its allied Shia militias in Iraq to fight alongside the Syrian regime of Bashar al-Assad. Iran and the militias

feared that a Sunni opposition victory in Syria would empower Sunni militancy and Sunni Arab states to dominate the region, starting with Iraq. Today, Baghdad and Damascus enjoy cordial relations as junior partners in an Iran-led regional "axis of resistance" to the U.S., Israel and, until recently, Sunni Arab states.¹

CLIMATE CHANGE & IRAQ'S WATER REALITY

Iraq is for the most part an arid country where summers are hot and dry while rain is limited to short winter and spring seasons. Long-term average rainfall across the country is an estimated 216 millimeters per year.² For comparison, average rainfall in the contiguous United States falls around 762 millimeters per year.³ The Tigris and Euphrates rivers provide the vast majority—over 90%— of Iraq's water supply. Most of the water from the rivers comes from Türkiye at 71%, followed by Iran and Syria at 7% and 4%, respectively.⁴ Although this report focuses mostly on water resources as they relate to Türkiye, it is



In 2022, crops dried due to water scarcity and drought in Sinjar and other areas across Ninewa governorate. As a result, Iraqi farming communities experienced a sharp drop in harvests for the second year in a row. © Fared Baram/NRC, October 2022.

important to note that Iran's contributions to the Tigris, though small, are vital to local residents of Iraq's eastern provinces like Diyala. Further, some transboundary rivers, such as the Karun, flow directly from Iran into the Shatt al-Arab waterway, and are not represented in the aforementioned ratio.

Iraq's dry climate makes the water from the Tigris and Euphrates rivers indispensable for both human sustenance and agricultural needs. While rain-fed farming is prevalent in the northern regions, the majority of Iraq's agricultural land heavily relies on irrigation, which constitutes a significant 75% of the country's surface water consumption.⁵

In recent years, Iraq has experienced increasingly severe water shortages due to low rainfall and reduced water supplies from the Tigris and Euphrates.⁶ During the drought-stricken summer of 2021, a group of 13 aid organizations operating in Middle East warned that more than 12 million people in Syria and Iraq were at risk of losing access to water.⁷ These shortages have caused severe damage to Iraq's agricultural output and threaten the livelihoods and health of millions of people. Although oil revenue represents nearly 90% of government income, about a quarter of Iraq's population relies on agriculture to make a living.⁸ According to Iraq's Deputy Minister of Agriculture Mahdi al-Jubouri, in just two years water shortages reduced surface water fed farms by more than two thirds. In a recent interview, he stated, "Two years ago, the agricultural plan involved 5 million dunams of irrigated land."⁹ This shrank last year by 50% to 2.5 million, and this year [2022] it shrank again from 2.5 to 1.5 million dunams due to water shortages and reduced water flows from the Tigris and Euphrates."¹⁰ He noted that the loss of each additional 1 billion cubic meters of water per year renders an additional 250,000 dunams unusable. In turn, water shortages caused wheat and barley yields to decrease from 5 million tons in 2020 to just over 2 million tons in 2022.¹¹

As a downstream nation, Iraq has little control over the water it receives from transboundary rivers and their tributaries. According to Iraqi government's estimates, the total volume of water received from these rivers has notably

declined from 93.47 billion cubic meters in 2019 to 49.59 billion cubic meters in 2020, primarily due to the actions of upstream countries.¹²

Underlying these changes is the fact that Iraq, due to its location, arid geography and fossil fuel-heavy economy, has been experiencing the impact of climate change in a disproportionately severe manner compared to much of the rest of the world. According to Berkeley Earth, an independent environmental data analysis organization, Iraq's climate has warmed at double the global rate since the beginning of the 20th century, rising by as many as 4.1 degrees Fahrenheit.¹³ Temperatures in Iraq are expected to rise a further 4.5 degrees Fahrenheit by the middle of this century.¹⁴ Rising temperatures have led to rapid evaporation of surface water, causing losses estimated at up to 8 billion cubic meters per year.¹⁵ The total amount of water Iraq reportedly received from the Tigris and Euphrates in 2020 was 49.59 billion cubic meters; the country lost 16% of that water to evaporation. Rising temperatures in Iraq have led to a significant decrease in annual rainfall, currently measuring 30% below normal levels.¹⁶

Disturbingly, this decline is expected to reach a staggering 65% by the year 2050.¹⁷

Although oil revenue represents nearly 90% of government income, about a quarter of Iraq's population relies on agriculture to make a living.

Throughout 2022 and early 2023, the impact of climate change grew in intensity, most vividly in the drying of Iraq's southern marshes, which has wiped out local animal populations and forced the migration of communities whose millennia-long sustainable way of life depends on the fabled marshes.¹⁸ In addition, Iraq has been grappling with intense heat waves and a sharp increase in sandstorms, with detrimental consequences for public health and economic productivity.



In the marshes of Chibayish district, a woman collects reeds. Chronic water insecurity has harmed livelihoods, compelling many of the men of the marshlands to seek jobs in nearby cities, while women are often left behind to shoulder the burdens of caring for their families and livestock. © Caroline Zullo/NRC, October 2022.

INTERNATIONAL LAW

The body of international law on using shared non-navigable waters is not as well developed or universally applied as others, such as the Law of the Sea. The Madrid Declaration of 1911, the Salzburg Decision made by the International Law Institute, and various declarations by the International Law Association in 1956, 1958, 1960, and 1966, along with reports from the UN International Law Commission in 1978, 1989, 1991, and 1994, serve as primary sources guiding the understanding and application of international law regarding riparian water rights.¹⁹ These principles, known as the Helsinki Rules, were codified in the 1997 UN Convention on Law of the Non-Navigational Use of International Watercourses (commonly known as the UNWC).²⁰

The UNWC serves as a vital framework, consolidating existing customary international water law. It encompasses crucial principles like "Equitable Use" and the "No Significant Harm" principle, reinforcing the significance of fair water allocation and the avoidance of adverse impacts. The convention also highlights procedural obligations, such as the "Duty of Notification" concerning major planned measures, as well as secondary responsibilities related to pollution prevention and the exchange of information.²¹ In that sense, the convention is more akin to a collection of guidelines than enforceable legal rules. This is made particularly apparent in its use of broad terms, such as "equitable" and "appreciable," which leave a great deal open to

interpretation. In addition to its ambiguity, the convention's main weakness arises from its lack of enforceability. The UNWC came into effect in 2014, when it reached the required number of ratifying states. To date, only 37 countries have ratified the UNWC. In 2015, Iraq signed and ratified the convention, demonstrating its commitment to its principles. Syria, on the other hand, has signed the convention without completing the ratification process, while both Türkiye and Iran have neither signed nor ratified the convention. Notably, Türkiye was one of only three countries that voted against the adoption of the convention.²² Similarly, Iraq has joined the UN Economic Commission for Europe (UNECE) Water Convention to strengthen its legal footing,²³ but Türkiye has not.²⁴

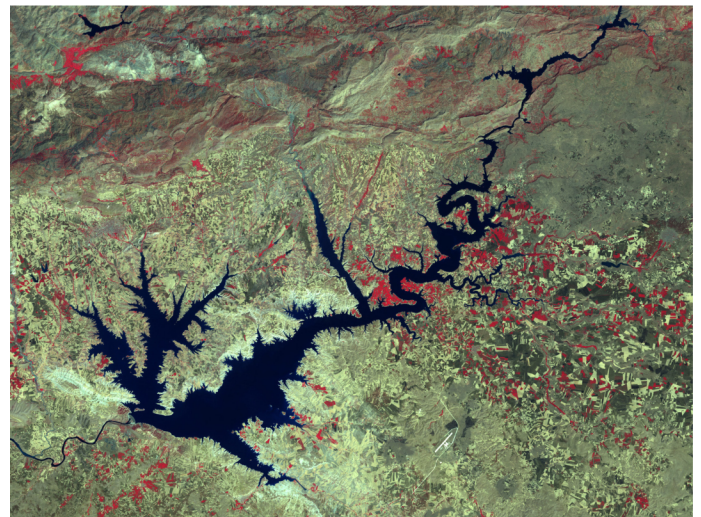
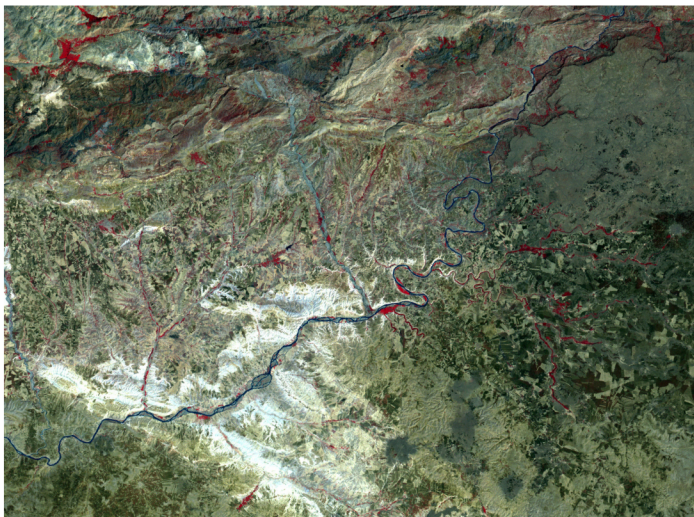
There are several competing legal principles derived from customary law that states have utilized to ascertain their riparian rights. One such principle is "Prior Appropriation," which contends that in conflicts between two riparian states, neither can claim water solely based on their

geographic position, but rather, the right to utilize the water depends on who used it first.²⁵ In light of this, Iraq asserts that it should continue to receive the water it needs, citing ancestral rights that predate the establishment of modern riparian states. Türkiye, however, has traditionally considered the Euphrates and Tigris as components of a single water system within its sovereign borders, entitling it to develop and utilize the water according to its national needs.²⁶ This stance is grounded in the principle of "Absolute Sovereignty," which asserts the upstream riparian state's unrestricted authority to make decisions regarding the amount and quality of water that flows beyond its borders, without any obligation to consider the downstream counterparts.²⁷ Emboldened by this principle, Türkiye's former president, Süleyman Demirel, once asserted that "neither Syria nor Iraq can lay claim to Turkey's rivers any more than Ankara could claim their oil."²⁸ Of course, perspectives on riparian rights can evolve, and government positions may vary based on diplomatic negotiations and changing circumstances.

One widely adopted approach that seeks common ground is the principle of "Equitable Utilization." This principle aims to ensure the fair and reasonable allocation of shared water resources among riparian states, considering factors such as socio-economic needs, current water usage, and future development potential. It promotes negotiation, cooperation, and the establishment of agreements to achieve equitable sharing and sustainable management of water resources, serving as a guiding principle in resolving disputes and fostering peaceful coexistence.²⁹ The United Nations, through its various agencies and initiatives, embraces the "Equitable Utilization" principle as a guiding principle in transboundary water management, exemplified by the adoption of the UN Watercourses Convention.³⁰ The International Court of Justice (ICJ) applies this principle in cases involving shared water resources, emphasizing fair allocation based on equity.³¹ Moreover, International Joint Commissions (IJC) established between riparian states, such as the one for the

Great Lakes of North America, frequently adopt the "Equitable Utilization" principle, while many riparian states themselves incorporate it into their national water laws and establish dedicated water management institutions to ensure fair utilization.³² With international support, the "Equitable Utilization" principle offers a promising path toward sustainable and peaceful water management for Iraq and the region.³³

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A panoramic view of Türkiye's Atatürk Dam on the Euphrates River, alongside NASA satellite images of the river before (20 August 1983) and after (24 August 2002) dam construction was completed in 1990. The resulting lake, sometimes referred to as a sea by locals, covers 320 square miles (817 square km) in total surface area. The Atatürk Dam is the largest of a series of dams along the Tigris and Euphrates Rivers, which both have their headwaters in southeastern Türkiye. © Bernard Gagnon © BY-SA 3.0, May 2014.

WATER DISPUTES WITH TÜRKİYE

Iraq's water dispute with Türkiye emerged as a serious concern in the late 1960s, when Türkiye launched its Southeastern Anatolia Project (GAP), which included plans to build a series of dams and hydroelectric power plants on the Tigris and Euphrates.³⁴

Half a century later, with 19 of the planned 22 dams completed, GAP has contributed to reducing the amount of water flowing to Iraq to about 40 billion cubic meters per year, just 45% of the former long-term average of 90 billion cubic meters per year.³⁵ By 2035, this loss is projected

to increase by an additional 11 billion cubic meters per year. This would have a devastating effect on agriculture and the environment, as it would further widen the gap between available water and the more than 70 billion cubic meters per year that Iraq will need due to projected population growth.³⁶

Water disputes between Iraq and its neighbors are complex and multifaceted. These disputes arise from disagreements over defining Iraq's rights concerning the two rivers, aggravated by the lack of mutually verifiable climatological,

hydrological, and environmental data, as well as accurate estimates of available water versus amounts needed. Additionally, the absence of comprehensive multilateral agreements among riparian states creates a legal vacuum, adding to the challenges in resolving these issues.

In the 1980s, the Iraqi government accused its Turkish counterpart of exploiting this vacuum by dragging out water-sharing negotiations by complicating the work of the Joint Technical Committee, a trilateral body established by Iraq, Syria, and Türkiye in 1983 to facilitate

communications on water issues concerning the shared rivers. By 1993, the Committee collapsed without having achieved any progress in resolving outstanding water disputes.³⁷ Türkiye has also politicized water disputes by using the “Kurdish Problem” as a bargaining chip with Syria, promising to allow a greater share of water to flow into Syria in exchange for Damascus’ commitment not to support the PKK. This strategy was in use until 1998, when Türkiye captured PKK leader Abdullah Öcalan,³⁸ and was renewed since the Kurds declared an autonomous region in northeastern Syria in 2012.



A boy selling carp at a Baghdad fish market. The carp is often grilled and seasoned to make masgouf, widely hailed as Iraq's national dish. © Erik Gustafson/EPIC, March 20, 2023.

Under international pressure from GAP investors, such as USAID and the World Bank,³⁹ Türkiye's position has softened over the years. It now appears to rely less strictly on the "Absolute Sovereignty" principle and lean more towards the principle of "Equitable Utilization."⁴⁰ As a guiding principle of the UNWC, a riparian state may use the water within its borders as it sees fit, provided that it does not cause substantial harm to the water of another riparian state.⁴¹ However, in determining "equitability," Türkiye has not considered a country's needs alone but also how much it contributes to the shared rivers. From this perspective, Türkiye does not perceive Iraq's water needs-- approximately 72 billion cubic meters per year⁴² -- as equitable in relation to Iraq's own contribution in snowmelt and rainwater-- which is around 18 billion cubic meters per year.⁴³ In contrast, Türkiye contributes a combined 70% of the Euphrates-Tigris basin water potential. Therefore, Türkiye maintains that nearly 89% of

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the Euphrates water potential comes from its own territory, while Iraq's consumption target exceeds 64% of the river's overall potential.⁴⁴ Additionally, Türkiye argues that Iraq consumes almost all (92%) of Iraq's territorial water contributions to the Tigris, estimated at just over 40% of the Tigris river's total water potential.⁴⁵

Furthermore, Türkiye disputes Iraq's and Syria's data on their irrigable land areas, and, consequently, their water needs. While some estimates put Iraq's irrigable land at up to 5.7 million hectares,⁴⁶ Türkiye estimates it to be approximately half that amount.⁴⁷ Thus, Türkiye questions the basis for Iraq's claims regarding its irrigation needs and overall water demand. By not considering Iraqi lands that have become arid due to water shortages, Türkiye argues that Iraq only requires 40% of available water for agriculture, not the 75% often cited by Iraq.⁴⁸

As for the principle of "Not Causing Appreciable Harm," Türkiye rejects the notion that damming the rivers has caused any harm, environmentally, economically, or otherwise. Instead, it argues that damming the rivers saves water that would otherwise go to waste downstream due to mismanagement and outdated irrigation methods in both Syria and Iraq.⁴⁹ Further, it argues that it took necessary measures not to cause harm by releasing more than the 500 cubic meters per second during the impounding of the

Ataturk Dam, per the 1987 protocol between Türkiye and Syria. Iraq received a little more than half (58%) of this water according to a further agreement between Iraq and Syria.⁵⁰ More recently Türkiye made the same claim when it delayed filling the Ilisu Dam in 2017 on Iraq's request.⁵¹

Türkiye's most current position, according to its water envoy to Iraq, Veysel Eroglu, is that it cannot agree to send a fixed volume of water downstream to Iraq and Syria, since climate change makes the overall amount of water available unpredictable. Instead, Türkiye would be willing to release certain ratios of water, provided that the downstream countries share detailed data about their water usage. That's data that Iraqi water officials currently keep confidential. In the words of Iraq's former Water Minister Mahdi al-Hamdani, "they are tools in our negotiations."⁵²



In November 2015, Iran completed the Daryan Dam on the Sirwan river. Located roughly 18 miles (28.5 kilometers) from Iraq's border, the dam redirects some of the Sirwan river's waters to farmlands in Southwestern Iran. Over the past three decades, Iran is reported to have built 600 dams for power generation and farm irrigation. © <https://destination-overland.com>.

WATER DISPUTES WITH IRAN

Iraq's water disputes with Iran center on Iran's upstream water usage that reduces the flow of Tigris tributaries into Iraq.⁵³ Following in Türkiye's footsteps, Iran has developed its own plans to build 109 dams on various rivers, including important tributaries that feed into the Tigris and Shatt al-Arab. In the process, it has diverted the Little Zab, on which much of the Kurdistan Region of Iraq and Kirkuk depend, into Urmia Lake. Iran has also built 16 dams on the Sirwan River,⁵⁴ which feeds the Diyala River in Iraq, and diverted much of its water towards Iran's Sarpol Zahab farmlands.⁵⁵ Overall, the amounts of water Iraq receives from Iran dropped from historical averages of 15 billion cubic meters per year to negligible amounts by 2018.⁵⁶ This reduction in water flows has greatly depleted the reservoirs built on these tributaries. The Darbandikhan Dam on the Diyala, which historically received an average flow of 160 cubic meters per second--much of which came from

the Sirwan and Zmkan rivers that originate in Iran-- was receiving water at half that rate by 2017,⁵⁷ and as little as 28 cubic meters per second in 2021. These reductions forced Iraqi officials to make drastic cuts to their agricultural plans in Diyala, deeper than in any other province. In 2022, the entire grain growing season was canceled there; the water shortage has also forced the closure of fisheries, and created drinking water shortages for border communities such as Halabja. There are concerns that Iran's Daryan Dam, which diverts water from the Sirwan to irrigate farms in southwestern Iran via a tunnel, could potentially cut these communities' primary source of drinking water entirely.⁵⁸

When Iraqi government officials raised objections to Iran's decision to cut off the water from several tributaries, including the Karun, which feeds into the Shatt al-Arab, by as much as 90%,⁵⁹ Iranian diplomats flatly denied the charge.⁶⁰ Instead,

Iran blames the reduced water flow on climate change, and argues that Iraq should look to solve its water problems with its primary source of water, Türkiye.⁶¹ Iraqi officials have also accused Iran of diverting salt drainage water into Iraq, causing serious damage to agriculture and water quality in the Shatt al-Arab region.⁶² Iran's actions have caused secondary harm beyond their direct impact on water levels. Its dam construction prompted the KRG to dam the same tributaries on its territory, particularly the Little Zab and Sirwan, further reducing water flows to the Tigris.

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Top: A panoramic view of Darbandikhan Lake in Iraq's Sulaymaniyah Governorate. The lake was created by completion of the Darbandikhan Dam on the Diyala river (a tributary of the Tigris) and is fed by the Sirwan and Tanjaro rivers. Bottom: Completed in 1961, the dam provides irrigation, flood control, and hydroelectric power generation. The reservoir lake is the primary source of drinking water for the area's 850,000 residents. ©Adam Jones, April 20, 2011.



WATER DISPUTES WITH SYRIA

Iraq's disputes with Syria are an extension of its disputes with Türkiye, since Syria shares Iraq's disadvantageous position as a downstream country. Throughout most of the GAP development, Syria and Iraq found themselves on the same front, objecting to Türkiye's upstream activities on the Euphrates. This does not, however, mean the two have had a completely cooperative relationship. When Syria started filling the Tabqa Dam in 1975, Iraq almost went to war with its neighbor; conflict was only averted through Saudi Arabia's intervention.⁶³

To formalize their shared interest in the Euphrates, Syria and Iraq have entered into bilateral agreements, most notably in 1989, whereby they agreed that Iraq was entitled to 58% of the Euphrates water volume crossing the

Turkish-Syrian border, while the remaining 42%, was allocated to Syria.⁶⁴ But Syria has accused Türkiye of releasing volumes short of the 500 cubic meters per second it had promised to release into Syria in a protocol signed in 1987. The water flow was down to 250 cubic meters per second by 2014.⁶⁵ Syria thus blames Turkish actions for the reduced water flow to Iraq.⁶⁶

The outlook of this situation is extremely concerning. Climate change trends, reduced water flows from Türkiye, population growth, and the damage and deterioration of infrastructure due to Syria's civil war-- all point to a future in which Syria faces a growing gap between demand and available water resources. As a result, Iraq's share of the Euphrates will inevitably suffer even greater reductions.

THE STATE OF IRAQ'S WATER DIPLOMACY

Post-2003 Iraqi governments have neglected water disputes as a priority, with the new political class persistently reluctant to confront neighboring countries' water policies that adversely affect Iraq. The political parties that held sway in the post-2003 government have been either dependent on neighboring countries for political support, fearful of their coercive power, or lacking in confidence and authority to defend their national interests. Additionally, the consociationalism that has characterized post-2003 governments has meant little continuity in a coherent national agenda. Instead, competition over oil revenue for the maintenance and expansion of subnational patronage networks has taken precedence.⁶⁷ Failing to make water diplomacy a national priority, Iraqi presidents and prime ministers have often delegated it to sub-

cabinet level ministry officials and bureaucracies lacking the means to persuade Iraq's neighbors to take their grievances seriously. Officials in Iraq's Ministry of Water Resources (MoWR) often complain that the Ministry of Foreign Affairs has taken too long to contact Turkish and Iranian authorities, and that their regional counterparts have played for time in order to dodge enquiries and invitations to meetings.

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Consequently, Iraq's water diplomacy for much of the last 20 years has been inconsistent and lacklustre. The management of water resources has received little attention from political leaders, and this has been reflected in the budgets allocated to the MoWR. Since 2003, the MoWR has been regarded as an entity of marginal importance and one of the least funded government agencies.⁶⁸

In dealing with Türkiye, Baghdad has generally accepted verbal promises from Turkish officials that Ankara's new dams would not cause harm to Iraq. Only one notable action was taken between 2003 and 2016. In 2006, Iraq conducted a study to

assess the negative impacts of the Ilisu Dam and subsequently sent a letter to the European Commission in 2007, raising the alarm and requesting intervention to halt the project.⁶⁹ Beyond this, and occasional media statements, there was little government effort to assert Iraq's water rights with its neighbors.

It was not until 2016-2017, when the Ilisu Dam was near completion, that Iraq finally started taking the matter seriously. Over the next several years, prompted by the severe impact of climate change, Iraq has intensified its diplomatic efforts. In 2019, it signed a memorandum of understanding with Türkiye to hold a tri-lateral



The controversial Ilisu Dam on the Tigris in Türkiye's southeastern Mardin province began construction in 2006. When complete, the dam will have a maximum storage capacity of 10.4 billion cubic meters of water. AA Photo.

water summit in Baghdad.⁷⁰ Leading up to the summit, Iraq sought to create a united front with Syria, as the respective ministers of both countries met in Damascus.⁷¹ Iraq had hoped to convene the tri-lateral summit before the end of 2022, to restart negotiations that had stalled in the 1980s.⁷² As of the time of writing, the meeting has not taken place.

Despite growing cooperation between Iraq and Syria, deep hostilities between Syria and Türkiye

make a breakthrough in regional disputes less likely. And with Iran, there has been even less progress. Hatem Hamid, Director of Iraq's National Water Resources Management Center, summed up the country's water diplomacy woes by saying, "with Türkiye, there is dialogue, but with many delays... With Iran, there is nothing."⁷³

The delays described here, regardless of who caused them, stand in stark contrast with the urgency of Iraq's current water crisis.

Correspondence in October 2022 between Iraq's Parliament and Ministry of Foreign Affairs revealed that a meeting with Türkiye's water envoy— which Iraq had earlier requested to discuss relief for intense water shortages that summer— was delayed five months at that time.⁷⁴

The Iraqi government's progress in addressing water disputes with Türkiye is further hindered by confusion about who is responsible for negotiations with neighboring countries about water. At a parliamentary session in November 2022, Iraq's Water Resources Minister appealed to the foreign affairs committee, and indirectly to the Ministry of Foreign Affairs, to approach Türkiye.⁷⁵ Article 80 of Iraq's Constitution grants authority to the Council of Ministers to design and implement public policies, and to negotiate and sign treaties, while the MoWR Law of 2008 unambiguously describes a key part of its mandate as “[p]reserving Iraq's rights to shared international waters, maintaining communications, and exchanging information with neighboring and riparian states towards fair treaties for allocating the quantity and quality of water entering Iraq.”⁷⁶ That the minister chose to make his plea through parliament instead of the cabinet and prime minister suggests either ignorance of the law or the desire to shift blame to others.⁷⁷

“With Türkiye, there is dialogue, but with many delays... With Iran, there is nothing.”

When it comes to Iran and water rights, the problem is not confusion, but deliberate avoidance. On the condition of anonymity, Foreign Ministry officials have echoed the frustrations of their colleagues in the MoWR, saying that higher authorities instructed them “not to speak to Iran about it.”⁷⁸

The lack of political will to confront Iran was made clear in 2020 when the MoWR threatened to file a lawsuit against Iran at the International Court of Justice (ICJ) on the basis that its diversion of tributaries violated the 1975 Algiers Agreement.⁷⁹



President Recep Tayyip Erdoğan and Iraqi Prime Minister Mohammed Shia al-Sudani met at the Presidential Complex in the capital Ankara, Türkiye, March 21, 2023.

But no politician or senior government official supported this threat to sue Iran.

For their part, Iranian officials, like their Turkish counterparts, respond to Iraq's complaints by arguing that the real problem is Iraq's outdated agricultural methods and irrigation systems.⁸⁰

Iran also rejects Iraqi calls to resolve water disputes by going back to the Algiers Agreement, claiming it dealt with flood management, not water sharing.⁸¹

The MoWR's threat was perhaps simply an attempt to calm an Iraqi population that has grown increasingly resentful of their neighbors' influence over Iraqi politics and governance. The value and sincerity of the threat was particularly questionable because the officials had threatened to take Iran to the ICJ, not for violating the UNWC, but for violating the 1975 Algiers Agreement, from which Iraq had unilaterally withdrawn in 1979.⁸²

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THE WAY FORWARD

Iraq's approach to addressing its water disputes since 2003 has remained ineffective. To meet the country's current and future water needs, and adapt to climate change and population growth, Iraq's leaders must take a more engaged and practical approach. The recent trip by Prime Minister Mohammed al-Sudani to Ankara during which he spoke directly with President Erdoğan about Iraq's water needs was a step in the right direction. Erdoğan's announcement that Ankara would increase the volumes of water released to Iraq through the Tigris and Euphrates for one month to alleviate Iraq's immediate needs, though not a lasting solution, underscores the potential for active diplomacy.⁸³

Despite lingering weakness and disunity, the government of Prime Minister al-Sudani enjoys better diplomatic relations and regional acceptance than previous Iraqi governments in the post-2003 period. A growing desire in Baghdad to balance and expand its relations with Ankara, combined with a more welcoming attitude from Arab neighbors and Western support for Iraqi sovereignty and regional engagement, has worked to enhance Iraq's standing as a regional bridge for cooperation.⁸⁴

This diplomatic revival stands in stark contrast to the isolation experienced by Baghdad in the past, especially under former Prime Minister Maliki.

One of the most elusive questions with which Iraq grapples is determining the extent to which its water shortage is due to climate change versus the actions of upstream countries. This is important for differentiating between necessary climate adaptation and unfair exploitation of water resources. Certainly, Iraq needs to push back against Türkiye's policy of reducing estimates of Iraq's water needs based on degradation of arable land, while overlooking reduced water flows from Türkiye since the 1970s as the primary cause of the diminishing irrigable land.

To address these challenges more cooperatively, establishing joint research centers with Türkiye (and later with Iran) would be beneficial. These centers could produce mutually verifiable and accurate data on water usage and available resources. Such collaborations would enable Iraq to negotiate from a shared understanding and provide the necessary environmental assessments to indicate when Türkiye and Iran are in violation of the "No Significant Harm" principle.

More active diplomacy could revive some efforts by previous Iraqi administrations that fell by the wayside. Over the past two years, a handful of meetings have been held between officials from

the MoWR and their counterparts in Türkiye. These meetings have primarily focused on Iraq's water needs in light of recent droughts,⁸⁵ and on requests for new negotiations of Iraq's share of the Tigris before the Ilisu Dam is filled to capacity.⁸⁶ These meetings have not produced agreements on greater water shares, but have nonetheless placed water closer to the center of Iraq's relations with Türkiye. This was especially evident when former Iraqi Prime Minister al-Kadhimi made water a prominent item on his agenda when he visited Ankara in December 2020.⁸⁷

Iraq needs to push back against Türkiye's policy of reducing estimates of Iraq's water needs based on degradation of arable land, while overlooking reduced water flows from Türkiye since the 1970s as the primary cause of the diminishing irrigable land.

One of the outcomes of these meetings has been a memorandum of understanding between the MoWR and the Turkish Presidency's Special

Representative to Iraq, Veysel Eroğlu, to establish a joint research center to study water resources in Iraq.⁸⁸ Forming this center could be an important step, as long as it allows Iraqi researchers to study Türkiye's water resources and utilization as well. The new Iraqi government of Mohammed al-Sudani should build on the process started under his predecessor and engage personally with senior Turkish leaders to push for implementation of the memorandum's provisions. Iraq should also take advantage of whatever help the U.S. and other key actors in the international community are willing to offer, such as U.S. Geological Survey assistance with training for satellite imagery analysis,⁸⁹ which could allow Iraq to negotiate from a stronger and better-informed position.

To avoid getting bogged down by the confusion and blame-shifting that has plagued past communications with Iraq's neighbors, the Prime Minister should unequivocally empower MoWR leadership to represent Iraq directly with its neighbors. Considering the pressing need for Iraq to negotiate effectively with other riparian states, the Iraqi government should seriously consider giving the Minister of Water Resources the title of Deputy Prime Minister, similar to the titles of his colleagues in charge of the Oil, Planning, and Foreign Affairs portfolios.

The four neighboring riparian states are aware that international law, as the sole instrument for securing riparian rights, is insufficient. This, at least in part, explains why Iraq has yet to pursue legal action against its neighbors. Nevertheless, Iraq possesses the potential and necessary tools to engage in productive bilateral diplomacy to defend its water rights. To do so, Iraq's leaders

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Livestock is also affected by the drought and rising temperatures in Baaj, Ninewa. © Fared Baram/NRC, October 2022.



must demonstrate the political will to consistently assert Iraq's demands and to capitalize on its role as an important partner in security, trade, and energy matters with its neighbors. This can generate goodwill and leverage in negotiations, as discussed below. To leverage its position, Iraq has several assets at its disposal to persuade Türkiye and Iran to be more responsive to its water needs. But employing any of these tools to generate leverage in negotiations depends first and foremost on having the political will to uphold the national interest and assertively deal with powerful neighbors that wield considerable influence in Iraq.

Trade

In 2022, Iraq was the third largest market for Turkish exports, which averaged more than \$1.1 billion a month.⁹⁰ Trade with Iran reached \$12 billion a year, and Iran wants to expand that to \$20 billion.⁹¹ Iraq is mainly on the importing side of these trade relations, which means it could use trade as a bargaining tool with both countries, considering how much they rely on Iraqi markets. One possible course of action would be to raise the prospect of higher tariffs on Iranian and Turkish imports unless they come to the table to discuss Iraq's demands for a fair share of water. To make this threat credible, Baghdad could open negotiations with other neighbors, such as Kuwait, Jordan, and Saudi Arabia, to help replace Turkish and Iranian imports. Another potential incentive in negotiations with Ankara in particular is to provide Türkiye with discounted crude oil or unimpeded access to the Persian Gulf through Iraq's southern ports. In exchange for cheaper fuel or access to new and cheaper trade routes, Iraq could receive more adequate and predictable water supplies from Türkiye.⁹²

One possible course of action would be to raise the prospect of higher tariffs on Iranian and Turkish imports unless they come to the table to discuss Iraq's demands for a fair share of water.

However, as explained next, Baghdad's effective use of trade in negotiations will require improved border security to control the flow of goods and collect customs in areas under effective KRG control, or where Iran-backed militias hold sway.

Border Security

Both Türkiye and Iran have been pressing federal and KRG authorities to do more to secure their borders to prevent threats by separatist Kurdish groups, such as the PKK and the Kurdistan Democratic Party of Iran (KDP-I).⁹³ Both countries have used military force in cross-border operations on Iraqi soil on multiple occasions in the past two years, and have pressured Iraq to deny safe haven to these groups.⁹⁴ The value of border security for Iran was emphasized in March 2023 when Ali Shamkhani, the former head of Iran's Supreme National Security Council, visited Baghdad to sign an agreement for cooperation on border security aimed at curbing the activity of separatist groups. Iraq can use this to extract concessions on water.

Baghdad can condition sustained security cooperation and the deployment of additional Iraqi border guards—which help Türkiye and Iran deal with cross-border threats—on the release of more water downstream to Iraq. This would require a careful sequencing of efforts. First, Baghdad could use the situation to win its neighbors' support (who can use their influence with the KRG and Iran-backed militias) to normalize conditions at border crossings, boost security, and bring border crossings under effective federal customs control. The cooperation of officials in the Kurdistan region may be easier to win now than at any time since 2003 for two reasons. First, there are growing demands for transparency in customs revenue management from within the region as a reflection of persistent PUK-KDP political disputes.⁹⁵ Second, officials in the cash-strapped KRG are keen on realizing the region's share of the recently passed national budget. The budget bill gives the federal government a greater role in managing the region's oil exports and overseeing its revenue.⁹⁶ It also requires the KRG to remit non-oil revenue to the federal treasury; this presents an opportunity to strengthen federal oversight of border crossings, where much of the non-oil

revenue is generated in the form of customs fees. Iran's help in establishing formal state control over the borders may be harder to secure than Türkiye's, given Tehran's history of backing allied militias along important trade and smuggling routes in Iraq, Syria and Lebanon.

Energy partnerships

Türkiye imports some 40% of its crude oil and natural gas from Iraq.⁹⁷ This trade, and recent developments involving Iraq, Türkiye, and the KRG give Iraq additional tools with which to influence its energy-strapped neighbor's policies.

Relations between Iraq and Türkiye have been strained by Ankara's decision to allow the KRG to independently export crude oil through the Iraq-Türkiye Pipeline (ITP), despite objections from Baghdad. In March 2023, Iraq won in an arbitration in which it argued that Türkiye had violated the bilateral treaty for use of the pipeline by unilaterally allowing KRG oil exports without

Baghdad's consent. Although Iraq was awarded only \$1.5 billion in damages— a fraction of the tens of billions it was seeking from the arbitration— this could give Baghdad leverage to negotiate its water rights with Türkiye. Ankara responded to the arbitration ruling by halting oil flow through the pipeline seeking to negotiate the damages; causing economic loss for all parties. At stake for Ankara are millions of dollars per month in oil transit fees—which could rise further if Iraq ramps

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up exports beyond the 450,000 barrels per day the ITP carried on average before the halt. Furthermore, the resumption of oil exports is vital for the stability of the KRG, which Ankara sees as an important partner against the PKK and in maintaining a favorable geopolitical balance for Ankara vis-à-vis Baghdad and Tehran. A resetting of energy relations could also revive the potential for cheap, accessible natural gas flowing from Iraqi Kurdistan to Türkiye, with Baghdad's blessing.⁹⁸ Further, Iraq could broaden the scope of its diplomacy to include water disputes

At stake for Ankara are millions of dollars per month in oil transit fees—which could rise further if Iraq ramps up exports beyond the 450,000 barrels per day the ITP carried on average before the halt.

currently brewing between Türkiye and Iran over the Aras and Lake Urmia, arguing against unsustainable water-hoarding practices of riparian countries.⁹⁹ And this could generate regional momentum, and attract regional and international attention to the urgency of resolving current water disputes before they escalate.

Water credits

Some water experts believe economic incentives might be built into water-sharing agreements with Türkiye. Azzam Alwash, a leading Iraqi water expert and founder of Nature Iraq, suggested in conversations with the authors that it would be more sustainable for Iraq to develop an agreement with Türkiye to hold some of the water it considers to be its fair share of the Tigris and Euphrates as credits for Iraq. Storing water in Turkish reservoirs has the benefit of much lower evaporation rates compared to Iraq's sun-scorched Lake Tharthar, from which an estimated 7-8 billion cubic meters of water evaporate each year. These credits could be exchanged for



Primary school students in Baghdad celebrate graduation at one of the city's newer sculptures, a work designed by Iraqi sculptor Mohammed Ghani Hikmat titled "Saving Iraqi Culture" (or "Nasb Enqath al-Thaqafa"). © Erik Gustafson/EPIC, March 20, 2023.

partnerships in the development of projects in which Iraq leases storage space from Türkiye, while the latter helps Iraq improve its water management infrastructure and modernize its agricultural practices, to the benefit of both states.

CONCLUSION

Water scarcity poses an existential threat to Iraq's ability to sustain healthy living for its 42 million residents. In addition to developing the country's water management infrastructure and resilience to climate change, Iraq's leaders would be wise to collectively support their country's demands for more water.

Because international law lacks enforcement mechanisms, Iraq's efforts to secure water from its neighbors cannot rely entirely on technical and legal channels. More active, assertive diplomacy is crucial.

To be sure, Iraqi diplomacy faces a disadvantage in that the country's post-2003 political class has been and remains divided, and its leaders have grown dependent on foreign support to stay in

Iraq's efforts to secure water from its neighbors cannot rely entirely on technical and legal channels. More active, assertive diplomacy is crucial.

power and balance against domestic rivals. Despite this, there are opportunities for common ground and regional cooperation to mitigate the impact of climate change and share the burden of ensuring needed water in more just ways.

There must be political will to place water at the top of the agenda at the most senior levels of government.

To strengthen Iraq's position in negotiations, Iraqi leaders have at their disposal several forms of leverage to back their country's water demands. These center around trade, border security, and energy, as well as new and innovative approaches such as the use of water credits. But first there

must be political will to place water at the top of the agenda at the most senior levels of government. At the same time, MoWR leaders should be unambiguously empowered to represent Iraq in discussions with its neighbors to translate high level political understandings into practical steps for resolving water disputes and meeting essential water needs. Political will must also place national interest above partisan and personal interests and entanglements.

The Iraqi government must deal with water as the endangered vital commodity that it is, and its shortage as a core national security threat. As with the war against ISIS, the international community can provide moral and material support to Iraq, but only the Iraqis themselves can do what is needed to ensure the survival of its growing population in the land of the two rivers.



The worsening climate emergency and water crisis is an economic disaster for the affected regions. © Ahmed Kaka/NRC, Oct. 2022.

References

1. The hostility towards Sunni Arab Gulf states is gradually being replaced by more amicable relations amid growing rapprochement between Iran and Saudi Arabia, in which Iraq has been an important mediator.
2. Iraq Country Fact Sheet, Food and Agriculture Organization of the United Nations, accessed May 12, 2023, https://storage.googleapis.com/fao-aquastat.appspot.com/countries_regions/factsheets/summary_statistics/en/IRQ-CF.pdf
3. Climate at a Glance: National Rankings, NOAA National Centers for Environmental Information, Accessed May 8, 2023, <https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/national/rankings>
4. Nadhir Al-Ansari, "Water resources of Iraq," Journal of Earth Science and Geotechnical Engineering, 11, no. 2 (2021): 15-34
5. Nadhir Al-Ansari, Salwan Ali Abed, and Salam Hussein Ewaid, "Agriculture in Iraq," Journal of Earth Sciences and Geotechnical Engineering, 11, no.2, (2021): 223-241
6. For a concise overview of the climate perils facing Iraq today, read EPIC's report "The Existential Threat of Climate Change and Water Scarcity in Iraq," available at https://enablingpeace.org/wp-content/uploads/2022/07/Climate-Briefing-Aug-2022_FINAL.pdf
7. "Water crisis and drought threaten more than 12 million in Syria and Iraq," Reliefweb, August 23, 2021, accessed May 5, 2023, <https://reliefweb.int/report/syrian-arab-republic/water-crisis-and-drought-threaten-more-12-million-syria-and-iraq>.
8. Climate Risk Profile: Iraq, USAID, March 3, 2017, accessed April 19, 2023, <https://www.climatelinks.org/resources/climate-risk-profile-iraq>.
9. The dunam (or donum) is an old land measurement unit used in several countries that were once part of the Ottoman empire. The exact value of a dunam varies from one country to another. In Iraq, it is equal to 2,500 square meters.
10. "Deputy Agriculture Minister: Agriculture consumes 70% of available water," Rudaw, November 16, 2022, accessed May 5, 2023, <https://www.rudawarabia.net/arabic/business/161120223>.
11. Sanar Hasan, "Climate change leaves Iraq's 'breadbasket' with less water, wheat, and farmers," The New Humanitarian, September 6, 2022, Accessed May 5, 2023, <https://www.thenewhumanitarian.org/news/2022/09/06/Iraq-wheat-farmers-climate-change-conflict>.
12. Water resources report of 2020, Central Statistical Organization of Iraq, accessed May 4, 2023.
13. Louisa Loveluck and Mustafa Salim, "From Cradle to Grave," The Washington Post, October 21, 2021, accessed May 8, 2023, <https://www.washingtonpost.com/world/interactive/2021/iraq-climate-change-tigris-euphrates/>.
14. Iraq Country Climate and Development Report, The World Bank, 2022, accessed June 3, 2023.
15. Georgia Cooke, Renad Mansour, and Glada Lahn, "Same old politics will not solve Iraq's water crisis," Chatham House, April 16, 2020, accessed, March 17, 2023, <https://www.chathamhouse.org/2020/04/same-old-politics-will-not-solve-iraq-water-crisis>.
16. Moutaz Al-Dabbas, Tariq Abed Hussain, Qusai Al-Kubaisi, and Hadeel Al-Dabbas, "Impact of climate change on the hydrochemistry of Debaga unconfined aquifer, Kurdistan region, Iraq," IOP Conference Series: Earth and Environmental Science, 779 (2021).
17. Iraq Country Report, Think Hazard, accessed September 18, 2022, <https://thinkhazard.org/en/report/118-Iraq>
18. For recent data on climate induced migration, see https://iraqdtm.iom.int/files/Climate/202210104314150_iom_DTM_ET_ClimateDisplacement_Center_South_Sep_2022.pdf
19. Ali Çarkoglu, and Mine Sadiye Eder, "Domestic concerns and the water conflict over the Euphrates-Tigris River basin," *Middle Eastern Studies*, 37, no. 1 (2001): 41-71.
20. Marwa Daoudy, "Hydro-hegemony and international water law: Laying claims to water rights," *Water Policy*, 10, no. 2 (2008): 89-102.
21. Convention on the Law of the Non-Navigational Uses of International Watercourses, The United Nations, 2014, accessed September 18, 2022, https://legal.un.org/ilc/texts/instruments/english/conventions/8_3_1997.pdf.
22. Ali Akanda, Sarah Freeman, and Maria Placht, "The Tigris-Euphrates River Basin: Mediating a Path towards Regional Water Stability," *The Fletcher School Journal for Issues Related to Southwest Asia and Islamic Civilization*, Spring, 2007.
23. Iraq had signed the treaty in 2013 but formal accession had to wait until March 2023. See <https://unece.org/environment/press/iraqs-accession-un-water-convention-opens-new-opportunities-strengthen>
24. "UN watercourses convention," UNECE, 2002, accessed March 31, 2023, <https://unece.org/environment-policy/water/un-watercourses-convention>.
25. Mark Dohrmann, and Robert Hatem, "The impact of hydro-politics on the relations of Turkey, Iraq and Syria," *The Middle East Journal*, 68, no. 4 (Autumn 2014): 567-583.
26. Eran Feitelson and Amit Tubi, "A main driver or an intermediate variable? Climate change, water and security in the middle east," *Global Environmental Change*, 44 (1): 39-48.
27. Dohrmann and Hatem, "Hydro-politics," 567-583.
28. Itzhak E. Kornfeld, "Trouble in Mesopotamia: Can America deter a water war between Iraq, Syria, and Turkey?," *Environmental Law Reporter*, 34, no. 10362 (2004).
29. Alistair Rieu-Clarke Ruby Moynihan, and Bjørn-Oliver Magsig, "UN Watercourses Convention – User's Guide," Centre for Water Law, Policy and Science, (2012): 110-112.
30. "Watercourses Convention – User's Guide, Part II General Principles," Centre for Water Law, Policy and Science, 2012, accessed August 15, 2022, <https://www.unwatercoursesconvention.org/the-convention/part-ii-general-principles/>.

31. Owen McIntyre, "Water, Law and Equity," in David Devlaeminck, Zafar Adeel, and Robert Sandford (eds.), *The Human Face of Water Security (Water Security in a New World)*, 1st ed. (2017), 45-70.
32. Eyal Benvenisti, "Collective Action in the Utilization of Shared Freshwater: The Challenges of International Water Resources Law," *The American Journal of International Law*, 90, no. 3 (1996): 384-415.
33. The principle of "Equitable and Reasonable Utilization" in riparian rights adds a requirement of reasonableness to the commonly known "Equitable Utilization" principle, aiming to ensure that water resources are allocated fairly and reasonably. This principle takes into consideration various factors, including social, economic, and environmental considerations, in order to determine a just and rational distribution of water.
34. Sameh Al-Muqdadi, Mohammed Omer, Rudy Abo, and Alice Naghshinah, "Dispute over water resource Management—Iraq and Turkey," *Journal of Environmental Protection*, 7 (2016): 1096-1103.
35. Al-Ansari "Water resources of Iraq," 15-34
36. Erika Solomon, "Why water is a growing faultline between Turkey and Iraq," *Financial Times*, July 4, 2018, accessed July 29, 2022, <https://www.ft.com/content/82ca2e3c-6369-11e8-90c2-9563a0613e56>
37. Akanda, Freeman, and Placht, "The Tigris-Euphrates River Basin: Mediating a Path towards Regional Water Stability."
38. Çarkoglu, and Eder, "Domestic concerns and the water conflict over the Euphrates-Tigris River basin," 41-71.
39. Aysegül Kibaroglu, and Ramazan Caner Sayan, "Water and 'imperfect peace' in the Euphrates-Tigris River basin," *International Affairs (London)*, 97, no. 1 (2021): 139-155.
40. Turkish Ministry of Foreign Affairs, "Water issues between Turkey, Syria and Iraq. Department of Regional and Transboundary Waters," 2021.
41. Dohrmann and Hatem, "Hydro-politics," 567-583.
42. Giorio Cafiero and Anastasia Chisholm, "What's going on in Iraqi-Turkish relations?" 2021.
43. I. E. Issa, N. A. Al-Ansari, G. Sherwany, and S. Knutsson, "Trends and future challenges of water resources in the Tigris-Euphrates rivers Basin in Iraq," *Hydrology and Earth System Sciences Discussions*, 10, (December 2013): 14617-14644.
44. Turkish Ministry of Foreign Affairs, "Water issues between Turkey, Syria and Iraq. Department of Regional and Transboundary Waters, 2012.
45. Dogan Altinbilek, "Development and management of the Euphrates-Tigris basin," *International Journal of Water Resources Development*, 20, no. 1 (2004): 15-33.
46. Latif Rashid, "Development of water resources in Iraq," 2016, <https://latifrashid.iq/development-of-water-resources-in-iraq/>
47. Turkish Ministry of Foreign Affairs, "Water issues between Turkey, Syria and Iraq," Department of Regional and Transboundary Waters, 2012.
48. Al-Muqdadi, Omer, Abo, and Alice Naghshinah, "Dispute over water resource Management—Iraq and Turkey," 1096-1103.
49. Altinbilek, "Development and management of the Euphrates-Tigris basin," 15-33.
50. Turkish Ministry of Foreign Affairs, "Water issues between Turkey, Syria and Iraq," Department of Regional and Transboundary Waters, 2012.
51. Tulay Karadeniz and Ahmed Aboulenein, "Turkey halts filling Tigris dam after Iraq complains of water shortages," *Reuters*, June 7, 2018, accessed September 6, 2022, <https://www.reuters.com/article/us-iraq-turkey-idUSKCN1J320X>.
52. Samya Kullab, "Politics, climate conspire as Tigris and Euphrates dwindle," *Associated Press*, November 18, 2022, accessed January 12, 2023, <https://apnews.com/article/iran-middle-east-business-world-news-syria-3b8569a74d798b9923e2a8b812fa1fca>
53. "Iraq accuses Iran of cutting off two main tributaries to vital rivers," *Middle-East Monitor*, August 9, 2021, accessed August 4, 2022, <https://www.middleeastmonitor.com/20210809-iraq-accuses-iran-of-cutting-off-two-main-tributaries-to-vital-rivers/>.
54. Kakalaw Abdull and Dler Abdulla, "Iraqi Kurdistan faces water 'catastrophe' as Iran cuts off rivers," *Middle East Eye*, September 3, 2020, accessed September 19, 2022, <https://www.middleeasteye.net/news/iraq-kurdistan-water-catastrophe-iran-rivers>.
55. Neria, Jacques, "Iran and Turkey divert Iraq's river waters, leaving Iraq on the brink of catastrophe," *Institute for Contemporary Affairs*, 2018, (Vol. 18, No. 25), <https://jcpa.org/article/Iran-and-Turkey-divert-Iraqs-river-waters-leaving-Iraq-on-the-brink-of-catastrophe/>.
56. Azzam Alwash, "From Threat to Opportunity: Harnessing Climate Change to Build a Prosperous Future for Iraq and the Region," *IAI Papers* 23 (June 2023).
57. Dana Muhammed Faraj, Kawa Z. Abdulrahman, and Nadhir A. Al-Ansari, "The Impact of the Tropical Water Project on the operation of Darbandikhan Dam," *Journal of King Saud University – Engineering Sciences*, June 2022, accessed, August 24, 2022, <https://www.sciencedirect.com/science/article/pii/S1018363922000629>.
58. "Iraq and Turkey continue to discuss water quotas," *Save The Tigris*, December 31, 2020, accessed September 4, 2022, <https://www.savethetigris.org/iraq-and-turkey-continue-to-discuss-water-quotas/>.
59. "Iraq accuses Iran of cutting off two main tributaries to vital rivers," *Sawt Beirut*, August 9, 2021, accessed August 11, 2022, <https://english.sawtbeirut.com/world/iraq-accuses-iran-of-cutting-off-two-main-tributaries-to-vital-rivers>.
60. Interview with Iraj Masjidi, Iran's ambassador to Baghdad, *Dijlah TV*, April 29, 2022, accessed September 3, 2022, <https://www.youtube.com/watch?v=w74BLlgg81k>.
61. "Turkey's dam-building dries up palm trees in the south/ does Iran eat Iraq's water right?" *ILNA*, August 29, 2022.
62. "Experts warn of toxic Iranian drainage water headed for Basra," *Azzaman*, January 7, 2018, accessed September 18, 2022, <https://tinyurl.com/8tscpz6m>.
63. Kibaroglu and Sayan, "Water and 'imperfect peace' in the Euphrates-Tigris River basin," 139-155.

64. Daoudy, "Hydro-hegemony and international water law: Laying claims to water rights," 89–102.
65. K. A. Mourad and O. Alshihabi, "Assessment of future Syrian water resources supply and demand by the WEAP model," *Hydrological Sciences Journal*, 61, no. 2 (2016): 393-401.
66. Tobias Von Lossow, "Weaponizing Water in the Middle East," in Marcus Dubois King (ed.) *Water and Conflict in the Middle East* (2020).
67. The discontinuity extends all the way to officials competing for benefits such as official visits to foreign countries, which means that foreign officials often find themselves dealing with new counterparts every time they meet an Iraqi delegation.
68. In the 2021 budget, for instance, the ministry was allocated only IQD 547 billion (approximately \$455 million).
69. Ismail Daoud, "The Iraqi Negotiator," *Arabic Institute for Research and Publication*, 2017.
70. "Iraq and Turkey continue to discuss water quotas," *Save The Tigris*, December 31, 2020, accessed September 4, 2022, <https://www.savethetigris.org/iraq-and-turkey-continue-to-discuss-water-quotas/>.
71. "Iraq, Syria to unify stances on water shares," *Iraqi News*, September 18, 2022, accessed October 27, 2022, <https://www.iraqinews.com/Iraq/Iraq-syria-unify-stances-on-water-shares/>.
72. Halabi, Alaa, "Baghdad moves the waters: Syrian-Turkish-Iraqi meeting," *Syria Now*, February 15, 2022, accessed August 16, 2022, <https://syrianownews.com/post/16519>.
73. Samya Kullab, "Salt, drought decimate buffaloes in Iraq's southern marshes," *Associated Press*, November 23, 2022, accessed January 14, 2023, <https://apnews.com/article/europe-middle-east-droughts-animals-iraq-c2acc021f0e020811c2b5e5336cd845>.
74. "Foreign Ministry reveals details of exchanges with Turkey and Iran concerning the Tigris and Euphrates," *Shafaq News*, October 12, 2022, accessed February 16, 2023, <https://tinyurl.com/mrxdx5c>.
75. "Water Resources calls for approaching Turkey quickly to release agreed upon water volumes," *Rudaw*, October 11, 2022, accessed March 6, 2023, <https://www.rudawarabia.net/arabic/middleeast/iraq/101120227>.
76. Authors' translation of the Arabic text of the law, available at <https://faolex.fao.org/docs/pdf/irq147092.pdf>
77. Confusion and conflicts over authority and responsibilities with regard to water policies exist also on the national and local levels between the MoWR and other ministries and/or between the MoWR and provincial governments. For a detailed discussion of these issues, see the report titled "Competing Over the Tigris: The Politics of Water Governance in Iraq," written by Mac Skelton of the Institute for Regional and International Studies at the American University of Iraq-Sulaimani https://auis.edu.krd/iris/sites/default/files/IRIS-KAS-Competing%20over%20the%20Tigris-11.11.2022_0.pdf
78. Kullab, "Salt, drought decimate buffaloes in Iraq's southern marshes."
79. Muhammad Jawad Adib, "Iraq accuses Iran of cutting off two main tributaries to vital rivers," *Al-Monitor*, January 25, 2022, accessed August 5, 2022, <https://www.al-monitor.com/originals/2022/01/Iran-Iraq-exchange-accusations-over-water-flow>.
80. Hastyar Qadir, "Iran and Turkey send demands to Iraq about water," *Rudaw*, February 23, 2023, accessed June 12, 2023, <https://www.rudawarabia.net/arabic/middleeast/iraq/23022023>.
81. "Foreign Ministry responds to lawmaker's enquiry about water issues with neighbors," *NINA*, February 23, 2023, accessed May 29, 2023, <https://www.ninanews.com/Website/News/Details?key=1036263>.
82. The complex saga of that treaty, in which Iraq made territorial concession in Shatt al-Arab in return for Tehran withholding its support for Iraqi Kurdish guerilla fighters, is beyond the scope of this report. For more on the circumstances in which that treaty was signed, see <https://history.state.gov/historicaldocuments/frus1969-76v27/d286>
83. "Erdogan pledges to increase Tigris water flow," *Al-Hurra*, March 21, 2023, accessed June 3, 2023, <https://arbne.ws/41VYdA1>
84. For an assessment of such recent diplomatic initiatives see this article by Louis Dugit-Gros, Ghaith al-Omari, and Bilal Wahab, "A Baghdad Summit in Amman: Implications for Regional Stability," The Washington Institute, December 19, 2022, <https://www.washingtoninstitute.org/policy-analysis/baghdad-summit-amman-implications-regional-stability>.
85. "Turkey pledged to increase water flow to Iraq," *INA*, July 16, 2022, accessed August 16, 2022, <https://www.ina.iq/160901-.html>.
86. "Turkey and Iraq organize a meeting to tackle the water conflict," *Atalayar*, December 15, 2020, accessed August 4, 2022, <https://atalayar.com/en/content/turkey-and-iraq-organise-meeting-tackle-water-conflict>.
87. "Iraq and Turkey continue to discuss water quotas," *Save The Tigris*, December 31, 2020, accessed September 4, 2022, <https://www.savethetigris.org/iraq-and-turkey-continue-to-discuss-water-quotas/>.
88. "Iraq and Turkey to establish a water research center in Baghdad," *Rudaw*, May 1, 2021, accessed September 15, 2022, <https://www.rudawarabia.net/arabic/middleeast/Iraq/050120215>
89. Kullab, "Salt, drought decimate buffaloes in Iraq's southern marshes."
90. "Iraq is the second largest importer from Turkey this month," *Shafaq News*, November 29, 2022, accessed April 8, 2023, <https://tinyurl.com/9h432x37>.
91. "Iran eyes \$20b annual trade with Iraq," *Tehran Times*, December 8, 2021, accessed August 12, 2022, <https://www.tehrantimes.com/news/467863/Iran-eyes-20b-annual-trade-with-Iraq-official>.
92. During Sudani's visit to Ankara in March 2023, Iraqi officials in fact did attempt to sell Turkey on the benefits of supporting the construction of a new trade route based on new infrastructure connecting the Fao port in Basra with Turkey's Mersin port. It is unclear whether the Iraqis actually made an effort to explicitly or implicitly link this project to a more flexible Turkish position on water sharing. See: "Iraq-Turkey Negotiations Over the Fao Port and the Development Road," *Al-Sumaria*, March 23, 2023, <https://tinyurl.com/3d6xfv5x>

93. Samya Kullab and Qassim Abdul-Zahra, "Blaming Kurds for unrest, Iran threatens Iraq with offensive," *Associated Press*, November 18, 2022, accessed January 9, 2023, <https://apnews.com/article/iran-middle-east-iraq-tehran-baghdad-c0b63cf0ad45f5e087eb67e1110437b6>
94. Louisa Loveluck and Mustafa Salim, "Turkish strike on Zakhu in northern Iraq kills 8," *The Washington Post*, July 20, 2022, accessed February 3, 2023, <https://www.washingtonpost.com/world/2022/07/20/iraq-turkey-strike-tourists/>
95. Nawras Jaff, "PUK and KDP: A New Era of Conflict," *The Washington Institute for Near East Policy*, December 21, 2022, accessed May 6, 2023, <https://www.washingtoninstitute.org/policy-analysis/puk-and-kdp-new-era-conflict>
96. The full text of the 2023-2025 Iraqi budget law can be found here: <https://tinyurl.com/5b4dffnp>
97. "Türkiye Country Analysis," Energy Information Agency, accessed April 16, 2023, <https://www.eia.gov/international/analysis/country/TUR>
98. "KRG plans 10 bcm in natural gas exports to Turkey in two years," *Hurriyet Daily News*, November 20, 2015, accessed June 11, 2023, <https://www.hurriyetdailynews.com/krp-plans-10-bcm-in-natural-gas-exports-to-turkey-in-two-years-91471>
99. Tastekin, Fehim, "Is a water crisis brewing between Turkey and Iran?" *Al-Monitor*, May 13, 2022, accessed September 4, 2022, <https://www.al-monitor.com/originals/2022/05/water-crisis-brewing-between-Turkey-and-Iran>.

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About EPIC

Enabling Peace in Iraq Center (EPIC) is an international nonprofit organization dedicated to the advancement of peace and development in Iraq. Founded in 1998, EPIC is headquartered in Washington, DC, with a field office in Erbil. The Center has a long history of working directly with civil society leaders and communities across Iraq to support vulnerable populations, monitor human security, and inform public policy. EPIC's ultimate vision is a safe and prosperous Iraq in which all citizens live free from want and fear, and with dignity. The Center is currently focused on supporting Iraqi efforts to improve governance and human rights, promote peace and recovery in conflict affected areas, and combat climate change while mitigating its impact on vulnerable populations.

*Back cover: The sun setting on a traditional reed house (mudhif) and traditional narrow canoe (mashoof) in Iraq's legendary Mesopotamian marshes.
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