THE RIGHT TO WATER AND CLIMATE CHANGE

2025

THE ARAB WATCH REPORT ON ECONOMIC AND SOCIAL RIGHTS

THE WEAPONIZATION OF WATER IN THE MIDDLE EAST

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Arab NGO Network for Development

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This report is published as part of the Arab NGO Network for Development's Arab Watch Report on Economic and Social Rights (AWR) series. The AWR is a periodic publication by the Network and each edition focuses on a specific right and on the national, regional and international policies and factors that lead to its violation. The AWR is developed through a participatory process which brings together relevant stakeholders, including civil society, experts in the field, academics, and representatives from the government in each of the countries represented in the report, as a means of increasing ownership among them and ensuring its localization and relevance to the context.

The seventh edition of the Arab Watch Report focuses on the right to water. It was developed to provide a comprehensive and critical analysis of the status of this right across the region, particularly in the context of climate change and its growing impacts. The information and analyses presented aim to serve as a platform for advocacy toward the realization of this fundamental right for all.

The views expressed in this publication are solely those of the author and do not necessarily reflect the positions of the Arab NGO Network for Development (ANND), Brot für die Welt, or Norwegian People's Aid.

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01

INTRODUCTION

By 2050, the entire population of the Middle East and North Africa will be living under conditions of extremely high-water stress, and certain portions of the region will be uninhabitable (World Resources Institute, 2023). These dire conditions are expected because of the combined impacts of natural aridity and climate change, along with population growth and mismanagement of existing water supplies. This environmental transition is occurring in a region where 60 percent of the water supply is located in transboundary rivers (i.e., the Jordan, Euphrates, and Tigris) that flow through states with a history of internal and regional conflict or animosity. Within these transboundary basins, hegemonic states tend to dominate the use and development of the basin's water, while weaker and often downstream states suffer from significant water shortages (Zeitoun and Warner, 2006).

Given the region's water shortage and the resource's connection to human security, national security, and regime stability, water and hydrological infrastructure are increasingly weaponized by states, paramilitary organizations, and nonstate actors to inflict social, economic, and political losses on enemies (UNICEF, 2021a). The weaponization of water can occur during civil or regional wars, occupation, periods of tension, or even in times of peace to undermine adversaries. This weaponization can be carried out through the bombing, control, or manipulation of domestic water infrastructure (such as water treatment plants, canals, pipes, sanitation facilities, and dams) as well as through the manipulation of water in transboundary rivers. In the process, the region's civilian population is heavily impacted by the weaponization of water, because it can inflict on them water, food, energy, and economic insecurity. Military targeting of water infrastructure can further compromise civilians' access to safe water and sanitation, both in terms of quality and quantity, directly affecting their health, wellbeing, and livelihoods. An examination of conflicts across the world reveals an increase in the weaponization of water (UNICEF, 2021a).

While international regimes in the form of treaties, conventions, and common law exist to prohibit the weaponization of water and secure the human right to water for civilians, especially those in conflict zones or occupied land, both state and nonstate actors fail to comply. For example, the Geneva Conventions, International Humanitarian Law, and the Human Rights to Water and Sanitation all prohibit the weaponization of water. As this chapter will demonstrate, despite the heavy institutionalization within international law and the ultimate development of a norm against the weaponization of water, across the Middle East multiple regional and

international states, paramilitary organizations, and nonstate actors continue to weaponize water against weaker states, territories, and civilians with minimal retribution or sanction by the international community of states and global hegemons. Using two cases from the Middle East, this chapter seeks to document this disregard for international and common law along with the breaking of norms and taboos by state and nonstate actors and paramilitary organizations, as they weaponize water to inflict negative social, economic, and political losses on adversaries and civilians. The chapter concludes with policy recommendations for non-governmental organization (NGOs), intergovernmental organizations (IGOs), humanitarian organizations, policymakers, aid agencies, and donors on approaches to challenge the weaponization of water and, in the process, enable civilians to secure access to safe and sufficient drinking water.

Before demonstrating this argument, the following section provides an overview of existing international law prohibiting weaponization of water and enshrining the human rights to safe water and sanitation. This is followed by an in-depth examination of Israel in the Gaza Strip and West Bank and then multiple state and nonstate actors in Syria. The chapter closes with policy recommendations to ensure water security for civilians under occupation, during conflict, and in times of peace in the hope of minimizing the weaponization of water.

02

INTERNATIONAL LAW AND THE WEAPONIZATION OF WATER

For over 70 years, international law has developed legal regimes and norms in an attempt to prevent the weaponization of water (Grech-Madin, 2021), which is the intentional use of water resources and water infrastructure to inflict losses on adversaries or civilians in times of peace or war. Over time, through treaties, amendments, conventions, and customary law, states were prohibited from using water resources and water infrastructure essential for the survival of civilians as an offensive or defensive military tactic to punish adversarial states, nonstate actors, and civilians.

The 1970s marked a critical period for the institutionalization of international law prohibiting the weaponization of water and the environment. The Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD) was codified by the 1976 International Environmental Law. This law prohibits the military from inflicting floods or droughts by manipulating the flow of water along with destroying water systems. It also prohibits inflicting severe damage to water systems. In 1977, two Additional Protocols were added to the Geneva Conventions that established standards for humanitarian treatment during armed conflict. Together, Protocols I and II prohibited states from destroying, diverting, or contaminating water facilities in both domestic and international wars. The goal was to not leave civilians with insufficient food or water, which could then inflict starvation on them, forcing them to flee for their survival (Additional Protocol I, Article 54, paragraph 3). The Conventions also require occupying powers to ensure civilians have access to safe drinking water and sanitation.

Customary International Humanitarian Law also prohibits attacking or destroying drinking water facilities, ensures civilians have access to water, and requires warring factions to protect infrastructure (i.e., dams) whose destruction can inflict civilian harm. International Human Rights Law recognizes the human right to a safe supply of water in times of peace and war. Two United Nations resolutions condemn attacks on water systems and recognize that access to clean water and sanitation is a human right (UN Security Council Resolution 2573 and UN General Assembly Resolution 64/292). It can, therefore, be concluded that enacted international law has prohibited the weaponization of water and the environment against civilians in times of peace, occupation, and war. But existing international law is often not applied in contemporary conflicts and

is not enforced when violated. For example, states are prohibited from bombing, removing, stopping, or destroying water facilities and infrastructure, such as water treatment plants, canals, pipes, sanitation facilities, and dams. States are also prohibited from intentionally depriving civilians of access to safe water and sanitation in adequate quantity and quality. While international law prohibits these actions, as the following sections show, many states fail to comply, and there is little retribution or punishment.

03

THE WEAPONIZATION OF WATER IN THE MIDDLE EAST

Despite the presence of these legal regimes, conventions, and norms, since the 1990s, regional states, paramilitary organizations, nonstate actors, and international state militaries in the Middle East and North Africa have weaponized water and the environment in attempt to punish adversaries (Tignino, 2016; Sowers, Weinthal, and Zawahri, 2017; UNICEF, 2023a). In doing so, they failed to comply with international legal regimes and norms without any accountability, prosecution, or condemnation from the world's powerful states.

Due to these actions, civilians were deprived of safe water and sanitation in adequate quantity and quality during war and occupation, resulting in water and food insecurity. As civilians resort to unsafe measures to meet their water needs, such as using any available supply of water or minimizing drinking water to stretch the available supply, they are often plagued by waterborne diseases and ailments that include cholera, diarrhea, and even threats of polio. If a state depends on transboundary water resources to meet its hydropower or domestic water supplies, civilian access to electricity and water can be compromised by an upstream state's manipulation of the quantity of water flowing in the basin, leading to water and energy insecurity. This also results in consequences that threaten the health, wellbeing, human security, and economic security of civilians, which is likely to impact generations across the region.

The weaponization of water impacts vulnerable populations the most, including women, girls, children, babies, the elderly, as well as disabled and sick individuals. This threatens states' human capital and future economic prosperity as children grow up malnourished and stunted. It can also complicate, delay, and obstruct the work of humanitarian organizations struggling to secure safe water, food, and sanitation in conflict zones. As some states in the region, such as Syria, attempt to enter the post-conflict reconstruction process, the vast destruction of water infrastructure is expected to increase the cost of rebuilding and stabilization.

THE WEAPONIZATION OF WATER IN THE GAZA STRIP AND WEST BANK

Israeli authorities and nonstate actors have been known to weaponize water

against Palestinians in the Gaza Strip and West Bank, especially during periods of conflict, resulting in substantial harm (Weinthal and Sowers, 2019). This weaponization goes against international law and norms that require occupying powers to ensure access to water and sanitation for civilians, prohibit the targeting of water infrastructure during conflict and occupation, and forbid the withholding of water.

THE WEAPONIZATION OF WATER IN THE GAZA STRIP

Home to over 2 million people, the 25-mile-long Gaza Strip is one of the most densely populated regions of the world. From 1967 until 2005, the Israeli military directly occupied the Gaza Strip and established 21 Jewish settlements. After the signing of the Oslo Accords in 1993, the Palestinian Authority began administering parts of Gaza, while the Israeli government had complete control over the border, sea, and airspace. In 2005, Israel unilaterally withdrew its settlements and military from Gaza, but it retained control over Gaza's border, sea, and airspace. By 2007, Hamas had consolidated its power over all of Gaza after winning elections and emerging victorious in its clashes with Fatah. In response, Israel, Egypt, the US, and EU imposed a blockade, isolating Hamas and Gaza from the world.

From 2008 to the present, Israel and Hamas have fought multiple conflicts, during which Israel and Egypt have continued to control Gaza's borders. Although there have been brief periods in which the blockade was eased, allowing greater movement of people and goods, it has nevertheless remained firmly in place. During these conflicts, Israel weaponized water and, at times, prohibited the import of material to maintain, repair, or upgrade basic services, compounding the impact on Gaza's already fragile water infrastructure and its pre-existing water crisis driven by insufficient water supplies (Weinthal and Sowers, 2019; World Bank, 2018).

Approximately 90 percent of Gaza's water supply comes from a brackish coastal aquifer that is stressed by seawater intrusion, over-extraction, and contamination from sewage infiltration. Gazans not only suffer from insufficient water quantity, but also poor water quality, with chloride concentration and nitrate levels above the World Health Organization's standards (World Bank, 2018). Water from the coastal aquifer requires treatment to be fit for drinking. Gaza's remaining water supply comes from small-scale desalination plants and purchased water from Israel via three pipelines that represent a significant portion of its drinking water. The pre-existing water scarcity and the fragile infrastructure amplify the impact of the weaponization of water. Prior to October 2023, Palestinians in Gaza had an average per capita water availability for domestic consumption of approximately 89 liters per person per day, which is lower than the minimum of 100 liters per person per day recommended by the World Health Organization (World Bank, 2018).

In a study tracking the weaponization of water through the targeting of civilian infrastructure over multiple cycles of conflict between Israel and Hamas (from 2006 to 2017), Weinthal and Sowers (2019) identified 129 incidents in which Gaza's water infrastructure was targeted and 147 incidents in which the agricultural sector was targeted. In light of the compounded effects of years of occupation, blockade, and conflict, Gaza's ability to develop, repair, or

maintain its water and power infrastructure has been severely compromised, leaving it vulnerable to further weaponization (OCHA, 2025a).

Since Hamas' October 7, 2023, attack, Israel responded with an extensive military offensive that has been more destructive in comparison to previous conflicts. Early in this conflict, the Israeli military weaponized water and energy supplies needed to operate water infrastructure, which impacted civilians' water and food security and health (Zwijnenburg and Hall, 2023). Israel has inflicted widespread destruction and suffering by directly bombing water and sanitation infrastructure; cutting the flow of water in pipelines under its control that supply drinking water to the enclave; prohibiting the import of parts needed to repair water and sanitation infrastructure; restricting the import of fuel; denying access to sites to repair water infrastructure; and cutting off energy supplies desperately needed to operate water facilities.

On October 8, 2023, Israel cut the three pipelines delivering water from Mekorot, Israel's national water company, into Gaza, which met 13 percent of the enclave's water needs (Ibn Khaldoun Center, 2024). After 17 days, Israel reopened two pipelines and operated them at reduced capacity (Zwijnenburg and Hall, 2023). By April 2025, only one pipeline remained partially operational, while the others were damaged (Al-Mughrabi and Issa, 2025). According to OCHA, from October 2023 through May 2025, Gaza's water infrastructure, which includes "115 kilometers of water pipelines, 63 wells, four major reservoirs, and the northwestern desalination plant" were damaged by the war (OCHA, Update #290, May 21, 2025). In April 2025, Israeli forces destroyed water supply and sewage infrastructure in Khan Younis, North Gaza, and Gaza City (OCHA, Humanitarian Situation Update #284, Gaza Strip, 2025).

Gaza depends on the import of electricity and fuel to operate its water infrastructure, such as pumping, treating, and delivering water to homes, hospitals, and businesses, along with operating its wells, desalination plants, and wastewater treatment plants. Israel suspended the direct provision of electricity to Gaza on October 7, 2023, which accounted for over half of the enclave's electricity supply (ESCWA, 2023). This suspension was followed by an Israeli blockade of fuel imports, which was periodically eased by allowing small amounts of fuel to enter Gaza (ESCWA, 2023). The lack of electricity and fuel prevented the operation of Gaza's main power plant, which ceased functioning on October 11, 2023. Without sufficient fuel and electricity, Gaza's water and sanitation infrastructure struggled to operate (van den Berg, 2024; OCHA, 2024).

The lack of fuel and the bombing of infrastructure meant that Gaza's five wastewater treatment plants and its 65 sewage pumping stations stopped operating in November 2023. This resulted in sewage and wastewater polluting the groundwater and flowing into the Mediterranean Sea or throughout the streets of the enclave (OCHA, 2025c). Due to the blockade, Israel has generally refused to allow the entry of material and supplies needed to repair water infrastructure (OCHA, 2025d). After a brief ceasefire during which pipes needed to repair Gaza's water system were allowed to enter, Israel imposed a complete blockade on March 2, 2025, which prohibited the entry of water, chlorine needed to treat water, and equipment needed to repair or operate water and sanitation infrastructure (Yee and Shbair, 2025; The Edge of Erasure, 2025).

As of May 30, 2025, 90 percent of Gaza's population has been displaced multiple times, without access to clean water and safe sanitation (OCHA, 2025b). Due to Israel's increasing military control over the enclave during this conflict, which totaled 81 percent of the territory by June of 2025, over 70 percent of Gaza's water infrastructure (desalination plants, water reservoirs, water wells, and wastewater pumping stations) fell within Israel's militarized zone or territory under displacement orders (OCHA, 2025e). Through its control of Gaza's water infrastructure, Israel in effect placed access constraints for civilians and technicians that need to repair or maintain the infrastructure (OCHA, 2025e).

By December of 2023, with a 95 percent decrease in water supplies, Gazans began to live on 3 liters of water per day, much of which was secured from unreliable sources. This quantity of water is well below the 15 liters per day international emergency threshold and the 100 liters per day recommendation of the World Health Organization (ESCWA, 2023; Zwijnenburg and Hall, 2023). Of the small quantity of water still produced in the enclave in 2025, between 50 and 60 percent was lost within the system due to leaks caused by damage to the network (OCHA, 2025f). A United Nations Rapid WASH Assessment carried out in July 2024 revealed that 62 percent of households did not have access to 6 liters per person per day of drinking water, while 45 percent lacked access to 9 liters per person of domestic water (FAO, 2025). In April 2025, a United Nations WASH survey revealed that 90 percent of households were experiencing water insecurity and using unsafe water sources (The Edge of Erasure, 2025).

As a result of the siege restricting access to fuel and the ongoing bombardment, the only available water supply in North Gaza in 2025 came from small, privately owned, solar-operated wells (FAO, 2025). These wells often provided brackish water that was used without any treatment. As for Palestinians across Gaza, by March 2025, aid agencies were supplying them with only brackish water, which is known to have a long-term impact on people's health (Yee and Shbair, 2025).

By the end of October 2023, humanitarian organizations began witnessing increases in chronic diarrhea, cholera, dysentery, and dehydration cases (ESCWA, 2023; Zwijnenburg and Hall, 2023; Reuters, 2024). There was also an increase in waterborne diseases, such as acute watery diarrhea, skin diseases, Hepatitis A, and gastrointestinal diseases (Ibid). From October 2023 to April 2024, the World Health Organization recorded close to 345,000 cases of diarrhea (Reuters, 2024). In early 2025, 46,000 weekly cases of diarrhea were reported, with children comprising the majority of those affected (Oxfam, 2025). In April 2025, 25 percent of patients seeking medical assistance were experiencing acute watery diarrhea (The Edge of Erasure, 2025), and, by August 2024, 40,000 cases of Hepatitis A in UNRWA shelters were recorded (United Nations, 2024). In August 2024 and again in early 2025, the first confirmed cases of polio were reported in Gaza, and the virus was detected in wastewater (World Health Organization, 2024; World Health Organization, 2025).

As of December 2024, more than 90 percent of people in Gaza were experiencing acute food insecurity, and half a million faced starvation (FAO, 2025; The Edge of Erasure, 2025). In March 2025, 3,700 children were diagnosed with acute malnutrition, which is known to be connected to poor water quality and insufficient quan-

tity of water (Solomon, Peled, and Ayyoub, 2025).

A ceasefire between Israel and Hamas went into effect on October 10, 2025. As of this writing, the ceasefire remains fragile, with intermittent bombings and ongoing violence still causing deaths and destruction (Security Council Report, 2025). The humanitarian situation in Gaza remains largely unchanged, although minor improvements have resulted from the trucking of bottled water and repairs to water infrastructure (Security Council Report, 2025). A rapid survey of households across Gaza in August and September 2025 revealed that about half of households received less than 6 liters of drinking water per person per day (Integrated Food Security Phase Classification, 2025). As of December 2025, only about 53 percent of Gaza's population had access to basic sanitation, a condition that continues to contribute to the spread of waterborne diseases, malnutrition, and both food and water insecurity (Integrated Food Security Phase Classification, 2025). Rehabilitation and reconstruction of Gaza's water and sanitation networks remain limited, as Israel continues to restrict the entry of parts by classifying them as "dual-use" items (Security Council Report, 2025). While there has been an improvement in the food security crisis in Gaza, the majority of the population (77 percent) has continued to face acute food insecurity as of October-November 2025 (Integrated Food Security Phase Classification, 2025).

THE WEAPONIZATION OF WATER IN THE WEST BANK

From 1967 through 1993, Israel occupied the entire West Bank and built some settlements there. As an occupying power, Israel exercised control over all aspects of Palestinian life, including civil and security matters. After the signing of the Oslo Accords in 1993, the West Bank was divided into three Areas (A, B, and C), and the Palestinian Authority was granted civilian and security control over Area A. Constituting the largest portion of the West Bank, Area C was placed under complete Israeli control. Area B has Palestinian civil control but joint Israeli and Palestinian security control. Despite the division of authority, the Israeli government retains the final say over the construction, maintenance, and repair of hydrological infrastructure in all three areas of the West Bank, and it controls all shared water resources, including the Jordan River and West Bank aquifer system (World Bank, 2018). Israel controls all water supplies in Area C. Although the Palestinian Authority manages the distribution and supply of water in Areas A and B, it needs to acquire Israeli approval for the drilling of wells and infrastructure repairs, and it is restricted in its access to aquifers (Trottier, 2007; Zeitoun, 2008; Selby, 2013; Weinthal and Sowers, 2019).

Water is weaponized by the Israeli military and settlers living in the West Bank to inflict losses on Palestinians. It is also weaponized by the Israeli government due to its control over 80 percent of the West Bank's water supply, along with its authority over the development, maintenance, and repair of water infrastructure (World Bank, 2018; Weinthal and Sowers, 2019).

From 2006 to 2017, the Israeli military and Jewish settlers directly targeted Palestinian water infrastructure and the agricultural sector in the West Bank (Weinthal and Sowers, 2019). The majority of identified cases of weaponization of water during the period studied by Weinthal and Sowers (2019) was carried out by Jewish settlers

and the rest by Israeli soldiers against the Palestinians. These included 140 identified incidents in which the water sector was targeted, as well as 516 incidents involving the targeting of the agricultural sector in the West Bank (Weinthal and Sowers, 2019).

Since the October 7, 2023, attack, Palestinian life in the West Bank has deteriorated, and once again water has been weaponized. Between October 7, 2023, and October 10, 2024, about 92,000 people's access to clean water, wastewater management, and solid waste disposal was compromised from damage inflicted by Israeli forces. This involved the destruction of over 20,000 meters of water pipelines along with sewer and stormwater systems (OCHA, 2024b). On October 16, 2023, settlers and soldiers damaged water cisterns and water pipes in Khirbet Susiya, a village in the West Bank (Kramer, 2023). In Wadi Qelt, a village located east of Jerusalem, in November 2023, Israeli forces attempted to disconnect the main water system for the community (Norwegian Refugee Council, 2024). In July 2024, communities in both Khallet Al-Daba and Umm Al-Khair had their water infrastructure destroyed by settlers. In February 2025, Israeli settlers destroyed water pipes in Tulkarm and Bethlehem, impacting the water supply for 12 Palestinian farmers and 20 Palestinian families, respectfully (OCHA, 2025g).

During an Israeli military operation in the northern West Bank, over 21 kilometers of water pipelines were destroyed, and more than 3 kilometers of sewage systems were destroyed in Jenin. In Tulkaram and Nur Shams, the destruction of water systems cut off safe water supply to 27,000 people, while in Tubas governorate the damage impacted 10,000 people (OCHA, 2025g). The destruction of water infrastructure resulted in raw sewage contaminating clean water in Jenin, Tulkarm, and Tubas governorates (OCHA, 2025h). To prevent the spread of waterborne disease, humanitarian organizations began trucking water to families (OCHA, 2025h). In 2024, settlers with protection from Israel's security forces attacked water infrastructure, which prevented herding communities in South Hebron Hills, Jordan Valley, and East Jerusalem from accessing water (United Nations Human Rights Office of the High Commissioner, 2024).

These incidents, combined with Israel's control of decisions over the construction of hydrological infrastructure in the West Bank and the fact that about 33 percent of the water that Palestinians receive comes from Israel's national water company (B'Tselem, 2023), clearly show that the Palestinians are highly vulnerable and dependent on Israel for their water. Israel generally refuses to grant the Palestinian Authority permission to construct water infrastructure. The restriction on the development, maintenance, and repair of Palestinians' water infrastructure or supplies in the West Bank by Israel has limited the quantity and quality of water available to them. In fact, Palestinians in the West Bank have a domestic water consumption of 62 liters per person per day. In communities not connected to the water system, Palestinian consumption is 26 liters per person per day, while the World Health Organization considers 100 liters per person per day as the minimum for domestic consumption in order for people to ensure adequate health and hygiene (World Bank, 2018; B'Tselem, 2023). In comparison, Israeli settlers in the West Bank consume on average 247 liters per person per day of water (B'Tselem, 2023). Palestinians often rely on purchasing costly water from tanker trucks,

the quality of which is not guaranteed.

Israel's weaponization of water against Palestinians in the West Bank has impacted the quality and quantity of water available to civilians, limited the water available to farmers, thereby impacting their livelihoods, and obstructed attempts by the Palestinian Authority to develop and utilize its water resources. The Palestinian government and the Palestinian people undergo a constant struggle in securing access to sufficient water and often pay much more for water than Israeli settlers in the West Bank. Palestinian farmers often struggle in securing access to water to irrigate their farm and suffer from constant water deprivation (The Edge of Erasure, 2025).

THE WEAPONIZATION OF WATER IN SYRIA

On the night of December 8, 2024, Syria's Bashar Al-Assad fled the country, bringing an end to the regime's 13-year civil war and the Assad family's reign of more than 50 years. While the nation could be entering a post-conflict reconstruction period under the leadership of Ahmed Al-Sharaa, there is plenty of evidence that actions undertaken by domestic, regional, and international state and nonstate actors have resulted in vast destruction to civilian infrastructure due to the weaponization of water by all parties involved. The weaponization of water during Syria's civil war resulted in enormous human suffering and deprived millions of people of water, food, and energy security. It has also impacted the nation's current and future human capital because of malnutrition, disease, and ailments that obstruct the development of children and young adults.

Syria's civil war involved multiple states and paramilitaries, including Russia, Iran, Turkey, Hezbollah, the United States, Israel, the Assad army, the Kurdish-dominated Syrian Democratic Forces (SDF), and multiple Islamic oriented paramilitary organizations (ICRC, 2015). Throughout the civil war, water treatment plants, water towers, pumping stations, and sanitation networks were targeted by many parties, contributing to the destruction of 50 percent of the nation's civilian water and sanitation systems (ICRC, 2021). The destruction is more severe in northeastern Syria. As of March 2025, more than 80 percent of northeastern Syria's water infrastructure had been damaged (OCHA, 2025i).

The destruction of sewage systems during the civil war resulted in the direct discharge of 70 percent of the wastewater and sewage into the environment and water systems (UNICEF, 2023). Water infrastructure essential to the viability of the agricultural sector, as well as to meeting domestic needs and individual food security, was targeted and destroyed. Depending on the region, between 50 and 95 percent of irrigation canals were destroyed (FAO, 2017).

The weaponization of water began early in the Syrian civil war. A United Nations investigation revealed that between 2012 and 2017, rebels were able to take control of Wadi Barada valley springs, which constitute an important water supply for Damascus and its suburbs. On December 23, 2016, Syrian military forces bombed Ain Al-Feijeh spring located in Wadi Barada, which contained water facilities providing 70 percent of the water supply for Damascus and its suburbs, thereby cutting the water supply to 5.5 million people (Gladstone and Barnard, 2017; Al Jazeera, 2017; ICRC, 2021). Reflecting on the cutting of water supplies by both government

forces and rebel groups to 2 million people in Aleppo for one month in 2015, the head of the ICRC's Syrian delegation, Marianne Gasser, noted: "Too often in Syria, water becomes a tool in the hands of fighting parties. It becomes a weapon of war. And it is civilians who suffer the most" (Al Jazeera, 2015). Between 2016 and 2017, Syrian government forces and the Russian Air Force bombed water facilities in rebel-held areas of Aleppo, which disrupted the supply of water to millions of people caught in the fighting (ICRC, 2021). For five days in early October 2023, Turkish drone attacks on civilian infrastructure left over one million civilians in the governorate of Al-Hasakeh without water and electricity (Human Rights Watch, 2023).

Some 85 percent of Syria's domestic water supply comes from the Euphrates River, which originates in southeastern Turkey, flows into Syria then Iraq, and ultimately empties into the Persian Gulf. Since the 1960s, energy-poor Turkey has constructed 18 dams along the Euphrates River to generate hydropower and, through irrigation networks, provide water to an expansive agricultural system in the region. These upstream developments, coupled with the impacts of climate change, have decreased the quality and quantity of water available in Syria. Although Turkey and Syria are bound by a protocol (the 1987 Protocol on Matters Pertaining to Economic Cooperation) that regulates the flow of water as the Euphrates crosses their shared border and commits Turkey to discharge 500 cubic meters per second into Syria, Turkey has for several years failed to meet this contractual obligation. And, in times of drought, Turkey is in fact able to meet its own water needs by using its vast hydrological infrastructure along the Euphrates within its territory, while the water flowing into Syria drops significantly. One example is the 2020-2022 drought, and again in 2025, during which Turkey was able to meet its own water needs, while the flow of water entering Syria dropped to around 200 cubic meters per second (OCHA, 2025j). Declining water flows in the Euphrates not only threaten the operation of dams along the river but also deprive 5.5 million people in the northern governates of desperately needed water and the country of 70 percent of its energy consumption. This problem also contributes to crop failure and food insecurity (Sottimano and Samman, 2022).

In 2019, Turkey invaded northeastern Syria and took control of the Alouk water station, the main source of water for civilians in that area. The electricity needed to operate the Alouk station comes from areas under the control of the Syrian Defense Forces (SDF), while Turkey controls access to the water station. As a result, maintenance work required to keep the Alouk station operational mandates international negotiations between Turkey and the SDF. According to international organizations, Turkey has been known to deny technicians access to the water station for repairs (Human Rights Watch, 2023). Turkey has targeted the electricity lines supporting the Alouk station (Ibid). This has led to periods during which the water plant failed to operate and, even when operational, failed to reach full capacity. Between 2019 and 2021, operations at the Alouk water station have been disrupted 24 times, thus impacting access to water for about one million people (UNICEF, 2021).

Due to the weaponization of water, innocent civilians and farmers experience crop failure, hunger, malnutrition, poverty, and waterborne diseases. In other words, the destruction of hydrological infrastructure

and the depletion of water in the Euphrates River as it enters Syria has resulted in half of the population experiencing water insecurity. The depletion of the Euphrates River along with sanctions that complicate the ability to import chlorine or even parts to repair dams have contributed to the decline of the quality of available water for the municipal and agricultural sectors. Electricity shortages and the receding Euphrates River have resulted in officials using the available electricity to pump contaminated river water and deliver it to the few connected households without any treatment. Attempts by civilians to meet their immediate water needs, such as purchasing water from private tanker trucks, collecting water from boreholes, or using tap water when it is available have contributed to the outbreak of waterborne diseases, including chronic diarrhea and cholera. A cholera outbreak in the fall of 2022 resulted in more than 84,000 suspected cases across the country (UNICEF, 2023). UNICEF estimates that over half a million children (609,900) are stunted due to chronic undernutrition, some of which is brought about by chronic diarrhea due to contaminated water, which will impact their ability to be productive members of society in adulthood (UNICEF, 2023).

04

POLICY RECOMMENDATIONS

As the previous sections have documented, water and hydrological infrastructure have been weaponized across the Middle East during times of conflict, occupation, and peace. The consequences have been severe for the region's civilians. This is in direct defiance of international and common law as well as with the norms prohibiting the weaponization of water. As states, nonstate actors, and paramilitary organizations defy international law, there have been few attempts to sanction them or hold them accountable. Below are policy recommendations outlining ways in which this problem can be addressed.

DOCUMENTING THE WEAPONIZATION OF WATER

The international community needs to continue to document and publicize cases and provide examples of the weaponization of water and its impact. This documentation can contribute to the establishment of a database tracking the weaponization of water through the use of satellite and remote sensing, along with interviews with technicians and civilians on the ground.

RAISING AWARENESS ABOUT THE WEAPONIZATION OF WATER

Establish a system to publicize individual cases and examples of water weaponization along with its impacts. This can be done by posting pictures and descriptions of events on social media.

Raising awareness among the international community of states and intergovernmental organizations about the weaponization of water can help bring greater visibility to the issue.

Highlighting the issue in international media can also help raise awareness among the general public across the world.

Sharing individual examples of the weaponization of water to the intergovernmental organizations and non-governmental organizations can also help strengthen global awareness.

LOBBYING TO PRESSURE ENFORCEMENT OF EXISTING INTERNATIONAL LAW

The international community of states should be encouraged to continue to support the strengthening of norms and taboos against the weaponization of water.

Documented information and data on the weaponization of water can be used to lobby the international community and governments to sanction the weaponization of water.

Lobbying states, multilateral organizations, and multinational corporations can also encourage compliance with existing international law.

MODIFYING EXISTING INTERNATIONAL LAW

Unless states violating international law face sanctions or punishment, they will have little incentive to restrain themselves.

International law should be modified in order to include enforcement and sanctioning mechanisms.

NEGOTIATING WITH WARRING FACTIONS

Humanitarian organizations, non-governmental organizations, and international donors need to negotiate with warring factions to establish an early warning system to rapidly identify and repair water and energy infrastructure destroyed during conflict.

Pressure should be placed on states violating international law by weaponizing water to grant humanitarian organizations secure access to provide safe of water for civilians in adequate quality and quantity in conflict-affected areas.

The international community needs to negotiate with warring factions to implore them to stop weaponizing water.

RECONSTRUCTING WATER INFRASTRUCTURE

When reconstructing water infrastructure in conflict-affected areas, the international donor community needs to be aware of the potential for windfalls and corruption.

During the reconstruction phase, the donor community needs to invest in using the latest technology and equipment so that the infrastructure can withstand future conflicts.

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