

# The regulation of crimes against water in armed conflicts and other situations of violence

**Mara Tignino**<sup>1,2\*</sup>

<sup>1</sup>Reader, Faculty of Law and Institute for Environmental Sciences, University of Geneva, Switzerland

<sup>2</sup>Lead Legal Specialist, Platform for International Water Law, Geneva Water Hub, Switzerland

Email: [Mara.Tignino@unige.ch](mailto:Mara.Tignino@unige.ch)

## Abstract

*Water is the lifeblood of human beings and society, but threats to water, such as the pollution of rivers, cyber crimes, and attacks against water infrastructure, are increasing. In green criminology, scholars have relied on domestic criminal law to develop the concept of crimes against water. This paper argues that international law could provide several frameworks for addressing these crimes. A number of international treaties and customary rules deal directly or indirectly with crimes against water, and the United Nations Security Council has also dealt with crimes against water committed by terrorist groups and parties to armed conflict. Crimes against water may represent violations not only of domestic criminal laws but also of international humanitarian law and human rights law.*

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## Introduction

Crimes against water may impact the availability and quality of water resources necessary for the economic development and security of States and for the health and life of local communities. The consequences of crimes against water are exacerbated by climate change and the increasing risks of water scarcity in different regions.<sup>1</sup> Water is an increasingly precious and rare resource that risks being the object of conflicts at both the international and national levels. Such conflicts may result in the commission of crimes against water by organized criminal groups with negative impacts on the environment and the health of populations, putting at risk even their very survival. Non-State armed groups have controlled or misused water infrastructure to consolidate control over territory or have weaponized water infrastructure such as dams. The use of water infrastructure as a means of warfare by non-State armed groups in the Euphrates–Tigris basin is an example of this conduct. The so-called Islamic State of Iraq and Syria (ISIS) controlled the large dams at Falluja, Mosul, Samarra and Ramadi, and not only interrupted local water supplies but also deprived distant areas in the lower reaches of the Euphrates and Tigris of water by damming and diverting it.<sup>2</sup>

This paper will begin with an introduction to the concept of crimes against water through the lens of green criminology and will underline the various features of crimes against water. The paper will then identify to what extent legal instruments such as the United Nations Convention against Transnational Organized Crime (UNTOC)<sup>3</sup> and United Nations Convention against Corruption (UNCAC)<sup>4</sup> can be used to address crimes related to water. The role of regional frameworks will

1 Vanda Felbab-Brown, “Water Crimes: A Global Crisis on the Rise”, Brookings Institute, 20 February 2015, available at: [www.brookings.edu/on-the-record/water-crimes-a-global-crisis-on-the-rise/](http://www.brookings.edu/on-the-record/water-crimes-a-global-crisis-on-the-rise/) (all internet references were accessed in January 2023).

2 Tobias von Losow, *Water as Weapon: IS on the Euphrates and Tigris*, SWP Comments 3, German Institute for International and Security Affairs, 2016, available at: [www.swp-berlin.org/fileadmin/contents/products/comments/2016C03\\_lsw.pdf](http://www.swp-berlin.org/fileadmin/contents/products/comments/2016C03_lsw.pdf).

3 UN Convention against Transnational Organized Crime, UN Doc. A/RES/55/25, 15 November 2000 (entered into force 29 September 2003) (UNTOC), available at: [www.unodc.org/unodc/en/organized-crime/intro/UNTOC.html](http://www.unodc.org/unodc/en/organized-crime/intro/UNTOC.html). The Convention is further supplemented by three Protocols, which target specific areas of organized crime: the Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children; the Protocol against the Smuggling of Migrants by Land, Sea and Air; and the Protocol against the Illicit Manufacturing of and Trafficking in Firearms.

4 UN Convention against Corruption, UN Doc. A/RES/58/4, 31 October 2003 (entered into force 14 December 2005) (UNCAC). For an analysis of the Convention, see Cecily Rose, “Article 1: Statement of purpose”, and Christina Binder and Jane A. Hofbauer, “Article 3: Scope of Application”, in Cecily Rose, Michael Kubiciel and Oliver Landwehr (eds), *The United Nations Convention against Corruption: A Commentary*, Oxford University Press, Oxford, 2019.

also be considered in combating crimes against water. Next, the paper will focus on the role of the UN Security Council in dealing with crimes against water. While water is often used as a method or means of warfare and water infrastructure has been targeted during armed conflicts, the Security Council has only recently addressed attacks against water. Given its primary responsibility for the maintenance of international peace and security,<sup>5</sup> the Security Council should play a role in preventing these attacks. In particular, it is crucial that this body addresses the crimes committed by organized criminal groups, which may often operate with other armed non-State groups.

International humanitarian law (IHL) applies in situations of armed conflict and binds the parties involved, but in addition, international human rights law (IHRL) also applies at all times (both in situations of armed conflict and in peacetime). Thus, in cases of specific threat to water, such as the failure to provide basic services to vulnerable groups, this paper discusses the role of IHRL as a framework that could be used to combat crimes against water during armed conflicts or other situations of violence.

## Crimes against water in criminology

Among crimes against the environment, crimes against water have rarely been the focus of specific attention.<sup>6</sup> The interest of academics in this type of crime is only recent.<sup>7</sup> These crimes may have significant impacts on society, for instance by limiting or polluting water resources. Green criminology,<sup>8</sup> examining the linkages between environmental issues and criminology, provides a theoretical framework for developing an analysis of crimes against water.<sup>9</sup>

The emergence of green criminology dates back to the late 1960s and the beginning of the 1970s, when environmental sociologists and critical criminologists first emphasized the problem of environmental pollution. Green criminology adopts multidisciplinary approaches linking the analysis of environmental harm to criminal law and States' responses to violations.<sup>10</sup>

5 Charter of the United Nations, 1 UNTS XVI, 24 October 1945, Art. 24.

6 Lorenzo Segato, Walter Mattioli and Nicola Capello, "Water Crimes within Environmental Crimes", in Katja Eman *et al.* (eds), *Water, Governance and Crime Issues*, Springer Nature, Cham, 2020; Katja Eman and Gorazd Meško, "Water Crimes and Governance: The Slovenian Perspective", *International Criminology*, Vol. 1, 2021.

7 Samantha Bricknell, *Environmental Crime in Australia*, Australian Institute of Criminology, Canberra, 2010, pp. 103–114; Avi Brisman, William McClanahan and Nigel South, "Water Security, Crime and Conflict", in Michael Tonry (ed.), *Oxford Handbooks Online: Criminology and Criminal Justice*, Oxford University Press, Oxford, 2016; Rob White (ed.), *Environmental Crime: A Reader*, Willan, Cullompton, 2009.

8 Gerben J. N. Bruinsma and Shane D. Johnson, "Environmental Criminology: Scope, History and State of the Art", in G. J. N. Bruinsma and S. D. Johnson (eds), *The Oxford Handbook of Environmental Criminology*, Oxford University Press, Oxford, 2018.

9 Rob White and Katja Eman, "Green Criminology, Water Issues, Human Rights and Private Profit", in K. Eman *et al.* (eds), above note 6.

10 L. Segato, W. Mattioli and N. Capello, above note 6, p. 37.

In light of increasing water scarcity and the pollution of water resources, a growing body of crimes against water has emerged, many of which are predicted to increase in the future.<sup>11</sup> Given the link between water and social and ecological justice, scholars are increasingly paying more attention to the linkages between water and criminology. Crimes against water are often recorded under the crimes of fraud and corruption in domestic criminal laws;<sup>12</sup> for example, water resources may be damaged by the pollution of a watercourse or fraudulent water quality reporting. Domestic criminal law serves as a tool for identifying the most common typologies of crimes against water and may operate as a prevention mechanism to avoid harm to water resources.

### The different features of crimes against water

Crimes against water have various features. Water can be the object of a crime or the means of a crime: respective examples include the theft of drinking water and the intentional flooding or poisoning of a water supply.<sup>13</sup> The International Classification of Crime for Statistical Purposes defines a crime as “any punishable contravention or violation of the limits on human behavior as imposed by national criminal legislation”.<sup>14</sup> Based on this, the Water Crimes Project of 2016 defined a crime against water as “any punishable contravention or violation of the limits on human behavior as imposed by national criminal legislation, against surface [water] and groundwater, or against water services”.<sup>15</sup>

A crime against water may be committed by a natural or legal person and may benefit an individual, a group or a company through the exploitation of, damage to, trade in or theft of water. Examples of crimes against water include water theft, river pollution, manipulation of sampling to avoid treatment costs, and unauthorized consumption from the water network. The Water Crimes Project has classified water crimes into seven types:

1. Water corruption, which includes grand corruption (involving political decision-makers and large-scale investors) and petty corruption (when people or companies are requested to pay money to have access to water or to avoid inspections and fines);
2. water organized crime, which involves the activity of a criminal organization that has taken control over water within a territory;
3. water pollution, which consists in offences against the quality of water;
4. water theft, which consists in a reduction of the quantity of water carried out by the users of a water system in order to gain an economic advantage;
5. water fraud, which consists in fiscal artifices carried out in order to change the measure of the quantity or the quality of water and obtain an illicit gain;

11 *Ibid.*, pp. 31–45.

12 *Ibid.*

13 *Ibid.*, p. 37.

14 *Ibid.*, p. 32.

15 *Ibid.*, p. 38.

6. water terrorism, which includes terrorist attacks against water, in particular those threatening its quality (i.e., poisoning) or availability (i.e., attacks against water infrastructure); and
7. water cyber attacks, which include intrusion into the communication systems of water management companies and the manipulation of their information or networks.<sup>16</sup>

The analysis carried out by scholars in criminology points out that there are several typologies of crimes against water which can be identified in the domestic criminal laws of various countries. Crimes against water are more often committed during armed conflicts, but current literature does not specifically focus on crimes against water during or in the aftermath of armed conflicts. In this context, the present paper suggests two main types of crimes against water: crimes that affect the quantity and/or quality of freshwater resources and the ecosystems dependent on these resources, and crimes affecting water installations, works and facilities.

Armed conflicts may amplify the risks of freshwater shortages. In Iraq, for example, the United Nations Environment Programme (UNEP) noted a general decline in water quantity due to sewage pollution of freshwater.<sup>17</sup> Actions of armed non-State actors may cause the displacement of populations, which may in turn significantly impact groundwater extraction in camps.<sup>18</sup> Camps are commonly supplied with water via a network of groundwater boreholes; often, illegal boreholes are excavated to provide water, and their extraction rate is unsustainable and does not allow the aquifer to recharge.<sup>19</sup>

Crimes against water may affect the quality of water resources, and this is directly reflected in the incidence of waterborne diseases in countries affected by armed conflict.<sup>20</sup> For example, in Sudan, in 2007, it was reported that 80% of reported infections in the country were related to water.<sup>21</sup> In situations of protracted armed conflict, there can be a lack of historical data and investment over several decades, with considerable impacts on the quality of water. Pollution may come from agrochemicals and sewage, point source industrial pollution or high levels of suspended sediments. Moreover, the targeting of industrial facilities often involves the risk of pollution of surface and groundwater resources.<sup>22</sup>

Armed conflict affects installations, facilities and works related to international watercourses. Crimes against water often take the form of

16 L. Segato, W. Mattioli and N. Capello, above note 6, pp. 39–40.

17 UNEP, *Desk Study on the Environment in Iraq*, Nairobi, 2003, p. 30.

18 UNEP, *Sudan: Post-Conflict Environmental Impact Assessment*, Nairobi, 2007, p. 92.

19 *Ibid.*, p. 111.

20 For an analysis of the impacts of attacks against water and wastewater services and the outbreak and transmission of infectious disease in Gaza, Yemen and Iraq, see Michael Talhami and Mark Zeitoun, “The Impact of Attacks on Urban Services II: Reverberating Effects of Damage to Water and Wastewater Systems on Infectious Disease”, *International Review of the Red Cross*, Vol. 102, No. 915, 2022, available at: <https://international-review.icrc.org/articles/impact-of-attacks-on-urban-services-ii-damage-to-wastewater-systems-infectious-disease-915>.

21 UNEP, above note 18, pp. 111, 129.

22 UNEP, *Lebanon: Post-Conflict Environmental Impact Assessment*, Nairobi, 2006, p. 112.

intentional damage to water installations. For instance, Iraq has suffered from systematic and extensive sabotage and looting by ISIS.<sup>23</sup> ISIS seized control of critical dams in order to exert hegemony over downstream cities and rural areas by either cutting off water supplies or releasing a flood wave to drown government-controlled areas. The 2014–15 drought in central and southern Iraq largely resulted from ISIS blocking water flows.<sup>24</sup> In 2014, ISIS flooded hundreds of square kilometres of agricultural land downstream of Fallujah, displacing thousands of people.<sup>25</sup> At one point, ISIS controlled dams along the Euphrates River, from the Tabaqa Dam in Syria to Fallujah Barrage near Baghdad. Only Haditha, Iraq's second-largest dam, remained under government control through the support of the US-led coalition.<sup>26</sup>

Installations other than dams and dykes can also be damaged or destroyed during armed conflicts. In the conflict in Darfur, small waterworks such as wells were destroyed.<sup>27</sup> In many conflicts, from Iraq to Yemen, armed non-State actors directly and indirectly targeted a wide array of civilian infrastructures, including water installations and facilities.<sup>28</sup>

Having examined the features of the crimes against water in armed conflicts, the paper will now focus on some key international legal frameworks. These frameworks can be used to address these crimes and may provide a basis for strengthening cooperation between States aimed at gathering evidence and prosecuting crimes by criminal groups such as the intentional pollution of water resources or the destruction of water installations.

## International legal frameworks for addressing crimes against water

Many different international treaties have emerged with the aim of protecting and allocating transboundary water resources. This includes the codification of the customary rule of international law to protect the environment of international watercourses included in the UN Convention on the Law of the Non-Navigational Uses of International Watercourses of 1997 (UN Watercourses Convention)<sup>29</sup> and the UN Economic Commission for Europe Convention on the Protection and Use of Transboundary Watercourses and International Lakes

23 UNEP, *Environmental Issues in Areas Retaken from ISIL: Mosul Iraq*, Rapid Scoping Mission Technical Note, July–August 2017, p. 2.

24 *Ibid.*, p. 3.

25 *Ibid.*

26 *Ibid.*

27 UNEP, above note 18, p. 93.

28 Jeannie Sowers and Erika Weinthal, "Humanitarian Challenges and the Targeting of Civilian Infrastructure in the Yemen War", *International Affairs*, Vol. 97, No. 1, 2021.

29 Convention on the Law of the Non-Navigational Uses of International Watercourses, 21 May 1997 (entered into force 17 August 2014) (UN Watercourses Convention), Arts 20–23, available at: <https://unece.org/environment-policy/water/un-watercourses-convention>. As of September 2022, the Convention had thirty-seven States Parties.

(UNECE Water Convention).<sup>30</sup> Many of the principles articulated in the 1972 Declaration on the Human Environment<sup>31</sup> and in the 1992 Rio Declaration on Environment and Development<sup>32</sup> have become guiding standards for international agreements regulating the protection of freshwater resources. Since the 1990s, the number of international water agreements that concern the protection of riverine ecosystems and water quality has increased remarkably. For example, the UNECE Water Convention requires an ecologically rational management of waters and addresses the conservation and restoration of damaged ecosystems.<sup>33</sup> Agreements on freshwater resources have established joint commissions in order to deal with the sources and nature of pollution and to put in place measures to fight against contamination.<sup>34</sup> Furthermore, international organizations with a regional scope, such as the UN Economic Commission for Europe and the Council of Europe, have also been active in promoting measures against pollution since the end of the 1960s.<sup>35</sup>

While a myriad of bilateral and basin-level agreements exist in various regions of the world, the situation of armed conflict is rarely addressed in these instruments. An exception is the UN Watercourses Convention, which makes an explicit reference to IHL in order to protect international watercourses and related installations in times of armed conflict.<sup>36</sup>

Most of the agreements do not recognize crimes against water. Instead, they promote cooperation among States for the management of surface and groundwater bodies that cross the boundaries of States. An exception is an Annex on Environmental Protection to the Water Charter of the Niger Basin, which states that the authors and accomplices of bushfires shall be liable to civil and criminal penalties.<sup>37</sup>

30 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 17 March 1992 (entered into force 6 October 1996) (UNECE Water Convention), Arts 2–3, available at: <https://digitallibrary.un.org/record/787804>. As of September 2022, the Convention had forty-six States Parties.

31 Declaration on the Human Environment, UN Doc. A/CONF.48/14, 1972.

32 Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26, Vol. 1, 1992.

33 UNECE Water Convention, above note 30, Art. 2(2).

34 Some of the numerous examples that can be cited in this context are the Great Lakes Water Quality Agreement between the United States and Canada of 1978, as amended in 1983, 1987 and 2012; the Agreements concerning the protection of the Meuse and Scheldt rivers of 1994, as amended in 2002; and the Convention on Cooperation for the Protection and Sustainable Use of the Danube of 1994. See Laurence Boisson de Chazournes, *Freshwater in International Law*, 2nd ed., Oxford University Press, Oxford, 2021, pp. 161–163.

35 In this regard, see for instance Resolution No. 10, ECE Declaration of Policy on Water Pollution, 1966, containing a set of principles dealing with pollution control. Paragraphs 1 and 9 of this resolution are reproduced in the *Yearbook of the International Law Commission*, Vol. 2, Part 2, 1974, p. 332 fn. 216, available at: [https://legal.un.org/ilc/documentation/english/a\\_cn4\\_274.pdf](https://legal.un.org/ilc/documentation/english/a_cn4_274.pdf). See also the Water Charter adopted by the Committee of Ministers of the Council of Europe on 6 May 1968 and Recommendation Rec(2001)14 of the Committee of Ministers to member States on the European Charter on Water Resources (adopted by the Committee of Ministers on 17 October 2001), available at: <https://rm.coe.int/1680504d85>.

36 UN Watercourses Convention, above note 29, Art. 29.

37 Water Charter of the Niger Basin, 30 April 2008 (entered into force July 2010), Annex on Environmental Protection, Art. 71, available at: <https://iea.uoregon.edu/treaty-text/8961>.

A rare example of an international treaty with a specific focus on the protection of the environment through criminal law is the 1998 Council of Europe Convention on the Protection of the Environment through Criminal Law (CoE Environment Convention).<sup>38</sup> This instrument, open to signature for non-member States of the Council of Europe, includes various environmental crimes, such as “the unlawful disposal, treatment, storage, transport, export or import of hazardous waste which causes or is likely to cause death or serious injury to any person or substantial damage to the quality of ... water”.<sup>39</sup> Two other crimes are “the unlawful operation of a plant in which a dangerous activity is carried out and which causes or is likely to cause death or serious injury to any person or substantial damage to the quality of ... water” and “the unlawful manufacture, treatment, storage, use, transport, export or import of nuclear materials or other hazardous radioactive substances which causes or is likely to cause death or serious injury to any person or substantial damage to the quality of ... water”.<sup>40</sup> Thus, the CoE Environment Convention covers crimes related to damage to water resources in its scope of application. The Convention goes further than European Union (EU) legislation categorizing different crimes and specifying sanctions.<sup>41</sup> Although opened for signature in 1998, only one State has ratified the Convention.<sup>42</sup>

The low number of ratifications of the CoE Environment Convention and the absence of provisions on crimes against water in instruments dealing with transboundary water resources illustrate that States still have considerable discretion to regulate and enforce crimes against water. Although according to the Oregon State University’s Database on Freshwater Treaties, more than 600 treaties on water resources had been concluded as of 2007,<sup>43</sup> crimes against water have not been integrated into such legal frameworks.

Besides these legal frameworks, States have started to focus on the interlink between crimes against water, organized crime and corruption. The transnational dimension of organized crime has pushed States to design a multilateral legal framework – the UNTOC with its three Protocols – to encourage and promote

38 Convention on the Protection of the Environment through Criminal Law, European Treaty Series No. 172, 4 November 1998, available at: <https://rm.coe.int/168007f3f4>.

39 *Ibid.*, Art. 2(c).

40 *Ibid.*, Art. 2(d)–(e). See also Art. 2(a)–(b).

41 See Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the Protection of the Environment through Criminal Law, OJ L 328, 6 December 2008 (Environmental Crime Directive), pp. 28–37, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32008L0099>. The Directive requires that EU member States provide effective, proportionate and dissuasive criminal penalties for environmental crimes committed intentionally or as a result of serious negligence.

42 The Convention has been ratified by one country and signed by thirteen States. According to its Article 13 (3), the Convention “shall enter into force on the first day of the month following the expiration of a period of three months after the date on which three States have expressed their consent to be bound by the Convention”.

43 An update of this database to 2019 is currently ongoing. The database is available at: <https://transboundarywaters.science.oregonstate.edu/content/international-freshwater-treaties-database>.

international cooperation on the suppression of organized crime. Other global and regional frameworks could also be used to address crimes against water.

### Transnational organized crime and water: The UNTOC

The UNTOC,<sup>44</sup> while enabling cooperation and mutual legal assistance in organized crime investigations, does not define transnational organized crime or list the kinds of crimes that might constitute it. In this way, the Convention could be applied to crimes against water. The UNTOC defines the notions of “organized criminal group”,<sup>45</sup> “serious crime”<sup>46</sup> and “structured group”,<sup>47</sup> and these definitions guide States in the fight against transnational organized crime in national laws.

Water plays only a limited role in this framework agreement. It was only in 2020 that the Conference of the Parties (CoP) to the UNTOC adopted a specific resolution dealing with crimes that impact the environment.<sup>48</sup> While the main focus of this resolution is on trafficking in wildlife, including flora and fauna, timber and timber products and hazardous waste, as well as poaching, the resolution calls on States Parties to qualify crimes that affect the environment as “serious crime” in accordance with Article 2 of the Convention.<sup>49</sup> This resolution could have an impact on the definition of crimes against water as “serious crimes” when they are the result of transnational organized crime.

The UNTOC and its related practice developed by the CoP could promote the qualification of intentional pollution, poisoning of water resources, or cyber crimes which may affect the quality or quantity of water supplies as “serious crimes” when the offence is transnational and involves an organized criminal group. Moreover, States party to the UNTOC should establish effective measures to prevent, investigate, prosecute and punish crimes that affect the environment and fall within the scope of the Convention. This also includes enhancing cooperation between States, including through mutual legal assistance, on preventing, investigating and prosecuting transnational organized crimes that affect the environment, including water resources.<sup>50</sup>

The UNTOC is supplemented by three Protocols that deal with specific activities. The Protocol against the Illicit Manufacturing of and Trafficking in Firearms, their Parts and Components and Ammunition (Firearms Protocol)

44 As of September 2022, the UNTOC counted 190 States Parties. See the UN Treaty Collection website, available at: <https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&msgid=XVIII-12&chapter=18&clang=en>.

45 UNTOC, above note 3, Art. 2(a).

46 *Ibid.*, Art. 2(b).

47 *Ibid.*, Art. 2(c).

48 Res. 10/6, “Preventing and Combating Crimes that Affect the Environment Falling within the Scope of the United Nations Convention against Transnational Organized Crime”, Tenth Session of the Conference of the Parties, 2020.

49 *Ibid.*, para. 4. See also UNGA Res. 74/177, 18 December 2019, para. 51.

50 Res. 10/6, above note 48, para. 8.

aims to reduce the violence and harm resulting from firearms illegally produced and supplied by organized criminal groups.<sup>51</sup> Firearms and manufacturing may have negative impacts on the environment, including water resources. Lead, copper, zinc, antimony and even mercury can be used in the production of firearms, and these substances can sink into the soil and sometimes leach into groundwater and surface water. Exposure to these contaminants through the soil or water can lead to illness and possibly death for those who spend significant amounts of time in contaminated areas. Therefore, the international system set up by the Protocol for the record-keeping, marking and tracing of arms, as well as the establishment of a licensing and authorization system for the import, transit and export of firearms, contributes to regulating this sector and helps to reduce the risks to the environment.

### Corruption and water: The UNCAC

Another global instrument which might be relevant in the context of crimes against water is the UNCAC.<sup>52</sup> One of the main objectives of this treaty is the promotion, facilitation and support of international cooperation and technical assistance in the prevention of and the fight against corruption.<sup>53</sup> According to its terms, the UNCAC applies to the “prevention, investigation and prosecution of corruption and to the freezing, seizure, confiscation and return of the proceeds of offences established in accordance with this Convention”.<sup>54</sup> Corruption may support and facilitate the commission of crimes against water; examples of this include the bribery of high-ranking officials to obtain concessions and permits for access to land, forests or water resources, or corruption within the police and investigative units. The CoP to the UNCAC has adopted a specific resolution to prevent and combat corruption as relating to crimes that have impacts on the environment.<sup>55</sup> This resolution encourages States Parties to establish and develop confidential complaint systems and whistle-blower protection programmes, including protected reporting systems and effective witness protection measures, and to increase awareness of such measures in the context of crimes that have an impact on the environment, including water.<sup>56</sup>

51 Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition, UN Doc. A/RES/55/255, 31 May 2001 (entered into force 3 July 2005).

52 As of November 2021, the UNCAC has 189 States Parties.

53 According to its Article 1, the purposes of the UNCAC are “(a) To promote and strengthen measures to prevent and combat corruption more efficiently and effectively; (b) To promote, facilitate and support international cooperation and technical assistance in the prevention of and fight against corruption, including in asset recovery; (c) To promote integrity, accountability and proper management of public affairs and public property.”

54 UNCAC, above note 4, Art. 3(1).

55 Resolution 8/12, “Preventing and Combating Corruption as It Relates to Crimes that Have an Impact on the Environment”, Eight Session of the Conference of the Parties, 2019.

56 *Ibid.*, para. 12.

## Regional frameworks for combating transnational organized crime against water

Regional legal frameworks may also have an impact on preventing and combating transnational organized crime against water. While in 2011 the cost of transnational environmental crime was estimated at between \$70 billion and \$213 billion,<sup>57</sup> in only four years this increased to \$91–258 billion annually.<sup>58</sup> Criminal activities related to the environment deprive countries of future revenues and have an impact on their economic and social development.<sup>59</sup> At the level of the EU, the 2008 Council Framework Decision on the Fight against Organized Crime<sup>60</sup> and the 2008 Directive on the Protection of the Environment through Criminal Law (Environmental Crime Directive) may have an impact on addressing crimes against water. While the former instrument details the main objectives of cooperation between EU countries in combating organized crime, the latter may contribute to harmonizing criminal legislation between EU countries in order to address crimes against water.

Interestingly, in December 2021, the European Commission adopted a proposal for a new Directive on the Protection of the Environment through Criminal Law.<sup>61</sup> The proposal defines new crimes against the environment and introduces more detailed provisions on sanctions, rules for strengthening enforcement, and measures to assist people who report crimes and cooperate with enforcement authorities. The proposal for the new Directive adds a specific crime against water, namely “the abstraction of surface water or groundwater which causes or is likely to cause substantial damage to the ecological status or potential of surface water bodies or to the quantitative status of groundwater bodies”.<sup>62</sup> Illegal water abstraction contributes to serious depletion of water resources, and this is a problem which is worsening as a result of climate change. In a 2021 Special Report entitled *Sustainable Water Use in Agriculture*, the Court of Auditors of the EU documents the ineffectiveness of administrative measures for addressing over-abstraction of water and stresses that controls are infrequent

57 See Europol, “Environmental Crime”, available at: [www.europol.europa.eu/crime-areas-and-statistics/crime-areas/environmental-crime](http://www.europol.europa.eu/crime-areas-and-statistics/crime-areas/environmental-crime).

58 Christian Nellmann *et al.* (eds), *The Rise of Environmental Crime: A Growing Threat To Natural Resources, Peace, Development and Security*, UNEP-Interpol Rapid Response Assessment, UNEP and RHIPTO Rapid Response–Norwegian Center for Global Analyses, 2016, p. 4, available at: <https://tinyurl.com/3rf7c82v>.

59 *Ibid.*, p. 4.

60 Council Framework Decision 2008/841/JHA of 24 October 2008 on the Fight against Organised Crime, OJ L 300, 11 November 2008, pp. 42–45, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32008F0841>.

61 European Commission, “European Green Deal: Commission Proposes to Strengthen the Protection of the Environment through Criminal Law”, press release, 15 December 2021, available at: [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_21\\_6744](https://ec.europa.eu/commission/presscorner/detail/en/ip_21_6744).

62 Proposal for a Directive of the European Parliament and of the Council on the Protection of the Environment through Criminal Law and Replacing Directive 2008/99/EC, COM/2021/851 final, 15 December 2021, Art. 3(1)(k), available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0851>.

and sanctions too low to ensure effective implementation and compliance with relevant obligations.<sup>63</sup> An approach based on criminal law is therefore supported.

In May 2021, the Council of the EU identified the ten priority crime threats for the EU countries.<sup>64</sup> These priorities include criminal networks involved in crimes against the environment. While the focus is on waste and wildlife trafficking, the document explicitly mentions the mismanagement of water resources. Moreover, another priority indicated by the Council which might have implications for addressing crimes against water is the fight against cyber crimes.<sup>65</sup> Although this is not explicitly affirmed by the Council of the European Union, European countries should collaborate to disrupt criminal groups or individuals carrying out cyber attacks. In the last few years, cyber crime has become more aggressive and confrontational, and the rapid digitalization of society has created new vulnerabilities in the water sector that can be exploited by criminals involved in cyber crime. Cyber attacks may also involve the water sector, particularly limiting the provision of water supplies or putting the quality of drinking water for the population at risk.<sup>66</sup>

The EU Agency for Law Enforcement Cooperation (Europol) also plays an important role in the EU, supporting police cooperation and information exchange. Every four years, Europol produces the *European Union Serious and Organised Crime Threat Assessment* report. The last report, of 2021, only explicitly mentions the illegal trafficking of waste;<sup>67</sup> other forms of crimes having an impact on the environment have not been explicitly included in the report. However, other illegal activities such as drug trafficking and counterfeiting goods may also have an impact on water resources – for example, improperly produced pesticides can pollute the air, water and soil for an extended period. The impact on health is not only limited to farmers and the farming community but also extends to the consumers of cultivated food products.<sup>68</sup>

Recent years have seen an increase in the institutionalization of cooperation to address crimes against water. The 2008 Environmental Crime Directive aimed to provide a harmonized legal framework for facilitating cross-border cooperation on crimes against the environment. However, despite the progress in creating an EU-wide common set of definitions of crimes against the environment and more dissuasive

63 European Court of Auditors, *Sustainable Water Use in Agriculture: CAP Funds More Likely to Promote Greater rather than More Efficient Water Use*, Special Report No. 20/2021, 2021, p. 35, available at: [www.eca.europa.eu/en/Pages/DocItem.aspx?did=59355](http://www.eca.europa.eu/en/Pages/DocItem.aspx?did=59355).

64 Council of the EU, “Fight against Organised Crime: Council Sets Out 10 Priorities for the Next 4 Years”, press release, 26 May 2021, available at: [www.consilium.europa.eu/en/press/press-releases/2021/05/26/fight-against-organised-crime-council-sets-out-10-priorities-for-the-next-4-years/](http://www.consilium.europa.eu/en/press/press-releases/2021/05/26/fight-against-organised-crime-council-sets-out-10-priorities-for-the-next-4-years/).

65 *Ibid.*

66 Jim Magill, “U.S. Water Supply System Being Targeted by Cybercriminals”, *Forbes*, 25 July 2021, available at: [www.forbes.com/sites/jimmagill/2021/07/25/us-water-supply-system-being-targeted-by-cybercriminals/?sh=3f97ba2d28e7](http://www.forbes.com/sites/jimmagill/2021/07/25/us-water-supply-system-being-targeted-by-cybercriminals/?sh=3f97ba2d28e7).

67 EU and Interpol, *European Union Serious and Organised Crime Threat Assessment: A Corrupting Influence: The Infiltration and Undermining of Europe’s Economy and Society by Organized Crime*, 2021, p. 13, available at: [www.europol.europa.eu/publication-events/main-reports/european-union-serious-and-organised-crime-threat-assessment-socta-2021](http://www.europol.europa.eu/publication-events/main-reports/european-union-serious-and-organised-crime-threat-assessment-socta-2021).

68 *Ibid.*, p. 8.

sanctions, member States still struggle to reconcile their respective understandings of crimes against the environment,<sup>69</sup> and the primary responsibility for fighting organized environmental crime still rests with the individual EU member States.

There is increasing recognition of the impact of criminal activities on water resources, but the impacts of overexploitation of water resources and pollution are not yet clearly included in the international legal frameworks protecting the environment through criminal law. International law is still in its infancy in this domain. The next section of the paper will focus on the linkages between crimes against water and armed conflicts and will also present some examples of crimes against water committed by non-State armed groups.

## **Crimes against water committed by terrorist and non-State armed groups during armed conflicts and other situations of violence**

Terrorist and non-State armed groups may threaten water in various ways. The first form of threat is when water supplies are intentionally contaminated by introducing biological or chemical contaminants into a publicly accessible city water supply. In 2015, a criminal group sympathetic to ISIS threatened to poison water supplies in Pristina; the police were able to prevent the attack just before it was carried out.<sup>70</sup> In the United States, the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 contains a specific chapter on “drinking water security and safety”.<sup>71</sup> The Act requires vulnerability assessments and emergency response plans for most community water systems against terrorist attacks and other intentional acts.

The second form of threat to water involves attacks against water infrastructure. For example, an attack might target a large hydroelectric dam on an important river and limit the energy used for the water supply of a city. Terrorists might not be able to cause serious structural damage to a big dam, but the adverse consequences of a failure in a major dam should be assessed and reduced in good time. A failure in the physical operation of a dam can kill

69 European Commission, *Evaluation of the Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the Protection of the Environment through Criminal Law*, Commission Staff Working Document, SWD (2020) 259 final, Brussels, 28 October 2020, Part I, pp. 63–65, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020SC0259>.

70 “Kosovo Cuts Pristina Water Supply over Alleged ISIS Plot to Poison Reservoir”, *The Guardian*, 11 July 2015, available at: [www.theguardian.com/world/2015/jul/11/kosovo-cuts-pristina-water-supply-over-alleged-isis-plot-to-poison-reservoir](http://www.theguardian.com/world/2015/jul/11/kosovo-cuts-pristina-water-supply-over-alleged-isis-plot-to-poison-reservoir).

71 Public Health Security and Bioterrorism Preparedness and Response Act, 2002, *Public Law*, 12 June 2002, pp. 107–188, available at: [www.govinfo.gov/content/pkg/PLAW-107publ188/pdf/PLAW-107publ188.pdf](http://www.govinfo.gov/content/pkg/PLAW-107publ188/pdf/PLAW-107publ188.pdf). Title IV provides: “Each community water system serving a population of greater than 3,300 persons shall conduct an assessment of the vulnerability of its system to a terrorist attack or other intentional acts intended to substantially disrupt the ability of the system to provide a safe and reliable supply of drinking water. The vulnerability assessment shall include, but not be limited to, a review of pipes and constructed conveyances, physical barriers, water collection, pretreatment, treatment, storage and distribution facilities, electronic, computer or other automated systems which are utilized by the public water system, the use, storage, or handling of various chemicals, and the operation and maintenance of such system”. See also Peter H. Gleick, “Water and Terrorism”, *Water Policy*, Vol. 8, No. 6, 2006, p. 500.

thousands of people, and even more modest damage might interrupt power generation or affect the operation of water supplies. In this context, an example is the ISIS control of strategic dams on the Tigris and Euphrates rivers in Syria and Iraq. ISIS's control over these water installations allowed the group to draw on large amounts of water and energy to sustain the extraction, processing and sale of crude oil that provided funding for its operations.<sup>72</sup> There can also be attacks against smaller infrastructure than dams, which may greatly impact the population. In the first half of 2022, the WASH Cluster of Burkina Faso reported several attacks against water wells in Djibo and sabotage of the electrical network, with a consequent interruption of water services, in Dori, as well as acts of intimidation against women collecting water.<sup>73</sup> While those responsible for these attacks are not identified in the WASH Cluster report, it should be noted that various actors operate in Burkina Faso, including non-State armed groups and criminal groups. In this context, with the support of the UN Office on Drugs and Crime (UNODC), Burkina Faso is implementing a battlefield evidence collection project covering terrorism cases<sup>74</sup> which could potentially cover attacks against water installations.

The third form of threat to water is cyber crime. For instance, in February 2021, hackers broke into the city of Oldsmar's water treatment facility in Florida and changed chemical levels, making the water unsafe to consume.<sup>75</sup> Similarly, in 2020 Israel claimed that there were attempted cyber attacks against its water treatment plants aimed at raising chlorine level in the national water supply system.<sup>76</sup> These new typologies of attacks against water systems and infrastructure pose a real and significant risk to human life, the economy, and the security of States. Cyber operations might disrupt essential civilian services such as access to water supplies without damaging or destroying civilian infrastructure.<sup>77</sup> Armed conflicts create conditions for organized crime and cyber crime to flourish, and this may amplify the risks to the internal security of States.<sup>78</sup>

72 T. von Lossow, above note 2, p. 3.

73 WASH Cluster, Burkina Faso, *Alerte sur l'intensification des attaques aux points d'eau et tensions autour des points d'eau au Burkina Faso*, 15 April 2022, available at: <https://tinyurl.com/5n6nkaxt>.

74 UNODC, "Burkina Faso", available at: [www.unodc.org/westandcentralafrica/en/westandcentralafrica/countries/Burkina\\_Faso.html](http://www.unodc.org/westandcentralafrica/en/westandcentralafrica/countries/Burkina_Faso.html).

75 Frances Robles and Nicole Perloth "‘Dangerous Stuff’: Hackers Tried to Poison Water Supply of Florida Town", *New York Times*, 8 February 2021, available at: [www.nytimes.com/2021/02/08/us/oldsmar-florida-water-supply-hack.html](http://www.nytimes.com/2021/02/08/us/oldsmar-florida-water-supply-hack.html).

76 Tyler Wall, "Throwback Attack: Hackers Attempt to Flood Israeli Water Supply with Chlorine", *Industrial Cybersecurity Pulse*, 26 May 2022, available at: [www.industrialcybersecuritypulse.com/facilities/throwback-attack-hackers-attempt-to-flood-israeli-water-supply-with-chlorine/](http://www.industrialcybersecuritypulse.com/facilities/throwback-attack-hackers-attempt-to-flood-israeli-water-supply-with-chlorine/).

77 See Geneva Water Hub, *Principle: Cyber Operations: Annex to the Geneva List of Principles on the Protection of Water Infrastructure*, 2021, available at: [www.genevawaterhub.org/news/annex-geneva-list-principles-protection-water-infrastructure-cyber-operations-principle](http://www.genevawaterhub.org/news/annex-geneva-list-principles-protection-water-infrastructure-cyber-operations-principle).

78 For example, cyber attacks have increased since the Russia military aggression in Ukraine. In March 2022, the EU justice and home ministers convened an extraordinary meeting to reinforce their cooperation including on cyber crimes. Council of the EU, "Extraordinary Meeting of the EU Justice and Home Ministers", press release, 28 March 2022, available at: [www.consilium.europa.eu/en/meetings/jha/2022/03/28/](http://www.consilium.europa.eu/en/meetings/jha/2022/03/28/).

Crimes against water, in particular intentional attacks against installations providing water supplies to the civilian population, have been addressed by the UN Security Council. In this context, the paper will now focus on terrorist threats against water supplies and the protection of objects indispensable to the survival of the civilian population, such as water installations, during armed conflicts.

## The role of the Security Council in addressing threats to water

The Security Council has addressed threats to critical infrastructure – including attacks against water installations by terrorist groups<sup>79</sup> – and the protection of objects indispensable to the survival of the civilian population<sup>80</sup> in its resolutions. The resolutions adopted by the Security Council do not create international norms, but they may be evidence of general principles of law<sup>81</sup> or reflect *opinio juris*.<sup>82</sup> Unanimous Security Council resolutions may be of “great relevance to the formation of *opinio juris*”<sup>83</sup> and may influence State behaviour.<sup>84</sup> Although resolutions alone will rarely reflect the generality of State practice,<sup>85</sup> they may provide an additional evidence of international customary law.<sup>86</sup> In this regard, the International Law Commission (ILC), in its Draft Conclusions on the Identification of Customary International Law, has noted that “[i]n certain cases, the practice of international organizations also contributes to the formation, or expression, of rules of customary international law”.<sup>87</sup> Although the ILC has limited the cases in which international organizations can develop customary international law, it has indicated that the practice of an international organization may reflect a customary rule of international law.<sup>88</sup> As noted by Fox *et al.*:

Treating Council resolutions as evidence of customary law is, first and foremost, a function of the Council’s role in the law of international peace and security.

79 UNSC Res. 2341, 13 February 2017.

80 UNSC Res. 2573, 27 April 2021.

81 Peter Hulsroj, “The Legal Function of the Security Council”, *Chinese Journal of International Law*, Vol. 1, No. 1, 2002, p. 70.

82 Perrin de Brichambaut, “The Role of the United Nations Security Council in the International Legal System”, in Michael Byers (ed.), *The Role of International Law in International Politics*, Oxford University Press, Oxford, 2001, p. 273.

83 International Criminal Tribunal for Former Yugoslavia (ICTY), *The Prosecutor v. Duško Tadić*, Case No. IT-94-1, Interlocutory Appeal, 2 October 1995, para. 133.

84 Oscar Schachter, “The Quasi-Judicial Role of the Security Council and the General Assembly”, *American Journal of International Law*, Vol. 58, No. 4, 1964, p. 963.

85 Vera Gowlland-Debbas, “The Functions of the United Nations Security Council in the International Legal System”, in M. Byers (ed.), above note 82, p. 300.

86 Gregory H. Fox, Kristen E. Boon and Isaac Jenkins, “The Contributions of United Nations Security Council Resolutions to the Law of Non-International Armed Conflict: New Evidence of Customary International Law”, *American University Law Review*, Vol. 67, 2018, pp. 693–712.

87 International Law Commission, “Draft Conclusions on Identification of Customary International Law, with Commentaries”, *Yearbook of the International Law Commission*, Vol. 2, Part II, A/73/10, 2018, p. 130.

88 *Ibid.*, p. 131.

To ignore or marginalize Council practice, treating it as no more important than or, potentially, less important than state practice, would be inconsistent with the central role in conflict mitigation that states have already assigned to the Council.<sup>89</sup>

In this context, the present paper argues that Resolution 2341 of 2017 and Resolution 2573 of 2021 are evidence of the customary rule prohibiting attacks against water installations by terrorist groups and all parties to an armed conflict, including criminal groups. The Security Council has over the last two decades addressed armed non-State actors directly (using the expressions “all parties” and “factions” or referring directly to the groups by name) and has called on them to respect IHL and IHRL. In 2011, for example, it condemned “human rights violations perpetrated by the FPR” (Front Populaire pour le Redressement) in the Central African Republic<sup>90</sup> and called on the UN Integrated Peacebuilding Office in the Central African Republic “to report on human rights violations perpetrated by armed groups particularly against children and women”.<sup>91</sup>

### Security Council Resolution 2341

Resolution 2341, unanimously adopted by the fifteen member States of the Security Council in 2017, calls on States to establish “terrorist acts as serious criminal offences in domestic laws and regulations” and “to ensure that they have established criminal responsibility for terrorist attacks intended to destroy or disable critical infrastructure, as well as the planning of, training for, and financing of and logistical support for such attacks”.<sup>92</sup> Among the various forms of critical infrastructure, Resolution 2341 explicitly covers water and energy installations which may be targeted by terrorist attacks.<sup>93</sup> In particular, the Security Council

directs the Counter-terrorism Committee ... to examine Member States efforts to protect critical infrastructure from terrorist as relevant to the implementation of resolution 1373 (2001) with the aim of identifying good practices, gaps and vulnerabilities in this field.<sup>94</sup>

Although Resolution 2341 does not create binding obligations as such, it can provide additional evidence of the existence of a customary rule prohibiting attacks intended to destroy or disable critical water infrastructure by terrorist groups.<sup>95</sup> This resolution develops further the existing law, supporting the development of

89 G. H. Fox, K. E. Boon, and I. Jenkins, above note 86, p. 697.

90 UNSC Res. 2031, 21 December 2011, para. 13; see also UNSC Res. 2088, 24 January 2013, para. 13.

91 UNSC Res. 2031, above note 90, para. 14.

92 UNSC Res. 2341, above note 79, para. 3.

93 *Ibid.*, p. 2.

94 *Ibid.*, para. 10.

95 Jean-Marie Henckaerts and Louise Doswald-Beck (eds), *Customary International Humanitarian Law*, Vol. 1: *Rules*, Cambridge University Press, Cambridge, 2005 (ICRC Customary Law Study), Rule 54, available at: <https://ihl-databases.icrc.org/en/customary-ihl/v1>.

domestic criminal laws establishing criminal responsibility for terrorist attacks intended to destroy or disable critical water infrastructure, as well as the planning of, training for, and financing of and logistical support for such attacks. Such legislation may act as a mechanism for preventing attacks against critical water infrastructure by terrorist groups.

While there are a number of conventions and protocols dealing with terrorism, the topic of water infrastructure is not explicitly addressed in these instruments.<sup>96</sup> Moreover, the UNTOC only covers terrorist groups if they engage in material pursuits to fund their activities.<sup>97</sup> While the Security Council had already recognized the linkages between terrorist groups and organized crime in previous resolutions,<sup>98</sup> Resolution 2341 attests to the existence of the customary prohibition against the destruction or disabling of critical water infrastructure by both terrorist groups and organized criminal groups.

### Security Council Resolution 2573

Like Resolution 2341, Resolution 2573 of 2021 was also unanimously adopted by the member States of the Security Council. This resolution also represents an additional evidence of the customary rule that prohibits attacking, destroying, removing or rendering useless objects indispensable to the survival of the civilian population. This rule applies to *all* parties to an armed conflict. In its resolution, the Security Council

96 At the global level, there are nineteen universal anti-terrorism instruments: the 1963 Convention on Offences and Certain Other Acts Committed On Board Aircraft; the 1970 Convention for the Suppression of Unlawful Seizure of Aircraft; the 1971 Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation; the 1973 Convention on the Prevention and Punishment of Crimes against Internationally Protected Persons, including Diplomatic Agents; the 1979 International Convention against the Taking of Hostages; the 1980 Convention on the Physical Protection of Nuclear Material; the 1988 Protocol for the Suppression of Unlawful Acts of Violence at Airports Serving International Civil Aviation; the 1988 Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation; the 1988 Protocol for the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf; the 1991 Convention on the Marking of Plastic Explosives for the Purpose of Detection; the 1997 International Convention for the Suppression of Terrorist Bombings; the 1999 International Convention for the Suppression of the Financing of Terrorism; the 2005 International Convention for the Suppression of Acts of Nuclear Terrorism; the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material; the 2005 Protocol to the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation; the 2005 Protocol to the Protocol for the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf; the 2010 Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation; the 2010 Protocol Supplementary to the Convention for the Suppression of Unlawful Seizure of Aircraft; and the 2014 Protocol to the Convention on Offences and Certain other Acts Committed on Board Aircraft. For information on these instruments and the number of ratifications, see: <https://bit.ly/3DI19cq>.

97 Neil Boister, *An Introduction to Transnational Criminal Law*, 2nd ed., Oxford University Press, Oxford, 2018, pp. 132–334.

98 UNSC Res. 2195, 19 December 2014, para. 8. The Security Council affirmed that “terrorists benefit from transnational organized crime in some regions, including from ... the illicit trade in natural resources including gold and other precious metals and stones, minerals, wildlife, charcoal and oil”.

demands that *all* parties to armed conflict fully comply with their obligations under international humanitarian law regarding taking due care to spare the civilian population, civilians and civilian objects, refraining from attacking, destroying, removing or rendering useless objects indispensable to the survival of the civilian population, and respecting and protecting humanitarian personnel and consignments used for humanitarian relief operations.<sup>99</sup>

Thus, the Security Council reminds all parties to an armed conflict of their obligations under Article 54 of Additional Protocol I (AP I) and Article 13 of Additional Protocol II (AP II), which explicitly protect water supplies.<sup>100</sup> Furthermore, the Security Council “strongly condemns the use of starvation of civilians as a method of warfare in a number of armed conflict situations which is prohibited by international law and may constitute a war crime”.<sup>101</sup> Starvation is a crime entailing individual criminal responsibility in both international and non-international armed conflicts.<sup>102</sup>

Having examined the role of the Security Council in addressing attacks against water infrastructure by terrorist groups and criminal groups, the paper will now examine the relationship between crimes against water, IHL and IHRL. In so doing, the following sections will discuss how attacks against water during armed conflicts or other situations of violence are addressed under these two areas of international law.

## The application of IHL to organized non-State armed groups and criminal groups

Criminal groups may become parties to an armed conflict.<sup>103</sup> The qualification as an organized armed group would allow for their members to be held responsible for international crimes,<sup>104</sup> including those related to water. Organized criminal groups may operate in armed conflicts both of international and non-

99 UNSC Res. 2573, above note 80, para. 3 (emphasis added).

100 Protocol Additional (I) to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, 1125 UNTS 3, 8 June 1977 (entered into force 7 December 1978) (AP I); Protocol Additional (II) to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts, 1125 UNTS 610, 8 June 1977 (entered into force 7 December 1978) (AP II).

101 UNSC Res. 2573, above note 80, para. 4.

102 Rome Statute of the International Criminal Court, 17 July 1998 (entered into force 1 July 2002) (Rome Statute), Arts 8(2)(b)(xxv), 8(2)(e)(xix), available at: <https://ihl-databases.icrc.org/applic/ihl/ihl.nsf/INTRO/585?OpenDocument>.

103 Chiara Radaelli, “The War on Drugs: Challenges for International Humanitarian Law”, *Anuario Iberoamericano sobre Derecho Internacional Humanitario*, March 2021, p. 5; Pierre Hauck and Sven Peterke, “Organized Crime and Gang Violence in National and International Law”, *International Review of the Red Cross*, Vol. 92, No. 878, 2010, p. 433; David Petrasek, *Ends and Means: Human Rights Approaches to Armed Groups*, International Council on Human Rights Policy, Versoix, 2000, p. 5, available at: <https://reliefweb.int/report/world/ends-and-means-human-rights-approaches-armed-groups>.

104 P. Hauck and S. Peterke, above note 103, p. 417.

international character; for example, in the Sahel region, the presence of criminal groups has increased in the last few years.<sup>105</sup>

Organized criminal groups may sometimes be directly involved in an armed conflict and act as non-State armed groups. Two main legal sources must be examined in order to determine the application of IHL to these groups: Article 3 common to the four Geneva Conventions of 1949, and Article 1 of AP II. In order to distinguish an armed conflict from less serious forms of violence such as internal disturbances and tensions, riots or acts of banditry, the situation must reach a certain threshold of confrontation. Two criteria are usually used in this regard.<sup>106</sup> First, the hostilities must reach a minimum level of intensity – this may be the case, for example, when the hostilities are of a collective character or when the government is obliged to use military force against the insurgents, instead of mere police forces.<sup>107</sup> Second, non-governmental groups involved in the conflict must be considered as “parties to the conflict”, meaning that they possess organized armed forces. For example, these forces have to be under a certain command structure and must have the capacity to sustain military operations.<sup>108</sup>

Judgments and decisions of the International Criminal Tribunal for the former Yugoslavia (ICTY) shed further light on the definition of non-international armed conflicts. The ICTY determined the existence of a non-international armed conflict “whenever there is ... protracted armed violence between governmental authorities and organised armed groups or between such groups within a State”.<sup>109</sup> The ICTY thus confirmed that the definition of “non-international” in the sense of common Article 3 encompasses situations where “several factions [confront] each other without involvement of the government’s armed forces”.<sup>110</sup> Since this first ruling on the *Tadić* case, each judgment of the ICTY has taken this definition as a starting point. Given this jurisprudence, IHL applies to organized criminal groups when there is protracted armed violence between governmental authorities and these groups or even between such groups within a State.<sup>111</sup> The application of IHL encompasses situations where several factions confront each other even in the case of the absence of a government’s armed forces.

Organized criminal groups may engage in armed violence against the government, including through the pollution of water resources, the corruption of officials and even the destruction of water infrastructure. These actions can have

105 Adama Dieng, “Editorial: The Sahel: Challenges and Opportunities”, *International Review of the Red Cross*, Vol. 103, No. 918, 2022, pp. 768–769.

106 ICTY, *The Prosecutor v. Duško Tadić*, Case No. IT-94-1-T, Judgment, 7 May 1997, paras 561–568; see also ICTY, *The Prosecutor v. Fatmir Limaj*, Case No. IT-03-66-T, Judgment, 30 November 2005, para. 84.

107 For a detailed analysis of this criteria, see ICTY, *Limaj*, above note 106, paras 135–170.

108 See Dietrich Schindler, *The Different Types of Armed Conflicts According to the Geneva Conventions and Protocols*, Collected Courses of the Hague Academy of International Law, Vol. 163, 1979, p. 147. For a detailed analysis of this criterion, see ICTY, *Limaj*, above note 106, paras 94–134.

109 ICTY, *The Prosecutor v. Duško Tadić*, Case No. IT-94-1-A, Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction, 2 October 1995, para. 70.

110 Yves Sandoz, Christophe Swinarski and Bruno Zimmermann, *Commentary on the Additional Protocols*, ICRC, Geneva, 1987, para. 4461.

111 ICTY, *Tadić*, above note 109, para. 70.

a dramatic impact on the population. State practice, international case law and scholarship all agree that common Article 3 and customary IHL apply to all categories of armed non-State actors that are parties to non-international armed conflicts.<sup>112</sup>

Crimes against water can be related to war crimes committed during non-international armed conflicts. The intentional deprivation of water supplies may constitute a war crime: under the Rome Statute of the International Criminal Court (ICC), intentionally using starvation of civilians as a method of warfare, by depriving them of objects indispensable to their survival such as drinking water supplies, is recognized as a war crime during non-international armed conflicts.<sup>113</sup> Moreover, the intentional poisoning of water, for example through the contamination of wells, may also constitute a war crime during non-international armed conflicts.<sup>114</sup>

In non-international armed conflicts, the Rome Statute does not consider launching an attack against civilian objects, including works or installations containing dangerous forces such as dams and dykes in the knowledge that such attack will cause excessive loss of life, injury to civilians or damage to civilian objects, as a war crime. In international armed conflicts, however, the Statute criminalizes such attacks.<sup>115</sup> Besides this, grave breaches under AP I include indiscriminate attacks affecting civilian objects and attacks against works and installations containing dangerous forces in the knowledge that such attacks will be disproportional.<sup>116</sup>

AP II grants special protection to works and installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations. Even if they constitute military objectives, these installations must not be made the object of attack if such attack may cause the release of forces contained therein, and consequent severe losses among the civilian population.<sup>117</sup> Moreover, dams and dykes are also protected under customary IHL. Rule 42 of the International Committee of the Red Cross (ICRC) Customary Law Study states:

Particular care must be taken if works and installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, and other installations located at or in their vicinity are attacked, in order to avoid the release of dangerous forces and consequent severe losses among the civilian population.<sup>118</sup>

112 In *Nicaragua v. United States of America*, the International Court of Justice (ICJ) confirmed that common Article 3 was applicable to the Contras (an armed non-State group). “The conflict between the contras’ forces and those of the Government of Nicaragua is an armed conflict which is ‘not of an international character’. The acts of the contras towards the Nicaraguan Government are therefore governed by the law applicable to conflicts of that character.” See ICJ, *Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America)*, Judgment, 27 June 1986, *ICJ Reports 1986*, para. 219.

113 Rome Statute, above note 102, Art. 8(2)(e)(xix).

114 *Ibid.*, Art. 8(2)(e)(xiii).

115 *Ibid.*, Arts 8(2)(b)(iv), 8(2)(b)(xxv).

116 *Ibid.*, Arts 85(3)(b)–(c).

117 AP I, Art. 56(1).

118 ICRC Customary Law Study, above note 95, Rule 42.

This rule is applicable in both international and non-international armed conflicts and is binding on armed non-State actors. Customary IHL criminalizes “serious violations” of IHL, both in international and non-international armed conflicts, as war crimes.<sup>119</sup> The Geneva Conventions also call upon High Contracting Parties to “suppress” *all acts* contrary to their provisions, including criminalizing conducts contrary to common Article 3 in non-international armed conflicts.<sup>120</sup> As indicated below, there are State practices supporting the idea of criminalizing violations, including those relating to water and water infrastructure, in non-international armed conflicts.<sup>121</sup>

Under customary IHL, criminal groups are also bound by the general principles on the conduct of hostilities related to the environment. According to customary IHL, “no part of the natural environment may be attacked, unless it is a military objective”. Moreover, the “destruction of any part of the natural environment is prohibited, unless required by imperative military necessity” and “launching an attack against a military objective which may be expected to cause incidental damage to the environment which would be excessive in relation to the concrete and direct military advantage anticipated is prohibited”.<sup>122</sup>

Article 8.2(b)(iv) of the Rome Statute criminalizes attacks against the environment only in international armed conflicts. However, some provisions of the Statute, which do not directly concern the environment, make it possible to criminalize such attacks during non-international armed conflicts. Under Article 8.2(c), “serious violations of Article 3 common to the four Geneva Conventions of August 12, 1949” are prohibited. The term “serious violations” encompasses a panoply of crimes against the person, such as violence to life, cruel treatment and torture or committing outrages upon personal dignity, including humiliating and degrading treatment.<sup>123</sup> Criminal responsibility for crimes against the environment and water could be incurred on the basis of the reference to violence to the life and dignity of the person. Acts which make water unsafe for the population could fall into the category of violence to life. Polluted water or lack of access to water can affect human health, food production and living conditions and have negative consequences on the human rights to water, food and/or health. In this context, the next section of the paper will address the applicability of IHRL to criminal armed groups.

119 *Ibid.*, Rule 56.

120 Geneva Convention (I) for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field of 12 August 1949, 75 UNTS 31 (entered into force 21 October 1950), Art. 49; Geneva Convention (II) for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea of 12 August 1949, 75 UNTS 85 (entered into force 21 October 1950), Art. 50; Geneva Convention (III) relative to the Treatment of Prisoners of War of 12 August 1949, 75 UNTS 135 (entered into force 21 October 1950), Art. 129; Geneva Convention (IV) relative to the Protection of Civilian Persons in Time of War of 12 August 1949, 75 UNTS 287 (entered into force 21 October 1950), Art. 146. See also ICTY, *Tadić*, above note 83, para. 94.

121 See e.g. Australia, Criminal Code Act, 1995 (amended 2007), Art. 268(94)(1)(c); Democratic Republic of the Congo, Military Penal Code, 2002, Art. 166.

122 ICRC Customary Law Study, above note 95, Rule 43.

123 Rome Statute, above note 102, Art. 8(2)(c)(i)–(ii).

## IHRL and criminal armed groups

The UN Human Rights Council has addressed violations of IHL and IHRL in its resolutions, and has made reference to organized criminal groups. In multiple resolutions on Mali, the Council condemned

the excesses and abuses committed in the Republic of Mali, particularly in the north of the country, by, among others, the rebels, terrorist groups and other organized transnational crime networks, which include violence against women and children, ... pillaging, [and] destruction of cultural and religious sites ... as well as all other human rights violations.<sup>124</sup>

Although not common, this reference to “transnational crime networks” in the resolutions on Mali shows that the Human Rights Council is prepared to address violence committed by various armed non-State actors, including transnational crime networks. In another resolution entitled “The Human Rights Situation in Iraq in the Light of Abuses Committed by the So-Called Islamic State in Iraq and the Levant and Associated Groups”, the Council expressed its deep concern about

the increasing and dramatic human rights violations and abuses and violations of international humanitarian law in Iraq resulting from the terrorist acts committed by the so-called Islamic State in Iraq and the Levant and associated terrorist groups against the Iraqi people.<sup>125</sup>

It also condemned

in the strongest possible terms the systematic violations and abuses of human rights and violations of international humanitarian law resulting from the terrorist acts committed by the so-called Islamic State in Iraq and the Levant and associated groups taking place since 10 June 2014 in several provinces of Iraq, which may amount to war crimes and crimes against humanity, and strongly condemn[ed] in particular all violence against persons based on their religious or ethnic affiliation, as well as violence against women and children.<sup>126</sup>

In another resolution entitled “Atrocities Committed by the Terrorist Group Boko Haram and Its Effect on Human Rights in the Affected States”, the Council “condemn[ed] in the strongest terms the gross abuses of international human rights law and violations of international humanitarian law perpetrated by the terrorist group Boko Haram”.<sup>127</sup>

This practice shows that organized criminal groups may be bound by IHRL. Although it has been argued that the objective of human rights treaties is to establish norms for regulating the relationship between States and individuals

124 HRC Res. 20/17, 17 July 2012, para. 2; HRC Res. 21/25, 19 October 2012, para. 1; HRC Res. 22/18, 10 April 2013, para. 1.

125 HRC Res. S-22/1, 1 September 2014.

126 *Ibid.*, para. 1.

127 HRC Res. S-23/1, 21 May 2015, para. 1.

within their territory and subject to their jurisdiction, and that in consequence human rights treaties are “neither intended, nor adequate, to govern armed conflict between the state and armed opposition groups”,<sup>128</sup> scholars do not unanimously support this interpretation of human rights law. For example, it has been noted that “the foundational basis of human rights is best explained as rights which belong to the individual in recognition of each person’s inherent dignity. The implication is that these natural rights should be respected by everyone and every entity.”<sup>129</sup>

The argument that human rights law does not apply to criminal groups would challenge the foundations of human rights law. Rules of IHL included in treaty and customary law afford a significant level of protection to civilians, but their scope of application is limited to acts directly associated with armed conflict. Moreover, the main purpose of IHL is to regulate armed conflicts and limit their negative impacts on victims and those who have laid down their arms. It does not cover all violations of international law that occur in these situations. More generally, unlike IHRL, IHL does not regulate the everyday life of people in situations of non-international armed conflict.<sup>130</sup> In addition, if States are primarily responsible under international law for ensuring that the human rights of persons under their jurisdiction are respected, during situations of armed conflict or in other situations of violence, States may lose control over part of their territory and population. IHL may not apply in situations where its conditions of applicability are unfulfilled – for example, when violence is insufficiently intense or the armed non-State actor is insufficiently organized. In such cases, the only remaining legal framework other than domestic law is IHRL. This would become problematic if IHRL were to only bind States, especially where a State’s institutions have failed. In this context, experts from the Institute of International Law, in a resolution adopted at its Berlin session in 1999, considered that

[t]o the extent that certain aspects of internal disturbances and tensions may not be covered by international humanitarian law, individuals remain under the protection of international law guaranteeing fundamental human rights. All parties are bound to respect fundamental human rights under the scrutiny of the international community.<sup>131</sup>

The practice of intergovernmental organizations such as the UN strongly suggests that armed non-State actors must respect human rights law when they exercise governmental functions or have *de facto* control over territory and a

128 See Liesbeth Zegveld, *The Accountability of Armed Opposition Groups in International Law*, Cambridge University Press, Cambridge, 2002, p 54.

129 Andrew Clapham, *The Rights and Responsibilities of Armed Non-State Actors: The Legal Landscape and Issues Surrounding Engagement*, 1 February 2010, p. 24, available at: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1569636](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1569636).

130 See Katharine Fortin, “The Application of Human Rights Law to Everyday Civilian Life under Rebel Control”, *Netherlands International Law Review*, Vol. 63, 2016.

131 Institut de Droit International, *The Application of International Humanitarian Law and Fundamental Human Rights in Armed Conflicts in which Non-State Entities are Parties*, Berlin Session, 1999, Art. X.

population.<sup>132</sup> *De facto* authorities have been defined as “entities, which exercise effective authority over some territory, no matter whether they are engaged in warfare with the sovereign or are subsisting in times of peace”.<sup>133</sup> The Office of the UN High Commissioner for Human Rights (UN Human Rights), for instance, has consistently taken the position that “non-State actors that exercise government-like functions and control over a territory are obliged to respect human rights norms when their conduct affects the human rights of the individuals under their control”.<sup>134</sup> The Commission of Inquiry on Syria also addressed the issue of armed non-State groups’ responsibility in situations where IHL is not applicable: in February 2012, the Free Syrian Army (FSA) did not exercise any effective control over territory and the Commission considered that IHL was not yet applicable, leaving IHRL as the only normative framework for assessing the FSA’s conduct.<sup>135</sup> This illustrates the importance of considering the applicability of human rights law to organized criminal groups.

## The human right to water

Found to be implicitly included in the International Covenant on Economic, Social and Cultural Rights,<sup>136</sup> the human right to safe and affordable drinking water was formally recognized both by the General Assembly and the Human Rights Council of the UN in 2010.<sup>137</sup> The right to access safe, clean drinking water is now an internationally recognized right and is very broadly

132 Office of the UN High Commissioner for Human Rights (UN Human Rights), *The International Legal Protection of Human Rights in Armed Conflict*, 2011, p. 24.

133 House of Lords, *Arantzazu Mendi*, L.R. [1939] A.C. 256, Judgment, 23 February 1939, para. 65. See also Michael Schoiswohl, “De Facto Regimes and Human Rights Obligations – the Twilight Zone of Public International Law?”, *Austrian Review of International and European Law*, Vol. 6, 2001, p. 50; Jonte Van Essen, “De Facto Regimes in International Law”, *Utrecht Journal of International and European Law*, Vol. 28, No. 74, 2012.

134 UN Human Rights, *Human Rights Violations Emanating from Israeli Military Attacks and Incursions in the Occupied Palestinian Territory, Particularly the Recent Ones in the Occupied Gaza Strip: Report of the High Commissioner for Human Rights on the Implementation of Human Rights Council Resolution 7/1*, UN Doc. A/HRC/8/17, 6 June 2008, para. 9. UN Human Rights reiterated its position in a 2011 publication on the international legal protection of human rights in armed conflict: “Concerning international human rights obligations, the traditional approach has been to consider that only States are bound by them. However, in evolving practice in the Security Council and in the reports of some special rapporteurs, it is increasingly considered that under certain circumstances non-State actors can also be bound by international human rights law.” See UN Human Rights, *The International Legal Protection of Human Rights in Armed Conflict*, 2011, p. 24.

135 *Report of the Independent International Commission of Inquiry on the Syrian Arab Republic*, UN Doc. A/HRC/19/69, 22 February 2012, para. 106.

136 UN Committee on Economic, Social and Cultural Rights (CESCR), General Comment No. 15, “The Right to Water (Arts. 11 and 12 of the Covenant)”, UN Doc. E/C.12/2002/11, 20 January 2003, para. 2, available at: [www.refworld.org/docid/4538838d11.html](http://www.refworld.org/docid/4538838d11.html).

137 UNGA Res. 64/292, 3 August 2010. Subsequently, the Human Rights Council, in September 2010, affirmed this recognition and clarified that the right to safe and affordable drinking water is derived from the right to an adequate standard of living and inextricably related to the right to the highest attainable standard of physical and mental health, as well as the right to life and human dignity. For further details on the resolution adopted by the Human Rights Council on the right to water and sanitation, see HRC Res. 15/9, 6 October 2010, paras 2–3.

endorsed.<sup>138</sup> Derived from the right to an adequate standard of living and inextricably related to the right to the highest attainable standard of physical and mental health, as well as the right to life and human dignity, the human right to water is recognized as a right that is essential for the full enjoyment of life and all human rights.<sup>139</sup>

Independently of States' obligation to protect the human right to water against abuses within their territory and/or jurisdiction by third parties, the baseline duty of non-State actors is to respect the right to water.<sup>140</sup> This implies that organized criminal groups must not deny or limit equal access to adequate water, unlawfully diminish or pollute water (for example, through use and testing of weapons), or limit access to or destroy water services or infrastructure as a punitive measure.<sup>141</sup> These are immediate obligations that must be respected by both States and non-State actors. A State, in addition to fulfilling its immediate obligations, must show the progress achieved and monitor the policies aimed at achieving its goals related to the right to water, and is accountable when the measures are not adopted. These also include the adoption of criminal laws which address the intentional pollution or the over-abstraction of water resources carried out by criminal groups which might affect local communities.<sup>142</sup>

Protecting water through human rights law also gives access to a number of international mechanisms which may potentially address crimes against water committed by organized criminal groups, non-State armed groups or terrorist groups. For example, the Human Rights Council has investigated issues of water contamination or poisoning in the context of armed conflicts. According to the Commission of Inquiry on Syria, on 23 December 2016, the Damascus Water Authority announced that it had cut off water supplies because armed groups had contaminated the water with fuel, leaving close to 5.5 million people without regular access to water. However, the Commission, after having thoroughly investigated the available evidence, concluded that "there are no reports of people suffering from symptoms of water contamination on or before 23 December nor other indications that the water was contaminated prior to this date"; on the contrary, it accepted that shrapnel had damaged stores of fuel and chlorine, which had contaminated the water, and therefore concluded that neither side had intentionally contaminated the water.<sup>143</sup>

Under IHL, the prohibition against poison or poisoned weapons is a long-standing rule of customary international law already recognized in the Lieber Code

138 Inga Winkler, *The Human Right to Water: Significance, Legal Status and Implications for Water Allocation*, Hart, Oxford and Portland, OR, 2012, p. 76.

139 HRC Res. 15/9, 6 October 2010, paras 2–3; CESCR, above note 136, para. 2.

140 Thorsten Tiefer and Catherine Brölmann, "Beyond State Sovereignty: The Human Right to Water", *Non-State Actors and International Law*, Vol. 5, No. 3, 2005.

141 CESCR, above note 136, para. 21.

142 See of the Criminal Code of Burkina Faso, Law No. 025-2018/AN, 13 December 1996, Art. 357-1: "Est puni d'une peine d'emprisonnement de six mois à cinq ans et d'une amende de deux cent cinquante mille (250 000) à trois millions (3 000 000) de francs CFA, quiconque a, par inattention, imprudence ou négligence porté atteinte à la santé de l'homme, des animaux, des plantes en altérant soit l'équilibre du milieu naturel, soit les qualités essentielles du sol, de l'eau ou de l'air."

143 *Human Rights Abuses and International Humanitarian Law Violations in the Syrian Arab Republic*, 21 July 2016–28 February 2017, UN Doc. HRC/34/CRP.3, 10 March 2017, paras 33–35.

and the Hague Regulations.<sup>144</sup> The prohibition against poison or poisoned weapons is set forth in numerous military manuals.<sup>145</sup> The use of poison or poisoned weapons is a crime under the legislation of many States.<sup>146</sup>

There are a few judicial decisions where the issue of poisoning water resources has been addressed. In this regard, a critical case was presented before the South African Constitutional Court in 2005. The *Basson II* case involves Mr Basson, the head of the secret chemical and biological warfare project carried out during the apartheid era. He was charged with a different set of crimes committed before 1994, both within and outside South Africa, but acquitted of all other charges, and the Supreme Court also rejected the prosecutor's appeal. Finally, the prosecutor turned to the Constitutional Court. One of the charges against Basson was the provision of cholera bacteria for placement in water supplies of persons regarded as opponents of the Pretoria government. In its judgment, the Constitutional Court indicated that the provision of cholera bacteria for placement in water supplies as means of warfare is abhorrent to humanity and forbidden by international law.<sup>147</sup> In another case related to the conflict throughout the Darfur region, brought before the ICC, it was reported that "[m]ilitia/Janjaweed and the Armed Forces repeatedly destroyed, polluted or poisoned ... wells so as to deprive the villagers of water needed for survival. In a number of cases, water installations were bombed."<sup>148</sup>

The human right to water could ensure an additional protection for individuals and communities that can be affected by criminal groups. Such protection is relevant during armed conflict as well as other situations of violence.

## Domestic criminal law and organized criminal groups

Domestic criminal laws integrating crimes related to water may also play a role during armed conflicts or other situations of violence. The existence of domestic

144 *Instructions for the Government of Armies of the United States in the Field* (Lieber Code), 24 April 1863, Art. 70, available at: <https://ihl-databases.icrc.org/ihl/INTRO/110>; Convention (IV) respecting the Laws and Customs of War on Land and its Annex: Regulations concerning the Laws and Customs of War on Land, The Hague, 18 October 1907 (Hague Regulations), Art. 23(a), available at: <https://ihl-databases.icrc.org/ihl/INTRO/195>.

145 See, for example, the military manuals of Argentina (para. 12), Australia (paras 13–14), Belgium (para. 15), Bosnia and Herzegovina (para. 16), Canada (paras 17–18), Colombia (para. 19), the Dominican Republic (para. 20), Ecuador (para. 21), France (paras 22–24), Germany (para. 25), Indonesia (para. 26), Israel (paras 27–28), Italy (para. 29), Kenya (para. 30), the Republic of Korea (para. 31), the Netherlands (paras 32–33), New Zealand (para. 34), Nigeria (paras 35–37), the Russian Federation (para. 8), South Africa (para. 39), Spain (para. 40), Switzerland (paras 41–43), the United Kingdom (paras 44–45), the United States (paras 46–51) and Yugoslavia (para. 52).

146 See, for example, Albania, Penal Code, 1995, Art. 281; Algeria, Penal Code, 1966, Arts 260–261; Australia, Criminal Code Act, 1995 (amended 2007), Chap. 8, p. 336, para. 268.55; Mali, Penal Code, 2001, Art. 31(i) (17); Norway, Penal Code, 1902 (amended 2008), para. 107(a); Senegal, Penal Code, 1965 (amended 2007), Art. 431-3(b)(15); Switzerland, Penal Code, 1937 (amended 2011), Arts 264b, 264h(1)(a).

147 Constitutional Court of South Africa, *Basson II*, Judgment, 9 September 2005, paras 180–182.

148 ICC, *Annex A to the Public Redacted Version of the Prosecutor's Application under Article 58 (Situation in Darfur, Sudan)*, Case No. ICC-02/05, 14 July 2008, para. 176; ICC, *The Prosecutor v. Omar Hassan Ahmad al Bashir*, Case No. ICC-02/05-01/09, 12 July 2010, p. 7.

criminal law may help to prevent crimes by criminal groups. In this regard, it should be noted that, in contrast to AP I,<sup>149</sup> AP II only contains an obligation to disseminate IHL.<sup>150</sup>

The ICRC *Guidelines on the Protection of the Natural Environment in Armed Conflict* may reinforce the inclusion of crimes against water in domestic laws.<sup>151</sup> Rule 27, entitled “National Implementation of IHL Rules Protecting the Natural Environment”, affirms that “States must act in accordance with their obligations to adopt domestic legislation and other measures at the national level to ensure that IHL rules protecting the natural environment in armed conflict are put into practice”.<sup>152</sup> According to the ICRC, the term “implementation” covers “the enactment of legislation establishing relevant regulatory systems or imposing sanctions that can be applied by national courts”.<sup>153</sup> Furthermore, as indicated by its commentary, the Rule “promotes the implementation of international obligations in domestic law and practice” and is in line with the obligation to respect and ensure respect for IHL as well as with “States’ obligation to take measures necessary to suppress all acts contrary to the 1949 Geneva Conventions and the 1977 Additional Protocol I”.<sup>154</sup>

IHL contains rules that are relevant not only in times of armed conflict but also in peacetime. Amongst them is the requirement to adopt and implement legislation to institute penal sanctions for war crimes and to take measures to repress breaches and grave breaches of IHL.<sup>155</sup> Therefore, crimes related to water, including the use of poison or starvation (which may include the deprivation of water), must be criminalized in domestic laws.

States may also have national implementation obligations relevant to crimes against water in armed conflict flowing from other treaties, besides IHL treaties, to which they are party. For example, a State party to the 1976 Convention on the Prohibition of Military or Any Hostile Use of Environmental Modification Techniques “undertakes to take any measures it considers necessary in accordance with its constitutional processes to prohibit and prevent any activity in violation of the provisions of the Convention anywhere under its jurisdiction or control”.<sup>156</sup> To this end, States party to that Convention should enact criminal legislation, including during peacetime, to outlaw and repress the

149 AP I, Art. 85.

150 AP II, Art. 19.

151 ICRC, *Guidelines on the Protection of the Natural Environment in Armed Conflict: Rules and Recommendations relating to the Protection of the Natural Environment under International Humanitarian Law, with Commentary*, Geneva, 2020, available at: [www.icrc.org/en/document/guidelines-protection-natural-environment-armed-conflict-rules-and-recommendations-relating](http://www.icrc.org/en/document/guidelines-protection-natural-environment-armed-conflict-rules-and-recommendations-relating).

152 *Ibid.*, p. 107.

153 *Ibid.*, para. 308.

154 *Ibid.*, para. 307.

155 ICRC, *Commentary on the First Geneva Convention: Convention (I) for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field*, 2nd ed., Geneva, 2016, para. 199, available at: <https://ihl-databases.icrc.org/ihl/full/GCI-commentary>; AP I, Art. 85.

156 Convention on the Prohibition of Military or Any Hostile Use of Environmental Modification Techniques, 10 December 1976 (entered into force 5 October 1978), Art. IV, available at: [www.un.org/disarmament/enmod/](http://www.un.org/disarmament/enmod/). As of September 2022, the Convention had seventy-eight States Parties.

use of prohibited techniques within their territory and anywhere else under their jurisdiction or control.<sup>157</sup>

## Conclusion

Organized criminal groups may have a strong negative impact on the living conditions of local communities, and on their human rights, in situations of armed conflict or outside these contexts. Crimes against water may be the result of the actions of these groups and can include attacks against water installations, destruction of wells or intentional pollution of water sources. Criminal groups often exploit the needs of vulnerable communities and operate in States with weak national legal systems which are poorly implemented by police forces and judicial mechanisms.

Weak national institutions heighten the risks of crimes against water. Organized criminal groups may also be involved in other types of crimes such as water fraud, water theft and corruption. For example, a monopoly over the water supply may reinforce the power that organized criminal groups have over vulnerable communities living in marginalized areas like slums. Often, the populations living in these places can access water only through a criminal group.<sup>158</sup> More attention is needed on both crimes against water and the role of organized criminal groups in threatening the supply and quality of water.<sup>159</sup> The participation of local communities and grassroots initiatives may help to prevent these crimes. The most vulnerable groups are those who suffer the most from the activities of organized criminal groups.<sup>160</sup>

Domestic criminal laws integrating crimes against water may play a role in the context of armed conflicts and other situations of violence. Such crimes may be committed by organized criminal groups during armed conflicts and may thereby be subject to IHL. This is the case when protracted armed violence exists between governmental authorities and organized armed groups or between such groups within a State, and when the non-State armed group has the requisite level of organization (for example, a command structure and disciplinary rules and mechanisms).<sup>161</sup> Crimes against water are prohibited under IHL and may amount to war crimes. For example, under the Rome Statute, intentionally using starvation of civilians as a method of warfare – by depriving them of objects indispensable to their survival such as drinking water supplies – and the intentional poisoning of water are recognized as war crimes during non-

157 ICRC, “1976 Convention on the Prohibition of Military or Any Hostile Use of Environmental Modification Techniques”, Advisory Service on International Humanitarian Law, legal fact sheet, Geneva, 31 January 2003.

158 K. Eman and R. White, above note 9, p. 52.

159 *Ibid.*, p. 56.

160 *Ibid.*

161 See Sandesh Sivakumaran, *The Law of Non-International Armed Conflicts*, Oxford University Press, Oxford, 2012.

international armed conflicts.<sup>162</sup> Criminal groups may also be bound under human rights law. IHL only covers acts related to armed conflicts and does not cover all the possible harmful actions that criminal groups may perpetrate against a civilian population. International criminal law establishes the criminal responsibility of individual members of armed groups when international crimes have been perpetrated, including international crimes not committed in the context of an armed conflict; examples of this include the crime of genocide and crimes against humanity. Violations of human rights, including the human right to water, can overlap with these crimes. The widespread or systematic destruction of water supplies, for example, may be a violation of several human rights, including the rights to health, food and water, and constitutes a crime against humanity.

162 Rome Statute, above note 102, Arts 8(2)(e)(xix), 8(2)(e)(xiii).