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## Calming the Waters: The International Atomic Energy Agency as a Viable Model to Address Water Weaponization

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**CALMING THE WATERS: THE INTERNATIONAL ATOMIC  
ENERGY AGENCY AS A VIABLE MODEL TO ADDRESS  
WATER WEAPONIZATION**

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## INTRODUCTION

In a televised address on February 24, 2022, President Vladimir Putin announced Russia's plan for a "special military operation" in Ukraine, arguing that people facing "humiliation and genocide" in the country justified "bold and immediate action."<sup>1</sup> Russia's invasion of Ukraine began the same day, igniting a conflict that has since caused an estimate of at least 18,000 civilian casualties as of February 13, 2022.<sup>2</sup> The swift occupation of nuclear power plants and attacks on water and energy resources revealed a Russian strategy of resource weaponization. As early as March 4, 2022, Russian forces had taken control of the site of the Chernobyl Nuclear Power Plant,<sup>3</sup> and had shelled and gained control of the site of the Zaporizhzhya Nuclear Power Plant.<sup>4</sup> The Russian military undertook a simultaneous offensive targeting water infrastructure, first by destroying a dam in the Kherson region of Ukraine built in 2014 to restrict the supply of water to Crimea.<sup>5</sup> Additionally, Russia has targeted Ukraine's energy infrastructure, leaving over ten million households without electricity from attacks in October and November of 2022.<sup>6</sup>

As the operation in Ukraine unfolded, Russia continued to pursue control or destruction of energy and water resources, reminding the international community of their strategic value in times of armed conflict.<sup>7</sup> Five months into the war, Russia conducted missile strikes on the Karachun Dam in Kryvi Rih in

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<sup>1</sup> Max Fisher, *Putin's Case for War, Annotated*, N.Y. TIMES (Feb. 24, 2022), <https://www.nytimes.com/2022/02/24/world/europe/putin-ukraine-speech.html>.

<sup>2</sup> *Ukraine: Civilian Casualty Update 13 February 2023*, U. N. OFF. HIGH COMM'R FOR HUM. RTS. (Feb. 13, 2023), <https://www.ohchr.org/en/news/2023/02/ukraine-civilian-casualty-update-13-february-2023>.

<sup>3</sup> *Update 7- IAEA Director General Statement on Situation in Ukraine*, IAEA (Mar. 2, 2022), <https://www.iaea.org/newscenter/pressreleases/update-7-iaea-director-general-statement-on-situation-in-ukraine>.

<sup>4</sup> *Russian Military Actions at Ukraine's Nuclear Power Plants*, CONG. RSCH. SERV. (Sept. 12, 2022), <https://crsreports.congress.gov/product/pdf/IN/IN11883>.

<sup>5</sup> Antonia Zimmerman, *Russia's War on Water in Ukraine*, POLITICO (May 25, 2022), <https://www.politico.eu/article/russias-war-on-water-in-ukraine/>; Maxim Rodionov, *Russian Troops Destroy Ukrainian Dam that Blocked Water to Crimea*, REUTERS (Feb. 26, 2022), <https://www.reuters.com/world/europe/russian-troops-destroy-ukrainian-dam-that-blocked-water-crimea-ria-2022-02-26/>.

<sup>6</sup> *Ukraine: Russian Attacks on Energy Grid Threaten Civilians*, HUM. RTS. WATCH (Dec. 6, 2022), <https://www.hrw.org/news/2022/12/06/ukraine-russian-attacks-energy-grid-threaten-civilians>.

<sup>7</sup> See, e.g., Yaroslav Trofimov, *Ukraine Battles Flooding after Russian Strike on Dam*, WALL ST. J. (Sept. 15, 2022, 10:53 PM), <https://www.wsj.com/articles/ukraine-battles-flooding-after-russian-strike-on-dam-11663241695>; Jason Beaubien, *A Ukrainian City Struggles After Russian Forces Blew Up Its Water Supply*, NAT'L PUB. RADIO (Oct. 8, 2022, 5:01 AM), <https://www.npr.org/2022/10/08/1127303154/ukraine-mykolaiv-water-supply>.

southern Ukraine, flooding dozens of private homes.<sup>8</sup> Due to the intentional rupturing of two pipelines by Russia in Mykolaiv in April 2022, access to clean water remains scarce for the city's residents.<sup>9</sup> Collecting fresh water requires daily trips to sources brought in by humanitarian organizations, with some residents traveling over a mile to the closest spigot.<sup>10</sup> Russia appears responsible for draining the Karkhova Reservoir in southern Ukraine, which provides water for the cooling system at the Zaporizhzhya nuclear power plant.<sup>11</sup> The motivation for draining the reservoir is unclear, considering "most of the affected agricultural areas are in Russian-held parts of Ukraine."<sup>12</sup> However, the consequences of the drainage—lower availability of drinking water and supply of water for farmland, and the risk to Zaporizhzhya's cooling system<sup>13</sup>—underscores the need for protection of water installations.

Ukraine also utilized water infrastructure in its defense, destroying a dam in the village of Demydiv in order to prevent Russian forces from advancing toward Kyiv in February 2022.<sup>14</sup> Half a year later, the village of Demydiv remained flooded.<sup>15</sup> In August and September of 2022, Russia pursued artillery shelling of the area surrounding the Zaporizhzhya plant, the largest nuclear power plant in Europe.<sup>16</sup> As a result of the attacks, the "plant's connections to the surrounding power grid" have been disrupted multiple times.<sup>17</sup> Ukraine and Russia have not yet established a "nuclear safety and security protection zone" around the Zaporizhzhya plant, although the International Atomic Energy Agency's (IAEA) diplomatic efforts have produced ongoing negotiations between the two parties.<sup>18</sup>

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<sup>8</sup> Trofimov, *supra* note 7.

<sup>9</sup> Beaubien, *supra* note 7.

<sup>10</sup> *Id.*

<sup>11</sup> *Russia is Draining a Massive Ukrainian Reservoir, Endangering a Nuclear Plant*, NAT'L PUB. RADIO (Feb. 10, 2023, 5:00 AM), <https://www.npr.org/2023/02/10/1155761686/russia-is-draining-a-massive-ukrainian-reservoir-endangering-a-nuclear-plant>.

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

<sup>14</sup> Elissa Nadworny, *Ukraine Flooded a Village to Save Kyiv*, NAT'L PUB. RADIO (Sept. 26, 2022, 7:25 AM), <https://www.npr.org/2022/09/06/1121201310/ukraine-flooded-village-dam-blown-up>.

<sup>15</sup> *Id.*

<sup>16</sup> *Russian Military Actions at Ukraine's Nuclear Power Plants*, CONG. RSCH. SERV. (Sept. 12, 2022), <https://crsreports.congress.gov/product/pdf/IN/IN11883>.

<sup>17</sup> *Id.*

<sup>18</sup> See *Update 147- IAEA Director General Statement on Situation in Ukraine*, IAEA (Feb. 20, 2023), <https://www.iaea.org/newscenter/pressreleases/update-147-iaea-director-general-statement-on-situation-in-ukraine>; *Update 118- IAEA Director General Statement on Situation in Ukraine*, IAEA (Oct. 14, 2022), <https://www.iaea.org/newscenter/pressreleases/update-118-iaea-director-general-statement-on-situation-in-ukraine>.

The information regarding activity in and around the Zaporizhzhya plant is only publicly available because of the efforts of the International Atomic Energy Agency. This neutral body has provided weekly updates on the situation in Ukraine since February 2022.<sup>19</sup> The IAEA is the only international agency on the ground at the Zaporizhzhya and other atomic plants in Ukraine, providing monitoring and technical advice as well as informing the world of activity through impartial reporting.<sup>20</sup>

President Eisenhower's 1953 "Atoms for Peace" speech addressed to the United Nations General Assembly planted the seed for the development of the IAEA.<sup>21</sup> The speech recounted the devastating use of the atomic bomb during World War II and emphasized that nuclear deterrence through stockpiling does not present the most peaceful global solution.<sup>22</sup> President Eisenhower explained that a "Four-Power" conference was to take place in light of atomic energy's potential for beneficial uses despite its inherent danger.<sup>23</sup> Finally, President Eisenhower outlined four purposes of his proposed atomic energy agency:

[F]irst, encourage world-wide investigation into the most effective peacetime uses of fissionable material, and with the certainty that the investigators had all the material needed for the conducting of all experiments that were appropriate; second, begin to diminish the potential destructive power of the world's atomic stockpiles; third, allow all peoples of all nations to see that, in this enlightened age, the great Powers of the earth, both of the East and of the West, are interested in human aspirations first rather than in building up the armaments of war; fourth, open up a new channel for peaceful discussion and initiative at least a new approach to the many difficult problems that must be solved in both private and public conversations if the world is to shake off the inertia imposed by fear and is to make positive progress towards peace.<sup>24</sup>

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<sup>19</sup> See, e.g., *Update 147- IAEA Director General Statement on Situation in Ukraine*, *supra* note 19; *Update 118- IAEA Director General Statement on Situation in Ukraine*, *supra* note 19.

<sup>20</sup> See *IAEA Missions to be Dispatched to All Ukraine's Nuclear Power Plants*, RADIO FREE EUR. (Dec. 14, 2022), <https://www.rferl.org/a/ukraine-iaea-missions-nuclear-power-plants/32175792.html>.

<sup>21</sup> President Dwight D. Eisenhower, Address to the 470<sup>th</sup> Plenary Meeting of the United Nations General Assembly: Atoms for Peace (Dec. 8, 1953) [hereinafter *Atoms for Peace Speech*] (transcript available at <https://www.iaea.org/about/history/atoms-for-peace-speech>).

<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

The IAEA model founded on the ideals of the Atoms for Peace speech has been proven to be viable in Ukraine, Iran, and elsewhere.<sup>25</sup> The agency can serve as a model for other types of resource weaponization beyond atomic energy. This comment will focus on the agency's applicability to the issue of water weaponization.

The Russian invasion of Ukraine provides a cogent example of resource weaponization. Control over resources is not the root of Russia's aggression.<sup>26</sup> However, resources serve as instruments during conflict with direct consequences to civilians. In Ukraine, relevant resources include the electrical power grid as well as water and grain.<sup>27</sup> While the international community carefully monitors atomic energy sources during times of conflict, the same attention is not paid to these other vital resources, including water. But like with atomic energy, mishandling or destroying water resources causes inevitable harm to civilians.<sup>28</sup> With water becoming an increasingly scarce resource due to climate change, avoiding water weaponization has become more urgent and should be given greater priority.

Although academics have largely disfavored the once-popular argument that increasing water scarcity will lead to inter-state "water wars,"<sup>29</sup> many contend that water will be used as a weapon and a target as it has been for thousands of years.<sup>30</sup> The ongoing conflict in Ukraine gives credibility to that view, and suggests that with regards to water resources, there is a void in the international system where there should be (i) greater access to information, (ii) dispute

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<sup>25</sup> See *IAEA & Iran*, IAEA (2022), <https://www.iaea.org/newscenter/focus/iran>; *Nuclear Safety, Security, and Safeguards in Ukraine*, IAEA (2022), [https://www.iaea.org/sites/default/files/22/09/ukraine-2ndsummaryreport\\_sept2022.pdf](https://www.iaea.org/sites/default/files/22/09/ukraine-2ndsummaryreport_sept2022.pdf).

<sup>26</sup> *Why is Russia Invading Ukraine?*, MINISTRY FOREIGN AFF. UKR. (2022), <https://war.ukraine.ua/why-is-russia-invading-ukraine/>.

<sup>27</sup> Robert Muggah, *Russia's Resource Grab in Ukraine*, FOREIGN POL'Y (Apr. 28, 2022, 9:09 AM), <https://foreignpolicy.com/2022/04/28/ukraine-war-russia-resources-energy-oil-gas-commodities-agriculture/>.

<sup>28</sup> See, e.g., Peter Gleick, *Water and U.S. National Security*, U.S. ARMY WAR COLL. (June 15, 2017), <https://warroom.armywarcollege.edu/articles/water-u-s-national-security/>.

<sup>29</sup> See *Food and Water Security in the Middle East and North Africa*, NATO SCI. & TECH. COMM. (Oct. 8, 2017), <https://www.nato-pa.int/download-file?filename=/sites/default/files/2017-11/2017%20-%20176%20STC%2017%20E%20bis-%20FOOD%20AND%20WATER%20SECURITY%20MENA%20-%20MARTENS%20REPORT.pdf>; see also *The Role of Water Stress in Instability and Conflict (U.S. Report Launch)*, WILSON CTR. (2018), <https://www.wilsoncenter.org/event/the-role-water-stress-instability-and-conflict-us-report-launch>.

<sup>30</sup> See *Global Water Security: Intelligence Community Assessment*, OFF. OF THE DIR. OF NAT'L INTEL. (Feb. 2, 2012), [https://www.dni.gov/files/documents/Special%20Report\\_ICA%20Global%20Water%20Security.pdf](https://www.dni.gov/files/documents/Special%20Report_ICA%20Global%20Water%20Security.pdf); see also Gleick, *supra* note 28.

resolution, (iii) a diplomatic voice, and (iv) monitoring by a neutral party.<sup>31</sup> This mirrors the four goals President Eisenhower invoked in the Atoms for Peace speech.

Addressing these four needs is vital to combat resource weaponization and would encourage more responsible use of water sources. Greater access to information provides a symbiotic relationship between an international agency, like the IAEA, and states. The IAEA shares information to safely develop nuclear energy as a counterbalance to the right to inspect nuclear sites.<sup>32</sup> While states would otherwise be unlikely to allow an international agency access to their sites, the technological expertise of the IAEA provides an incentive. This carrot-and-stick approach could translate to an agency focused on water. Creating a dispute resolution mechanism with inspectors could help to avoid threat to water resources. A diplomatic voice is necessary because the contamination or destruction of a water resource is unlikely, by itself, to bring public attention. A body focused on water resources can highlight water weaponization, and at the very least inform the world that an event of water resource contamination or destruction will cause harm to a given population. Monitoring is also essential to anticipate when a threat to a resource may occur. Inspectors of the IAEA play a crucial role in this aspect to avoid nuclear disasters, and that inspector process could translate to water.

The Ukrainian example is pertinent because it is unfolding before our eyes. However, much of the scholarship regarding the relationship between water and security focuses on the Middle East and North Africa (MENA).<sup>33</sup> Water weaponization is generally an issue, even in relatively water-rich Ukraine.<sup>34</sup> But MENA presents extreme water scarcity and is the most water-stressed region in the world.<sup>35</sup> With climate change worsening, the effects of water scarcity will become more apparent, especially during times of international armed conflict. The international community has legally protected water sources in the past half-

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<sup>31</sup> E.g., Gleick, *supra* note 28; *see also* Atoms for Peace Speech, *supra* note 21.

<sup>32</sup> *Basics of IAEA Safeguards*, IAEA (2023), <https://www.iaea.org/topics/basics-of-iaea-safeguards>.

<sup>33</sup> *See, e.g., Beyond Scarcity: Water and Security in the Middle East and North Africa*, WORLD BANK (2018), <https://openknowledge.worldbank.org/handle/10986/27659>; Amro Selim, *The MENA Region's Water Crisis: Avoiding Potential Water Wars*, FIKRA F. (July 20, 2020), <https://www.washingtoninstitute.org/policy-analysis/mena-regions-water-crisis-avoiding-potential-water-wars>; *Global Water Security: Intelligence Community Assessment*, *supra* note 30.

<sup>34</sup> Regions of Ukraine have water scarcity levels of “low” to “medium,” meaning that there is up to a twenty percent chance of droughts in the country within the next ten years. *Ukraine: Water Scarcity*, GLOB. FOUND. FOR DISASTER REDUCTION & RECOVERY (Sept. 8, 2020), <https://thinkhazard.org/en/report/254-ukraine/DG>.

<sup>35</sup> *Beyond Scarcity: Water and Security in the Middle East and North Africa*, *supra* note 33.

century and attempted to foster cooperation through the adoption of several treaties encouraging water diplomacy.<sup>36</sup> However, these solutions are inadequate in providing general oversight and aid in dispute resolution. An aggressor is likely to follow the example of water weaponization in future conflicts.<sup>37</sup>

Thus, the IAEA has an established model that has been viable in places such as Ukraine and Iran.<sup>38</sup> The agency's model uses expertise to encourage the peaceful use of resources—chiefly through aiding to diminish stockpiles—and allows a diplomatic stage to see “great powers” encouraging human need over destruction. Finally, the agency opens channels for peaceful discussion. This is a viable framework to address any type of resource weaponization. Analogizing water to atomic energy suggests the opportunity to translate effective institutions, such as the IAEA, into mechanisms focused on water.

To explain how the legal mechanisms developed for atomic energy could best serve the challenges that water presents in MENA, in Part I, this comment discusses the relationship between water and security. In Part II, this comment reviews water scarcity in the region, showing that water weaponization would be most devastating in MENA. After drawing out the analogy between water and atomic energy in Part III, Part IV of the comment discusses existing nascent international instruments, both global and regional, that focus on water resource sharing. They have not been broadly successful, and this comment will review how these mechanisms fail to address the weaponization of water. Treaties specifically addressing water, as well as human rights and war crimes provisions, are inadequate to prevent the consequence of weaponized water resources. The current international instruments fail to discourage behavior that threatens water resources, and they do not create the appropriate global stage to either highlight water weaponization or provide for conflict resolution. As the situation in Ukraine demonstrates, the international community is ill-prepared to prevent or deal with the targeting of water resources after the fact. On the other

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<sup>36</sup> See, e.g., Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Oct. 6, 1996, 1936 U.N.T.S. 269; *UN Watercourses Convention*, UNITED NATIONS ECON. CONVENTION FOR EUR. (Jan. 12, 2021), <https://unece.org/environment-policy/water/un-watercourses-convention>.

<sup>37</sup> More recent events in Ukraine demonstrate a continuing acceptance of water infrastructure as collateral damage. For example, the Karlivka dam was destroyed in May 2023 by Russian artillery during an attack on the village of Karlivka. See Peter Gleick, et al., *Rivers and Water Systems as Weapons and Casualties of the Russia-Ukraine War*, AMER. GEOPHYSICAL UNION (Sept. 28, 2023), [https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2023EF003910#:~:text=Ukraine's%20urban%20water%2Dsupply%20and,%2C%20and%20Lysychansk%2C%20among%20others%20\(](https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2023EF003910#:~:text=Ukraine's%20urban%20water%2Dsupply%20and,%2C%20and%20Lysychansk%2C%20among%20others%20()

<sup>38</sup> See IAEA & Iran, *supra* note 25; *Nuclear Safety, Security, and Safeguards in Ukraine*, *supra* note 25.



hand, the IAEA has success in temporizing the weaponization of nuclear power plants in Ukraine. Part V of this comment posits that the structure of the IAEA is a viable model to draw upon in either modifying existing yet inadequate instruments or creating new international instruments to effectively manage water resources, particularly in times of conflict.

#### I. IMPLICATIONS FOR INTERNATIONAL RELATIONS: WATER AND SECURITY

Academics and Western governments have examined the possibility of impending conflict over water boundaries or division of water resources.<sup>39</sup> So far, no modern “water wars” have come to fruition, although water has caused isolated disputes between states as well as episodes of domestic unrest.<sup>40</sup> In the past decade alone, protests have erupted over access to water in Morocco, Iraq, Iran, and Sudan.<sup>41</sup> However, as water stress increases, there is also an increasing likelihood fragile governments will be “unable or unwilling to respond.”<sup>42</sup> Analysts have carved out a space for the study of water security, with some actors focused specifically on transboundary water conflicts.<sup>43</sup> Members of the intelligence community predict an increased occurrence of a specific scenario, where an “upstream” state impedes its “downstream” neighbor’s access to a water resource.<sup>44</sup> This is an example of what Mark Zeitoun and Jeroen Warner, experts in water resources management and international relations, describe as “hydro-hegemony,” which arises through “water resource control strategies such as resource capture, integration and containment.”<sup>45</sup> These authors contend that one reason for the absence of international armed conflict over water is that non-hegemon, or downstream powers, often act in accordance with the desires of the

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<sup>39</sup> See, e.g., George Joffé, *The Impending Water Crisis in the MENA Region*, 51 INT’L SPECTATOR 55, 62-63 (2016).

<sup>40</sup> *Id.*; see also *The Role of Water Stress in Instability and Conflict*, *supra* note 29.

<sup>41</sup> See *Regional Water Cooperation in the Middle East and North Africa: Transitioning from Conflict to Stability*, FIKRA F. (Nov. 30, 2021), <https://www.washingtoninstitute.org/policy-analysis/regional-water-cooperation-middle-east-and-north-africa-transitioning-conflict> (describing the protests in Zagora, Morocco in 2017 over their “right to safe drinking water,” the protests in Baghdad, Iraq and Sudan in 2020 over water shortages, the protests in Iran in 2021 over the drying up of the Zayandeh Rood river, and the death of two civilians in an inter-village conflict over a shared well in 2013).

<sup>42</sup> *The Role of Water Stress in Instability and Conflict*, *supra* note 29.

<sup>43</sup> See, e.g., Mark Zeitoun & Jeroen Warner, *Hydro-hegemony: A Framework for Analysis of Transboundary Water Conflicts*, 8 WATER POL’Y 435, 435 (2006).

<sup>44</sup> *Global Water Security: Intelligence Community Assessment*, *supra* note 30.

<sup>45</sup> Zeitoun & Warner, *supra* note 43, at 435.

hydro-hegemon “whose superior power position effectively discourages any violent resistance against the [dominant] order.”<sup>46</sup>

Rather than pondering whether water scarcity will be the impetus for international armed conflict in the MENA region, attention is increasingly devoted to the political and legal structures available to protect water resources during times of conflict. While water may not serve as a direct cause of international armed conflict, there is little doubt that it will continue to be weaponized. There is a long history of the contamination or destruction of water sources as a war tactic.<sup>47</sup> One of the earliest “water-related conflict[s]” occurred between Lagash and Umma, cities in modern-day southern Iraq.<sup>48</sup> As early as the seventh century B.C.E., Assyrian King Assurbanipal dried out wells of the captured Tyre.<sup>49</sup> In the time of the Holy Roman Empire, Emperor Frederick Barbossa is said to have poisoned wells with human corpses.<sup>50</sup> In the twentieth century, adversaries continued to weaponize water.<sup>51</sup> The Nazis intentionally disposed of mule corpses into wells in Northern Greece, while the Japanese poisoned Chinese wells with cholera as part of a human experiment.<sup>52</sup>

One may also point to examples in this century. Extremist groups, including the Islamic State of Iraq and Syria (ISIS), have carried out the kind of contamination used in past centuries.<sup>53</sup> In 2014, ISIS poisoned wells in northwestern Iraq by pouring in oil, or filling them with various types of debris, including metal, rocks, and rubble.<sup>54</sup> ISIS has also weaponized water through deprivation, denying “communities in Mosul of access to a water supply.”<sup>55</sup> The example from the war in Ukraine exemplifies the idea that attacks on water resources, such as “dams, water treatment and distribution plants, and

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<sup>46</sup> *Id.* at 437.

<sup>47</sup> Peter Schwartzstein, *The History of Poisoning the Well*, SMITHSONIAN MAG. (Feb. 13, 2019), <https://www.smithsonianmag.com/history/history-well-poisoning-180971471/>.

<sup>48</sup> *Id.*; see also Gleick, *supra* note 28 (“Umlama, the king of the city-state Lagash, diverted water from boundary irrigation canals between the Tigris and Euphrates rivers to deprive a neighboring region, Umma of water. This act, in a region corresponding to parts of modern day Iraq, Syria, and southern Turkey, was the first recorded political and military dispute over water resources.”).

<sup>49</sup> Schwartzstein, *supra* note 47.

<sup>50</sup> *Id.*

<sup>51</sup> *Id.*

<sup>52</sup> *Id.*

<sup>53</sup> Gleick, *supra* note 28.

<sup>54</sup> Schwartzstein, *supra* note 47.

<sup>55</sup> Gleick, *supra* note 28.

hydroelectric facilities” are evident in conflicts that begin for reasons unrelated to the resource.<sup>56</sup>

In addition to weaponization, water scarcity alone can affect state security by putting stress on other state systems. With water scarcity increasing with worsening climate change, migration of people due to climate change is likely to occur in MENA, as well as other regions.<sup>57</sup> According to a 2021 study by the World Bank, “water deficits are linked to ten percent of the increase in total migration within countries between 1970 and 2000.”<sup>58</sup> This statistic demonstrates the fact that—independent of climate change—fluctuations in water availability have a direct impact on migration.

Migration out of the home state can also result from water scarcity.<sup>59</sup> International migration expert Arno Tanner describes the sequence of events in this scenario:

In developing countries, drought has rendered large land masses non-arable or essentially unproductive, forcing people to move to cities where jobs are ever scarcer and food increasingly expensive. Emigration out of the country is then seen as the only viable solution. In this way, local climate problems have led to international migration.<sup>60</sup>

Although scarce water resources may not directly cause armed conflict between states, a sudden influx of population due to climate migration could lead to heightened interstate tensions. The significant influx of Syrian refugees into the states of the European Union, while not driven by climactic events, has led to political destabilization within these states and “exposed fractured societies and nationalist tendencies.”<sup>61</sup> Future large-scale migration events could place a similar strain on governments and between states. That such migration events

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<sup>56</sup> *Id.*

<sup>57</sup> Frederick Wehrey & Ninar Fawal, *Cascading Climate Effects in the Middle East and North Africa: Adapting Through Inclusive Governance*, CARNEGIE ENDOWMENT FOR INT’L PEACE (Feb. 24, 2022), <https://carnegieendowment.org/2022/02/24/cascading-climate-effects-in-middle-east-and-north-africa-adapting-through-inclusive-governance-pub-86510>.

<sup>58</sup> *Lack of Water Linked to 10 Percent of the Rise in Global Migration*, WORLD BANK (Aug. 23, 2021), <https://www.worldbank.org/en/news/press-release/2021/08/23/lack-of-water-linked-to-10-percent-of-the-rise-in-global-migration>.

<sup>59</sup> Arno Tanner, *Will There Be Climate Migrations en Masse?*, UN CHRON. <https://www.un.org/en/chronicle/article/will-there-be-climate-migrants-en-masse>.

<sup>60</sup> *Id.*

<sup>61</sup> See Erika Brady, *An Analysis of Patterns of Change Arising from the Syrian Conflict: Islamic Terrorism, Refugee Flows and Political Destabilization in Europe*, 8 J. TERRORISM RSCH. 53, 53 (2017).

should occur appears inevitable when considering the declining availability of water in areas like MENA.

## II. THE STATE OF WATER SCARCITY IN THE MIDDLE EAST AND NORTH AFRICA

### A. *Current State of Water Scarcity in the Middle East and North Africa*

Political tension and security are concerns in MENA, with the overlapping of complex issues such as the Israeli-Palestinian conflict, civil wars in Syria and Yemen, and rule by the Taliban in Afghanistan.<sup>62</sup> Given the potential for resource weaponization simply due to ongoing armed conflict, protecting resources in MENA is essential. Water poses a particularly challenging problem, given the dramatic levels of water scarcity in the region. The pre-existing security issues in MENA, compounded with water scarcity outlined in this section, demonstrate the need for effective international mechanisms capable of monitoring and providing information regarding the protection of water resources.

While water is a valuable resource globally, its availability varies among regions.<sup>63</sup> The MENA region has the least amount of annual renewable water available per capita.<sup>64</sup> In comparison to the 47,000 cubic meters and 11,000 cubic meters in South America and Europe, respectively, MENA has 1,500 cubic meters of accessible renewable water resources per capita annually.<sup>65</sup> Within the region, the annual average varies significantly.<sup>66</sup> In Egypt, 794 cubic meters of renewable water resources per capita are available annually, while in Kuwait, the figure is seven cubic meters.<sup>67</sup> These values are far below the World Bank's estimation of 1,700 cubic meters necessary per capita annually for human use.<sup>68</sup>

Many indices exist to measure the level of water scarcity in states or world regions. The Blue Peace Index is particularly helpful, as it measures not only

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<sup>62</sup> Paul Salem et al., *Ten Key Events and Trends in the Middle East and North Africa in 2021*, MIDDLE E. INST. (Dec. 20, 2021), <https://www.mei.edu/publications/10-key-events-and-trends-middle-east-and-north-africa-2021>.

<sup>63</sup> See P. Droogers, et al., *Water Resources Trends in Middle East and North Africa towards 2050*, 16 HYDROLOGY & EARTH SYS. SCI. 3101, 3101 (2012).

<sup>64</sup> *See id.*

<sup>65</sup> *Id.*

<sup>66</sup> *See id.*

<sup>67</sup> Joffé, *supra* note 39, at 56.

<sup>68</sup> *Id.*

availability of freshwater resources, but also the management of those resources by attributing numerical values to variables including policy and legal frameworks, institutional arrangements and participation, water management instruments, infrastructure and financing, and cooperation context.<sup>69</sup> According to its assessment of the Tigris-Euphrates Basin:

The Tigris-Euphrates Basin faces considerable challenges in all areas concerned by the index and a particularly difficult political and environmental context. The absence of a regional cooperation mechanism has reduced collaboration among states to limited and ad hoc arrangements, which in turn has made water allocation and pollution control particularly challenging.<sup>70</sup>

As a result, the Tigris-Euphrates Basin has an aggregate score of twenty-five out of one hundred for the Blue Peace Index, the lowest score out of the seven river basins addressed by the index.<sup>71</sup> The breakdown of this rating reveals that, despite facing the world's highest tensions when it comes to water scarcity, so far this part of the MENA region has failed to cooperate in a meaningful way when it comes to legal institutions, policy, and financing surrounding water resources. Thus, MENA is a water-stressed region, which only promises greater scarcity with the progression of climate change.

The low availability of renewable water resources in MENA means states are forced to overdraw on their “groundwater sources and underground aquifers, vastly overusing their recharge capacities and causing permanent damage to them.”<sup>72</sup> This is their vulnerability. In its 2021 reassessment of progress towards Sustainable Development Goal Six—water and sanitation for all—the United Nations reported North Africa and Western Asia as having the highest regional rate of “freshwater withdrawal as a proportion of available freshwater resources,” at 74.3%.<sup>73</sup> Many of the individual countries in MENA were given the most extreme rating of “critical stress” with respect to water, meaning that

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<sup>69</sup> *Blue Peace Index*, ECON. IMPACT (2022), <https://impact.economist.com/projects/bluepeaceindex/#/tigris-euphrates>. The Blue Peace Index is a report created by the Economist Intelligence Unit, with funding from the Swiss Agency for Development and Cooperation.

<sup>70</sup> *Id.*

<sup>71</sup> Indicating that the aggregate score is an average of the following values: 32.0 for policy and legal frameworks, 23.3 for institutional arrangements and participation, 19.8 for water management instruments, 18.2 for infrastructure financing, and 31.4 for cooperation context. *Id.*

<sup>72</sup> Joffé, *supra* note 39, at 56.

<sup>73</sup> *Summary Progress Update 2021: SDG 6- Water and Sanitation for All*, U.N. WATER 4, 24 (July 2021), [https://www.unwater.org/sites/default/files/app/uploads/2021/12/SDG-6-Summary-Progress-Update-2021\\_Version-July-2021a.pdf](https://www.unwater.org/sites/default/files/app/uploads/2021/12/SDG-6-Summary-Progress-Update-2021_Version-July-2021a.pdf).

freshwater withdrawal as a proportion of available freshwater resources is greater than one-hundred percent.<sup>74</sup> Some countries in the region withdraw up to 1,000 percent of their renewable water resources.<sup>75</sup> Water availability in MENA is also disproportionate to its share of the global population; the region contains 1.5% of the world's renewable freshwater supply but contains seven percent of the world's population.<sup>76</sup> Per capita, Arab states of the Persian Gulf have some of the highest rates of water use globally.<sup>77</sup> Because of the unsustainable drawing of groundwater in the Middle East specifically, forty percent of the sub-region's groundwater is projected to be depleted within the decade.<sup>78</sup> As the region becomes more water-stressed, the more effective water weaponization might appear to an aggressor.

### B. *The Future of Water Availability in MENA*

Climate change is a global phenomenon with varying regional effects.<sup>79</sup> In MENA, the primary concerns for the future of water availability are further desertification due to decreased rainfall, and the region's expected population growth which will place added stress on water scarcity.<sup>80</sup> In the MENA region, climate change will result in a dramatic decrease in rainfall in the coming decades, resulting in further desertification of the region.<sup>81</sup> In the southern Mediterranean, rainfall will decrease between ten and fifteen percent in winter, and up to twenty-five percent in the summer months, resulting in declining groundwater levels, and accompanying depletion in water tables, river and stream flows.<sup>82</sup> Regional effects of climate change, particularly in North Africa, include "water scarcity, decreasing water quality, worsening air quality, and ground ozone formation," all which pose threats to public health.<sup>83</sup> In addition to these natural stressors, population growth in the region will compound the

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<sup>74</sup> *Id.* at 24.

<sup>75</sup> *Id.* at 9, 23.

<sup>76</sup> Joffé, *supra* note 39, at 55.

<sup>77</sup> *Id.* at 56.

<sup>78</sup> M. Miletto, et al., *Migration and Its Interdependencies With Water Scarcity, Gender and Youth Employment*, U.N. EDUC., SCI. AND CULTURAL ORG.: WORLD WATER ASSESSMENT PROGRAMME 10, 24 (2017), <https://unesdoc.unesco.org/ark:/48223/pf0000258968?>

<sup>79</sup> *Climate Change: Regional Impacts*, UNIV. CORP. FOR ATMOSPHERIC RSCH. (2023), <https://scied.ucar.edu/learning-zone/climate-change-impacts/regional>.

<sup>80</sup> Joffé, *supra* note 39, at 55.

<sup>81</sup> *Id.* at 55.

<sup>82</sup> *Id.* at 60.

<sup>83</sup> Dorte Verner, *Adaptation to a changing climate in the Middle East and North Africa*, WORLD BANK (Jan. 18, 2012), <https://blogs.worldbank.org/arabvoices/adaptation-changing-climate-middle-east-and-north-africa>.

negative effects of preexisting water scarcity.<sup>84</sup> By 2050, the U.N. predicts the population of the MENA region will increase by fifty percent, forcing a larger number of individuals to share an ever-shrinking resource.<sup>85</sup>

The individual effects of climate change and population growth on water stress are significant, but perhaps the most influential factor on the future of MENA's water availability is economic development, which has led to increased agricultural activity.<sup>86</sup> Due to increased water demand for irrigation purposes, the Food and Agriculture Organization estimates that "fifty-eight percent of the renewable water resources in MENA will be used for food production by 2030 and far-fetching efficiency measures are required."<sup>87</sup> Ecologically water-scarce, MENA faces trends that will place further stress on water availability. Compounded with ongoing political tensions, avoiding the weaponization of water is critical.

### III. WATER: A UNIQUELY LOCAL RESOURCE

#### A. *Addressing Wrinkles in the Analogy*

The comparative link between water and atomic energy may not be obvious and can be challenged on several grounds. For example, some may argue water is a local, geographic resource and, thus, a regional approach to water resource protection and monitoring may be more appropriate than treating it in on a world stage. While issues like access to water differ in severity among the world's regions, history reveals water poses a unique security risk.<sup>88</sup> Also, climate change is a relevant stressor to all regions, which should serve to unify states' approaches to water management, rather than splinter them. There are also clear differences between atomic energy and water in their natural states. Atomic energy is inherently dangerous, and only a small number of countries have access to it within their borders.<sup>89</sup> On the other hand, water does not have the same capacity for catastrophe when thought of in its typical state. However, as this section will demonstrate, both resources have the capacity to cause social and environmental disruption on a large scale.

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<sup>84</sup> Joffé, *supra* note 39, at 60.

<sup>85</sup> *Id.*

<sup>86</sup> Droogers, et al., *supra* note 63, at 3101.

<sup>87</sup> *Id.* at 3102.

<sup>88</sup> See Schwartzstein, *supra* note 47.

<sup>89</sup> As of 2021, thirty-two countries had nuclear power reactors in operation. *In Operation and Suspended Operation*, IAEA (2021), <https://pris.iaea.org/PRIS/WorldStatistics/OperationalReactorsByCountry.aspx>.

At first glance, water may appear more like other resources than atomic energy, namely commodities like grain or oil. However, it is the fact that the latter two resources are commodities that distinguish them from water or atomic energy. Although there has been discussion of the “commodification” of water in recent years,<sup>90</sup> the assertion is somewhat premature. The impetus for the commodification conversation is the Chicago Mercantile Exchange’s introduction of the world’s first futures contract for water in 2020.<sup>91</sup> The contract “tracks prices for water rights leases and sales in California,” but the trades “settle in money” instead of water.<sup>92</sup> As a result, the contract has not enticed many participants,<sup>93</sup> and the attempt at commodification highlights some of the distinctions between water and other commodities, like oil. For example, while the transport of oil — or other commodities, such as grain — is a cost-efficient venture, the transport of water is not.<sup>94</sup> The comparison of water to oil or grain is misleading. In a report from the Special Rapporteur on the rights to water and sanitation in response to the development of markets for trading water use rights, Pedro Arrojo Agudo argues “the commodification of water prioritizes commercial interests and leads to progressive private appropriation that endangers the function and value of water as a resource that supports life, human rights and the public interest.”<sup>95</sup>

Finally, international cooperation regarding atomic energy only came to fruition after its intentional use for destruction on an incomprehensible scale during World War II. Advocating for the peaceful use of atomic energy in his 1953 speech, President Eisenhower acknowledged the scale of the atomic explosion carried out by the United States on July 16, 1945.<sup>96</sup> Speaking almost a decade later, he highlighted the dangers of atomic weapons to emphasize the need for an international atomic energy agency, reminding his audience “a single air group . . . can now deliver to any reachable target a destructive cargo

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<sup>90</sup> See Karl Plume, *Water Futures Market Fails to Make a Splash with California Farmers*, REUTERS (June 29, 2021), <https://www.reuters.com/business/sustainable-business/water-futures-market-fails-make-splash-with-california-farmers-2021-06-29/>; see also Mia DeFelice, *Futures Trading: Another Threat to Our Right to Water*, FOOD & WATER WATCH (July 25, 2022), <https://www.foodandwaterwatch.org/2022/07/25/futures-trading-another-threat-to-our-right-to-water/>.

<sup>91</sup> DeFelice, *supra* note 90.

<sup>92</sup> Plume, *supra* note 90.

<sup>93</sup> *Id.*

<sup>94</sup> *Id.*

<sup>95</sup> Pedro Arrojo Agudo (Special Rapporteur on the Human Rights to Safe Drinking Water and Sanitation), *Report of the Special Rapporteur on the Human Rights to Safe Drinking Water and Sanitation*, U.N. Doc. A/76/159 (July 16, 2021).

<sup>96</sup> *Atoms for Peace Speech*, *supra* note 21.



exceeding in power all the bombs that fell on Britain in all the Second World War.”<sup>97</sup> Considering the level of devastation and the developed risks of atomic weapons it took for states to jointly form international mechanisms to regulate nuclear energy, it is possible a misuse of water of the same scale as Hiroshima may be needed to spur meaningful cooperation. In response to this argument, the legal instruments that have already been developed regarding water scarcity and climate change reveal a willingness among international actors to consent to certain standards regarding water quality and management. In creating an all-encompassing international agency for water, the international community would not be creating a sweeping and novel new institution. Rather, this would be a natural next step considering the agreements states have been willing to make thus far with respect to water resources.

### *B. Parallels between Atomic Energy and Water*

Atomic energy inherently has the power to destroy. Water, as a vital resource for human life, has the same capability for widespread social destruction when it is contaminated or depleted. Not only is water needed for consumption and hygiene, but it is also necessary to support agricultural systems and many power plants. Additional Protocol I to the Geneva Conventions captures the destructive nature of water, recognizing the “dangerous forces” contained in “dams, dikes, and nuclear electrical generating stations,” and limiting instances in which they may be made a lawful target.<sup>98</sup> In times of conflict, water and atomic energy face similar problems. History demonstrates tampering with either resource during conflict can also cause environmental effects that in turn produce social disasters.<sup>99</sup> In the case of atomic energy, the disaster at the Chernobyl plant north of Kiev, Ukraine presents the most salient example of this.<sup>100</sup> The reactor fire caused the contamination of over 200,000 square kilometers of European territory with radioactive material.<sup>101</sup> Although it is impossible to reliably determine the number of deaths directly attributable to the Chernobyl disaster,

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<sup>97</sup> *Id.*

<sup>98</sup> Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I) art. 56, June 8, 1977, 1125 U.N.T.S. 3 [hereinafter Additional Protocol I].

<sup>99</sup> See, e.g., IAEA, *Chernobyl: Looking Back to Go Forward* (2005) [hereinafter *Chernobyl: Looking Back to Go Forward*], [https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1312\\_web.pdf](https://www-pub.iaea.org/MTCD/Publications/PDF/Pub1312_web.pdf); Mary-Wynne Ashford & Ulrich Gottstein, *The Impact on Civilians of the Bombing of Kosovo and Serbia*, 16 MED. CONFLICT & SURVIVAL 267, 273 (2000).

<sup>100</sup> See *Chernobyl: Looking Back to Go Forward*, *supra* note 99.

<sup>101</sup> *Id.*

experts have determined several definitive social impacts of the accident. In terms of health, the radiation exposure included the radionuclide iodine-131, which accumulates in the thyroid.<sup>102</sup> Through exposure to food with unnaturally high levels of iodine due to the accident, children in Ukraine and even neighboring countries experienced “a substantial increase in thyroid cancer.”<sup>103</sup> The incidence rate of thyroid cancer in children and adolescents is expected to persist for years.<sup>104</sup> Despite these significant physical effects, “psychological effects . . . represent the biggest public health impact of the accident.”<sup>105</sup>

Water, although not an inherent danger, can have similarly detrimental environmental and social effects when mishandled. In the Kosovo conflict in 1999, the Danube River was significantly polluted following attacks on industrial facilities situated on the river.<sup>106</sup> In Serbia, water treatment plants were bombed, and after the conflict “disruption of the water supply in several regions . . . [made] personal hygiene very difficult.”<sup>107</sup> The rivers became polluted with untreated sewage.<sup>108</sup> Additionally, due to a dozen strikes by NATO on an oil refinery at Novi Sad, “about 130 tons of oil recovered from the cooling water pumping stations . . . sediments of the Danube upstream of Novi Sad indicated chronic pollution of the river.”<sup>109</sup> The growing danger of widespread disaster from the destruction or contamination of water resources requires an expansion of legal mechanisms to prevent the misuse of water.

#### IV. EXISTING LEGAL STRUCTURES ARE INADEQUATE

The traditional legal tools available to protect water resources come from international humanitarian law, international human rights law, and the law on transboundary water resources. The Food and Agricultural Organization estimates that since 805 A.D., “more than 3,600 treaties related to international water resources have been drawn up.”<sup>110</sup> While these tools generally encourage

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<sup>102</sup> IAEA, *Chernobyl's Legacy: Health, Environmental, and Socio-Economic Impacts and Recommendations to the Governments of Belarus, the Russian Federation and Ukraine* (April 6, 2006), [https://inis.iaea.org/collection/NCLCollectionStore/\\_Public/37/086/37086935.pdf?r=1](https://inis.iaea.org/collection/NCLCollectionStore/_Public/37/086/37086935.pdf?r=1).

<sup>103</sup> *Id.*

<sup>104</sup> *Id.*

<sup>105</sup> *Chernobyl: Looking Back to Go Forward*, *supra* note 99.

<sup>106</sup> Mara Tignino, *Water, International Peace, and Security*, 92 INT'L REV. RED CROSS 647, 658 (2010).

<sup>107</sup> Ashford & Gottstein, *supra* note 99, at 267.

<sup>108</sup> *Id.* at 273.

<sup>109</sup> *Id.* at 276-77.

<sup>110</sup> U.N. DEP'T ECON. & SOC. AFF'S, *Transboundary Waters* (Oct. 23, 2014), [https://www.un.org/waterforlifedecade/transboundary\\_waters.shtml](https://www.un.org/waterforlifedecade/transboundary_waters.shtml).

regional cooperation and foster deterrence against attacks on water resources, they do not fully address aspects of protecting water as a resource. In response, the international community in recent years has shown an interest in developing legal mechanisms to regulate the protection of water, especially in an ecological sense and in areas where water delineates a boundary between two states. Despite the increasing attention on water, however, “only 1/3 of the world’s transboundary surface waters and less than 1% of the transboundary aquifers have cooperation mechanisms in place.”<sup>111</sup> There remains a need for overarching structures to protect the resource in a preventive capacity and address situations where two states may be unable or unwilling to cooperate regarding their shared or separate water resources. At the very least, diplomacy needs to be maintained and emphasized. After first discussing the general protections afforded to water resources and infrastructure under international law, this section will summarize the progress made in international cooperation through the most recent treaties dedicated specifically to water outside of navigation purposes.

#### A. *International Humanitarian Law*

International humanitarian law provides limited protection for access to water and the protection of water as an environmental resource.<sup>112</sup> Protection of water was not incorporated into international humanitarian law until adoption of the Additional Protocols to the Geneva Conventions in 1977.<sup>113</sup> The relevant provisions include Articles 54(2) and 56(1) of Additional Protocol I. Article 54(2) of Additional Protocol I states:

It is prohibited to attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, such as . . . drinking water installations and supplies and irrigation works, for the specific purpose of denying them for their sustenance value to the civilian population or to the adverse Party, whatever the motive, whether in order to starve out civilians, to cause them to move away, or for any other motive.<sup>114</sup>

This provision carves out an exception for when an object is used solely for purposes of substance of the adversary’s armed forces or “in direct support of

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<sup>111</sup> Blue Peace, *Water in Crisis*, <https://www.thebluepeace.org/about-blue-peace-water-in-crisis.html> (last visited Oct. 10, 2022).

<sup>112</sup> See Additional Protocol I, *supra* note 98, art. 54(2).

<sup>113</sup> See *id.*

<sup>114</sup> *Id.*

military action.”<sup>115</sup> However, an attack on an object described in Article 54(2) is not justified where it may leave the civilian population “with such inadequate food or water as to cause its starvation or force its movement.”<sup>116</sup>

Under Article 56(1) of Additional Protocol I, dams and dykes are grouped with nuclear electrical generating stations and are specially protected with limited exceptions.<sup>117</sup> The provision provides in part that, “[w]orks or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, shall not be made the object of attack, even where these objects are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population.”<sup>118</sup> This special protection for water infrastructure only ceases “where it is used for other than its normal function and in regular, significant and direct support of military operations and if such attack is the only feasible way to terminate such support.”<sup>119</sup> Additional Protocol I generally considers water installations and resources to be civilian objects and, therefore, immune from attack.<sup>120</sup> However, international humanitarian law does not explicitly provide protection of resources like lakes, rivers, or groundwater.<sup>121</sup> Instead, general protections including the prohibition on employing poison, and bans on the destruction of objects indispensable to civilian survival, may apply to natural bodies of water depending on the circumstances in a conflict.<sup>122</sup>

The protection afforded to dams and dykes under Additional Protocol I is not as broad as it appears on its face. Article 56 of Additional Protocol I only prevents “attacks” targeting dams and dykes.<sup>123</sup> Assuming Additional Protocol I applies, a party to the conflict could destroy their own water installation for defense purposes without violating the provision.<sup>124</sup> Finally, the threshold required to prohibit attacks against dams and dykes is a determination that such an attack would cause “severe” loss of life among the civilian population.<sup>125</sup>

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<sup>115</sup> *Id.* art. 54(3).

<sup>116</sup> *Id.*

<sup>117</sup> *Id.* art. 56(1).

<sup>118</sup> *Id.*

<sup>119</sup> *Id.* art. 56(2)(a).

<sup>120</sup> *Id.* art. 48.

<sup>121</sup> Int’l Comm. Red Cross, *Water and Armed Conflicts* (2011), <https://casebook.icrc.org/case-study/water-and-armed-conflicts>.

<sup>122</sup> *Id.*

<sup>123</sup> Additional Protocol I, *supra* note 98, art. 56(1).

<sup>124</sup> Michael N. Schmitt, *Attacking Dams – Part II: The 1977 Additional Protocols*, LIEBER INST. (Feb. 2, 2022), <https://lieber.westpoint.edu/attacking-dams-part-ii-1977-additional-protocols/>.

<sup>125</sup> *Id.*

Anything less than severe loss of life, including anything affecting merely civilian property, would not trigger Article 56 protection.<sup>126</sup> Additional Protocol I simply does not protect against secondary consequences after the destruction, depletion or spoiling of water resources.

### B. *International Human Rights Law*

Developments involving the right to water are relatively recent. In 2008, the Human Rights Council appointed an independent expert on the right to water and sanitation.<sup>127</sup> The position has been renewed in three-year mandates since its inception.<sup>128</sup> On July 28, 2010, the United Nations General Assembly recognized the human right to water and sanitation in Resolution 64/292.<sup>129</sup> Generally, the right to water “entitles everyone to have ‘sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses.’”<sup>130</sup> The General Assembly’s resolution is non-binding but provides guidance for states and outlines several duties they bear with respect to the right to water and sanitation.<sup>131</sup> Specifically, the resolution “[c]alls upon States and international organizations to provide financial resources, capacity-building and technology transfer, through international assistance and cooperation, in particular to developing countries, in order to scale up efforts to provide safe, clean, accessible and affordable drinking water and sanitation for all.”<sup>132</sup> In response to the resolution, the Human Rights Council passed its own resolution reaffirming that “the rights to water and sanitation are part of existing international law and confirms that these rights are legally binding upon States.”<sup>133</sup>

The right to water and sanitation is established in several international human rights treaties: the Convention on the Elimination of Discrimination Against

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<sup>126</sup> *Id.*

<sup>127</sup> *The Human Right to Water and Sanitation: Milestones*, UN-WATER DECADE PROGRAMME ON ADVOC. & COMM’N, [https://www.un.org/waterforlifedecade/pdf/human\\_right\\_to\\_water\\_and\\_sanitation\\_milestones.pdf](https://www.un.org/waterforlifedecade/pdf/human_right_to_water_and_sanitation_milestones.pdf).

<sup>128</sup> See *Special Rapporteur on the Rights to Water and Sanitation*, UNITED NATIONS HUM. RTS. OFF. HIGH COMM’R (2022), <https://www.ohchr.org/en/special-procedures/sr-water-and-sanitation> (“The mandate was formalized in Human Rights Council resolution 7/22 in 2008, and most recently renewed in Human Rights Council resolution 45/8.”). The Current Special Rapporteur is Mr. Pedro Arrojo Agudo, who started his mandate in November 2020. *Id.*

<sup>129</sup> *Id.*

<sup>130</sup> Tignino, *supra* note 106, at 667.

<sup>131</sup> See *The Human Right to Water and Sanitation: Milestones*, *supra* note 127.

<sup>132</sup> G.A. Res. 64/292, ¶ 2 (July 28, 2010).

<sup>133</sup> *The Human Right to Water and Sanitation: Milestones*, *supra* note 127, at 3.

Women makes reference to a right to sanitation,<sup>134</sup> while the Convention on the Rights of the Child<sup>135</sup> and the Convention on the Rights of Persons with Disabilities both recognize the need for states to provide access to clean water.<sup>136</sup> While limited derogations to human rights are allowed in times of conflict, international courts and U.N. bodies continue to affirm that human rights instruments generally apply.<sup>137</sup> International human rights law does not adequately deter water weaponization because it has a weak enforcement system.<sup>138</sup> Since sovereign states play the prominent role in enforcing international human rights norms,<sup>139</sup> a lack of political incentive or limited capacity to rectify human rights issues can leave certain rights unprotected.<sup>140</sup> Not every state concedes that a right to water exists under international human rights law.<sup>141</sup>

### C. *Transboundary Water Law*

Law regarding transboundary water resources has only limited application in times of armed conflict. Like the provisions in international humanitarian law, transboundary water laws are problematic in that they typically only provide redress after a violation.<sup>142</sup> There are several relevant customary international law principles that are relevant to transboundary water sources, including the

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<sup>134</sup> Convention on the Elimination of All Forms of Discrimination Against Women art. 14(2)(h), Dec. 18, 1979, 1249 U.N.T.S. 1 (encompassing the right “to enjoy adequate living conditions, particularly in relation to . . . sanitation”).

<sup>135</sup> Convention on the Rights of the Child art. 24(2)(c), Sept. 2, 1990, 1577 U.N.T.S. 3 (obliging state parties to take measures “to combat disease and malnutrition . . . through the provision of . . . clean drinking water”).

<sup>136</sup> International Convention on the Rights and Dignity of Persons with Disabilities art. 28(2)(a), May 3, 2008, 2515 U.N.T.S. 3 (requiring states to take measures “to ensure equal access by persons with disabilities to clean water services”).

<sup>137</sup> Tignino, *supra* note 106, at 668 (“Although the application of human rights instruments in time of armed conflict is contested by some states, the jurisprudence of international courts such as the ICJ, as well as UN bodies, has affirmed their application to situations of armed conflict. On the subject of water, both the ESCR Committee and the Committee on the Rights of the Child addressed the issue of access to drinking water in occupied territory. In favour of the argument that the obligations resulting from the ESCR Covenant are applicable in times of armed conflict, one may also mention that the ESCR Covenant does not contain provisions for derogation in case of armed conflict.”).

<sup>138</sup> Jack Donnelly, *The Relative Universality of Human Rights*, 29 HUMAN RIGHTS Q. 281, 283 (2007).

<sup>139</sup> *Id.* at 283.

<sup>140</sup> ILIAS BANTEKAS & LUTZ OETTE, *INTERNATIONAL HUMAN RIGHTS LAW AND PRACTICE*, 207 (2020).

<sup>141</sup> *Id.* at 415.

<sup>142</sup> See Gabriel E. Eckstein, *Water Scarcity, Conflict, and Security in a Climate Change World: Challenges and Opportunities for International Law and Policy*, 27 WIS. INT’L L. J. 409, 435 (2009) (stating regarding customary transboundary water law, the principles of equitable and reasonable utilization and no significant harm have only limited value because “the principles are structured to apply *ex post facto* – after a project has been implemented and after a violation is alleged”).

doctrines of equitable and reasonable utilization and no significant harm.<sup>143</sup> These ideas are now incorporated into the framework treaty of the Convention on the Law of the Non-Navigational Uses of International Watercourses (Watercourses Convention).<sup>144</sup>

The international community seems to agree cooperation is the way forward in dealing with water stress, and regional solutions are generally beneficial. Yet, “there have been very few successful inter-basin treaties signed for [MENA].”<sup>145</sup> In the Middle East, the only basin-wide agreement over transboundary surface waters addresses the Qweik River, which only flows within the territories of Syria and Turkey.<sup>146</sup> Nearly all other countries in the sub-region are members to at least one bilateral agreement addressing a transboundary surface water resource.<sup>147</sup> North Africa, Algeria, and Morocco share five surface water basins but have no agreements to manage them.<sup>148</sup> The Medjerda basin that Algeria and Tunisia share is not subject to an agreement.<sup>149</sup>

The Nile basin, on the other hand, is subject to at least twenty-two formal agreements between a dozen states in Africa.<sup>150</sup> The Nile Basin Initiative was established in 1999 to link relevant states with interests in the management of the Nile River.<sup>151</sup> Among its core functions are the facilitation of basin cooperation and water resources management and development.<sup>152</sup> While the initiative enjoys wide participation by riparian states—nine of the ten states in the Nile River basin are members of the initiative—an analysis of the Nile Basin Initiative’s strengths and weaknesses reveal a lingering need to develop “multi-

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<sup>143</sup> *Id.* at 434-35.

<sup>144</sup> See Convention on the Law of the Non-Navigational Uses of International Watercourses art. 5-7, Aug. 17, 2014, 2999 U.N.T.S. 77 [hereinafter Watercourses Convention].

<sup>145</sup> Gleick, *supra* note 28.

<sup>146</sup> *Overview of Transboundary Water Cooperation in the Arab Region*, U.N. ECON. & SOC. COMM’N W. ASIA (March 2020), [https://unece.org/fileadmin/DAM/env/documents/2020/WATER/03Mar\\_3-4\\_Regional\\_WS\\_Enhancing\\_TWC-MENA\\_region/1.1\\_ESCWA\\_Transboundary\\_Water\\_Cooperation\\_in\\_the\\_Arab\\_Region\\_Ziad\\_Khayat.pdf](https://unece.org/fileadmin/DAM/env/documents/2020/WATER/03Mar_3-4_Regional_WS_Enhancing_TWC-MENA_region/1.1_ESCWA_Transboundary_Water_Cooperation_in_the_Arab_Region_Ziad_Khayat.pdf).

<sup>147</sup> *Id.*

<sup>148</sup> *Id.*

<sup>149</sup> *Id.*

<sup>150</sup> *Id.*

<sup>151</sup> *Who We Are*, NILE BASIN INITIATIVE, <https://www.nilebasin.org/index.php/nbi/who-we-are> (last visited Oct. 10, 2022).

<sup>152</sup> *Our Core Functions*, NILE BASIN INITIATIVE, <https://www.nilebasin.org/index.php/what-we-do/what-we-do> (last visited Oct. 10, 2022).

disciplinary monitoring and evaluation . . . to follow up all implemented projects.”<sup>153</sup>

Selby and others highlight the fact regional mechanisms designed to prevent or settle disputes should also be evaluated for whether they allow for true “cooperation.”<sup>154</sup> While the existence of a bilateral or regional agreement may appear like progress, “transboundary ‘cooperation’” is often conflict-laden and highly inequitable, and the unquestioned promotion of ‘cooperation of any sort’ over water resources is thus deeply problematic.”<sup>155</sup> Selby’s analysis of the creation and function of the Israeli-Palestinian Joint Water Commission created in 1995 shows bilateral agreements over natural resources often serve to further codify already-existing power relations between states.<sup>156</sup> Further, when the Israeli-Palestinian Joint Water Commission issued its Joint Declaration for Keeping the Water Infrastructure Out of the Cycle of Violence, academics praised the act as an example of the ability for water to foster cooperation between states with thorny relations.<sup>157</sup> However, the joint declaration merely notes the opposition of the Israelis and the Palestinian Authority to the damage of water infrastructure.<sup>158</sup> Without providing details regarding how the two sides plan to deter the damage or destruction of water resources, the joint declaration merely calls upon “the general public not to damage in any way water infrastructure.”<sup>159</sup> This recognition of water weaponization by parties to a conflict is an important step forward but is nonetheless a reactionary approach to the issue.

#### D. Contemporary Treaties

Two significant international treaties dealing with non-navigational uses of water have entered into force within the past thirty years.<sup>160</sup> While they represent a growing desire within the international community to cooperate regarding the

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<sup>153</sup> Alebel Abebe Belay et al., *SWOT Analysis and Challenges of Nile Basin Initiative: An Integrated Water Resource Management Perspective*, 8 CHINESE J. POPULATION RES. & ENV’T 8, 8 (2010).

<sup>154</sup> Jan Selby, *Cooperation, Domination, and Colonisation: The Israeli-Palestinian Joint Water Commission*, 6 WATER ALT. 1, 1 (2013).

<sup>155</sup> *Id.*

<sup>156</sup> *Id.*

<sup>157</sup> Tignino, *supra* note 106, at 671-72.

<sup>158</sup> *Water in Israel: Joint Israeli-Palestinian Call to Protect Water Supply*, JEWISH VIRTUAL LIBR. (Feb. 1, 2001), <https://www.jewishvirtuallibrary.org/joint-israel-palestinian-call-to-protect-water-supply-february-2001>.

<sup>159</sup> *Id.*

<sup>160</sup> See Convention on the Protection and Use of Transboundary Watercourses and International Lakes, *supra* note 37.



management and preservation of water resources, neither of these are capable of protecting water from resource weaponization.

### *1. Water Convention*

The Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention), which entered into force in 1996, attempts “to strengthen international cooperation and national measures for the ecologically sound management and protection of transboundary surface waters and groundwaters.”<sup>161</sup> While it has gained some traction in the international community, with forty-six Parties and twenty-six signatories,<sup>162</sup> the Water Convention is still lacking in certain areas.

The Water Convention focuses too heavily on the ecological aspects of water protection, ignoring the potentially devastating effects that resource weaponization can have on a water resource. Additionally, the Water Convention lacks support from a significant number of states, especially those in MENA.<sup>163</sup> The Water Convention is also vague regarding how states should perform monitoring and resolve disputes. Generally, the Water Convention focuses on maintaining international relations that support the responsible *ecological* use of water resources.<sup>164</sup> For example, Article Five of the Water Convention provides that “[Riparian] Parties shall cooperate in the conduct of research into and development of effective techniques for the prevention, control, and reduction of transboundary impact.”<sup>165</sup> However, only one of the provisions within the Article addresses a non-ecological concern.<sup>166</sup> While the pollution and sustainability of water sources are worthy causes, research and development should also prioritize how best to implement multilateral solutions when conflict arises.

Article Nine of the Water Convention suffers from vagueness. It stipulates parties must establish joint bodies to “embrace relevant issues” to the

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<sup>161</sup> U.N. DEP’T ECON. & SOC. AFF’S, *supra* note 110.

<sup>162</sup> *Status of Treaties: Convention on the Protection and Use of Transboundary Watercourses and International Lakes*, U.N. TREATY COLLECTION, [https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg\\_no=XXVII-5&chapter=27&clang=en](https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-5&chapter=27&clang=en) (last visited Oct. 10, 2022).

<sup>163</sup> *Id.*

<sup>164</sup> See Convention on the Protection and Use of Transboundary Watercourses and International Lakes, *supra* note 37, art. 5.

<sup>165</sup> *Id.*

<sup>166</sup> *Id.*

Convention, “as well as any other issues on which the Riparian Parties may deem it necessary to cooperate.”<sup>167</sup> The Water Convention is also vague when it comes to state cooperation in water resource management. Article Four of the Water Convention provides in its entirety that “[t]he Parties shall establish programmes for monitoring the conditions of transboundary waters.”<sup>168</sup> The Water Convention does not provide specific attributes monitoring programs should have, nor the procedures by which states should create these programs so that they best serve the purposes of the Water Convention.

Finally, despite being in force for over twenty-five years, only seventy-two states have signed or ratified the Water Convention.<sup>169</sup> Further, many of the Parties to the Water Convention are relatively water-rich countries located in Europe.<sup>170</sup> In contrast, no states in the MENA region have signed or ratified the agreement.<sup>171</sup> Perhaps because so many of the Water Convention’s adherents are states with relative freshwater abundance, the treaty has not yet been instrumental in promoting increased protection and cooperation surrounding water resources in the context of a dispute.

## 2. *Watercourses Convention*

The Watercourses Convention originated in 1997 but did not enter into force until 2014.<sup>172</sup> It enjoys less international consensus than the Water Convention, with only thirty-seven state Parties, and sixteen signatories.<sup>173</sup> However, unlike the Water Convention, several states in MENA ratified or signed this treaty, including Iraq, Jordan, Lebanon, Libya, Morocco, Qatar, Syria, Tunisia, and Yemen.<sup>174</sup> Although the Watercourses Convention provides a procedure for dispute resolution,<sup>175</sup> it is still primarily driven by the parties themselves and

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<sup>167</sup> *Id.* art. 9(1).

<sup>168</sup> *Id.* art. 4.

<sup>169</sup> *Status of Treaties: Convention on the Protection and Use of Transboundary Watercourses and International Lakes*, *supra* note 162.

<sup>170</sup> *Id.*

<sup>171</sup> *Id.*

<sup>172</sup> *UN Watercourses Convention*, U.N. ECON. CONVENTION FOR EUR. (Jan. 12, 2021), <https://unece.org/environment-policy/water/un-watercourses-convention>.

<sup>173</sup> *Convention on the Law of Non-Navigational Uses of International Watercourses*, U.N. TREATY COLLECTION [https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtmsg\\_no=XXVII-12&chapter=27&clang=\\_en](https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtmsg_no=XXVII-12&chapter=27&clang=_en) (last visited Oct. 10, 2022).

<sup>174</sup> *Id.* (showing that all mentioned states have ratified the Watercourses Convention, with the exception of Yemen, which is a signatory).

<sup>175</sup> *Convention on the Protection and Use of Transboundary Watercourses and International Lakes*, *supra* note 37, art. 33.

could lead to unnecessarily lengthy processes of adjudication. If two states have a dispute they cannot resolve through bilateral negotiation, then they can seek assistance of the “good offices” of a third party as the next step.<sup>176</sup> Alternatively, after failing negotiations, states may make use of “any joint watercourse institutions that may have been established by them or agree to submit the dispute to arbitration or to the International Court of Justice.”<sup>177</sup>

Ultimately, while the Watercourses Convention, Water Convention and regional instruments provide helpful frameworks that encourage diplomatic solutions to transboundary water issues, they are not specific enough in designing mechanisms that will allow states to pursue peaceful means of water protection without significant effort to create the kind of joint bodies envisioned by the agreements. They are unlikely to be effective in war and provide little international voice to an event of water weaponization. As U.N. Water notes, there are “significant weaknesses” in the thousands of agreements that have been reached regarding water:

[W]hat is needed are workable monitoring provisions, enforcement mechanisms, and specific water allocation provisions that address variations in water flow and changing needs . . . There is a consensus among experts that international watercourse agreements need to be more concrete, setting out measures to enforce treaties made and incorporating detailed conflict resolution mechanisms in case disputes erupt.<sup>178</sup>

There is no need to design from scratch a body that performs these much-needed functions. The monitoring, enforcement, and conflict resolution elements sorely needed to protect water resources mirror the functions of the IAEA, which is demonstrating its competence through the Russian-Ukrainian conflict. Considering the parallels between water and atomic energy strengthens the case for a new international mechanism modeled on the IAEA, capable of limiting water weaponization.

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<sup>176</sup> Convention on the Law of the Non-Navigational Uses of International Watercourses art. 33(2), Aug. 17, 2014, 2999 U.N.T.S. 77.

<sup>177</sup> *Id.*

<sup>178</sup> U.N. DEP'T ECON. & SOC. AFF'S, *supra* note 110.

## V. RESOURCE WEAPONIZATION AND A VIABLE MODEL: IAEA

### A. *Existing International Bodies: The International Atomic Energy Agency as a Model*

Because the Watercourses Convention and the Water Convention entrust states with devising joint bodies to address issues related to transboundary water resources without providing further guidance, the treaties fail to offer a sustainable view of international water management.<sup>179</sup> While regional or bilateral agreements seem more promising, they also leave much to be desired during times when individual states refuse to cooperate, as in situations of armed conflict. Given the parallels between water and atomic energy, and its distinctions from commodities like grain and oil, it is worthwhile to consider the international mechanisms already in place that serve to protect and monitor atomic energy. The most prominent and influential body in this area is the IAEA.

The IAEA is an autonomous organization under the umbrella of the United Nations.<sup>180</sup> Created in the aftermath of World War II to address concerns about the dangers of nuclear technology, and as a result of President Eisenhower's idea of "atoms for peace," the agency has a mandate to work with its member states and form partnerships with other groups within the United Nations.<sup>181</sup> Through the agency's vigilant monitoring and dissemination of information, events in and around the Zaporizhzhya power plant in Ukraine have ensured the area's safety while keeping the international community informed.<sup>182</sup> The IAEA's mission in Ukraine is three-pronged: it offers the "rest of the world impartial, trusted updates about the situation," it "delivers and procures emergency equipment," and experts travel and stay at sites after the conclusion of the initial mission to provide assistance.<sup>183</sup>

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<sup>179</sup> See Convention on the Protection and Use of Transboundary Watercourses and International Lakes, *supra* note 37, art. 9(2).

<sup>180</sup> *United Nations System*, IAEA, <https://www.iaea.org/about/partnerships/united-nations-system> (last visited Oct. 10, 2022).

<sup>181</sup> *Id.*

<sup>182</sup> See IAEA, *Update 114- IAEA Director General Statement on Situation in Ukraine*, (Oct. 8, 2022) (exemplifying just one of the over one-hundred updates provided on the situation on the ground at Zaporizhzhya). The IAEA is the primary source of information about the occupation of the plant.

<sup>183</sup> *Ensuring the Safety and Security of Nuclear Facilities in Ukraine: The Crucial Role of the International Atomic Energy Agency*, U.N. CHRON. (Apr. 26, 2022), <https://www.un.org/en/un-chronicle/ensuring-safety-and-security-nuclear-facilities-ukraine-crucial-role-international>.

The IAEA has widespread recognition and consent of the international community, as evidenced by its 175 member states.<sup>184</sup> The agency recognizes the vital connection between atomic energy and peace in its official objectives, which are “to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world. It shall ensure . . . that assistance provided by it . . . is not used in such a way as to further any military purpose.”<sup>185</sup> Hans Blix, former head of the IAEA, argues that the informal objective of the agency is to create “confidence in the international community through independent and impartial verification” of nuclear activities.<sup>186</sup> This aspect of the agency’s purpose is what is needed in the translation of the institution to water resources.

The functions of the IAEA reveal means by which to rectify the shortcomings of both the Watercourses Convention and the Water Convention in the context of water weaponization. Ultimately, the purposes of the IAEA reflect President Eisenhower’s hope for a new institution “against the dark background of the atomic bomb.”<sup>187</sup> Chiefly, the IAEA sought to encourage peaceful use of atomic energy, reduce the potential for the weaponization of nuclear material, and provide channels for peaceful resolution. Article III of the IAEA statute encapsulates these facets of the agency’s purpose.<sup>188</sup> First, the agency may act as an intermediary between states when requested.<sup>189</sup> This function is critical in times of conflict, when states may be unable or unwilling to cooperate, or when a natural resource is likely to be weaponized. Additionally, the IAEA works “to make provision . . . for materials, services, equipment and facilities.”<sup>190</sup> Under the conventions on water, states are left to themselves in the domains of construction and maintenance whether in times of peace or conflict.<sup>191</sup> In contrast, the IAEA provides access to material assistance where there is a necessity.<sup>192</sup>

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<sup>184</sup> *List of Member States*, IAEA, <https://www.iaea.org/about/governance/list-of-member-states> (last visited Oct. 10, 2022).

<sup>185</sup> Statute of the International Atomic Energy Agency art 2., Oct. 23, 1956, 8 U.S.T. 1093, 276 U.N.T.S. 3 [hereinafter IAEA Statute].

<sup>186</sup> Hans Blix, *The Role of the IAEA in the Development of International Law*, 58 NORDIC J. INT’L L. 231, 234 (1989).

<sup>187</sup> *Atoms for Peace Speech*, *supra* note 21.

<sup>188</sup> See IAEA Statute, *supra* note 185, art. 3.

<sup>189</sup> *Id.* art. 3(1).

<sup>190</sup> *Id.* art. 3(2).

<sup>191</sup> *Assistance for States*, IAEA (2023), <https://www.iaea.org/topics/assistance-for-states>.

<sup>192</sup> *Id.*

Finally, while the Watercourses Convention and the Water Convention skew primarily towards ecological protection, the IAEA functions indicate a more holistic approach, stating one function is to “create . . . standards of safety for protection of health and minimization of danger to life and property.”<sup>193</sup> The standards set by the IAEA are legally binding as to the agency, and in operations where the IAEA is assisting.<sup>194</sup> A country or countries may also request the standards be binding on a voluntary basis.<sup>195</sup> This aspect should be especially appealing to states that have ratified the Watercourses Convention or the Water Convention, but have not been able to create the monitoring programs or joint bodies they require. An analogous institution to the IAEA would serve both of these functions, thus allowing state parties to the water conventions to fulfill their obligations. It also allows for a steady body which can alleviate or negotiate away from threats to water resources. The IAEA’s approach provides a model of the peaceful use of a resource, and a mechanism to deter resource weaponization. Ultimately, the agency gives a voice to the issue of nuclear energy. While this function is not explicit in the agency’s statute, it is a result of the IAEA serving as the voice of nuclear conflict and atomic risk. Overall, the IAEA’s structure and function fulfills the four purposes posited by President Eisenhower in the Atoms for Peace speech. As the next section discusses, while there are some promising diplomatic initiatives for the protection of water resources, an international agency would amplify the cause by providing a unified voice on the issue.

#### *B. Diplomatic Initiatives for Water*

In the area of water security, individual states also have an opportunity to influence peace in water-scarce regions through diplomatic efforts. There has been an increase in discourse surrounding the topic of “water diplomacy.”<sup>196</sup> Shafiqul Islam and Amanda C. Repella, experts in water diplomacy, explain that:

The Water Diplomacy Framework is emerging as an alternative to traditional techno or values-focused approaches to water management. The WDF is an approach that diagnoses water problems, identifies intervention points, and proposes sustainable resolutions that incorporate diverse viewpoints and uncertainty as well as changing and

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<sup>193</sup> IAEA Statute, *supra* note 185, art. 3(6).

<sup>194</sup> Blix, *supra* note 186, at 231.

<sup>195</sup> *Id.* at 234.

<sup>196</sup> See, e.g., Shafiqul Islam & Amanda C. Repella, *Water Diplomacy: A Negotiated Approach to Manage Complex Water Systems*, 155 J. CONTEMP. WATER RSCH. & EDUC. 1, 1 (2015).

competing demands. As such, WDF rests upon diverse forms of contextual inquiry of and intervention in complex water problems, with negotiation functioning as the fulcrum of diagnosis and intervention.<sup>197</sup>

An increasing number of actors are contributing to this area of water resource monitoring and management.<sup>198</sup> One of the most influential movements has been Blue Peace, funded by the Swiss Agency for Development and Cooperation.<sup>199</sup> The initiative mobilizes diplomatic, political, technical, and financial tools to ensure that “decision-makers have the technical expertise, political support, and financial investments required to manage water in a peaceful, equitable and sustainable way.”<sup>200</sup> Through the Blue Peace Middle East Program, introduced in 2015, the initiative “supports peace building, dialogue and collaboration activities among the countries, water institutions, decision makers and experts in the region.”<sup>201</sup> While the work of Blue Peace appears to have aided in the creation of at least one bilateral agreement in the region,<sup>202</sup> the initiative is seemingly more focused on civil society participation and development than dispute resolution between states.

The Global Observatory for Water and Peace (GOWP), born out of a recommendation by Global High-Level Panel on Water and Peace,<sup>203</sup> is arguably the closest that issues around water weaponization get to an intermediary body for water. The GOWP stresses a diplomatic approach to water management.<sup>204</sup> However, the GOWP appears to provide little help where tensions between states are already high regarding water issues, or where water issues arise as a byproduct of activity in armed conflict. This is partly due to the fact that “[t]he GOWP adopts the knowledge management approach, and discreet facilitation

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<sup>197</sup> *Id.*

<sup>198</sup> See, e.g., *About Blue Peace*, BLUE PEACE, <https://www.thebluepeace.org/about-blue-peace-who-we-are.html> (last visited Oct. 10, 2022); *The Global Observatory for Water and Peace*, GENEVA WATER HUB, <https://www.genevawaterhub.org/resource/global-observatory-water-and-peace> (last visited Oct. 10, 2022).

<sup>199</sup> See *About Blue Peace*, supra note 198.

<sup>200</sup> See *About Blue Peace*, supra note 198.

<sup>201</sup> *Blue Peace Middle East Programme*, BLUE PEACE, [https://www.shareweb.ch/site/Water/resources/Documents/Factsheet\\_Blue%20Peace%20Middle%20East\\_final.pdf](https://www.shareweb.ch/site/Water/resources/Documents/Factsheet_Blue%20Peace%20Middle%20East_final.pdf). (2021).

<sup>202</sup> See *id.* (“Numerous formal agreements including the initial substantive focus for joint research and the establishment of the Coordination Office at the Turkish Water Institute.”).

<sup>203</sup> *The Global Observatory for Water and Peace*, supra note 198 (explaining that fifteen UN member states created the Global High-Level Panel on Water and Peace, which produced a report recommending the creation of the Global Observatory for Water and Peace).

<sup>204</sup> *Id.*

rather than the traditional dispute settlement, peacemaking or peace building approaches.”<sup>205</sup> Therefore, much like with the contemporary international covenants on water, when states have a conflict over water that cannot be resolved, or the states are unwilling to negotiate, the framework provided by the GOWP as a body becomes irrelevant as to the specific issue.

Individual states may utilize their own diplomatic corps to shed light on the issue of water resource protection. Several states do have positions dedicated to this issue, including the United States.<sup>206</sup> The U.S. Department of State created the position of “Special Representative for Environment and Water Resources” (now the Special Envoy for Biodiversity and Water Resources) in 2010.<sup>207</sup> In the American context, it is not unusual to create “temporary positions . . . in response to congressional or public demands for increased Department of State attention to a specific global issue, event or crisis.”<sup>208</sup> While expanding resources for water diplomacy is to be encouraged among states, this effort should not replace the establishment of a water analogue to the IAEA. Involving the “highest political levels” when it comes to monitoring water resources is essential because “transboundary water issues touch upon national sovereignty.”<sup>209</sup> Addressing the issue through national diplomatic channels alone will not be able to provide the neutral intermediary of a globally recognized body.<sup>210</sup>

However, many of the issues that plague the international and regional legal instruments developed to address water resources are also present in these diplomatic positions. Taking the United States’ Special Envoy for Biodiversity and Water Resources (Special Envoy) as an example, the position title alone suggests a focus on ecological issues given the coupling of “biodiversity” and “water.”<sup>211</sup> Monica P. Medina, who entered the position in September 2022, also serves as the Assistant Secretary of State for Oceans and International

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<sup>205</sup> *Id.*

<sup>206</sup> *See, e.g., State Department Special Envoy, Representative, and Coordinator Positions: Background and Congressional Actions*, CONG. RSCH. SERV. (Sept. 15, 2017), <https://sgp.fas.org/crs/row/R44946.pdf>.

<sup>207</sup> *Id.*

<sup>208</sup> *Id.*

<sup>209</sup> *Water Connects: A Short Guide to Water Diplomacy*, CLIMATE DIPL., at 45 (Dec. 2016), <https://climate-diplomacy.org/sites/default/files/2020-10/Climate%20Diplomacy%20Report%20Water%202017%20adelpi.pdf>.

<sup>210</sup> *Id.*

<sup>211</sup> *See Monica P. Medina Named Special Envoy for Biodiversity and Water Resources*, U.S. DEP’T STATE (Sept. 28, 2022), <https://www.state.gov/monica-p-medina-named-special-envoy-for-biodiversity-and-water-resources/>.



Environmental and Scientific Affairs, reinforcing the idea the appointment comes from an ecological perspective rather than a security-driven one.<sup>212</sup> While this position serves as an important first step toward “water diplomacy” as a permanent fixture in American politics, considering the previously discussed security implications that accompany water resources and the looming effects of climate change, water issues warrant a unique position. Despite being a prominent position within U.S. diplomacy, the Special Envoy still suffers from low visibility on the world stage. Although the position has existed (albeit under a different name) for over a decade, there is relatively little information on what diplomats in this position have done. In some time periods, it appears that the position has been unfilled.<sup>213</sup> Additionally, there is the issue of fragmentation. If all countries provide their own representatives to put forth plans for protecting water resources, this may result in too many strategies with varying priorities.

Regarding an issue like water, which affects us all and will increasingly do so with the progression of climate change, it may be more valuable for the international community to speak with one voice through a lasting agency with a unique international mandate like the IAEA. Where water weaponization requires swift action to avoid devastating consequences, providing a central body with authorization to act appears more efficient than entrusting this duty to individual political actors. An agency charged with similar duties of the IAEA for water consolidates the diplomatic voice around water weaponization. In contrast to broad diplomatic offices which encompass general environmental and water concerns, a more specialized agency will pay adequate attention to issues involving water and security, such as spoiled wells or broken dams.

Just as the IAEA has kept atomic energy relevant from a policy perspective, a similar and ever-present agency for water could serve as a face to the issue of water weaponization. The purposes of Eisenhower’s proposed atomic energy agency speak to the IAEA’s functions as an advocate for the peaceful use of nuclear energy and a vessel for cooperation. Translating these purposes to an agency focused on water could supplement the ongoing diplomatic initiatives to protect water resources.

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<sup>212</sup> *Id.*

<sup>213</sup> CONG. RSCH. SERV., *supra* note 205 (indicating that at the time of this report, the position was “vacant”).

## CONCLUSION

Water is a vital resource that, when weaponized, can produce generations-long ecological and social hardships, as well as render areas unusable. The impact of water weaponization can be of a similar scale to a nuclear event. The conflict in Ukraine provides a stark example how all resources can be weaponized, although the risks to Ukraine's nuclear plants have received the most attention. Water weaponization throughout the Ukraine conflict has received much less consideration, despite its immediate effects on thousands of civilians. In part, the attention on nuclear resources is due to the global, well-founded concerns about atomic incidents, but also because an existing agency provided a platform for information, expertise, and a diplomatic strategy to address the situation. Indeed, the IAEA has historically played a crucial role following dramatic atomic events, and now it is the only institution with complete access to the threatened Zaporizhzhya nuclear power plant in today's conflict in Ukraine.<sup>214</sup> Despite similar dangerous threats and attacks on water resources in Ukraine, no similar international agency exists to prevent the long-term consequences of water weaponization.

The most vulnerable region to the consequence of weaponized water is MENA. While it has regional water sharing entities,<sup>215</sup> and the world has nascent water conventions,<sup>216</sup> these are ill-equipped to address water weaponization. As Gabriel Eckstein, legal expert in water and energy law, argues, “[t]he ability of riparian states to collectively shoulder the financial and resources burdens of research, preventative measures, emergency response, and development projects clearly supports the institutionalization of a collaborative approach to the management of shared water resources.”<sup>217</sup> The current international instruments may address several of these needs, namely research and development projects with a view towards ecological preservation. However, the international community has failed to codify adequate or effective protections against the targeting of water resources during armed conflict. The attempts to foster cooperation through the Watercourses Convention and the Water Convention provide helpful frameworks, however their focus is primarily

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<sup>214</sup> IAEA Team to Inspect Ukraine's Zaporizhzhya Nuclear Power Plant This Week, REUTERS (Aug. 29, 2022), <https://www.reuters.com/world/europe/iaea-mission-visit-zaporizhzhia-nuclear-power-plant-this-week-2022-08-29/>.

<sup>215</sup> See, e.g., *Who We Are*, *supra* note 151.

<sup>216</sup> See, e.g., Convention on the Protection and Use of Transboundary Watercourses and International Lakes, *supra* note 37.

<sup>217</sup> Eckstein, *supra* note 142, at 442.

concentrated on ecological issues, and they do not yet receive adequate support from a wide range of states. Where there is progress in preventing conflicts about water or sharing technical information to best preserve resources, the legal institutions are too fragmented to be sufficiently effective to face the heightened tensions that climate change will impose on states.

The IAEA presents a viable model of an international agency focused on preventing the consequences of weaponized resources. President Eisenhower's theme of "atoms for peace," although expressed with a devotion towards a nuclear world, produced a solution to the threat of misuse of a powerful resource. It has a platform that promotes the peaceful use of atomic energy, and a global stage to highlight, discuss, and diffuse conflict that might involve that resource. The agency allows for diplomatic and expert channels to negotiate peaceful solutions. This platform can serve as a model for other forms of resource weaponization, which produce similarly devastating and global consequences. As the future promises greater challenges in water availability, climate-motivated political tensions, and the need for regional and global cooperation in natural resource protection, a pre-existing model provides the tools necessary to properly address the issue of water weaponization. By adopting a mechanism similar to the IAEA for water resources, Eisenhower's four purposes for an international atomic energy agency—access to dispute resolution, a diplomatic voice, monitoring, and greater access to information—could lend itself to a more peaceful world.

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