

A Study of National Legal Frameworks related to the Protection of Water During Armed Conflicts

A Follow-Up Study to the Geneva List of Principles on the Protection of Water Infrastructure



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March 2023

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List of selected abbreviations

AP I/II	Additional Protocol I/II
ANSAs	Armed Non-State Actors
GHLPWP	Global High-Level Panel on Water and Peace
Geneva Principles	Geneva List of Principles on the Protection of Water Infrastructure
IAC	International Armed Conflict
ICC	International Criminal Court
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICJ	International Court of Justice
ICRC	International Committee of the Red Cross
ICY	International Criminal Tribunal for the former Yugoslavia
IHL	International Humanitarian Law
IHRL	International Human Rights Law
ILA	International Law Association
ILC	International Law Commission

IWL	International Water Law
NIAC	Non-International Armed Conflict
UNEP	United Nations Environmental Programme
UNICEF	United Nations Children's Fund
UNGA	United Nations General Assembly
UNSC	United Nations Security Council

ANSA	refers to a group of people with an organized power structure who bear arms and engage in hostilities as a non-State actor bound by IHL.
Armed conflict	refers to an armed confrontation between the armed forces of States (international armed conflict - IAC) or between governmental authorities and organized armed groups or between such groups within a State (non-international armed conflict - NIAC). Other situations of violence, such as internal disturbances and tensions, are not considered to be armed conflicts.
Civilian	a person who is not a combatant (member of the armed forces - IAC) or a military member of ANSA (NIAC). When civilians take a direct part in hostilities, they lose their protection from attack but not their civilian status. The civilian population comprises all persons who are civilians.
Civilian objects	are all objects that are not military objectives. When a civilian object is used in support of military action, it loses its protection and becomes a legitimate target.
Collateral damage	refers to incidental damage, loss and/or injury that is caused to civilians and civilian objects in the course of an attack against a legitimate military objective despite the taking of all necessary precautions to prevent or to minimize such damage, loss or injury.

Combatants	are all members of the armed forces of a party to the conflict, except medical and religious personnel. Under IHL, inhabitants of a territory that has not been occupied, who on the approach of the enemy spontaneously take up arms to resist the invading troops without having had time to organize themselves into regular armed forces, are also considered combatants.
Conduct of hostilities	acts of violence, in defence or offence, by parties to an armed conflict.
Critical civilian infrastructure	refers to civilian objects and services essential for the civilian population. Such infrastructure includes water, electricity and wastewater installations, healthcare facilities, and systems enabling their functionality.
Customary IHL	refers to general practice accepted as law mainly by states. Such practice can be found in formal statements by states and official accounts of military operations and could also be reflected in military manuals, national legislation and case law.
Distinction	refers to the fundamental IHL principle that requires parties to an armed conflict to at all times distinguish between civilians and combatants and between civilian objects and military objectives.
Geneva Principles	refers to Geneva Water Hub's scientific document systematizing the main rules that apply to the protection of water infrastructure and water-related infrastructure during and after armed conflicts, as well as to humanitarian relief personnel responsible for the operation, assessment of damages, maintenance, restoration and rehabilitation of such infrastructure.

Implementation	means giving practical effect to and the fulfilment of international legal norms through concrete measures, such as the adoption of national laws and regulations or the establishment of structures and administrative arrangements.
Indiscriminate attack	an attack that does not target specific military objectives or whose effects cannot be limited as required by IHL (owing to the means and methods of warfare employed) and, as a result, striking military objectives and civilians or civilian objects without distinction.
Legitimate (military) target	refers to a military objective, i.e., a person (combatant, fighter (NIACs) or a civilian who takes a direct part in hostilities) or an object not entitled to protection under IHL from an attack.
Means of warfare	refers to the ‘tools’ of war, e.g., weapons and ammunition.
Method of warfare	refers to tactics and strategies applied in military operations to weaken or defeat an adversary.
Military objective	refers to an object that by its nature, location, purpose or use makes an effective contribution to military action and whose total or partial destruction offers a definite military advantage.
Precautions against the effects of attacks (passive precautions)	all feasible precautions to protect the civilian population and civilian objects under their control against the effects of attacks. It includes locating military objectives outside densely populated areas and removing civilians and civilian objects from the vicinity of military objectives.
Precautions in attack	refer to the constant care those who plan or decide upon an attack are required to take to spare the civilian population, civilians and civilian objects.

Proportionality	is an IHL principle that prohibits an attack that may be expected to cause incidental civilian death, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to compared to the concrete and direct military advantage anticipated.
Reverberating impacts	refer to consequences that are not directly and immediately caused by an attack but which are nevertheless a result of the attack. The expressions, such as ‘indirect effects’, ‘knock-on effects’, and ‘second- and third-order effects’, are often used interchangeably to refer to reverberating impacts.
Serious violation of IHL	refers to violations of IHL rules (treaty or customary) protecting important values and that have grave consequences for victims.
War crimes	refer to serious violations of IHL in both international and non-international armed conflicts.
Water infrastructure	refers to all water and wastewater works, installations and facilities. It includes dams, dykes, water purification plants, desalination plants, water mills, water reservoirs, water towers, wells, pumping stations, sewerage systems, wastewater treatment plants, storage lagoons, transmission lines, conveyance lines and lifting stations. The Geneva Principles also contain protection for the other two components of water services - consumable (e.g., fuel, chlorine, medicines) and persons (e.g., service providers, engineers, contractors).

Water-related infrastructure

refers to facilities, installations and other works which contribute to the functioning of water infrastructure so that their destruction or damage would render the water infrastructure inoperable. It includes power plants such as electric generating stations, supply substations, transmission lines and distribution substations, along with the components of the ICT system.

Water-related personnel

refers to personnel participating in water-related activities such as operating, repairing and rehabilitation of water infrastructure and water-related infrastructure. It includes technical and administrative staff, operators, engineers, repair and reconstruction crews and humanitarian relief personnel.

Water resources

refer to the entire range of waters (surface and groundwater), regardless of their state, that are potentially useful to humans.



Background: why national practice of international law?

This report considers the extent to which existing national legal frameworks¹ adhere to international law pertaining to the protection of water infrastructure and water-related infrastructure during and after armed conflicts. The report follows directly from the 2019 *Geneva List of Principles on the Protection of Water Infrastructure, with Commentary* (hereafter ‘the Geneva Principles’).² The Geneva Principles systematize and restate the main rules that afford protection to water infrastructure and water-related infrastructure during and after armed conflicts, as well as to water-related personnel and objects (e.g., equipment, chemicals) necessary to operate, repair, reconstruct, and rehabilitate such infrastructure.

Parties to an armed conflict are bound by international law applicable to armed conflicts. The obligation to respect and to ensure respect for international humanitarian law (IHL) by all parties to armed conflict is a cardinal principle of IHL (as enshrined under common Article 1 of the Geneva Conventions of 1949). Hence, they must respect the rules restated under the Geneva Principles that reflect existing treaty or customary norms. IHL also carries the obligation to disseminate its rules as widely as possible, and requires parties to armed conflict to train and provide instruction to their forces, and to make sure that employment of new means or method of warfare shall not violate rules of international law.³ It additionally puts the responsibility upon states to exert their influence to prevent and end violations of IHL and refrain from encouraging violations by others. Crucially, IHL further imposes a duty to repress ‘serious violations’⁴ and to take measures to suppress all other violations. In reality, however, attacks against and damages to water infrastructure and water-related infrastructure are common during armed conflicts.

With the goal to promote greater respect for and implementation of international law, the report investigates the extent to which the norms restated under Geneva Principles from

¹ In this report ‘national legal frameworks’ refer to domestic laws, regulations, military manuals and case law.

² Also referred to as the ‘Geneva List’. For the commentary on each Principle, see Mara Tignino and Öykü Irmakkesen, *The Geneva List of Principles on the Protection of Water Infrastructure: An Assessment and the Way Forward*, Brill Research Perspectives in International Law, 2020.

³ See Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts 8 June 1977 (hereafter AP I), Arts.83, 6 and 36, respectively.

⁴ For the authoritative definition of serious violations of IHL, see ICRC, [What are "serious violations of international humanitarian law"? Explanatory Note](#).

various branches of international law (IHL, international human rights law (HRL), international water law (IWL) and international environmental law (IEL)) apply in theory, and in practice at the domestic level. To date, very little work has sought to examine the relevant national and international legal frameworks in this area. Focusing on the national implementation of the Geneva Principles, the report clarifies areas of uncertainty, identifies good practices and makes recommendations to facilitate compliance with the rules.

The present report also takes into consideration the growing body of knowledge on the protection of water resources under the human rights to safe drinking water and sanitation,⁵ and as part of the environment - e.g., the *Guidelines on the Protection of the Natural Environment in Armed Conflict* issued by the International Committee of the Red Cross (ICRC) (*hereafter* ICRC's Guidelines),⁶ and the International Law Commission's (ILC) *Principles on the protection of the environment in relation to armed conflicts* (before, during and after armed conflicts).⁷ In the ICRC Guidelines, the rules on the prohibitions regarding objects indispensable to the survival of the civilian population (Rule 10) and prohibition of using poison or poisoned weapons (Rule 19) are particularly relevant.

The underlying idea behind this report is that, if international principles and norms are to be effective at all, they must be implemented at the domestic level. As evidence of states' compliance with international law, national legal frameworks further demonstrate the extent to which states consider them binding: they put in place tools (such as regulations, guidelines and institutions) to ensure their effective implementation. The enforcement of rules on the protection of water infrastructure and water-related infrastructure could be achieved through human rights bodies, criminal and other tribunals, or national mechanisms.

⁵ See UN Human Rights Council, 'Human rights and access to safe drinking water and sanitation', Resolution 15/9, 6 October 2010; and UNGA, The human right to water and sanitation, A/RES/64/292, 28 July 2010. See also, Mara Tignino, 'The right to water and sanitation in post-conflict legal mechanisms: An emerging regime?' in Weinthal, Troell, Nakayama (eds.) *Water and post-conflict peacebuilding*, Earthscan 2014, p.384.

⁶ International Committee of the Red Cross (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*, 2020 (*hereafter* ICRC Guidelines), p.65, §148. Notably, the commentary of Rule 10 states that the prohibition covers 'the pollution of water sources with chemical or other agents, rendering them useless.'

⁷ International Law Commission (ILC), Principles on protection of the environment in relation to armed conflicts, with commentaries, adopted by the Commission in its seventy-third session in 2022. *Yearbook of the International Law Commission*, 2022, vol. II, Part two. See the UN General Assembly Resolution 77/104, 19 December 2022.

This study is based on Principle 24 of the Geneva Principles:

Principle 24: Implementation

1. States must incorporate in their domestic frameworks their obligations relating to the protection of water infrastructure stemming from international law, as applicable.
2. States must implement in their domestic frameworks international crimes relating to the protection of water infrastructure, as applicable.
3. States are encouraged to incorporate in their domestic frameworks the recommendations of the Geneva List.

Objectives of the report

The objectives of the report are:

- To explore how and to what extent the rules and principles of IHL restated under the Geneva Principles have been incorporated and operationalized in national legal frameworks; and
- To examine the role of IHRL, IEL and IWL in the protection of water resources, water infrastructure and water-related infrastructure.

The report thus provides guidance to parties to armed conflicts and a wide range of stakeholders who play different roles in promoting compliance with the relevant norms, including military experts, humanitarian organizations, and advocacy groups. The first part of the report explores the extent to which relevant IHL rules are incorporated into the national frameworks, practices and unilateral declarations or commitments and special agreements signed by ANSAs. The second part of the report explores the role of IHRL, IEL (including the protection of the environment under IHL) and IWL in the protection of water resources and water infrastructure and water-related infrastructure.

Methodology and limitations

The report collects and analyses data from a broad range of sources. It primarily expounds on the current state of national frameworks in selected cases, including legislation, regulations, military manuals, case laws, peace agreements and available practices of armed non-state actors (ANSAs). In identifying data sources, particularly countries, consideration was made to reflect the diversity of legal traditions, regional characteristics,

and those affected by armed conflicts.⁸ It also draws on a review of published research and benefits from extensive consultation with military experts, government lawyers, representatives of humanitarian organizations and academics. The authors acknowledge that despite these efforts, there could be other relevant examples of national implementation, and they welcome any comments or feedback in that regard.

⁸ The report considers data on the protection of water infrastructure from the USA, Canada, Australia, New-Zealand, Cambodia, Russian Federation, France, Belgium, Ukraine, Afghanistan, Israel, Yemen, Syria, Czech Republic, Denmark, The Netherlands, UK, Uruguay, Colombia, Mexico, Argentina, Burundi, Cote d'Ivoire, Uganda, Gambia, Mali, Democratic Republic of Congo, Libya, Ethiopia, South Africa, Sudan, Kenya, and Sierra Leone.

Part I:

Protection offered by IHL as reflected in national legal frameworks

1. Water infrastructure and water-related infrastructure as civilian objects and specially protected objects

In principle, water infrastructure and water-related infrastructure are civilian objects under IHL and must not be attacked.⁹ Those who prepare attacks are obliged to distinguish between military objectives (legitimate targets), and civilian objects.¹⁰ They must also respect the principles of proportionality in attack and precautions.¹¹ During proportionality assessment, parties to an armed conflict must consider reverberating impacts of attacks (knock-on effects).¹² Besides, the prohibition of damaging or destroying water infrastructure and water-related infrastructure as a punitive measure in armed conflict is reinforced because of its impact on the civilian population.¹³ In addition, Article 23 (g) of the Hague Regulations of 1907 forbids parties to an armed conflict from destroying or seizing the enemy's property unless the necessities of war imperatively demanded such destruction or seizure.¹⁴ Moreover, IHL has rules on specially protected objects relevant for the protection of water infrastructure and water-related infrastructure, namely works and installations containing dangerous forces, objects indispensable for the survival of the civilian population and the natural environment (the latter is addressed under the second

⁹ See AP I, Arts.48 & 52 (2); Jean-Marie Henckaerts and Louise Doswald-Beck (eds), *Customary International Humanitarian Law* (CUP, Cambridge 2005) (hereafter 'ICRC's study on Customary IHL'); and Jean Pictet, Commentary on the Geneva Convention Relative to the Protection of Civilian Persons in Time of War, of 12 August 1949 (Geneva Convention IV), Art.53, pp.300-302 (water was not explicitly mentioned).

¹⁰ See ICRC's study on Customary IHL, Rules 7 and 10.

¹¹ See AP I, Arts.51 (5) (b), 57 and 58; and ICRC's study on Customary IHL, Rules 14, and 15-24. See also, Principle 9 on proportionality and Principles 10 and 11 on precautions of Geneva Principles.

¹² See ICRC, 'The Principle of Proportionality in the Rules Governing the Conduct of Hostilities under International Humanitarian Law,' Report (2018) (hereafter 'ICRC Proportionality'); and Emanuela-Chiara Gillard, 'Proportionality in the Conduct of Hostilities: The Incidental Harm Side of the Assessment' (Chatham House 2018).

¹³ See International Law Association, The Berlin Rules on Water Resources, Report of the 71st Conference (2004), (Berlin Rules), Art.51 ('combatants shall not, for military purposes or as reprisals ... destroy water installations, if such actions would cause disproportionate suffering to civilians'). See also 'Report on the situation of human rights in Kuwait under Iraqi Occupation' E/CN.4/1992/26, 16 January 1992, §235.

¹⁴ Hague 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 (1907)).

part of the report). It should be added that both during international armed conflict (IAC) and non-international armed conflict (NIAC), parties are encouraged to conclude special agreements for the purpose of providing additional protections to persons and objects.¹⁵

1.1 Prohibition of attacks against civilian objects under IHL

A. The principle of distinction between civilian objects and military objectives

IHL requires parties to armed conflict to distinguish between military objectives and civilian objects and that attacks shall strictly be limited to military objectives.¹⁶ Military objectives are ‘objects which by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage.’¹⁷ Civilian objects are ‘all objects which are not military objectives.’¹⁸ As enshrined under Article 51 (4) of the 1977 Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (AP I) and Rules 11 and 12 of ICRC’s study on Customary IHL, the principle of distinction further prohibits indiscriminate attacks, i.e., attacks not directed at a specific military objective, attacks which employ means or methods of combat that cannot be directed at a specific military objective, and attacks which employ means or methods of combat the effects of which cannot be limited as required by IHL.

There has been a growing concern that launching an indiscriminate attack in urban and densely populated areas jeopardizes civilian infrastructure, including water infrastructure and water-related infrastructure.¹⁹ This is particularly so when explosive weapons with wide area effects are used. While the use of such weapons is not conventionally prohibited, their wider impacts well beyond the targeted military objective make it difficult ‘respecting the prohibitions against indiscriminate and disproportionate attacks and taking all feasible precautions to avoid or at least minimize incidental civilian harm.’²⁰ Thus parties to an armed conflict should avoid using such weapons in densely populated areas in order to meet their obligations under IHL, including the protection of the civilian population and the

¹⁵ See for IACs Arts.6/6/6/7 and for NIACs common Article 3 of the Geneva Conventions of 1949.

¹⁶ AP I, Arts.48 & 52 (2), and ICRC’s study on Customary IHL, Rules 7 and 10.

¹⁷ AP I, Art.52 (2), and ICRC’s study on Customary IHL, Rule 8.

¹⁸ AP I, Art.52 (1), and ICRC’s study on Customary IHL, Rule 9.

¹⁹ See Report of the Secretary-General on the Protection of Civilians in Armed Conflict, [UN Doc. S/2021/423](#), 24 May 2021, §§10-13; [Joint Statement on Explosive Weapons in Populated Areas \(EWIPA\)](#) by Ambassador Geraldine Byrne Nason, UNGA 73 (25 October 2018); and [Political Declaration on Strengthening the Protection of Civilians from the Humanitarian Consequences arising from the use of Explosive Weapons in Populated Areas](#).

²⁰ See ICRC, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts*, 2015, 49 and ICRC, *Explosive Weapons With Wide Area Effects: A Deadly Choice in Populated Areas*, 2022, pp.84-110.

objects they depend on to survive. In his ‘Agenda for Disarmament’ launched in 2018, the UN Secretary-General has provided a framework for action in this direction (avoiding the use of wide-impact explosive weapons).²¹

The prohibition of attacks directed against civilian objects and indiscriminate attacks form part of customary IHL applicable in both IAC and NIAC.²² According to the International Court of Justice (ICJ), fundamental IHL rules such as the principle of distinction must be observed by all states ‘because they constitute intransgressible principles of international customary law.’²³ The 1977 Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts (AP II) does not explicitly prohibit directing attacks against civilian objects, including indiscriminate attacks. However, according to the ICRC, based on state practice and subsequent developments, the principle of distinction and prohibition of indiscriminate attacks (‘arguably’ including the prohibition relating to employing a method or means of combat the effects of which cannot be limited as required by IHL) are generally applicable in NIACs.²⁴ Likewise, the San Remo Manual on the Law of Non-International Armed Conflict underscores that ‘distinction must also always be made between military objectives and civilian objects.’²⁵

Principles 6 and 8 of the Geneva Principles restate the principle of distinction and indicate that water infrastructure and water-related infrastructure are presumed to be civilian objects and, hence, must not be attacked. Principle 8 specifically recalls that parties to a conflict must not conduct indiscriminate attacks, i.e., attacks which are not specifically targeted to military objectives or those which employ a method or means of combat indiscriminate by nature or the effect of which cannot be limited as required by law.

²¹ UN Office for Disarmament Affairs, *Securing Our Common Future: An Agenda for Disarmament*, United Nations, New York, May 2018, pp.34–36.

²² See ICRC’s study on Customary IHL, Rule 7 commentary, pp.25-29 and Rule 12 commentary, pp.41-43. See also, ICTY, *Prosecutor v. Enver Hadžihasanović and Amir Kubura*, Case No. IT-01-47-AR73.3, 11 March 2005, §§29-30.

²³ See *Legality of the Threat or Use of Nuclear Weapons* (Advisory Opinion) 1996, §79.

²⁴ ICRC’s study on Customary IHL, Rule 7 commentary, pp.27-29, and Rule 12, commentary p.43.

²⁵ The San Remo Manual on the Law of Non-International Armed Conflict, with Commentaries, International Institute of Humanitarian Law, 2006, § 1.2.2.

Principle 6: Attacks against water infrastructure and water-related infrastructure

Water infrastructure and water-related infrastructure are presumed to be civilian objects and, in such case, must not be attacked.

Principle 8: Indiscriminate attacks

Attacks which do not or cannot distinguish between military objectives and civilian objects, including water infrastructure and water-related infrastructure, are prohibited.

Article 49 of Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts 8 June 1977 (AP I) defines ‘attacks’ as ‘acts of violence against the adversary, whether in offence or in defence.’ It has to be mentioned that though this IHL rule was developed with traditional kinetic warfare in mind, most states have accepted that ‘attacks’ include both kinetic and cyber-attacks.²⁶ The inclusion of cyber-attacks in the protection is vital in the face of the increasing digitization of water sector that might make them more vulnerable to cyber-attacks. Reports indicate cyber-attacks against the control systems of wastewater treatment plants, pumping stations and sewers or attempts to alter the injection of treatment chemicals to unsafe levels (altering water chlorine levels) or interfere with the water flows and allocation.²⁷ According to the *Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations*, the expression ‘acts of violence’ in Article 49 of AP I should be construed as comprising some types of cyber-attacks because of the ‘consequential harm’ (‘any reasonably foreseeable consequential damage, destruction, injury or death’) flowing from such operations.²⁸

²⁶ See discussion on the [Principle: Cyber Operations - Annex to the Geneva List of Principles on the Protection of Water Infrastructure](#), 2022.

²⁷ ‘[Cyber-attack on Israel's water system, again](#).’ *Middle East Monitor*, 17 July 2020.

²⁸ See Michael Schmitt (ed), *Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations*, 2nd Ed, Cambridge University Press 2017, pp.414-420. The manual defines a cyberattack as ‘a cyber-operation, whether offensive or defensive, that is reasonably expected to cause injury or death to persons or damage or destruction to objects’ Rule 92.

i. Principle of distinction under domestic law and military manuals

Several states have recognized the principle of distinction between civilian objects and military objectives in domestic legislation and military manuals as one of the fundamental features of the rules of war in their domestic legislation and military manuals²⁹ (see Box 1).

Other national guidelines and practice indicate that states take the issue of distinction seriously. For instance, the US Operational Law Handbook mentioned that the principle of distinction (referred to it as a ‘grandfather’ principle of the Law of Armed Conflict (LOAC)) requires that belligerents distinguish combatants from civilians and military objectives from civilian objects (protected property or places in that text) and that operations must be directed only against combatants and military objectives.³⁰ The Israel Ministry of Foreign Affairs explains that the Israeli Defence Force (IDF) practice requires distinguishing military objectives from civilian objects.³¹ Similarly, the operational guidelines for Canada’s armed forces stress that civilian objects shall not be the object of attack, and targets shall be strictly limited to military objectives.³² Hence, water infrastructure and water-related infrastructure benefit from such protection.

²⁹ See e.g., Israel, *Laws of war in the battlefield*, Manual, Military Advocates General Headquarters 1998, p.38; New Zealand Manual of armed forces law, volume 4: Law of Armed Conflict, 2017, Sections 5 & 6, and § 8.4.7; Argentina’s Law of War Manual 1989, §4.01; and The US, *The Department of Defense the Law of War Manual*, December 2016 (The US DoD Law of War Manual), pp.62-65, § 2.5.

³⁰ The US, *Operational Law Handbook, International and Operational Law Department*, The Judge Advocate General’s Legal Center & School, US Army Charlottesville, Virginia, 17th edn, 2017, pp.10-11.

³¹ Israel Ministry of Foreign Affairs, Background paper, Responding to Hamas attacks from Gaza: Issues of Proportionality, December 2008, § 4.

³² Canada, *Use of Force for CF Operations*, 2008, §112.1.

Box 1. Protection of civilian objects in military manuals

The military manual of Australia provides that 'distinction must be made between the civilian population and combatants, and between civilian objects and military objectives, in order that military operations will only be directed against military objectives.'

Source: Australia, The Manual of the Law of Armed Conflict, Australian Defense Doctrine Publication 06.4, 11 May 2006 §§ 2.11, 5.4, and 9.13.

The military manual of Denmark notes that 'attacks may be directed only against military objectives, combatants, and others taking a direct part in the hostilities. The civilian population as well as individual civilians and civilian objects must be protected (distinction).'

Source: Denmark, Military Manual on international law relevant to Danish armed forces in international operations, Danish Ministry of Defense, 2016, p.76, § 4.1.

ii. Cases addressing the protection of water infrastructure and water-related infrastructure

There are some cases where the destruction of water infrastructure and water-related infrastructure and disruption of water supplies were specifically considered under the principle of the protection of civilian objects. Notably, the International Criminal Tribunal for the former Yugoslavia (ICTY) made some findings on the destruction of civilian objects and the gravest consequences of such attacks on the civilian population, including the disruption of essential public services which are dependent on water infrastructure and water-related infrastructure (see Box 2).

Box 2. Relevant case law on the protection of water infrastructure and water-related infrastructure

During the military campaign of the Yugoslav People's Army (JNA) in 1991 around the old town of Dubrovnik in Croatia, electricity and water supplies were cut off due to the destruction of civilian objects. In October 1991, a transmitter in Rijeka Dubrovaka was hit during the shelling of Dubrovnik, leaving the old town of Dubrovnik without any power or water supplies. The ICTY ruled that such attacks against civilian objects are contrary to what is stipulated under Article 52 AP I (also applicable in NIACs as customary IHL).

Source: ICTY, *The Prosecutor v Pavle Strugar*, Trial Chamber Judgment, IT-01-42-T, 31 January 2005, §§26, 48, 176, & 223-226.

B. The principles of proportionality and precautions under IHL

On top of the prohibition of direct attack against civilian objects, including water infrastructure and water-related infrastructure, IHL provides that when these objects become military objectives, the principles of proportionality and precautions must be respected. The principle of proportionality requires balancing the concrete and direct military advantage anticipated with the expected incidental loss of civilians, injury to civilians, damage to civilian objects, or a combination thereof.³³ The principle of precaution in attack requires that during *military operations*, constant care shall be taken to spare the civilian population, civilians and civilian objects.³⁴ With respect to attacks, those who plan or decide upon attack must do everything feasible to verify that the objectives to be attacked are neither civilians nor civilian objects and are not subject to special protection,³⁵ and in the choice of means and methods of attack to avoid or at least minimize, incidental loss of civilian life, injury to civilians and damage to civilian objects.³⁶ The principle of precautions in attack further requires that those who plan or decide upon an attack shall refrain from deciding to launch a disproportionate attack and they must do everything feasible to cancel or suspend it if it becomes apparent that the attack would be disproportionate to the military advantage to be gained in the attack of military objectives.³⁷

³³ See AP I, Art.51 (5) (b) and ICRC's study on Customary IHL, Rule 14.

³⁴ See AP I, Art.57 (1); and ICRC's study on Customary IHL, Rule 15.

³⁵ See AP I, Art.57 (2) (a) (i); ICRC's study on Customary IHL, Rule 16.

³⁶ See AP I, Art.57 (2) (a) (ii); ICRC's study on Customary IHL, Rule 17.

³⁷ See AP I, Art.57 (2) (b); and ICRC's study on Customary IHL, Rule 19.

Moreover, the principle of precautions against the effects of attacks (also called ‘passive precautions’) requires a defending party to take feasible precautionary measures to protect civilians and civilian objects under their control against the dangers resulting from military operations.³⁸ Such measures include removing the civilian population and civilian objects from the vicinity of military objectives and avoiding locating military objectives within or near densely populated areas and marking or identifying critical civilian infrastructure. These measures need to be taken, including in peacetime, even though the article is only addressed to ‘Parties to the conflict’.³⁹

Water infrastructure and water-related infrastructure are civilian objects and benefit from principles of proportionality, precautions in attacks and passive precautions. These principles form part of customary law applicable in international and non-international armed conflicts.⁴⁰ The San Remo Manual on the Law of Non-International Armed Conflict also includes principles of proportionality, precautions in planning and carrying out attacks, and further suggests designating ‘protected zones’.⁴¹

Geneva Principles 9, 10, and 11 address these recognized IHL principles. The commentaries on the Geneva Principles elaborate on the relevance of these principles for the protection of water infrastructure and water-related infrastructure. Nowadays, critical civilian infrastructure such as water and energy are interconnected, making the impact of attacks on such services catastrophic and leaving the civilian population highly vulnerable.⁴² Noting the devastating consequences of attacks on or damages to water infrastructure and water-related infrastructure, the Geneva Principles highlight the degree of emphasis those who conduct military operations should give to reverberating effects (impacts that are not direct or not manifest in the immediate aftermath of the attack).⁴³

³⁸ See AP I, Art. 58; and ICRC’s study on Customary IHL, Rules 22-24.

³⁹ See Yves Sandoz, Christophe Swinarski, and Bruno Zimmerman, *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949* (ICRC and Martinus Nijhoff Publishers, 1987), § 2244.

⁴⁰ See ICRC’s study on Customary IHL, Rules 14 (proportionality), and Rules 15-24 (precautions). Though the principle of proportionality and precautions are not explicitly regulated under Protocol Additional to the Geneva Conventions of 12 August 1949 and relating to the Protection of Victims of Non-International Armed Conflicts, 8 June 1977 (AP II *hereafter*), ICRC’s commentary on these Rules demonstrates that states have accepted their applicability to any type of armed conflict.

⁴¹ See The San Remo Manual on the Law of Non-International Armed Conflict, § 2.1.1.4 (proportionality), § 2.1.2 (precautions in attack) and § 4.2.5 (protected zones).

⁴² See e.g., UNSC Resolution, S/RES/2573 (2021).

⁴³ See ICRC Proportionality, *supra* note 12, pp. 43-51.

Principle 9: Proportionality in attack

1. Attacks against water infrastructure and water-related infrastructure, when these are military objectives, which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated, are prohibited.
2. Attacks against military objectives which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, including water infrastructure and water-related infrastructure, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated, are prohibited.
3. The reverberating, or indirect, effects that are foreseeable in the circumstances at the time of the attack should be taken into account in the assessment of proportionality.

Principle 10: Precautions in attack

1. In the conduct of military operations, constant care must be taken to spare the civilian population, civilians and civilian objects, including water infrastructure and water-related infrastructure.
2. Prior to an attack against water infrastructure or water-related infrastructure, those who plan, decide upon and execute attacks must do everything feasible to verify that these are military objectives and that it is not prohibited to attack them.
3. Those who plan, decide upon and execute attacks, including against water infrastructure and water-related infrastructure, must take all feasible precautions with a view to avoiding, and in any event to minimizing, incidental loss of civilian life, injury to civilians and damage to civilian objects, including water infrastructure and water-related infrastructure.

Principle 11: Precautions against the effects of attacks

1. The parties to the conflict must take all feasible precautions to protect the civilian population and civilian objects, including water infrastructure and water-related infrastructure, under their control against the effects of attacks.
2. The parties to the conflict should avoid locating military objectives in the vicinity of water infrastructure and water-related infrastructure.
3. The parties to the conflict are encouraged to establish protected zones around water infrastructure and water-related infrastructure.

The principle of proportionality requires balancing *concrete* and *direct* military advantage anticipated with expected incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof resulting from an attack (also called ‘collateral damage’).⁴⁴ Deciding what falls within the two sides of the assessment is a highly delicate exercise as a matter of law and practice.⁴⁵ Besides, if and to what extent ‘indirect’ harm/damage (also called reverberating effects) can or must be considered in proportionality assessment has long been debated. Such consequences may also not be manifest in the immediate aftermath of attacks. The Geneva Principles take the view that attacks against military objectives must consider reasonably foreseeable indirect harm (reverberating effects) in the proportionality assessment for the following reasons. First, the textual reading of Article 51 (5) (b) requires only the military advantage anticipated must result in ‘concrete and direct’ benefits for the party launching an attack. The ‘may be expected’ with regard to collateral damage is put without the qualifier ‘direct’, hence, it includes both direct or indirect consequences of attacks. The travaux préparatoires of Article 51 confirms this interpretation. During the negotiations of this text, attempts to limit the impacts to those in the immediate vicinity of the military objectives (also refer to the ‘direct’ impacts) were rejected.⁴⁶

Secondly, the rule of treaty interpretation requires not only taking into account the ordinary meaning to be given to the terms of the treaty in their context but also its ‘*object and purpose*’.⁴⁷ Given the emphasis on the protection of the civilian population, it is necessary to consider such incidental effects on water infrastructure and water-related

⁴⁴ See AP I, Art.51 (5) (b) and Art.57 (2) (b); and ICRC’s study on Customary IHL, Rule 14.

⁴⁵ Gillard, *supra* note 12, § 2.

⁴⁶ Michael Bothe, Karl Josef Partsch and Waldemar A. Solf, *New Rules for Victims of Armed Conflicts*, 2nd ed., Martinus Nijhoff Publishers, Leiden/ Boston, 2013, Art.57, § 2.6.2, pp. 406-407.

⁴⁷ See Art.31 (1) of the Vienna Convention on the Law of Treaties, 23 May 1969.

infrastructure. Damage to such infrastructure would likely have disastrous effects on the civilian population. For instance, the bombing of the al-Feijeh spring on 23 December 2016, which provides 70 per cent of all Damascus water, damaged the infrastructure of the spring. According to the Independent International Commission of Inquiry on the Syrian Arab Republic, it caused a devastating impact on more than five million civilians who were deprived of regular access to potable water for over one month; thus ‘the damage caused to al-Feijeh spring was grossly disproportionate to the military advantage anticipated or achieved.’⁴⁸ Such impacts are becoming increasingly clarified by detailed physical examinations by water engineers,⁴⁹ by reports and findings on the use of explosive weapons in populated areas⁵⁰ and political declarations of states.⁵¹

Finally, the interpretation that reasonably foreseeable reverberating effects of attacks must be considered in the proportionality assessment is supported by ICRC and other doctrinal resources.⁵² Hence, even when water infrastructure and water-related infrastructure are military objectives or other military objectives are located in or around their vicinity, the reasonably foreseeable reverberating effects of attacks must be considered in proportionality assessment, regardless of the temporal and geographic proximity of the harm to the attacks.

The information that the attacker has at its disposal, in the circumstances ruling at the time, plays a key role in the determination of proportionality. Factors such as resources and capacities to collect, collate and analyse intelligence have implications on the assessment of proportionality.⁵³ Furthermore, contextual factors such as the availability of resources and trained water-related personnel, and the impacts of protracted armed conflicts and the successive degradation of infrastructure should be taken into account by

⁴⁸ UN Human Rights Council, Human rights abuses and international humanitarian law violations in the Syrian Arab Republic, 21 July 2016–28 February 2017, A/HRC/34/CRP.3, 10 March 2017, §§ 32–37.

⁴⁹ For the long-term impacts of such attacks/damages, 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’ (2020) 102 *International Review of the Red Cross* 1293.

⁵⁰ See ICRC, Explosive Weapons, *supra* note 20; and Isabel Robinson and Ellen Nohle, ‘Proportionality and precautions in attack: the reverberating effects of using explosive weapons in populated areas’ (2016) 98 *International Review of the Red Cross*, 1–39.

⁵¹ See e.g., [Political Declaration on Strengthening the Protection of Civilians from the Humanitarian Consequences arising from the use of Explosive Weapons in Populated Areas](#).

⁵² See ICRC Proportionality, *supra* note 12, p.46; Schmitt (ed), Tallinn Manual 2.0, *supra* note 28, Rule 116, commentary § 6 (explicitly states that such assessment includes ‘any indirect effects that should be expected’); Gillard, *supra* note 12; Robinson and Nohle, *supra* note 50, p.122 (Reverberating effects may be considered reasonably and objectively foreseeable based on past practices and empirical research, lessons learned and publicly available information).

⁵³ See Gillard, *supra* note 12, § 3.

those planning and deciding attacks.⁵⁴ Thus, notwithstanding the difficulties arising from the complex calculation of proportionality, militaries must carefully weigh up the humanitarian and military interests at stake.

i. Recognition of the principles of proportionality and precautions in military manuals

Both principles of proportionality and precautions (in attack and against the effects of attacks) are recognized in military manuals, though the formulations may differ (e.g., some use incidental harm to ‘protected persons’ while others simply state ‘civilians’). The US Commander’s Handbook specifies that in the assessment of proportionality, the ‘anticipated incidental injuries/death to protected persons can include, depending on the target, indirect effects (for example, the anticipated incidental injury/death that may occur from disrupting an electric generating plant that supplies power to a military headquarters and to a hospital.’⁵⁵

⁵⁴ See ICRC Proportionality, *supra* note 12, p.45; Gillard, *supra* note 12, §§169–171; and Robinson and Nohle, *supra* note 50, pp.125.

⁵⁵ US, The Commander’s Handbook on the Law of Naval Operations, August 2017, § 8.11.4.

Box 3. The principles of proportionality and precautions in military manuals

Proportionality

The US DoD Law of War Manual provides that ‘combatants must refrain from attacks in which the expected loss of life or injury to civilians, and damage to civilian objects incidental to the attack, would be excessive in relation to the concrete and direct military advantage expected to be gained. This is commonly called the proportionality rule.’ The Manual further provides that the principles of distinction, proportionality and precautions in attack are applicable in NIACs (§ 17.7).

Source: The US, *The United States Department of Defense Law of War Manual*, 2016, § 5.12

UK’s LOAC Manual rules out an attack if ‘the attack may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.’

Source: UK, *The Manual of the Law of Armed Conflict*, Ministry of Defence, 1 July 2004, §5.33.

Precautions in attack and against the effects of attacks

France’s LOAC Manual states that in the conduct of military operations, constant care shall be taken to spare the civilian population, civilians and civilian objects.

Source: France, *Manuel de droit des opérations militaires*, Ministère des Armées, Direction des Affaires Juridiques, État-major des armées (2023), 118.

Regarding precautions against the effects of attacks, Argentina’s Law of War Manual states that ‘the parties to the conflict shall, to the extent possible, take the other necessary precautions to protect the civilian population, individual civilians and civilian objects under their control against the dangers resulting from military operations.’

Source: Argentina’s Law of War Manual 1989, § 4.07(2).

ii. Recognition of the fundamental IHL principles in case law

The fundamental character of IHL principles of proportionality and taking precautions in attacks and against the effects of attacks has long been recognized in judicial and arbitral decisions.

Box 4. Relevant case law on the principles of proportionality and precautions

Following the 1998-2000 war, the Government of the Federal Democratic Republic of Ethiopia and the Government of the State of Eritrea concluded a Peace Agreement on 12 December 2000 (the Algiers Agreement). They agreed, among other things, to submit their claims regarding violations of IHL to the Claims Commission, seated at the Permanent Court of Arbitration, established pursuant to Article 5 of the agreement. In one of the claims before it in 2005, the Commission summarized the core principles of conduct of hostilities and emphasized the fundamental ‘importance of distinguishing between civilians and combatants and between civilian objects and military objectives; they prohibit targeting civilians or civilian objects; they prohibit indiscriminate attacks, including attacks that may be expected to produce civilian losses that would be disproportionate to the anticipated military advantage; and they require both attacker and defender to take all feasible precautions to those ends.’

Source: The Eritrea-Ethiopia Claims Commission in its Western Front, Aerial Bombardment and Related Claims (Eritrea’s Claim) partial award in 2005, §95 (footnotes omitted).

iii. ANSAs and the protection of civilian objects

The obligations under conduct of hostilities rules bind all parties to the conflict – ANSAs are addressee of IHL obligations applicable in NIACs. Some ANSAs adopted codes of conduct relevant to the protection of water infrastructure and water-related infrastructure. Given the indispensable character of water for people and the environment, these practices should be promoted. The inclusion of starvation as a war crime in NIACs also supports this practice.

Box 5. Practice of ANSAs on the principles of proportionality and precautions

For instance, the National Transitional Council/Free Libyan Army (NTC/FLA), an armed group in Libya, also adopted a ‘Code of rules and attitudes of the organisation for the successful conduct of fighting’ that provided the acts of ‘intentional deprivation of food, drinking water’ are totally prohibited in all situations.

Source: NTC/FLA, [‘To the members of the Libyan Liberation Army: Code of rules and attitudes of the organisation for the successful conduct of fighting.’](#) Article 2 (2) (d).

Another ANSA, Patani United Liberation Organization, a nationalist movement in southern Thailand, published a ‘List of Core Principles’ in 2012 that explicitly refers to the IHL rules of distinction, proportionality, and precautions in attacks.

Source: Patani United Liberation Organisation, [‘List of Core principles of Pulo’s engagement rules.’](#) 4 October 2012.

C. Concluding remarks on the protection of civilian objects under IHL

The examination of national frameworks, including military manuals, case law and practices of ANSAs regarding the prohibition of attacks on civilian objects raises several relevant points. Notably, the IHL rules included under the Geneva Principles 6 and 8 dealing with distinction and the Geneva Principles 9, 10, and 11 addressing the issues of proportionality and precautions are recognized in some practices at the national level.

It also exposes the difficulties associated with assessing proportionality, in particular, with regard to the reverberating or indirect effects that are foreseeable in the circumstances at the time of the attack. As armed conflicts are increasingly taking place in densely populated areas and the use of explosive weapons with wide area impact could cause significant damage to and destruction of civilian objects and harm civilians. The interconnectedness of civilian infrastructure, such as water and electrical infrastructure, and their vulnerability to damage from heavy explosive weapons means that access to services indispensable to the survival of the civilian population could be cut off.⁵⁶ Damages to water infrastructure and water-related infrastructure from attacks are expected to have reverberating effects. These could range from damage to upstream infrastructure in the same system to effects on health – especially waterborne diseases – and deterioration of

⁵⁶ See Protection of civilians in armed conflict, Report of the Secretary-General, S/2020/366, May 2020, §33

health services.⁵⁷ For instance, the Independent International Commission of Inquiry on the Syrian Arab Republic indicated that the bombardment of water stations forced the population in the east to drink water from boreholes, risking the contraction of waterborne disease.⁵⁸ Besides, protracted conflicts often leave civilian infrastructure in poor condition and repairing them often becomes difficult.

From the foregoing, one can conclude that it is essential to attach significant weight to the indirect or reverberating impacts of attacks. As demonstrated above, Article 51(5) (b) of AP I calls for consideration of reverberating effects in proportionality assessment and demonstrates the suitability of Principle 9 (3) under Geneva Principles. Of course, the ambiguity of the concepts such as ‘military necessity’ and ‘proportionality’ makes it open to interpretation and difficult to set a clear threshold. Accordingly, parties to armed conflict are required to include reverberating effects in the proportionality assessment on the basis of information that the attacker had or could reasonably have been expected to have in the circumstances.⁵⁹

Principle 11 (3) of the Geneva Principles recommends establishing protected zones around water infrastructure and water-related infrastructure. However, none of the national frameworks reviewed has a rule on such protected zones.⁶⁰ Hence, the suggestion of establishing protected zones around water infrastructure and water-related infrastructure represents a progressive development of IHL.

Despite the existence of prohibitions, water infrastructure and water-related infrastructure have been repeatedly targeted. For instance, between January and July of 2019, violence in northwest Syria destroyed at least 29 water stations serving approximately 610,000 people.⁶¹ In Yemen, between 2015 and 2019, there were over 100 recorded attacks on water-related infrastructure,⁶² and between 2018 and 2020, more than 40 attacks damaged water infrastructure restricting supplies for over 185,000 households. In the Donbass region of Eastern Ukraine, ‘water facilities located along the contact line have

⁵⁷ ICRC Proportionality, *supra* note 12, pp.33, & 46-48; and Gillard, *supra* note 12, §§ 47 & 61-69.

⁵⁸ UN Human Rights Council, A/HRC/34/CRP.3, *supra* note 48, § 26.

⁵⁹ Gillard, *supra* note 12, §63.

⁶⁰ Though not specific to water, protected zones (also called ‘safe zones’) were established for the general protection of the civilian population by the United Nations Security Council (UNSC) (e.g., in Bosnia-Herzegovina, Rwanda, and the protection of civilian sites in South Sudan) or through agreements between parties to conflicts such as agreements to create such zones in Bangladesh in 1971, Cyprus in 1974, Nicaragua in 1979, and Chad in 1980. See Trevor Keck, ‘[What you need to know about ‘safe zones’’](#)’ 27 February 2017, and Jeremie Labbe, ‘[Are Safe Areas a Viable Way Out of the Humanitarian Deadlock in Syria?](#)’ 30 August 2012.

⁶¹ US Agency for International Development, ‘[Syria - Complex Emergency](#)’ *Fact Sheet # 8*, Fiscal Year 2019.

⁶² See Peter Gleick, Charles Iceland, & Ayushi Trivedi, ‘[Ending Conflicts over Water: Solutions to Water and Security Challenges](#),’ September 2020, p.11; ‘[Protecting water means protecting people](#)’, Switzerland in the UN, 27 May 2022.

become a constant shelling target by State armies and armed groups’ and specifically the ‘shelling by armed groups in the Luhansk region damaged the Svitlychne water plant located under the Ukrainian government’s control.’⁶³ These incidents reveal the difficulties in the practical application of the rules of IHL prohibiting attacks against civilian infrastructure.

1.2. Prohibition of attacks against infrastructure containing dangerous forces

Objects containing dangerous forces, including dams and dykes are specially protected objects under IHL. These objects and other installations located at or in their vicinity shall not be made the object of attack, ‘even when they become military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population.’⁶⁴ Besides, water infrastructure containing dangerous forces and other military objectives at or in their vicinity must not be made the object of reprisals. As per a *contrario* reading of Article 56 (1) of AP I, attacks against such objects are not prohibited if they do not cause ‘*the release of dangerous forces and consequent severe losses among the civilian population.*’ AP I provides that such special protection may cease if these objects (and other military objectives at or in their vicinity) are used ‘in regular, significant and direct support of military operations and if such attack is the only feasible way to terminate such support.’⁶⁵ In such cases, parties to a conflict must take particular care because of the high risk of severe incidental losses resulting from such attacks. Article 15 of AP II does not include these exceptions to the prohibition. Besides, Article 56 (3) reserves the IHL rules on general protection - and the latter will rule out the lawfulness of attacks releasing dangerous forces in all foreseeable cases. Moreover, Article 56 (6) urges ‘the High Contracting Parties and Parties to the conflict’ to conclude further agreements to provide additional protection for *objects* containing dangerous forces. This was also not included under AP II though concluding such additional agreements is still possible as enshrined under common Article 3 (2) of the Geneva Conventions.

⁶³ See Marco Pertile and Sondra Faccio, ‘Access to water in Donbass and Crimea: Attacks against water infrastructure and the blockade of the North Crimea Canal, 29 *RECIEL* 1, p.57

⁶⁴ AP I, Art.56; and AP II, Art.15.

⁶⁵ AP I, Art.56 (2).



According to the ICRC's study on Customary IHL Rule 42, '*particular care must be taken*' with regard to infrastructure containing dangerous forces. The prohibition of attacks against such objects has attained a status of customary international law applicable in both IAC and NIAC.⁶⁶ The San Remo Manual on the Law of Non-International Armed Conflict also includes the prohibition of attacking dams, dykes, or nuclear electrical generating stations.⁶⁷ A resolution adopted in 1976 by the International Law Association (ILA) explicitly mentions that '*the destruction of water installations* containing dangerous forces, such as dams and dykes, should be prohibited when such destruction may involve *grave dangers* to the civilian population or substantial damage to the basic ecological balance.'⁶⁸ The Geneva Principles restate the prohibition relating to objects containing dangerous forces if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population. Water infrastructure, namely dams and dykes, benefits from such special protection and should not be made the object of attack, with very limited exceptions, to avoid the release of dangerous forces and consequent severe losses among the civilian population.

Principle 13: Water infrastructure containing dangerous forces

1. Water infrastructure containing dangerous forces, namely dams and dykes, even when these are military objectives, and other military objectives located at or in their vicinity, should not be made the object of attack, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population.
2. In any case, particular care must be taken if dams, dykes and other installations located at or in their vicinity are attacked, in order to avoid release of dangerous forces and consequent severe losses among the civilian population.
3. The parties to the conflict are encouraged to extend the protection provided for dams and dykes to all water infrastructure containing dangerous forces.

The following sub-sections highlight how such protections are incorporated under national legal frameworks and practices of ANSAs.

⁶⁶ See ICRC's study on Customary IHL, Rule 42 commentary, pp.139-142 (emphasis added). For a nuanced view about the customary status of such a norm, see Michael Schmitt, '[Attacking Dams – Part I: Customary International Law](#)', *Articles of War*, 31 January 2022

⁶⁷ The San Remo Manual on the Law of Non-International Armed Conflict, § 4.2.3.

⁶⁸ International Law Association, The Protection of Water Resources and Water Installations in Times of Armed Conflict, the 57th Conference (1976) (Madrid Rules), Art.4 (emphasis added). See also Berlin Rules, *supra note* 13, Art.53.

i. Military manuals addressing objects containing dangerous forces

Some military manuals of the states restate the provision of Article 56 of AP I in prohibiting attacks on works or installations containing dangerous forces if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population.⁶⁹

Box 6. Prohibition of attacks against objects containing dangerous forces under military manuals

For instance, under the Law of War Manual of Australia, it is provided that ‘dams, dykes, and nuclear power stations may not be made the object of an attack if such attack may cause the release of dangerous forces and consequent severe losses amongst the civilian population.’

Source: Australia Law of armed conflict 2006, §§ 9.12, 9.34, 9.35, 9.36; Operations law of RAAF 2004, § 7.15.

Likewise, Denmark’s military manual states that ‘works or installations containing dangerous forces, such as dams, dykes, and nuclear power plants, may not be made the object of attack - even where these objects are military objectives - if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population.’

Source: Denmark, Military manual 2016, § 6.16.

The US DoD Law of War Manual enunciates that certain facilities, works or installations containing dangerous forces, *such as* dams, nuclear power plants, or facilities producing weapons of mass destruction, may constitute military objectives, and that there could be reasons for their attack, such as ‘a denial of electric power to military sources, use of a dangerous facility (e.g., by causing release from a dam) to damage or destroy other military objectives, or to pre-empt the enemy release of the dangerous forces to hamper the movement or advance of the U.S. or allied forces.’⁷⁰ The manual broadens the scope of category of objects protected under this special protection. The rule is formulated differently, i.e., it starts with the exception by indicating that such objects could be legitimate targets and introduces a lesser threshold (additional precaution may be

⁶⁹ See e.g., Australia Law of armed conflict 2006, §§ 9.12, 9.34, 9.35, 9.36; New Zealand, Manual of armed forces 2017, §14.9.1-7; and The UK, *The Manual of the Law of Armed Conflict*, Ministry of Defense, 1 July 2004, §§5.30.5- 5.30-10 (Also, for a similar prohibition, see A soldier’s guide to LOAC 2005, § 4-2-4.3 (h)).

⁷⁰ See The US DoD Law of War Manual, p.270, § 5.13; and US, The Commander’s Handbook on the Law of Naval Operations, August 2017, § 2-117.

appropriate to reduce the risk that the release of these dangerous forces may pose to the civilian population). The US has objected to API's detailed rules governing attacks on works and installations containing dangerous forces and emphasized the *exception* rather than the principle by insisting 'that such targets may be lawfully engaged under LOAC, but raise significant proportionality concerns'.⁷¹

ii. Relevant criminal legislation and case law

Apart from incorporating the prohibition in their military manuals, states also provide penal sanctions for the violations thereof. In particular, domestic criminalization of violations relating to works and installations containing dangerous forces, which include water infrastructure, ensures effective implementation of the prohibition.⁷²

Box 7. Legislation and practices of criminalizing attacks against dams and dikes

For example, in the Czech Republic too, the Criminal Code provides for the punishment of 'a commander who, contrary to the provisions of international law on means and methods of warfare, intentionally: ... destroys or damages a water dam, a nuclear power plant or a similar facility containing dangerous forces'.⁷³

Source: Czech Republic, Criminal Code, as amended in 1999, Article 262 (2) (c)).

Similarly, the Penal Code of the Democratic Republic of Congo (DRC) considers the 'launching an attack against works or installations containing dangerous substances in the knowledge that such attack will cause loss of life, injury to civilians or damage to civilian objects which would be excessive in relation to the concrete and direct military advantage anticipated' as grave breaches.

Source: The Democratic Republic of the Congo's Military Penal Code, 2002, Article 166.

Moreover, there are cases where courts considered attacks directed against infrastructure containing dangerous forces and the jurisprudence points towards strict prohibitions.

⁷¹ The US, *Operational Law Handbook*, *supra* note 30, p.24.

⁷² See e.g., Australia, Penal Code as amended 2007, Art. 268.97, and ICC implementation Act; Colombian Penal Code, 2000, Art.157; and Ethiopia Criminal Code 2004, Art.270 (o).

⁷³ Czech Republic, Criminal Code, as amended in 1999, Art.262 (2) (c)).

Box 8. Relevant case law dealing with attacks directed against infrastructure containing dangerous forces

In 1995, the Russian Federation's Constitutional Court, in a case which addressed issues on the constitutionality of the Presidential Decrees and the Resolutions of the Federal Government concerning the situation in Chechnya, emphasized the point that provisions of AP II protecting facilities essential for the survival of the civilian population, and installations and structures containing dangerous forces are binding on parties to the armed conflict. This reaffirmed the importance of international protection given to such infrastructure and that states could not justify non-compliance with international law obligations by pointing out that they did not enact domestic legislation to implement their obligations effectively.

Source: The Russian Federation Constitutional Court, *Situation in Chechnya case* 1995, §.5.

Similarly, in Colombia, a complaint was submitted to the Constitutional Court to challenge the constitutionality of some provisions of Act 522 of 1999 and Act 599 of 2000. One of the provisions challenged under Act 599 of 2000 was Article 157, which criminalizes attacks on works or installations containing dangerous forces. The problem was that the provision added an additional requirement for such an act to constitute a crime, i.e., the works or installations containing dangerous forces should be 'duly marked with the treaty-based signs.' However, such a requirement does not exist under international law. It was argued before the Court that this requirement unduly restricts the scope of this criminal legislation and is not in line with the international rules binding Colombia. Interestingly, the Court ruled that such an expression is not found within the treaty-based and customary rules of IHL protecting works and installations containing dangerous forces. The court's ruling that requires the prohibition of attacks on such objects irrespective of the existence of the sign is in line with IHL rules, enhanced protections given to water infrastructure by criminalizing offenders.

Source: Colombia, [Constitutionality of IHL Implementing Legislation](#), Decision C-291/07 of 2007 (unofficial translation).

iii. Practice of ANSAs

In addition to the practices of states, some ANSAs have adopted rules or codes of conduct relevant to the protection of water infrastructure containing dangerous forces. They took commitments that are vital for the protection of water infrastructure and water-related infrastructure.

Box 9. Relevant practice of ANSAs on the protection of water infrastructure containing dangerous forces

The National Liberation Army (*Ejército de Liberación Nacional*) (ELN), an armed group in Colombia, enacted '*El Código de Guerra*' (Code of war), which, among others, mentioned that 'efforts shall be made to avoid damage to civilian property and installations resulting from military operations; forces shall not target installations more useful to the community than the enemy; and installations containing dangerous forces such as dams or nuclear material shall not be attacked ... that 'installations containing dangerous forces such as dams or nuclear material shall not be attacked.'

Source: National Liberation Army (*Ejército de Liberación Nacional*) (ELN), '[Code of war](#)', (Unofficial Translation).

Likewise, the NTC/FLA, an armed group that operated in Libya, adopted a guideline that provided that its forces do not target civilian objects and strive to avoid, as far as possible, any effect on civilians resulting from their military operations and that should include avoiding targeting works and installations containing dangerous forces.

Source: See NTC/FLA, '[Guidelines on the Law of Armed Conflict - Libyan Opposition Forces](#),' 2011, p.3.

iv. Concluding remarks on the protection of objects containing dangerous forces

Objects containing dangerous forces merit special consideration during military operations. IHL's special protection for dams and dykes is incorporated under national frameworks and manifested in the practices of the ANSAs. However, there are still some sinister practices in this regard. For instance, reports indicated that on 10 October 2019, the Bouzra Dam, the primary water source for the city of Derik, was targeted by Turkish warplanes.⁷⁴

Besides, Principle 13 (3) of the Geneva Principles calls for 'extending such protection to cover *'all water infrastructure containing dangerous forces.'* In this proposal, which represents a progressive development compared to the existing rules, 'dangerous forces' refers to 'all forces which are perilous due to their volume or quality and if released, would cause severe losses among the civilian population in short- or long-term.' For example, wastewater treatment plants that contain contaminated water pose a danger due to the

⁷⁴ '[Water Must Not be Used as a Weapon of War: Refrain from Civilian and Environmental Harm in Northeast Syria](#)!' Statement by Save the Tigris Campaign, 12 October 2019.

nature of the water they retain and may lead to the poisoning of civilians or degradation of the environment in case of the release of this water. In such cases, the logic behind extending special protection to ‘dams and dykes’ is equally at play, and thus the protection should be extended to cover water infrastructure containing dangerous forces, including wastewater treatment plants. The ICRC’s study on Customary IHL under Rule 42 also called for expanding the scope of protected objects under Article 56 of API. Taking into consideration the peril inherent in any attack against such objects, the commentary to Rule 42 enunciates that the special protection should cover not only dams, dykes and nuclear electrical generating stations, and other objectives located at or in their vicinity, but also ‘*other installations*, such as chemical plants and petroleum refineries.’⁷⁵ This recommendation is restated in the ICRC’s Guidelines on the Protection of Natural Environment in Armed Conflicts.⁷⁶

1.3 Protection of objects indispensable to the survival of the civilian population

IHL prohibits attacking, destroying, removing, or rendering useless objects indispensable to the survival of the civilian population, such as drinking water installations and supplies, and the use of starvation of the civilian population as a method of warfare.⁷⁷ Such objects are of basic importance for the population from the point of view of providing the means of existence. They must not be made the object of reprisals. As the listing of ‘objects indispensable to the survival of the civilian population’ under AP I is not exhaustive, the protection could reasonably cover electricity-generating plants that supply power necessary to purify and pump drinking water.⁷⁸ This reading is particularly compelling in light of the language used under Article 54 of AP I – ‘it is prohibited to attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, *such as...* drinking water installations ..., for the specific purpose of denying them for their sustenance value to the civilian population or to the adverse Party, *whatever the motive*, whether in order to starve out civilians, to cause them to move away, *or for any other motive*.’⁷⁹ This issue was raised before the Israeli court in a petition made to challenge the shortage of electricity in the Gaza Strip, which ‘prevents hospitals, clinics, the water system and the sewage system from functioning properly’, partly as a result of the attack from the IDF on 3 January 2009 that damaged seven of the twelve electricity lines in the Gaza

⁷⁵ ICRC’s study on Customary IHL, Rule 42 commentary, pp.141-142.

⁷⁶ ICRC Guidelines, *supra* note 6, pp.69, §162.

⁷⁷ See AP I, Art.54; AP II, Art.14; and for further discussion of this IHL rule, see Tignino and Irmakkesen, Geneva Principles, *supra* note 2, Principle 12 commentary, pp.42-56

⁷⁸ See Mara Tignino, ‘Water, International Peace and Security’ (2010) 92 *International Review of the Red Cross* 879, pp.658-660.

⁷⁹ See Henry Shue and David Wippman, ‘Limiting attacks on dual-use facilities performing indispensable civilian functions’ (2002) 35 *Cornell International Law Journal*, pp.573-574. (emphasis added)

Strip.⁸⁰ The court accepted the view that the protection extends to such power plants as the humanitarian harm to the civilian population resulting from the electricity shortage denied thousands of people access to running water.⁸¹

The specific protection to objects indispensable to the survival of the civilian population under AP I has some limitations. First, the expression ‘for the specific purpose of denying’ (deliberately denying civilians their sustenance) narrows down the scope of protection; for example, a denial for other purposes or the mere incidental deprivation of sustenance would not fall within the scope of this rule. Note that, as shown below, the ‘specific purpose’ requirement is not followed in most military manuals. Second, Article 54 (3) provides exceptions, i.e., if such objects only serve as sustenance for members of armed forces or when they are used in ‘direct support of military action’, attacks could be legitimate unless they are bound to have severe effects on supplies for the civilian population. Finally, Article 54 (5) allows derogation from the prohibition ‘by a party to a conflict within such territory under its control where required by imperative military necessity, e.g., defending national territory against an invader, including carrying out ‘scorched earth’ actions. It has to be mentioned that Article 14 of AP II does not include such limitations.

The protection granted to objects indispensable to the survival of the civilian population is a well-established customary IHL rule applicable both in IAC and NIAC.⁸² The Eritrean and Ethiopia Claims Commission, established by the Algiers Agreement on 12 December 2000 and seated in The Hague with the Permanent Court of Arbitration (PCA), affirmed the same. Eritrea claimed that Ethiopian forces ‘destroyed property, including water supply systems’ and that these attacks on the reservoir were contrary to Article 54 of AP I.⁸³ On its part, Ethiopia acknowledged that it made several airstrikes on the water reservoir located at the village of Harsile to restrict the drinking water supply to Eritrea’s military on the Eastern Front; however, the reservoir either was not damaged or any damage was quickly repaired. Ethiopia further maintained that Article 54 of AP I is not applicable because Eritrea was not a party to the Geneva Conventions and the APs and that the rule had not yet become a part of customary IHL during the 1998–2000 war.⁸⁴ After examining the normative status of Article 54, the Commission decided that the prohibition under Article 54 has crystalized

⁸⁰ HCJ, *Physicians for Human Rights v. Prime Minister of Israel*, HCJ 201/09, 19 January 2009, § 6.

⁸¹ *Ibid.*, §§ 25–27.

⁸² See ICRC’s study on Customary IHL, Rule 54 and Rule 53 with regard to prohibition of starvation of civilians; and the San Remo Manual on the Law of Non-International Armed Conflict, § 2.3.10.

⁸³ Eritrea-Ethiopia Claims Commission, *Western Front, Aerial Bombardment and Related Claims* in 2005, §§26 & 99.

⁸⁴ *Ibid.*, §§98–103.

into customary IHL and ruled that those aerial bombardments targeting Harsile Water Reservoir, which fortunately failed to damage the reservoir, violated applicable IHL.⁸⁵

Furthermore, as per the International Criminal Court's (ICC) jurisprudence, attacks against water infrastructure indispensable to the survival of the civilian population constitute one of the underlying acts capable to lead to crimes against humanity and genocide.⁸⁶ The United Nations Security Council (UNSC) stressed that destruction of or other damage to objects indispensable to the survival of the civilian population could reduce or deprive civilians of access to essential services and can be drivers of or aggravate forced displacement, compound the spread of infectious diseases in these contexts and hamper an effective public health response.⁸⁷ The International Conference of the Red Cross and Red Crescent explicitly affirmed that 'parties to the conflict must take all feasible precautions to avoid all acts liable to destroy or damage water infrastructure indispensable to the survival of the civilian population, such as systems of water supply, purification and distribution.'⁸⁸ In this regard, Shue and Wippman opined that 'it makes neither moral nor military sense to deny the civilian population water, power, and other indispensable necessities of life.'⁸⁹ Overall, as damage or destruction of water infrastructure and water-related infrastructure disrupts water supplies, pollutes water and deprives civilian population access to safe drinking water and sanitation, this might lead to waterborne diseases and infections, and possibly starvation and displacement.

Principle 12: Starvation and water infrastructure indispensable to the survival of the civilian population

1. The use of starvation of the civilian population as a method of warfare is prohibited.
2. The parties to the conflict must not attack, destroy, remove or render useless water infrastructure indispensable to the survival of the civilian population.

⁸⁵ Ibid, §§104-105.

⁸⁶ See e.g., International Criminal Court, Office of the Prosecutor, *Annex A to the Public Redacted Version of the Prosecutor's Application under Article 58*, Situation in Darfur, the Sudan, 2008, §§172-176.

⁸⁷ See the Preamble of UNSC Resolution, S/RES/2573 (2021).

⁸⁸ See 'Protection of the civilian population in period of armed conflict', the 26th International Conference of the Red Cross and Red Crescent, Resolution 2, 1995, F (b).

⁸⁹ See Shue and Wippman, *supra* note 79, p.577.

i. Military manuals incorporating the prohibition

Some publicly available military manuals prohibit attacks on objects indispensable to the survival of the civilian population (see box 10).⁹⁰ For example, under the military training manuals of Burundi, for the sole purpose of starving civilians, attacking, destroying, removing, or putting out of service objects that are indispensable to the survival of the civilian population, mainly ‘drinking water installations or reservoirs’ is explicitly prohibited.⁹¹ Military manuals also relate starvation with denial of access to objects indispensable to the survival of the civilian populations.⁹² According to ICRC’s study on Customary IHL, ‘most military manuals’ do not include the ‘specific purpose’ qualification enshrined under Article 54 of AP I, and ‘prohibit attacks against objects indispensable to the survival of the civilian population as such.’⁹³

⁹⁰ See e.g., The US DoD law of War Manual, pp.316-117, § 5.20.4; New Zealand Manual of armed forces 2017, §8.8.26 (a)); Denmark, Military manual 2016, § 6.15; and Ethiopia, Standing Rules of Engagement 2007, § 8.4.1. For the detailed list of such practices, see ICRC’s study on Customary IHL, Rule 54 (Vol. II), pp.1148-1173.

⁹¹ Burundi, *Règlement no 98 sur le droit international humanitaire*, Ministère de la Défense Nationale et des Anciens Combattants, Projet “Moralisation” (BDI/B-05), August 2007, Part I *bis*, p.9

⁹² See e.g., Australia, The Manual of the Law of Armed Conflict 2006, §7.10; The UK, Manual of LOAC 2004, §5.27, §§15.19 & 15.50 (in NIAC); and The Manual of Côte d’Ivoire 2007, cited in ICRC’s study on Customary IHL, Rule 53 - Starvation as a Method of Warfare.

⁹³ For the list of such military manuals, see ICRC’s study on Customary IHL, Rules 54 commentary, p.190.



Box 10. Prohibitions of attacks on civilian objects in military manuals

Under Belgium's Law of War Manual (1983), it is prohibited to attack, destroy or render useless objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, drinking water and drinking water installations. The exception is if these objects are used by the adversary solely for the sustenance of its armed forces, or if they serve nonetheless in direct support of military action.

Source: Belgium, *Droit Pénal et Disciplinaire Militaire et Droit de la Guerre, Deuxième Partie, Droit de la Guerre, Ecole Royale Militaire*, par J. Maes, Chargé de cours, Avocat-général près la Cour Militaire, D/1983/1187/029, 1983, p. 28.

The UK Manual of LOAC prohibits to 'attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works, for the specific purpose of denying them for their sustenance value to the civilian population or to the adverse Party, whatever the motive, whether in order to starve out civilians, to cause them to move away, or for any other motive.' Concerning 'internal armed conflict,' the UK's manual tied the prohibition with the protection of 'the right to life.' It provides that the right to life is a non-derogable human right. Violence to the life and person of civilians is prohibited, whatever method is adopted to achieve it. Thus, the destruction of crops, foodstuffs and water sources, to such an extent that starvation is likely to follow, is also prohibited; and the same applies to sieges, blockades, embargoes, or the blocking of relief supplies with the intention of causing starvation. This is the most persuasive justification to ensure the effective protection of objects indispensable to the survival of civilians.

Source: The UK, Manual of LOAC 2004, §§ 5.19 & 15.19.1.

ii. Recognition of the prohibition in national legislation and case law

At the domestic level, national criminal legislation proscribes deliberately targeting objects indispensable to the survival of the civilian population and starvation of civilians as methods of warfare.⁹⁴ As shown in the table below, countries recognized this rule and further criminalized its violation as a war crime.

⁹⁴ See e.g., Colombia's Penal Code (2000), Art.160; and the UK, LOAC Pamphlet (1981).

Box 11. Legislation and practices of criminalizing attacks against dams and dikes

For example, the Criminal Code Act of Australia (1995), as amended in 2007, with respect to war crimes that are serious violations of the laws and customs of war applicable in a non-international armed conflict, indicates that a violation of Article 14 of AP II, which deals with ‘objects indispensable for civilians’ is a war crime.

Source: Australia’s Criminal Code Act 1995, as amended to 2007, Art.268.94 (1) (c).

In the Rome Statute implementation Act of New Zealand, i.e., New Zealand’s International Crimes and ICC Act (2000), war crimes include the crime defined in Article 8(2) (b) (xxv) of the 1998 Rome Statute. Thus, it covers ‘intentionally using starvation of civilians as a method of warfare by depriving them of objects indispensable to their survival’ as a war crime.

Source: New Zealand’s International Crimes and ICC Act (2000), Section 11 (2).

Additionally, the prohibition of attacks on objects indispensable to the survival of the civilian population, including ‘drinking water installations and supplies’, as a corollary to the prohibition of starvation of civilians, has been recognized in domestic case law. The Israeli court detailed the obligations of parties regarding the protection of water resources and infrastructure (see Box 12).

Box 12. National case law on the prohibition of attacks on objects indispensable to the survival of the civilian population

Following the large-scale military operation of the Israeli Defence Forces (IDF) in the Gaza Strip, a case was brought before the Israeli court against the IDF, among other things, concerning the destruction of water infrastructure and obstructing access to water. During the proceeding, Col. Mordechai admitted that the wells in the Tel A-Sultan's neighbourhood were damaged, and the delay in conducting repairs was because of the hostilities. The court affirmed that it is the military commander's responsibility to ensure water provision in area subject to military activities. This includes the responsibility of not only making sure that no damage is caused to water sources but also a positive duty to provide water in areas of shortage. Israel should do everything to ensure water provision, including repairing water sources with due speed. Water tankers should be provided if the normal water supply is not functioning properly. The court underscored the importance of advance planning and preparedness for realizing the humanitarian obligations, including to ensure there are sufficient supplies of food and water in the area. It further stated that 'damage to the water supply is something that should be foreseen from the outset, and if it cannot be avoided, a solution to this problem must be arranged.'

Source: Israel, Physicians for Human Rights et al. v. Commander of the IDF Forces in the Gaza Strip, The Supreme Court sitting as the High Court of Justice, 30 May 2004, §§ 14-15 and §§ 34-35.

iii. Some ANSA's have adopted rules protecting access to basic services

The obligation to respect and ensure respect for IHL rules, in all circumstances is pivotal for protecting water infrastructure and water-related infrastructure. Besides, as mentioned earlier, parties to an armed conflict, including in NIACs, are encouraged to make unilateral commitments and conclude special agreements for the purpose of enhancing the protection of persons and objects.

Box 13. Relevant practice involving ANSAs and the protection of the objects indispensable to the survival of the civilian population

A report indicated that the Islamic State of Iraq and Syria (ISIS), while using water as a military tool, is also interested in protecting water resources and infrastructure to ensure a reliable supply of water and electricity to the population in order to legitimize its presence and to establish a state-like functioning entity. This shows that armed groups that establish territorial control or become a de facto authority, apart from their legal obligation to comply with the rules of IHL, also have other incentives (obtaining legitimacy) in respecting water infrastructure.

Source: Geneva Water Hub, 'The Protection of Water during and after Armed Conflicts,' Think-Thank Roundtable Report, July 2016, p.4.

In relation to the situation in Syria, the UNSC adopted Resolution 2254 on 18 December 2015, which demanded all parties to the conflict to 'immediately comply with their obligations under international law, including international humanitarian law and international human rights law as applicable.' In reply, the Free Syrian Army (FSA) made a declaration. It showed its commitment to respect all the rules of IHL under the four Geneva Conventions and the APs, IHRL (including socio-economic rights), and other relevant international instruments. It specifically undertook to ensure that civilians within its areas of control are safe and have access to basic services.

Source: FSA, '[Unilateral Declaration](#),' 2016.

In a 2002 agreement with the Sudanese Government, the Sudan People's Liberation Movement (SPLM) undertook to respect and protect civilian facilities from military attack. It pledged to refrain from targeting or intentionally attacking civilian objects or facilities, such as schools, hospitals, religious premises, health and food distribution centres, relief operations, or objects or facilities indispensable to the survival of the civilian population and of a civilian nature. Naturally, water resources and infrastructure form part of objects indispensable to the survival of the civilian population. Such provisions should be encouraged in special agreements during NIACs.

Source: Sudan People's Liberation Movement/Sudan People's Liberation Army (SPLM/SPLA), Agreement between the Government of the Republic of Sudan and the Sudan People's Liberation Movement to Protect Non-Combatant Civilians and Civilian Facilities from Military Attack, 10 March 2002.

iv. Concluding remarks and recommendations

IHL prohibits starvation of civilians, including by deprivation of water and food, and other essential commodities and services necessary for their survival. The prohibition not ‘to attack, destroy, remove or render useless objects indispensable to the survival of the civilian population’ includes protection for ‘drinking water installations and supplies’. As it stands, Principle 12 of the Geneva Principles depicts the current state of the law as recognized under national frameworks. There is uniformity in state practice regarding the prohibition of attacks against objects indispensable to the survival of the civilian population, though the scope, degree of emphasis and the list of objects considered as such might vary. Some military manuals qualify the protection with the ‘specific purpose’ requirement while others do not have such restriction on the protection of these objects. Also under the UK Military Manual, the prohibition of such objects is tied to the ‘right to life,’ which requires a greater level of care and protection, while the US mentioned its reservation against the ‘broad prohibitions on attacking such objects when used to support enemy forces.’⁹⁵

The exceptions introduced under Article 54 of AP I undercut the utility of the prohibition. In addition, applying the prohibition to dual-use objects raises some concerns. For instance, if a power plant is attacked for the purpose of interfering with an adversary’s command and control capabilities, this will not fall under the qualification ‘for the specific purpose’ of denying the civilian population the benefits of electrical power, even if the denial of such benefits will be the foreseeable result of the attack.⁹⁶ To make the protection of attacks against indispensable objects, including qualifying dual-use facilities, more stringent, some authors suggested that in assessing proportionality, the expected incidental civilian harm ‘would not be excessive in relation to an anticipated military advantage that was compelling, not simply concrete and direct.’⁹⁷ Michael Schmitt also suggested that in targeting dual-use objects, the standard could be that the ‘military advantage must greatly outweigh’ or ‘significantly outweigh’ the collateral damage.⁹⁸

⁹⁵ See US, Operational Law Handbook, *supra* note 30, p.24.

⁹⁶ Françoise J. Hampson, ‘Means and Methods of Warfare in the Conflict in the Gulf’, in Peter Rowe (ed), *The Gulf War 1990-91 in International and English Law*, Taylor & Francis, 2005, 78-96, p.86.

⁹⁷ Shue and Wippman, *supra* note 79, p.574 (emphasis added).

⁹⁸ Michael Schmitt, ‘The Principle of Discrimination in 21st Century Warfare’, 2 *Yale Human Rights and Development Law Journal*, 1999, p.174.

2. The use of water infrastructure and water-related infrastructure as a means of warfare

The prohibitions on the use of starvation of the civilian population as method of warfare and attacks against objects indispensable for the survival of the civilian population are addressed in the preceding part (see section 1.3). This section examines other IHL rules prohibiting the use of water infrastructure and water-related infrastructure as a means or method of warfare. According to the ‘principle of limitation’ recognized under IHL, the right of the parties to a conflict to choose methods and means of warfare is not unlimited.⁹⁹ It prohibits the employment of means and methods the effects of which cannot be controlled in time and space. Though the use of water resources and water infrastructure as a means of warfare is not explicitly regulated under IHL, there are rules which have potential relevance for the prohibition of their use.¹⁰⁰ Water infrastructure and water-related infrastructure can be used during armed conflicts as a ‘weapon’ by manipulating the quantity (blocking supply or causing flooding), or reducing its quality. IHL also has some rules prohibiting the use of water and water infrastructure as a means or method of warfare. To cite but one example, the Berlin Rules adopted by the ILA prohibit rendering the water unfit for use and diverting water.¹⁰¹

2.1 Prohibition on the use of water infrastructure and water-related infrastructure as a means of warfare: the rhetoric and the reality

From time immemorial, parties to armed conflicts have used water infrastructure and water-related infrastructure as a means of warfare, either by cutting off the water flow, poisoning it, or resorting to flooding. Observably, taking control of water infrastructure along rivers has an important strategic advantage as the force that controls them can harm downstream areas by cutting off the flow or causing flooding.¹⁰² Using water infrastructure and water-related infrastructure as a means or method of warfare has significant adverse consequences on the civilian population. Such use could cause superfluous injury and unnecessary suffering that would be contrary to Article 35 (2) of AP I and the St. Petersburg Declaration of 1868 (the first international treaty prohibiting the use of certain weapons and

⁹⁹ AP I, Art.35 (2); and ICRC’s study on Customary IHL, Rule 17.

¹⁰⁰ The ICRC stated that ‘Prohibition of using the destruction of the natural environment as a weapon’ is prohibited under customary IHL. See ICRC Guidelines, *supra* note 6, Rule 3, pp.42-43 (the commentary to the rule explains that term ‘weapon’ is akin to a tactic or method of warfare.)

¹⁰¹ See Berlin Rules, *supra* note 13, Art.50, and Arts.51 & 52, respectively; Madrid Rules, *supra* note 68, Arts III and V.

¹⁰² Geneva Water Hub, ‘The Protection of Water during and after Armed Conflicts,’ Think-Thank Roundtable Report, July 2016, p.4.

methods in war).¹⁰³ The latter further stipulates that ‘the only legitimate object which States should endeavour to accomplish during war is to weaken the military forces of the enemy.’¹⁰⁴ If the use of water infrastructure and water-related infrastructure as a means or method of warfare is considered, parties to the conflict must carefully analyse the balance between ‘military necessity’ and ‘humanitarian consideration.’ In line with this, Principle 4 of the Geneva Principles enunciates that parties to a conflict should refrain from using water infrastructure and water-related infrastructure as a means of warfare.

Principle 4: Use of water infrastructure and water-related infrastructure as a means of warfare

1. The parties to the conflict should refrain from using water infrastructure and water-related infrastructure as a means of warfare.
2. In cases where water infrastructure and water-related infrastructure are used as a means of warfare during the conduct of hostilities, the principles of distinction, proportionality and precautions must be respected.

Unfortunately, there are numerous examples involving the targeting of water infrastructure and water-related infrastructure in recent conflicts in Syria, Iraq and Libya.¹⁰⁵ In 2016, at the UNSC session, the UN Secretary-General lucidly pointed out that ‘airstrikes against water and electrical facilities in Syria, and the contamination of groundwater resources in Gaza, are further examples of the negative impact of armed conflict on water. If the damage results from the deliberate targeting of such facilities or a disproportionate attack, then it constitutes a violation of IHL. We have also seen warring parties seek to control dams and dikes (which in itself is not a violation of IHL). Controlling strategic dams on the Tigris and Euphrates rivers has been at the centre of military operations in Syria and Iraq by the Islamic State in Iraq and the Levant.’¹⁰⁶ In the armed conflicts in Syria, water

¹⁰³ Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grammes Weight (Saint Petersburg Declaration), 1868.

¹⁰⁴ Ibid. See also ICRC’s study on Customary IHL, Rule 70; and Belgium, *Droit Pénal et Disciplinaire Militaire et Droit de la Guerre, Deuxième Partie, Droit de la Guerre*, Ecole Royale Militaire, par J. Maes, Chargé de cours, Avocat-général près la Cour Militaire, D/1983/1187/029, 1983, p.37 (the purpose of combat between belligerents is to weaken and eliminate the power of resistance of the enemy).

¹⁰⁵ See Marcus DuBois King, ‘The Weaponization of Water in Syria and Iraq,’ (2015) 38 *Wash. Q.*, pp.153-169; Marwa Daoudy, ‘*Scorched Earth, Climate Change and Conflict in the Middle East*’, *Foreign Affairs*, 2022; and ‘UN condemns water cutoff to Libyan capital Tripoli’, *Al Jazeera*, 11 April 2020. <https://www.aljazeera.com/news/2020/4/11/un-condemns-water-cutoff-to-libyan-capital-tripoli>. (An attack on a water pumping station in Libya cuts off the water supply to 2 million people in the capital of Tripoli.)

¹⁰⁶ UNSC, ‘Water, Peace and Security,’ S/PV.7818, 22 November 2016, p.2.

infrastructure was used as a weapon, e.g., holding back the water services.¹⁰⁷ In October 2019, shelling conducted by the Turkish forces and allied National Army from *Operation Peace Spring* areas caused damage to the main water pipe connecting the water pumping stations of Alok and Al-Himme, western al-Hasakah. And even after the water infrastructure were repaired, they were put out of service repeatedly in an attempt to force the Syrian government and the Autonomous Administration agree to Turkey's terms.¹⁰⁸ As deliberately depriving the civilian population of objects indispensable for their survival constitutes a serious violation of IHL, parties to armed conflicts must refrain from such conduct and take appropriate accountability measures against perpetrators.

i. How do military manuals address the matter?

Though there is no explicit rule prohibiting the use of water infrastructure and water-related infrastructure as means or method of warfare, military manuals *indirectly* limit and regulate the use such infrastructure and water resources as a means or method of warfare, including as part of the natural environment (see Box 14).

Box 14. Prohibition of using water resources and water infrastructure as a means of warfare in military manuals

Under New Zealand's Military Manual, it is stipulated that an attack against the natural environment, which includes 'all forests and vegetation, waters, lakes and seas, the soil and subsoil, and the air' is prohibited. Such prohibitions are fundamental as they indirectly prevent both using water as a weapon and targeting water infrastructure.

Source: New Zealand, Manual of armed forces 2017, §§14.11.1 & 14.11.2.

Similarly, the Netherlands military manual prohibits acts that constitute 'environmental modification techniques' through the deliberate manipulation of natural processes, including diverting or changing the courses of a river that might have a long-lasting impact.

Source: The Netherlands Military Manual 2005, §§ O466-O467.

¹⁰⁷ See e.g., ICRC, '[Syria: Water used as weapon of war](#),' news release, 02 2015.

¹⁰⁸ See '[Turkey Continues to Weaponize Alok Water amid COVID-19 Outbreak in Syria](#),' Human Rights Journalism, April 28, 2020; and '[Water is not a weapon, water is life](#)!', Transnational Institute of Social Ecology, June 9, 2020.

ii. Other national practice

The centrality of protecting and prohibiting the use of vital infrastructure, including water infrastructure and water-related infrastructure for military purposes is manifested in various other practices of states (see Box 15).

Box 15. Other relevant practice on the prohibition on the use of water infrastructure and water-related infrastructure as a means of warfare

The Libyan Political agreement signed in 2015 epitomizes the significance of the protection of civilian objects in armed conflict situations. The agreement states that ‘armed formations shall withdraw from all vital and infrastructure installations, including vital *water installations* ... The Government of National Accord shall assume full control over the vital infrastructure and installations according to a written plan and timetable to be agreed upon within thirty (30) days of the entry into force of the ceasefire, provided that the Committee develops the necessary plans for the implementation of that. 2. The Government of National Accord shall take the necessary action for the formation and deployment of units of the army and police to protect vital and infrastructure installations.’

Source: [Libyan Political Agreement](#), signed on 17 December 2015, Article 40.

It is also reported that the USA, during its 2003 military operation in Iraq, ordered its armed forces to seize the Haditha dam to prevent it from being destroyed by Iraqi forces because if it had been attacked, it would have caused destructive flooding that would affect the down-river areas and cut Iraq's hydroelectricity production.

Source: See ‘[Haditha](#)’, [GlobalSecurity.org](#), last updated 09 07 2011.

iii. The use of water infrastructure and water-related infrastructure as a means or method of warfare in the practice of ANSAs

In different armed conflicts, ANSAs used water infrastructure and water-related infrastructure as a means or method of warfare. For instance, in 2017, ISIS flooded the villages in eastern Aleppo, intending to curtail the Syrian army’s rapid advance. It also seized a number of important dams on the Euphrates and Tigris Rivers and repeatedly used them as a weapon against armed forces and civilian population in different ways, including withholding, flooding, and contaminating water supplies.¹⁰⁹ After capturing Fallujah Dam in

¹⁰⁹ Tobias von Lossow, ‘[Water as Weapon: IS on the Euphrates and Tigris](#),’ *German Institute for International and Security Studies*, 2016.

early 2014, ISIS first closed the floodgates before reopening them and flooding areas downstream to stop advancing government forces, and caused incidental harm to farmland, livestock and infrastructure between Fallujah and Abu Ghraib.¹¹⁰

Box 16. Practice involving ANSAs on the use of water infrastructure and water-related infrastructure as a means or method of warfare

There was an indication that Al Shabaab, a group fighting to create an Islamic state in Somalia, diverted water from the Jubba River, causing a flood that forced Somali, Kenyan, and U.S. military forces to move to higher ground, where they were later ambushed. This measure seems a borderline case where some measures specifically aimed at military personnel could be justified by military necessity. Nevertheless, such measures should not disproportionately impact civilians.

Source: Christina Goldbaum, [‘To Ambush U.S. Green Berets, Al Shabaab Diverted a River,’](#) *Daily Beast*, 10 June 2018.

The Independent International Commission of Inquiry on the Syrian Arab Republic, established on 22 August 2011 by the UN Human Rights Council to investigate all alleged violations of human rights law since March 2011, indicated that ‘armed groups threatened to cut off the water on several occasions, effectively using control over the springs to prevent attacks by pro-Government forces ... while it was also reported that ‘one interviewee indicated that as a rule, armed group fighters were present in al-Feijeh spring [which provides 70 per cent of all Damascus water] to protect it from Government attacks.’ The parties’ alleged measures to protect water infrastructure from attacks are positive practices that must be commended. Nevertheless, in reality, the Commission confirmed that there were bombings of the al-Feijeh spring by the Syrian Air Force, and damage to al-Feijeh spring ‘was grossly disproportionate to the military advantage anticipated or achieved.

Source: UN Human Rights Council, Human rights abuses and international humanitarian law violations in the Syrian Arab Republic, 21 July 2016-28 February 2017, A/HRC/34/CRP.3, 10 March 2017, § 32.

Generally, there is an implicit acceptance of not using water infrastructure and water-related infrastructure as a means or method of warfare in the national frameworks of states and agreements between states and ANSAs. Occasionally, there have been practices of the use or threat of using such infrastructure as a means or method of warfare. This was the case when, following an attack by a Pakistan-based group that killed at least 40 Indian

¹¹⁰ Ibid, p.2; and Geneva Water Hub, Think-Thank Roundtable Report, *supra* note 102, p.4.

soldiers, Indian leaders threatened to curtail water deliveries from rivers flowing into Pakistan in violation of its obligations under the 1960 Indus Water Treaty, which stipulates the sharing of water resources between the two countries.¹¹¹

As there is no explicit prohibition under IHL of using water infrastructure and water-related infrastructure as a means of warfare, Principle 4 of the Geneva Principles is framed in a non-compulsory manner - 'parties to the conflict *should* refrain' from using such infrastructure as a means of warfare. In the face of reports of serious non-compliance with the call to refrain from using such infrastructure as a means or method of warfare, it is vital to strengthen the legal protection in this area and to engage parties to armed conflicts to ensure compliance.

2.2 Prohibition of poisoning or contaminating water

The prohibition of poisoning drinking water constitutes one of the oldest rules applicable in the context of armed conflict, and it forms part of customary IHL applicable both in IAC and NIAC.¹¹² Besides, under soft law instruments, it is emphasised that 'combatants shall not poison or render otherwise unfit for human consumption water indispensable for the health and survival of the civilian population.'¹¹³ Compared to IHL, the scope of the provisions affirmed in soft law documents that prohibit rendering water unfit for human consumption is broader. IHL does not *strictly* prohibit altering the state of water that does not amount to poisoning under the rules governing poisoning. Nevertheless, other principles of IHL, such as the prohibitions on rendering useless objects indispensable for the civilian population, could be relevant in such cases. Furthermore, the prohibition under IHL does not necessarily encompass incidental poisoning.¹¹⁴ It has to be mentioned that in cases where the poisoning has transboundary effects, a violation of the obligation not to cause significant transboundary harm can come into play.¹¹⁵

¹¹¹ Keith Johnson, '[Are India and Pakistan on the Verge of a Water War?](#)' *Foreign Policy*, 25 February 2019

¹¹² See Hague Regulations (1907), Art.23 (a); and ICRC's study on Customary IHL, Rule 72 (Vol. II), pp.1590-1601.

¹¹³ Berlin Rules, *supra* note 13, Art.50; see also Madrid Rules, *supra* note 68, Art.1. According to the International Law Association, all measures that render water unusable for human consumption are illegal at least, *de lege ferenda*.

¹¹⁴ Tignino and Irmakkesen, Geneva Principles, *supra* note 2, Principle 5, commentary, pp.23-26.

¹¹⁵ See The UN Convention on the Law of the Non-navigational Uses of International Watercourses 1997 (UN Watercourses Convention), Art.7, and Convention on the Protection and Use of Transboundary Watercourses and International Lakes 1992 (UNECE Water Convention) Art.2.

Principle 5: Poison or poisoned weapons

The use of poison or poisoned weapons against water and water infrastructure is prohibited.

i. Prohibition of the use of poison or poisoned weapons under military manuals

Using water as a weapon by contaminating or poisoning is proscribed under several military manuals and other relevant legislation.¹¹⁶ As early as 1863, the Lieber Code specifies that ‘the use of poison in any manner, be it to poison wells, or food, or arms, is wholly excluded from modern warfare. He that uses it puts himself out of the pale of the law and usages of war.’¹¹⁷ In their explanation of the application of this rule, military manuals specify that the prohibition of poison extends to poisoning wells and other water supplies.¹¹⁸ The indiscriminate effects of poisoning waters made it necessary to adopt prohibitive rules.

¹¹⁶ See e.g., German Military Manual, 1992, §§ 426 and 434; Australia, The Manual of the Law of Armed Conflict 2006, § 4.8; Denmark, Military manual 2016, § 9.2; and New Zealand, Manual of armed forces 2017, § 7.6.33-34.

¹¹⁷ Instructions for the Government of Armies of the United States in the Field (Lieber Code), 24 April 1863, Art. 70.

¹¹⁸ ICRC’s study on Customary IHL, Rule 72 commentary, p.254.

Box 17. Military manuals prohibiting poisoning water resources

Under the national framework of Israel, poisoning water resources has been strictly forbidden. For instance, its Manual on the Laws of War 1998 explicitly indicated that ‘it is forbidden to poison water sources, arrows or bullets. This is one of the most ancient prohibitions in the laws of war. Already back in ancient Greece and Rome, it was forbidden to use poison, which was perceived as ‘a dishonorable weapon’ that disgraces the user.’ Furthermore, under its 2006 Rules of warfare on the battlefield, it is provided that ‘the rules of warfare ... include many customs that have become entrenched in warfare over the years, such as ... the ban on the use of poison.’

Sources: Israel, Manual on the Laws of War 1998, p.12; and *Rules of warfare on the battlefield* 2006, p.10.

In the US, Instructions for the Government of Armies of the United States in the Field (Lieber Code) of 24 April 1863, under Article 16, stated that military necessity ‘does not admit the use of poison in any way.’ The use of poison in any manner, be it to poison wells, food, or arms, is wholly excluded from modern warfare. He that uses it puts himself out of the pale of the law and usages of war. Thus, poisoning water resources is prohibited. Besides, the DoD Law of War Manual explicitly mentions that poisoning the enemy’s food or water supply is prohibited.

Source: The United States Department of Defense Law of War Manual, section 6.8.1. Also, Section 5.20.3.

The UK’s manual of 1958, under its provision prohibiting any use of poison, interestingly included the prohibition of poisoning or contamination of water supplies. It specifically mentions different types of water infrastructure necessary for access to drinking water, i.e., ‘water in wells, pumps, pipes, reservoirs, lakes, rivers, and the like, from which the enemy may draw drinking water, must not be poisoned or contaminated;’ and further declared that ‘the poisoning or contamination of water is not made lawful by posting up a notice informing the enemy that the water has been thus polluted. However, there is no rule to prevent measures being taken to dry up springs and divert rivers and aqueducts.’

Source: The UK Manual 1958, § 112; see also, A soldier’s guide to LOAC 2005, § 5-1 (c).

ii. National practice addressing this prohibition

In 1972, at the Conference on Human Environment in Stockholm, China condemned the US for causing ‘unprecedented damage to the human environment’ in South Vietnam through the use of ‘chemical toxic and poisonous gas’, including poisoning ‘*rivers and other water resources*.’¹¹⁹ There are also reports of international organizations and human rights bodies addressing different aspects of contamination or poisoning of water in the context of armed conflicts. For instance, the ICRC publication codifying the domestic practices in Somalia, entitled the ‘*Spared from the spear: Traditional Somali Behaviour in Warfare*’ indicated that the poisoning of water wells was ‘strongly disapproved of and rarely done, if at all, since the damage resulting therefrom would affect everyone.’¹²⁰ In relation to the conflict in Iraq, the UNICEF’s *Water under Fire* report highlights that ‘the deliberate contamination of water sources – the poisoning of lakes, rivers and streams with chemicals, dead animals, human bodies, industrial disposal or oil – has rendered the water toxic for the civilians who depend on it.’¹²¹ The use of poison or poisoned weapons has also been recognized as a war crime in both IAC and NIAC under the Rome Statute.¹²²

¹¹⁹ China, Address to the meeting of Human Environment on Our Government’s Position on the Protection and Improvement of Human Environment,’ 10 June 1972, *Selected Documents of the Chinese delegation to the United Nations*, the People’s Press, Beijing, 1972, pp.257-258

¹²⁰ ICRC, *Spared from the Spear: Traditional Somali Behaviour in Warfare*, 2nd edition, ICRC and Somali Red Crescent Society, February 1998, p.49.

¹²¹ See UNICEF, [Water Under Fire \(Vol.3\)](#): Attacks on water and sanitation services in armed conflict and the impacts on children (2021), p.23.

¹²² Rome Statute of the International Criminal Court 1998, in force on 1 July 2002, Article 8 (2) (b) (xvii) and 2 (e) (xiii).



Box 18. Relevant practice on the prohibition of poisoning water resources

According to the Commission of Inquiry on the Syrian, on 23 December 2016, the Damascus Water Authority announced it had cut off water supplies because armed groups had contaminated the water with fuel, which left close to 5.5 million people without regular access to water. However, the Commission of Inquiry, after thoroughly investigating 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,’ but on the contrary, it accepted that the shrapnel damaged the storages of fuel and chlorine, which contaminated the water, therefore concluded that either side did not intentionally contaminate the water.

Source: UN Human Rights Council, Human rights abuses and international humanitarian law violations in the Syrian Arab Republic, 21 July 2016–28 February 2017, A/HRC/34/CRP.3, 10 March 2017, §§ 33–35.

A few cases also addressed the issue of poisoning water resources and water infrastructure in the context of armed conflict (see Box 19). The cases highlight the potentially devastating effect of poisoning water.

Box 19. Relevant case law on the prohibition of poisoning water resources

Concerning the poisoning of water by using chemical agents, 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 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 him 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. After explaining the obligation of South Africa to prosecute serious violations of the Geneva Conventions and Protocols thereof, the court referred the matter back to the court for retrial. However, reports indicated that the National Prosecution Authority did not re-open the proceeding.

Source: South Africa, *Basson II case*, Constitutional Court, Judgment, 9 September 2005, §§ 180 - 182.

In another case related to the conflict throughout the Darfur region, it was reported that 'Militia/Janjaweed and the Armed Forces repeatedly destroyed, polluted or poisoned these wells so as to deprive the villagers of water needed for survival. In a number of cases, water installations were bombed.' Regarding the conduct of the armed forces of Sudan, the ICC also charged the ousted Sudanese President Omar al-Bashir, for acts related to contamination of wells and water pumps of the towns and villages primarily inhabited by members of the Fur, Masalit and Zaghawa groups.

Sources: ICC, *Annex A to the Public Redacted Version of the Prosecutor's Application under Article 58 (Situation in Darfur, Sudan)*, [ICC-02/05](#), 14 July 2008, § 176; and ICC, *The Prosecutor v. Omar Hassan Ahmad al Bashir*, ICC-02/05-01/09, 12 July 2010, p.7.

iii. Trespassing boundaries: poisoning or contaminating water by ANSAs

Some ANSAs explicitly recognized the prohibition of poisoning water resources or the use of chemical or biological weapons (see Box 20), while others deliberately violate the prohibition. There were widespread reports that ISIS made drinking water unsafe in Syria by poisoning or contaminating water using crude oil. In 2014, it was revealed that ISIS ‘deliberately contaminated drinking water with crude oil in the Balad district of Salahaddin Governorate, south of Tikrit. There were also reports of poisoned water supplies from Aleppo, Deir ez-Zor, Raqqqa (Syria) and Baghdad (Iraq).’¹²³ This was meant to make those survivors face the lifeless environment. Also, in Somalia, a water well is poisoned by al Shabaab, a militant group affiliated with Al-Qaeda, to prevent government soldiers from drinking the water, killing more than 30 people.¹²⁴

Box 20. Relevant practice of ANSAs on the prohibition of poisoning water resources

An ANSA operating in Colombia, namely the National Liberation Army (ELN), under its ‘Code of war’ specifically indicated its commitment not to poison water supplies and resources. Another major armed group, the Revolutionary Armed Forces of Colombia (FARC) in the early 2000’s, to undermine governmental power, resorted to the tactic of attacking national infrastructure in order to disrupt basic public services and in 2003 and 2004, it used poisoning agents to contaminate water installations. It was indicated that FARC’s ability to control water resources and supplies was used as a bargaining chip to gain political leverage.

Sources: National Liberation Army (*Ejército de Liberación Nacional*) (ELN), ‘Code of war’, (Unofficial Translation); and ‘Water and Violence: Attacks on Water Infrastructure,’ *Blue Peace Bulletin*, vol.10, October 2019.

In Turkey, the Kurdistan Workers’ Party/People’s Defence Forces (PKK/HPG) has in its internal rule an explicit prohibition of the use of ‘biological, nuclear or chemical weapon ... or weapons that have a destructive effect on people, plants, animals or the ecological balance will not be used.’

Source: PKK/HPG, ‘Document concerning the rules to be obeyed by HPG forces in war,’ 2010, § 12.

¹²³ Lossow, *supra* note 109.

¹²⁴ ‘32 people die in Somalia after drinking from well allegedly poisoned by Islamist militant group Al-Shabaab,’ *The News Chronicle*, 30 January 2017.

In conclusion, no state or ANSA has ever claimed that poison or poisoned weapon may lawfully be used in either IAC or NIAC. States usually denounce the use of chemicals or other substances to poison water resources. Hence, though occasionally there are violations of the rule, it could be safely concluded that Principle 5 of the Geneva Principles reflects the accepted norm of international law.

2.3 Prohibition on violence aimed at spreading terror among the civilian population

As enshrined under Article 51 (2) of AP I and Article 13 (2) of AP II, acts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited. According to ICRC's study on Customary IHL, the prohibition of methods intended to spread terror among the civilian population is a rule of customary IHL applicable in both IACs and NIACs.¹²⁵ Principle 14 of the Geneva Principles has highlighted the status of this norm under international law.¹²⁶ This rule is further supported by the wider prohibition of 'acts of terrorism' under IHL.¹²⁷ Commentators opined that water infrastructure could be used as delivery vehicles to cause violence, e.g., to harm downstream areas, and thus 'water resources and systems are attractive targets because there is no substitute for water.'¹²⁸ Needless to mention that some recent acts of ANSAs are directed at water resources and water infrastructure, including the dumping of chemicals and the destruction of water pipes.¹²⁹

Principle 14: Acts or threats of violence the primary purpose of which is to spread terror among the civilian population

Acts or threats of violence the primary purpose of which is to spread terror among the civilian population, including but not limited to the release of dangerous forces from dams and dykes, and the poisoning or retention of water, are prohibited.

¹²⁵ See ICRC's study on Customary IHL, Rule 2.

¹²⁶ Tignino and Irmakkesen, Geneva Principles, *supra* note 2, Principle 14 commentary, p.51.

¹²⁷ See Geneva Convention IV, Art.33, and AP II, Art.4 (2) (d).

¹²⁸ See Peter H Gleick, 'water and terrorism,' (2006) *Water Policy*, pp.482-484.

¹²⁹ Elizabeth Chalecki, [A New Vigilance: Identifying and Reducing the Risks of Environmental Terrorism](#) (Pac. Inst. for Studies in Dev., Env't, and Sec., Report 10, 2001).

i. Prohibition of the acts or threats of violence under military manuals

Military manuals reproduced verbatim the prohibition of acts or threats of violence the primary purpose of which is to spread terror among the civilian population.¹³⁰ In these manuals, despite the absence of an explicit mention of the use of water resources, water infrastructure or water-related infrastructure to terrorize the civilian population, such prohibition could be inferred from possible threat coming from the use of such infrastructure and water resource as a weapon.

Box 21. Examples of military manuals that proscribe acts or threats of violence to spread terror among civilians

For instance, in the USA, such acts are prohibited ‘including acts or threats of violence, the primary purpose of which is to spread terror among the civilian population.’

Source: The US DoD Law of War Manual, 2016, § 5.2.2.

The UK’s manual also explicitly prohibits ‘acts or threats of violence, the primary purpose of which is to spread terror among the civilian population are prohibited.’

Source: The UK LOAC Manual 2004, § 5.21.

ii. Other relevant practice

Other legislation and practices also reveal that acts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited and criminalized both under international law (e.g., under the Statutes of the International Criminal Tribunal for Rwanda, Article 4(d)) and domestic legislation.¹³¹ In the special agreement between parties during the armed conflict in the former Yugoslavia, it is provided that ‘acts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited.’¹³²

¹³⁰ See e.g., The Russian Federation’s Military Manual 1990, § 5 (n); Colombia’s Basic Military Manual 1995, p.30; Sierra Leone, *The Law of Armed Conflict. Instructor Manual for the Republic of Sierra Leone Armed Forces (RSLAF)*, Armed Forces Education Centre, September 2007, p.36; New Zealand, Manual of armed forces 2017, §13.2.1 (d); and Argentina’s Law of War Manual 1989, §7.08.

¹³¹ See e.g., Ethiopia, Criminal code 2004, Art.270 (g)); and Colombia, Penal Code 2000, Art.144.

¹³² See Agreement on the Application of IHL between the Parties to the Conflict in Bosnia and Herzegovina, Agreement No.1 of 22 May 1992, Art.2 (3) (1).

In general, such prohibition forms part of customary IHL, though there is no explicit mention of water resource or water infrastructure in the rules regulating this conduct. Accordingly, Geneva Principle 14 takes one step further by explicitly incorporating water resources, water infrastructure and water-related infrastructure in the prohibition.

2.4 Prohibitions on the use of water to force the displacement of civilians

Cutting off water supplies, threats, or acts of flooding and targeting water infrastructure can cause immediate, mid-term or long-term displacement. In IACs, Geneva Convention relative to the Protection of Civilian Persons in Time of War of 12 August 1949 (GC IV) prohibits individual or mass forcible transfers and deportations of protected persons from occupied territories,¹³³ while in NIACs, AP II stipulates that the displacement of the civilian population must not be ordered for reasons related to the conflict unless the security of the civilians involved or imperative military reasons so demand.¹³⁴ These rules are partly reflected in customary IHL applicable in both IAC and NIAC, i.e., parties to the conflict may not displace the civilian population for reasons related to the conflict unless the security of the civilians involved or imperative military reasons so demand.¹³⁵ Based on these rules, Geneva Principles underscore that control over water infrastructure and the deprivation of access to water must not be used to force the displacement of civilians.¹³⁶ Under the Rome Statute, in IAC ‘the deportation or transfer of all or parts of the population of the occupied territory within or outside this territory’ constitutes a war crime (Article 8 (2) (b) (viii)) and in NIAC ‘ordering the displacement of the civilian population for reasons related to the conflict, unless the security of the civilians involved or imperative military reasons so demand’ constitutes a war crime (Article 8 (2) (e) (viii)).

Principle 16: Forced displacement

The control over the delivery of water, and deprivation thereof, must not be used to force the displacement of civilians.

¹³³ Geneva Convention IV, Art.49.

¹³⁴ AP II, Art.17.

¹³⁵ See ICRC’s study on Customary IHL, Rule 129; Geneva Convention IV, Art.49; AP II, Art.17; and The San Remo Manual on the Law of Non-International Armed Conflict, § 1.2.4.

¹³⁶ Tignino and Irmakkesen, Geneva Principles, *supra* note 2, Principle 16 commentary, pp.55-57.

i. Recognition of the prohibition under military manuals

The prohibition of displacement of the civilian population is a well-recognized principle in military manuals, including in NIACs.¹³⁷ It is generally accepted that displacement of the civilian population shall not be ordered for reasons related to the conflict unless the security of the civilians involved or imperative military reasons so demand. Should such acts have to be carried out, all possible measures shall be taken in order that the civilians concerned are received under satisfactory conditions of shelter, hygiene, health, safety and nutrition and that members of the same family are not separated. Nevertheless, the manuals do not as such explicitly address the prohibition of control over the delivery of water, and deprivation thereof, to force the displacement of civilians.

Box 22. Military manuals prohibiting forced displacement

For instance, Argentina's manual enunciates that 'individual or mass forcible transfers, as well as deportations of protected persons from occupied territory to the territory of the occupying Power or to that of another country, occupied or not, are prohibited, regardless of their motive.'

Source: Argentina's Law of War Manual 1989, § 5.008.

ii. Other national legislation

In addition to the general prohibition of the act of displacement, states also criminalized violations of such prohibition.¹³⁸ The efforts to ban the acts of displacement could help restrain the potential use of water resources or water infrastructure, thereby contributing to their protection.

¹³⁷ See e.g., The Russian Federation, Military Manual 1990, §85; and The US DoD Law of war Manual, § 17.9.1 & § 11.12.3.

¹³⁸ See e.g., Australia, LOAC Manual 2006, § 12.39; & Criminal Code Act as amended in 2007, Art.268.32; New Zealand, Manual of armed forces 2017, § 1702 (3) & § 1823 (1); and Cambodia, Law on the Establishment of the ECCC (2001), as amended in 2004, Art.6.

Box 23. Other legislation and practices on forced displacement

Just to cite an example, the Penal Code of Colombia also provides that ‘anyone who, during an armed conflict, without military justification, deports, expels or carries out a forced transfer or displacement of the civilian population from its own territory’ is criminally responsible.

Source: Colombia, Penal Code 2000, Article 159.

iii. Practice of ANSAs

The review of manuals and practice shows a few positive practices of ANSAs. The ELN recognized that ‘there shall be no forced displacement of the civilian population from combat zones.’¹³⁹ NTC/FLA has also committed itself not to move the civilian population unless their safety is threatened forcefully or in situations of force majeure, and in case it happens, these civilians must be allowed to return to their place.¹⁴⁰

Box 24. Relevant practices of ANSAs on forced displacement

The parties to the conflict in the former Republic of Yugoslavia agreed that ‘the displacement of the civilian population shall not be ordered unless the security of the civilians involved or imperative military reasons so demand. Should such displacements have to be carried out, all possible measures shall be taken so that the civilian population may be received under satisfactory shelter, hygiene, health, safety and nutrition.’

Source: Agreement on the Application of IHL between the Parties to the Conflict in Bosnia and Herzegovina, Agreement No.1 of 22 May 1992, Article 2.3 (4).

Unfortunately, there are still practices of using water to force the displacement of civilians. For instance, reports indicated that ISIS, at some point, controlled several significant dams and water infrastructure in the Tigris-Euphrates river system, posing grave concerns.¹⁴¹ It blocked the river to desiccate certain regions and used water to flood areas to drive away

¹³⁹ See National Liberation Army (*Ejército de Liberación Nacional*) (ELN), ‘[Code of war](#)’, (Unofficial Translation).

¹⁴⁰ See NTC/FLA, ‘[To the members of the Libyan Liberation Army: Code of rules and attitudes of the organisation for the successful conduct of fighting](#),’ Art.6.

¹⁴¹ See Matthias von Hein, ‘[Islamic State using water as a weapon](#)’ DW, 03 March 2016.

the civilian population. In particular, in 2014, when ISIS captured the large dams at Falluja, Mosul, Samarra and Ramadi, it interrupted local water supplies to deprive civilians in the lower reaches of the Euphrates and Tigris of water.¹⁴² There were also reports accusing the Israeli army of cutting off water supplies to 17 Palestinian communities in Hebron, West Bank, with the view of forcing the movement of local Palestinians out of their homes to make room for more Israeli settlements.¹⁴³ In addition, attacks by the Israeli army on civilian water towers throughout southern Lebanon in 2006 contributed to the displacement of over 1 million people to Beirut and delayed the return to their homes.¹⁴⁴ Despite these contrary practices, control over water infrastructure must not be used to force the displacement of civilians.

3. Protection of water-related personnel and objects necessary for their activities

The principal aim of IHL is to limit human suffering, as far as possible, even amidst armed conflicts. In this regard, the role of water-related personnel and impartial humanitarian organizations (e.g. ICRC) is invaluable. Thus, it is crucial to respect and protect such personnel and objects necessary for their activities, i.e., operation, maintenance, assessment, repair and rehabilitation of water infrastructure and water-related infrastructure. According to the classification of persons under IHL, such personnel are civilians and hence cannot be attacked unless they take a direct part in hostilities.¹⁴⁵ This section explores national legislation and other measures taken for the protection water-related personnel and objects necessary for their activities.

3.1 The prohibition of attacks against water-related personnel

Under both treaty and customary IHL, personnel participating in relief actions (includes water-related personnel), and objects necessary for relief actions must be respected and protected.¹⁴⁶ This means that parties to an armed conflict must respect and protect water-related personnel – e.g., not attacking, harassing, intimidating or arbitrarily detaining

¹⁴² Lossow, *supra* note 109, p.2.

¹⁴³ See 'Israel Chokes Off Water Supply to 17 Palestinian Communities – Report.' *Sputnik Middle East*, 14 February 2019; and Erika Weinthal and Jeannie Sowers, 'Targeting infrastructure and livelihoods in the West Bank and Gaza' (2019), 95 *International Affairs* 2, pp.319-40.

¹⁴⁴ Mark Zeitoun, Karim Eid-Sabbagh and Jeremy Loveless, 'The analytical framework of water and armed conflict: a focus on the 2006 Summer War between Israel and Lebanon' (2014) 38 *Disasters* 1, pp.22-44.

¹⁴⁵ See AP I, Art.51(3), AP II, Art.13 (3), and ICRC's study on Customary IHL, Rule 6.

¹⁴⁶ See AP I, Art.71(2); and ICRC's study on Customary IHL, Rule 31 (protection of humanitarian personnel) and Rule 32 (protection of humanitarian relief objects). Though AP II does not have specific protection in this regard, developments under international criminal law, including the Statute of the International Criminal Court criminalize intentionally directing attacks against such personnel in NIACs. See Rome Statute of the International Criminal Court, 1998, Art.8 (2) (e) (iii).

them.¹⁴⁷ The UNSC has also emphasised the need for the ‘protection of civilians operating, maintaining or repairing these objects, as well as their movement for the purpose of maintaining, repairing or operating such objects.’¹⁴⁸ Principle 7 of Geneva Principles re-states that personnel tasked with such activities in relation to water infrastructure and water-related infrastructure must not be attacked and must be protected.

Principle 7: Attacks against the personnel working for water infrastructure and water-related infrastructure

Personnel responsible for carrying out tasks related to the operation, maintenance, assessment, repair and rehabilitation of water infrastructure and water-related infrastructure are presumed to be civilians and, in such case, must not be attacked.

i. Prohibition of attacks against such personnel under military manuals

In military manuals, there are general protections for personnel involved in relief actions, and that is normally understood as covering those working in the maintenance and rehabilitation of damaged water infrastructure and water-related infrastructure. In general, the ICRC, the Red Cross and Red Crescent Societies, other humanitarian organizations, and other personnel involved in relief operations receive protection under military manuals.¹⁴⁹

Box 25. Military manuals and the protection of personnel working for water infrastructure and water-related infrastructure

The UK manual likewise stipulates that ‘relief personnel may, where necessary, accompany relief consignments are entitled to respect and protection, and parties are under an obligation to assist them to the fullest extent practicable.’

Source: The UK LOAC Manual, 2004, § 9.13

¹⁴⁷ See OCHA, Humanitarian Relief Operations in Armed Conflict: IHL Framework, p.2 available at https://www.unocha.org/sites/unocha/files/Fact-Sheet_Humanitarian_Relief_Operations%20-%20January%202019.pdf.

¹⁴⁸ UNSC Resolution, S/RES/2573 (2021), § 9 (a).

¹⁴⁹ See e.g., Australia, LOAC Manual 2006, § 9.26.

ii. Other national and regional practices

Domestic case laws also emphasize the importance of extending protection to personnel providing relief and assistance, including humanitarian relief personnel (see Box 26).

Box 26. Relevant case law on the protection of personnel working for water infrastructure and water-related infrastructure

In 2007, Colombia's Constitutional Court was asked to decide on the constitutionality of IHL implementing legislation. In relation to the protection of relief personnel, it underlined that IHL 'in its treaty and customary form applicable in internal armed conflicts provides for the special protection of certain categories of persons and property particularly vulnerable to the effects of war. The main categories of persons and objects specially protected [include] ... humanitarian relief personnel.'

Source: Colombia, Constitutionality of IHL Implementing Legislation, Decision C-291/07 of 2007 (unofficial translation).

In 2006 the Special Court for Sierra Leone (SCSL), in one case, entertained charges against top members of the Revolutionary United Front (RUF), Sesay and Kallon, and Gbao, a senior commander in the RUF and AFRC/RUF forces. The Statute of the Special Court for Sierra Leone provides that the Court shall have the power to prosecute 'intentionally directing attacks against personnel, installations, material, units or vehicles involved in a humanitarian assistance or peacekeeping mission in accordance with the Charter of the United Nations, as long as they are entitled to the protection given to civilians or civilian objects under the international law of armed conflict.' The court found these three individuals guilty of, among other crimes, intentionally directing attacks against personnel involved in a humanitarian assistance or peacekeeping mission.

Sources: Statute of the Special Court for Sierra Leone, 16 January 2002, Article 4 (b); and SCSL, *Prosecutor v. Issa Hassan Sesay Morris Kallon Augustine Gbao*, Case No. SCSL-04-15-T, 2 March 2009, pp.680, 683, & 686.

There have been encouraging efforts to protect relief personnel at the national and international levels. For example, Australia incorporates war crimes defined in the Rome Statute in its criminal code, including attacking personnel involved in a humanitarian assistance mission in IAC and NIACs.¹⁵⁰ Under the Rome Statute too, intentionally directing attacks against personnel involved in humanitarian assistance, as long as they are entitled

¹⁵⁰Australia's ICC (Consequential Amendments) Act (2002), §§ 268.37 & 268.79.

to the protection given to civilians, constitutes a war crime in both IAC (Article 8 (2) (b) (iii)) and NIAC (Article 8 (2) (e) (iii)).

Box 27. Regional practice on the protection of personnel working for water infrastructure and water-related infrastructure

The Organization of African Unity, now the African Union (AU), in 1996, adopted a resolution on IHL, water, and armed conflicts in Africa. The resolution, among other things, appealed to its member states for ‘an absolute protection of water sanitary installations and personnel in charge of maintaining and repairing these installations in armed conflicts.’ And, it also condemned ‘in the strongest possible terms the attacks and killings, including incitements to acts of violence and threats against the personnel of organizations that are exclusively humanitarian, neutral and impartial’ and ‘urges member states to take all necessary steps to ensure that the personnel of humanitarian organizations are protected and respected by all, in conformity with ... international humanitarian law.’

Source: OAU, ‘Resolution on the International Humanitarian Law, Water and Armed Conflicts in Africa,’ Council of Ministers, Resolution 1662 (LXIV), 1–5 July 1996, §§ 6–10.

iii. Practice of ANSAs

The recognition of protecting personnel participating in relief actions is evident in some agreements signed between parties to a conflict and humanitarian organizations. Such agreements also provide opportunities for ANSAs to demonstrate commitment and make declarations to respect IHL rules, including water-related personnel and objects necessary for their operations.

Box 28. Relevant practice involving ANSAs and the protection of personnel working for water infrastructure and water-related infrastructure

In the model agreement signed by the Government of Sudan and the Sudan People's Liberation Movement/Army (SPLM/A) with various international NGOs and agencies in the context of the conflict in southern Sudan, it was agreed that relief personnel shall receive protection and the parties to the conflict shall facilitate the delivery of humanitarian relief.

Source: [Agreement on the Implementation of Principles Governing the Protection and Provision of Humanitarian Assistance to War Affected Civilian Populations](#),¹⁵¹ Geneva, Switzerland, 15 December 1999.

Nevertheless, numerous reports indicate that personnel participating in relief actions are usually made directly or indirectly victims of armed conflict. In 2019, UNICEF indicated that nine water workers were killed and 26 others injured since the start of 2019 in an ongoing conflict in the eastern region of Ukraine, and 58 sanitation facilities were damaged or destroyed.¹⁵¹ According to UNICEF, the conflict in Eastern Ukraine threatened access to safe water and sanitation for millions, as well as the safety of workers risking their lives to repair damaged infrastructure.

It could be concluded that Principle 7 of the Geneva Principles reflects what has been recognized under the treaty and customary IHL and national practices. Thus, besides preventing attacks on water infrastructure and water-related infrastructure, protecting participating in relief actions and objects necessary for their operations is fundamental.

¹⁵¹ UNICEF, '[Millions of people risk being cut off from safe water as hostilities escalate in Eastern Ukraine](#)', 04 July 2019. See also, UNICEF, [Water Under Fire](#) (Vol.1): Emergencies, development and peace in fragile and conflict-affected contexts, New York (2019), p.5.

3.2 The obligation to allow and facilitate humanitarian access and assistance

In addition to the obligation to respect and protect personnel participating in relief actions, parties to an armed conflict must provide rapid and unimpeded access to them, unless imperative military necessity requires otherwise, and respect objects necessary for the operation, maintenance, assessment, repair, and rehabilitation of water infrastructure and water-related infrastructure.¹⁵² AP I also provides that civil defence organizations¹⁵³ and their personnel shall be respected and protected. As the activities of such organizations are inherently linked to the protection of civilian population against the dangers resulting from military operations, similar protection should be afforded to them in NIACs. According to the ICRC, the obligation to allow and facilitate humanitarian access and assistance form part of customary IHL applicable in both IACs and NIACs.¹⁵⁴ Furthermore, in situations of armed conflicts, the UNSC usually underscores the need to allow and facilitate the ‘safe passage of equipment, transport and supplies necessary for the reparation, maintenance or operation of such object.’¹⁵⁵ The ICJ also emphasized that the provision of ‘strictly humanitarian aid’ in an impartial and non-discriminatory manner, ‘cannot be regarded as unlawful intervention, or as in any other way contrary to international law.’¹⁵⁶ Thus, the core obligations under Principle 17 of the Geneva Principles on humanitarian access and assistance represent the consolidation of these accepted norms.

¹⁵² See AP I, Arts. 70 & 71 and Geneva Convention IV, Art. 23. Under AP II, though organizing relief actions for the civilian population in need is required, it does not contain a specific provision on access of humanitarian relief. But, it could be argued that such an access is clearly a *conditio sine qua non* for relief actions.

¹⁵³ ‘Civil defence organizations’ refers to establishments or units that are organized or authorized by the competent authorities of a party to a conflict to perform ‘humanitarian tasks intended to protect the civilian population against the dangers, and to help it to recover from the immediate effects, of hostilities or disasters and also to provide the conditions necessary for its survival.’ AP I, Art. 61.

¹⁵⁴ ICRC’s study on Customary IHL, Rules 55-56.

¹⁵⁵ UNSC Resolution, S/RES/ 2573 (2021), § 9 (b).

¹⁵⁶ ICJ, *Case Concerning Military and Paramilitary Activities in and Against Nicaragua* (Nicaragua v. United States of America) Merits, 27 June 1986, §242.

Principle 17: Humanitarian access and assistance

1. Humanitarian relief personnel, including those involved in water-related activities, and their equipment must be respected and protected.
2. The parties to the conflict must allow and facilitate rapid and unimpeded passage of humanitarian relief personnel, including those involved in water-related activities, and their equipment for the operation, maintenance, assessment, repair and rehabilitation of water infrastructure and water-related infrastructure, especially those which provide water indispensable to the survival of the civilian population.
3. Civil defence organizations, including those involved in the repair and rehabilitation of water infrastructure and water-related infrastructure, and their personnel must be respected and protected.
4. The parties to the conflict are encouraged to negotiate water ceasefire agreements in order to allow the safe passage of humanitarian relief personnel, including those involved in water-related activities.
5. The parties to the conflict are encouraged to collaborate for the operation, maintenance, assessment, repair and rehabilitation of water infrastructure and water-related infrastructure.

i. Military manuals and other practices

Military manuals generally require parties to a conflict to facilitate rapid and unimpeded passage of all relief consignments and equipment for those in need and prohibit restricting personnel participating in relief actions, except for imperative military necessity.¹⁵⁷ Parties to armed conflicts also include in ceasefire agreements provisions dealing with access to humanitarian assistance. For example, in a ceasefire agreement in 1994 during the conflict in the Republic of Yemen, it was agreed that ICRC and other humanitarian organizations ‘will be granted a possibility to unimpededly deliver humanitarian relief, primarily medicine, water and food supplies to the areas affected as a result of the conflict.’¹⁵⁸ In the ongoing conflict in Syria, though humanitarian access in Syria has mostly been limited, the government and other parties to Syria’s conflicts have allowed access to such organizations. To that end, it was reported that ‘following negotiations, a joint ICRC/Syrian

¹⁵⁷ See e.g., The Netherlands Military Manual 2005, § 0820 & § 1052; Ukraine, IHL Manual 2004, § 1.8.5; Canada, LOAC Manual 1999, § 36; and Sierra Leone, The Law of Armed Conflict, p.36.

¹⁵⁸ Agreement on a Cease-fire in the Republic of Yemen states, Moscow, 30 June 1994, § 3.

Arab Red Crescent (SARC)/ United Nations convoy attempted to reach al-Waer on 19 February 2017 with the knowledge and after receiving permission of Government authorities and opposition forces.¹⁵⁹ Thus, it is vital to ensure that those in need have access to necessary food, drinking water, and other public services during armed conflicts. In *Albasyouni* case, it was affirmed that parties to the conflict must refrain from impeding the passage of basic humanitarian relief to the population.¹⁶⁰

ii. Consequences of denying access

While IHL does not explicitly regulate the consequence of the denial of such access, some countries criminalized this act under different categories of crimes. For example, in Australia, it might constitute ‘intentionally inflicting conditions of life (such as the deprivation of access to food or medicine) intended to bring about the destruction of part of a population.’¹⁶¹ Correspondingly, in the UK and Mali, the act of wilfully impeding relief supplies as provided for under the Geneva Conventions is criminalized as a war crime.¹⁶²

iii. Concluding remarks

Personnel participating in relief actions, including those tasked with civil defence, and objects necessary for their activities must be respected and protected. The parties to armed conflicts must facilitate rapid and unimpeded passage of items exclusively dedicated to the service of civilian population and allow personnel participating in relief actions to pursue their tasks. Relief actions and assistance for the civilian population and protected persons must be impartial, humanitarian and undertaken without any adverse distinction. In addition, parties to the conflict are encouraged to negotiate water supply ceasefire agreements. A party controlling territory where such assistance is needed cannot arbitrarily deny access to personnel participating in relief actions and free passage of the necessary objects. However, the party retains a right of control, e.g., verifying the items, prescribing technical arrangements or other measures for reasons of military necessity.

Accordingly, whenever there exists a shortage of drinking water or disruption of food production as a result of the damage or destruction of water infrastructure such as drinking water installations and supplies, water-related personnel must be given access to repair and rehabilitate such infrastructure. Besides, objects they need for their operation, such as spare parts and products required to run systems, must not be interfered with (e.g., misappropriating or looting relief supplies, installations, material, units or vehicles).

¹⁵⁹ UN Human Rights Council, A/HRC/34/CRP.3, *supra* note 48, § 41.

¹⁶⁰ HCJ, *Gaber Albasyouni Ahmad and Others v Prime Minister and Others*, HCJ 9132/07, 30 January 2008, §14.

¹⁶¹ Australia’s ICC (Consequential Amendments) Act (2002), § 268.9(2).

¹⁶² The UK, ICC Act 2001, Section 50 (1) and 51 (1); and Mali, Penal Code 2001, Art.31 (i) (25).



3.3 Maintenance and rehabilitation of water infrastructure and water-related infrastructure

The reconstruction, rehabilitation, and repair of damaged or destroyed water infrastructure and water-related infrastructure, especially those that provide drinking water, is a pressing issue during and in the aftermath of armed conflicts. This is essential to alleviate the suffering of the civilian population, mitigate humanitarian consequences, strengthen the resilience of essential services, and more broadly, prevent the reversal of development efforts. As reaffirmed by the UN Secretary-General's report on peacebuilding, providing basic water and sanitation services is one of the critical measures that should be prioritised in the immediate aftermath of conflict.¹⁶³

In IAC, AP I recognizes 'civil defence tasks' or 'humanitarian tasks' for the purpose of protecting the civilian population against the dangers arising from hostilities or other disasters, helping it to recover from the immediate effects of such events; and providing the conditions necessary for its survival.¹⁶⁴ Among the recognised tasks is the 'emergency repair of indispensable public utilities' and assistance in preserving objects essential for survival.¹⁶⁵ Though AP II does not explicitly refer to civil defence, it should be complied with in NIACs as part of the general protection accorded to the civilian population under Article 13 (1). Congruently, Principle 21 of the Geneva Principles provides that such efforts must be facilitated during and in the aftermath of armed conflicts.

Principle 21: Reconstruction, rehabilitation and repair of water infrastructure and water-related infrastructure

1. Destroyed and damaged water infrastructure and water-related infrastructure should be reconstructed, rehabilitated and repaired.
2. The equipment and other goods necessary for the reconstruction, rehabilitation, repair, operation and maintenance of water infrastructure and water-related infrastructure should be exempted from sanctions and other coercive measures.

¹⁶³ Report of the Secretary-General on peacebuilding in the immediate aftermath of conflict, A/63/881-S/2009/304, 11 June 2009, §.17.

¹⁶⁴ See AP I, Arts.61-67.

¹⁶⁵ ICRC, '[Civil Defence in International Humanitarian Law](#),' Advisory Services on International Humanitarian Law.

i. Military manuals and other practices

Under national frameworks, military manuals incorporated rules demanding repairs of water infrastructure and water-related infrastructure affected by armed conflicts to mitigate the suffering inflicted on civilians.

Box 29. Military manuals and the maintenance and rehabilitation of water infrastructure and water-related infrastructure

In line with this, the Danish manual recognized and protected organisations assigned to the task of protecting civil society against dangers associated with hostilities and disasters, helping the civilian population to recover from the immediate effects of hostilities and disasters, and providing the conditions necessary for its survival, and assisting in the preservation of objects essential for the survival of the population, including but not limited to administration, planning, organisation, and maintenance.

Source: Denmark, Military manual 2016, Section 7.1.

With regard to civil defence organization, New Zealand's Manual recognizes civil defence that provides similar services, including emergency repair of indispensable public utilities, which inevitably includes water infrastructure.

Source: New Zealand, Manual of armed forces law 2017, § 14.4.1.

Some states have adopted mechanisms to repair and reconstruct damaged water infrastructure and water-related infrastructure after a military operation and in the aftermath of armed conflicts.

Box 30. Other relevant practice on the maintenance and rehabilitation of water infrastructure and water-related infrastructure

For instance, the USA passed an Act in 2009 which was meant ‘to support stabilization and lasting peace in northern Uganda and areas affected by the Lord’s Resistance Army through, among other things, authorizing funds for humanitarian relief and reconstruction, reconciliation, and transitional justice, and for other purposes, and one of the important objectives includes advancing access to basic services at return sites, specifically clean water.

Source: Lord’s Resistance Army Disarmament and Northern Uganda Recovery Act of 2009, Section 6, § (a) (1).

ii. Ceasefire agreements addressing maintenance of civilian infrastructure

There have been practices of concluding ceasefire agreements whenever a need to repair civilian infrastructure, including water infrastructure, arose while the conflicts are ongoing. Parties to a conflict are often encouraged to agree on a ceasefire to repair the water infrastructure and water-related infrastructure, i.e., ‘water supply ceasefire.’ For instance, in 2016, looking into the dire situation in the divided Syrian city of Aleppo, where it said two million people lack access to clean water, the UN called for an urgent ceasefire to ‘repair electricity networks that drive water pumping stations’.¹⁶⁶ There were several ceasefire agreements in Eastern Ukraine between parties to the conflict, which enabled repairing damaged water pipelines and infrastructure.¹⁶⁷ In Kosovo, the interim agreement provides that ‘planning and carrying out public works of communal importance, including roads and water supplies,’ and ‘...the rapid improvement of living conditions for the population of Kosovo through the reconstruction and rehabilitation of housing and local infrastructure (including water, energy, health, and local education infrastructure) based on damage assessment surveys.’¹⁶⁸

iii. Case law addressing maintenance of water facilities

As illustrated below (see Box 31), there are cases at the domestic level, before regional human rights mechanisms and criminal tribunals addressing issues related to

¹⁶⁶ Stephanie Nebehay, ‘[U.N. urges Aleppo Ceasefire to repair water system, stem outbreak](#),’ 8 August 2016.

¹⁶⁷ See Organization for Security and Co-operation in Europe, Special Monitoring Mission to Ukraine, *Access to water in conflict-affected areas of Donetsk and Luhansk regions*, Report (2015), pp.11-13.

¹⁶⁸ See Interim Agreement for Peace and Self-Government in Kosovo (S/1999/648), (Rambouillet Accords), 1999, Art. VIII (4) (g) and Chapter 4 A (4), respectively.

maintenance, repair and rehabilitation of water infrastructure and water-related infrastructure.

Box 31. Relevant case law on the maintenance and rehabilitation of water infrastructure and water-related infrastructure

In a case brought against the Israeli Defense Force (IDF), the latter has indicated that it has adopted measures and procedures that would enable it to supply special urgent needs of the population - taking ill persons to hospital, repairing of supply of water and electricity, and so forth.

Source: Sufian Abed Al-Rahman Sultan v. IDF West Bank Military Commander, HCJ 854/03, 9 July 2003, § 2.

Also, in a landmark decision, the African Commission on Human and Peoples Rights mentioned that Sudan should take all necessary and urgent measures to protect victims of human rights violations in Darfur, including rehabilitating infrastructure such as water and agricultural services.

Source: AfCHPR, Centre of Housing Rights and Evictions v. Sudan, 279/03-296/05 (2009), § 229 (5).

The ICTY addressed in the *Prlic case*, among other issues, a charge of deliberately impeding the attempts to repair the water supply system in East Mostar, failing to do anything to improve the living conditions in East Mostar (city in southern Bosnia and Herzegovina), and on a number of occasions refused to grant authorization for humanitarian convoys to enter East Mostar. The Trial Chamber found that Prlic knew of the dire living conditions of the population of East Mostar, in particular the lack of food and water, and had the power to intervene but failed to act to improve such conditions. The trial chamber concluded that these acts resulted in ‘imposing and maintaining extremely harsh living conditions for the inhabitants of East Mostar’ and constituted an inhumane act - a crime recognised by Article 5 of the Statute ([Trial Judgment vol.3 § 1256](#)). It also indicated that intentionally subjecting ‘the civilian population of East Mostar to serious deprivation and acts of violence that led to death or caused serious injury to body or health of civilians’ constituted an unlawful attack on civilians - a crime recognised by Article 3 of the Statute ([Trial Judgment vol.3 §§1687-1688](#)). On appeal, the convictions under these counts were affirmed.

Sources: ICTY, Prosecutor v. Prlic et al., Case no. IT-04-74-T, [Trial Judgment vol.4](#), 29 May 2013, §§179-185; and Prosecutor v. Prlic et al., Case no. IT-04-74-A, [Appeals Judgement vol.2](#), 29 November 2017, §§ 1248 -1261.

From the preceding, it could be concluded that reconstruction, rehabilitation, and repair of damaged or destroyed water infrastructure and water-related infrastructure are vital to mitigating the humanitarian consequences of armed conflicts and strengthening the resilience of essential services.¹⁶⁹ Despite the legal recognition of the importance of such tasks, challenges remain in their effective implementation during armed conflicts. Besides, sanctions and other coercive measures against parties involved in armed conflict and states recovering from conflicts need to consider the possible adverse impacts of such measures on the maintenance, repair, rehabilitation, and reconstruction of such infrastructure.

4. Protection of water infrastructure and water-related infrastructure during occupation

Under IHL, an Occupying Power must ensure that the population under its control has necessary foodstuffs and other supplies essential to its survival,¹⁷⁰ maintain ‘medical and hospital establishments and services, public health and hygiene in the occupied territory,’¹⁷¹ and must not destroy water infrastructure and water-related infrastructure unless required by imperative military necessity.¹⁷² As enshrined under Article 43 of the Hague Regulation of 1907, Occupying Power is also under obligation to restore and ensure public order and safety and respect the laws in force in the occupied territory. This is interpreted as encompassing restoring civil life in the occupied territory.¹⁷³ Hence, Occupying Power need to effectively administer the territory it occupies, ensure the continuation of normal public life, and promote the welfare of the population under its control.¹⁷⁴ Occupying Power must administer the natural resources of the occupied territory, including the water resources, in accordance with the rule of usufruct, and ensure their sustainability.¹⁷⁵ As necessary, the Occupying Power should reconstruct, rehabilitate and repair water infrastructure and water-related infrastructure. It should also not hamper activities of impartial humanitarian organisations. To meet its obligations, as specified

¹⁶⁹ See Alexander H. Hay, Bryan Karney and Nick Martyn, ‘Reconstructing infrastructure for resilient essential services during and following protracted conflict: A conceptual framework’ (2019) 101 *International Review of the Red Cross* 912, pp.1001-1029.

¹⁷⁰ Geneva Convention IV, Art. 55; AP I, Art.69 (1).

¹⁷¹ Geneva Convention IV, Art. 56.

¹⁷² See Hague Regulations (1907), Arts.46 and 55; Geneva Convention IV, Art.53; Madrid Rules, *supra* note 68, Art.6 (3); and Berlin Rules, *supra* note 13, Art.54 (2). See also, UN Commission on Human Rights, ‘Report on the situation of human rights in Kuwait under Iraqi Occupation, prepared by Mr. Water Kälin, Special Rapporteur of the Commission on Human Rights, in accordance with Commission resolution 1991/74’, E/CN.4/1992/26 (16 January 1992), § 235.

¹⁷³ See ICRC, *Occupation and Other Forms of Administration of Foreign Territory*, Report (2012), pp.56-57.

¹⁷⁴ UNSC Resolution, S/RES/1483 (2003), §.4.

¹⁷⁵ See Hague Regulations, Art.55; Berlin Rules, *supra* note 13, Art.54 (1) and Madrid Rules, *supra* note 68, Art.6 (2).

under Article 51 of GC IV, Occupying Power could compel nationals of the occupied territory to continue working in *public utility services* such as water and electricity services.

The ICJ also reaffirmed the obligations of an Occupying Power to respect the economic, social, and cultural rights of the population under occupation, including the right to water.¹⁷⁶ Furthermore, human rights law has a significant role in setting and defining the scope of obligations of the occupying power, including ensuring the human rights to water and sanitation of the population under occupation.¹⁷⁷

Overall, IHL obliges an Occupying Power not to directly worsen the lives of civilians in the occupied territory by hampering or failing to ensure the availability of essential services. Accordingly, it is reasonable to conclude that these obligations to include the operation and management and when necessary, the reconstruction and rehabilitation of water infrastructure and water-related infrastructure.

Principle 18: Occupation

The Occupying Power must restore and ensure public order and civil life in the occupied territory, including through the maintenance of water infrastructure and water-related infrastructure essential for the provision of water and sanitation services.

i. Rules on occupation under military manuals

Military manuals normally include provisions listing the rights and obligations of the Occupying Power. The US DoD Law of War Manual indicates that the Occupying Power has to ensure food and medicine for the civilian population.¹⁷⁸ They recognize the duty to maintain ‘public order and civil life’ in the occupied territories and the entitlement of civilians to continue their lives as normally as possible. Some states explicitly proscribed acts that impact the lives and livelihood of the civilian population in an occupied area.

¹⁷⁶ ICJ, *Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory*, Advisory Opinion, 9 July 2004, §112.

¹⁷⁷ UN Committee on Economic, Social and Cultural Rights (CESCR), General Comment No.15: *The Right to Water (Arts.11 and 12 of the Covenant)*, 20 January 2003, § 34.

¹⁷⁸ See e.g., The US DoD Law of War Manual, pp.799-800, § 11.14.

Box 32. Military manuals and the protection of water infrastructure and water-related infrastructure during occupation

For example, the Danish manual states that ‘the occupying power is responsible for ensuring that the civilian population does not starve or lack other basic needs. In addition to food and drink ... and other supplies essential to the survival of the civilian population.’

Source: Denmark, Military manual 2016, Section 4.3, p.440.

The UK manual considers that the act of ‘extensive destruction not justified by military necessity, particularly of things indispensable to the survival of the civilian population (including food, agricultural areas, drinking water installations, irrigation works and the natural environment) with a view to denying them to the civilian population or the adverse party ... may amount to a grave breach.’

Source: The UK, Manual of LOAC 2004, §§ 11.91 - 11.91.1.

ii. Other practice related to occupation

Some countries criminalized the confiscation, destruction, removal, rendering useless or appropriation of property such as foodstuffs and drinking water installations and supplies.¹⁷⁹ In addition, the Israeli Supreme Court sitting as the High Court of Justice, in a case involving water supply issues in the occupied territory, reaffirmed the duty of the Occupying Power to ensure the provision of water services, not to cause damages to the sources of water, and to take precautionary measures in advance to avoid damage to the water infrastructure and water-related infrastructure, and to repair with due speed in case damages to water facilities happen.¹⁸⁰ What is evident from the preceding is that Occupying Power has the duty to prevent damage to water infrastructure and disruption of the water supply. Importantly, it must plan and prepare in advance for realizing IHL obligations in the occupied area.

There is a thought-provoking legal issue regarding the state’s obligation whose territory is occupied by another state regarding the duty to ensure access to water. This was a case in point when Ukraine, following the Russian intervention in Crimea, interrupted the North

¹⁷⁹ See e.g., Czech Republic, Criminal Code, as amended in 1999, Art.263 (a) 2 (a); and Ethiopia, Criminal Code 2004, Art.270 (i).

¹⁸⁰ Israel, *Physicians for Human Rights et al. v. Commander of the IDF Forces in the Gaza Strip*, The Supreme Court sitting as the High Court of Justice, HCJ 4764/04, 30 May 2004, §§ 14-15, 34-35.

Crimea Canal flow and started building a dam on the canal.¹⁸¹ The Ukraine government stated that ‘it will not restore water supply to Crimea until Russian-backed armed forces “de-occupy” the region.’¹⁸² Despite the fact that the Occupying Power has an obligation to provide basic services, Ukraine’s total closure cannot be justified under IHL, and it goes against its obligation to ensure access to water to its population, at least under human rights law.

The assessment above reveals that what is included in Principle 18 of the Geneva Principles reflects what has been included in military manuals, national practices, and measures of international organizations such as the UNSC. Though the law of occupation is not per se applicable in NIACs, as it regulates the situation where one state occupies the territory of another state. However, arguably, it is possible to apply by analogy the law of occupation to ANSAs that control territories.¹⁸³ Those who consider applying the law of occupation to ANSAs by analogy is problematic still accept that ANSAs remain bound by applicable human rights obligations (which include the human rights to water and sanitation).¹⁸⁴ In line with this, the Geneva Principles under the commentary to Principle 18 recommends that ANSAs that have established control over territory should respect the law of occupation and ensure that the civilian population under their control has access to water.

5. Martens Clause

The Martens Clause sets forth an *overarching principle* that even in the absence of specific treaty rules applicable to a particular situation, persons affected by armed conflicts are not ‘completely deprived of protection.’ As enshrined under different IHL treaties, in cases not covered by international agreements, the conduct of belligerents remains regulated by the principles of the law of nations as they result from the usages of international law, the laws of humanity, and the dictates of public conscience.¹⁸⁵ The Martens Clause is also recognized as a part of customary IHL.¹⁸⁶ Accordingly, water infrastructure and water-

¹⁸¹ For a discussion on the position of international law on this issue, see Pertile and Faccio, *supra* note 63, pp.60-66.

¹⁸² ‘No Prospect of Ukraine Restoring Water to Occupied Crimea,’ *The Water Diplomat*, 28 May 2020.

¹⁸³ See Marco Sassòli, ‘The Concept and the Beginning of Occupation’, in A. Clapham, P. Gaeta, M. Sassòli (eds), *The 1949 Geneva Conventions* (OUP, 2015), pp.1415-1416, §57; and Philip Spoerri, ‘The Law of Occupation’, in A. Clapham and P. Gaeta (eds), *The Oxford Handbook of International Law in Armed Conflict* (OUP, 2014), pp.188-92.

¹⁸⁴ See Marco Sassòli, *International Humanitarian Law: Rules, Controversies, and Solutions to Problems Arising in Warfare*, Edward Elgar Publishing 2019, pp.229-230, § 7.65.

¹⁸⁵ See AP I, Art.1 (2); the preambles of Hague Convention IV (1907), and AP II; and Common Arts.63/62/142/158 of Geneva Conventions 1949 (concerning the consequences of a denunciation).

¹⁸⁶ Sassòli, *International Humanitarian Law*, *supra* note 184, pp.54-55. ‘Although the clause itself is recognized as a part of customary international law, it is controversial whether it has an autonomous meaning as well as whether it even constitutes a distinct source of obligations and, if so, what these obligations are’ p.54

related infrastructure likewise benefit from such general protection in specific situations where explicit treaty or customary rules are missing.

Principle 23: Martens Clause

In cases not covered by international agreements, water infrastructure and water-related infrastructure remain under the protection and authority of the principles of international law derived from established custom, the principles of humanity and the dictates of public conscience.

States have accepted that when no specific rule applies, the principles of international law derived from established custom, the principles of humanity and the dictates of public conscience should govern conducts during armed conflicts. Under the US military manual, it is mentioned that ‘states have reflected this idea in certain treaty provisions, including the ‘Martens Clause,’ which make clear that situations not covered by the treaty remain governed by principles of international law.’¹⁸⁷ Similarly, the military manual of New Zealand stipulates that ‘the fact that an action is not banned by treaty law does not necessarily imply that it is permitted. Gaps in the provisions of a treaty may be filled by reference to customary international law, the principles of humanity and the public conscience.’¹⁸⁸ Similarly, under the Colombian peace agreement, it is stated that customary international legal standards will continue to govern issues relating to fundamental rights not mentioned in the new Final Agreement, including the imperative whereby ‘in those cases not provided for by current law, the individual will be safeguarded by humanitarian principles and the demands of the public conscience.’¹⁸⁹

¹⁸⁷ See The US DoD Law of War Manual, §§ 2.1.2.2 and 19.8.3.

¹⁸⁸ New Zealand, Manual of armed forces law 2017, § 3.3.4.

¹⁸⁹ Colombia and FARC, *Final Agreement to end the Armed Conflict and build a stable and lasting peace*, 2016, p.4.



Part II: National legal frameworks related to human rights, international environmental and water law

This part of the report focuses on relevant practices under national frameworks and regional levels shaped by IHRL, IEL, and IWL as these bodies of laws may continue to apply during armed conflicts. The specific IHL rules governing the protection of the natural environment are covered under this section. International law operates as a unit, so the rules in different branches should be harmonized. Accordingly, when warranted, applying the principles under IHL, including precaution and proportionality, should be informed by the rules from IHRL, IEL, and IWL. Nevertheless, as the report's primary focus is the national implementation of rules restated under the Geneva Principles, the discussions under this part do not address the nuts and bolts of legal issues involved in applying these branches of law during armed conflicts. Finally, the report addresses some pertinent institutional mechanisms in the protection of water infrastructure.

1. The human rights to water and sanitation

Water is a 'prerequisite for the realization of other human rights' and indispensable for the survival of the civilian population. States are under incessant obligation to respect, protect, and fulfil the right during peacetime, emergencies, and armed conflict.¹⁹⁰ The human right to access safe drinking water is inextricably related to the right to the highest attainable standard of physical and mental health and an adequate standard of living.¹⁹¹ The human right to water is contained within existing human rights treaties, thus legally binding on the states that are party to those treaties, including the International Covenant on Economic, Social and Cultural Rights, the Convention on the Rights of the Child, the Convention on the Elimination of all Forms of Discrimination Against Women, and the Convention on the Rights of Persons with Disabilities. On 28 July 2010, the UNGA under Resolution 64/292 explicitly recognized the human right to water and sanitation and acknowledged it as essential to fulfilling all human rights.¹⁹² In 2014, the former UN Secretary-General noted

¹⁹⁰ General Comment No.15, *supra* note 177, §§1 & 20-22.

¹⁹¹ UN Human Rights Council, 'Human rights and access to safe drinking water and sanitation', Resolution 15/9, 6 October 2010, §3. See also, UN Human Rights Council, 'The Human Rights to Safe Drinking Water and Sanitation', A/HRC/RES/39/L.11, 21 September 2018.

¹⁹² UN Human Rights Council, A/RES/64/292, *supra* note 5, §§1-3. See also, UNGA 'The Human Rights to Safe Drinking Water and Sanitation' UN Doc A/C.3/74/L.33/Rev.1, 12 November 2019.

that ‘preventing people’s access to safe water is a denial of a fundamental human right.’¹⁹³ It is emphasized that states ‘should give special attention to those individuals and groups who have traditionally faced difficulties in exercising this right, including women, children, minority groups, indigenous peoples, refugees, asylum seekers, internally displaced persons, migrant workers, prisoners, and detainees.’¹⁹⁴

The recognition of the human rights to water and sanitation complements some specific obligations set forth under IHL regarding access to water and sanitation by prisoners of war and civilian internees (in international armed conflicts) and persons deprived of their liberty for reasons related to NIACs.¹⁹⁵ Regarding the human rights obligations, the UN Human Rights Council report unequivocally underscored that ANSAs have human rights obligations, the scope of which is ANSA-specific and to be determined through a review of their capacity, nature of control and governance they established.¹⁹⁶

It is now generally accepted that everyone has the human rights to water and sanitation, which are essential for the full enjoyment of all human rights.¹⁹⁷ There are immediate obligations emanating from the human right to water, for instance, states have to avoid engaging in any activity that denies or limits access to safe drinking water.¹⁹⁸ They must not damage or destroy water infrastructure and water-related infrastructure as that could hamper the capacity to fulfil the obligation. The obligation of states to respect, protect and fulfil the human rights to water and sanitation continues not only during armed conflicts but also in post-conflict situations and that complements IHL protections. In line with this progress, the Geneva Principles included a principle on the human rights to water and sanitation.

¹⁹³ ‘Syria: Ban warns against targeting civilians after armed groups cut water supplies in Aleppo,’ *UN News*, 17 May 2014.

¹⁹⁴ General Comment No.15, *supra note 177*, §16.

¹⁹⁵ See Geneva Convention III, Arts.20, 22, 26, 29, 46 and 97; Geneva Convention IV, Arts.36, 49, 56, 76, 85, 89, 124 and 127; AP II, Art.5. See also ICRC’s study on Customary IHL, Rule 118.

¹⁹⁶ See Human Rights Council, ‘Report of the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions on Armed Non-State Actors: The Protection of the Right to Life, (Agnes Callamard)’ (2018) A/HRC/38/44, §§8, 52 & 75; and Annyssa Bellal, ‘Human Rights Obligations of Armed Non-State Actors: An Exploration of the Practice of the UN Human Rights Council’, *Academy In-Brief* No.7, December 2016.

¹⁹⁷ UNGA, ‘The human rights to safe drinking water and sanitation’, Resolution 79/169, 22 February 2016, § 1.

¹⁹⁸ See e.g., Tignino, *An emerging regime*, *supra note 5*, pp.383-402; Takele Soboka Bulto, ‘The Emergence of the Human Right to Water in International Human Rights Law: Invention or Discovery?’ (2011) 12 *Melbourne Journal of International Law*, pp.290-314; and Inga T Winkler, *The Human Right to Water: Significance, Legal Status and Implications for Water Allocation*, Hart Publishing, 2012, pp.100-140.

Principle 3: The human rights to water and sanitation

Everyone has the rights to water and sanitation, which are essential for the full enjoyment of all human rights.

i. Practices related to human rights to water and sanitation and management

The international recognition of the human rights to water and sanitation enhances the regional and national efforts to protect water infrastructure and water-related infrastructure during and in the aftermath of armed conflicts. In this regard, it is worth mentioning the UN Sustainable Development Goals, particularly goal 6, demands ensuring access to water and sanitation for all - linking the realization of the rights to water and sanitation to attain sustainable development.¹⁹⁹

At the regional level, there are encouraging efforts urging states to ensure water availability as a vital human need, protect water resources from abusive use and pollution, guarantee the justiciability of the right to water, and effectively cooperate in the management and protection of water resources. For example, the Protocol to the African Charter on Human and Peoples' Rights obliges states to 'ensure that women have the right to nutritious and adequate food. In this regard, they shall take appropriate measures to - a) provide women with access to clean drinking water.'²⁰⁰ Similarly, the London Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes set as one of its objectives promoting 'at all appropriate levels, nationally as well as in transboundary and international contexts, the protection of human health and well-being, both individual and collective, within a framework of sustainable development, through improving water management, including the protection of water ecosystems, and through preventing, controlling and reducing water-related disease.'²⁰¹

¹⁹⁹ See UNGA, 'Transforming our world: the 2030 Agenda for Sustainable Development,' Resolution A/RES/70/1, 21 October 2015.

²⁰⁰ The Protocol to the African Charter on Human and Peoples' Rights, 2003.

²⁰¹ London Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 1999, Art.1.

Box 33. The African Commission on Human and Peoples' Rights (AfCHPR) and the right to water

In 2015, the African Commission on Human and Peoples' Rights adopted a resolution on 'the right to water obligations', ACHPR/Res.300 (EXT.OS/XVII), which urges the African Union member states, among other things, to meet their obligations in providing clean drinking water for all their populations, and recognize, protect and develop traditional and local water management systems for indigenous populations on their ancestral lands as well as local communities, and protect water resources from abusive use and pollution. Moreover, in 2019, the African Commission on Human and Peoples' Rights prepared guidelines on the right to water to assist the African states in the implementation of their obligations. It emphasized the states' obligations to respect, protect, promote, and fulfil the right to water. It also incorporated guidance on emergencies such as natural disasters or armed conflicts. The guidelines require states to prepare an adequate response plan to ensure that people have access to minimum quantities of safe water and basic sanitation without discrimination and facilitate aid to vulnerable and affected persons where necessary. Besides, it also requires states to protect water sources and find ways to store water and prevent wastage.

Source: AfCHPR, 'Guidelines on the right to water in Africa' adopted during the 26th Extra-Ordinary session, in Banjul, The Gambia, 16 to 30 July 2019, §§ 3 & 30.

ii. Incorporation of the rights in constitutions and legislation

Human rights to water and sanitation have increasingly been recognized as a constitutional right and impose duties upon states to ensure availability, quality, accessibility or affordability of water for the population.²⁰² Incorporating the right to water in constitutions is the best way to mainstream this right in the domestic legal system, as constitutions are fundamental instruments in addressing social and economic inequalities related to access. Some constitutions explicitly refer to the right to water,²⁰³ while others provide general recognition of a state's duty to facilitate access to clean and safe water.²⁰⁴ It should be

²⁰² Centre on Housing Rights & Evictions, 'Legal Resources for the Right to Water and Sanitation International and National Standard', January 2008, pp.7-8.

²⁰³ See South Africa Constitution of South Africa (1996), as amended by Amendment Act No.3 of 2003, Art.27; The Constitution of the Republic of Kenya 2010, Art.43 (1) (d); and Uruguay's Constitution of 1966, Reinstated in 1985, with Amendments through 2004, Art.47.

²⁰⁴ See e.g., the Constitution of the Portuguese Republic 1997, Art.87 (a) & (m); and the Constitution of the Gambia, 1996, as last amended 2001, Art.216.

admitted from the outset that the mere adoption of rules dealing with water access in a constitution might not necessarily ensure its effective implementation.

Box 34. The right to water in national constitutions

The constitution of the Republic of Yemen explicitly recognizes the human right to water. It stipulates that: ‘access to water is a basic and recognized human right. It is a basic right necessary for humans to live a healthy life or enjoy human dignity. It is also a basic pre-requisite for attaining all other human rights, such as the right for development, health, and others.’

Source: Republic of Yemen, ‘*National Water Sector Strategy and Investment Program (NWSSIP)*’, Ministry of Water and Environment, December 2004, p.2.

Apart from constitutions, there are a substantial number of laws, regulations, and policies worldwide that explicitly recognize the right to water.²⁰⁵

Box 35. The right to water in domestic laws

For instance, South Africa’s Water Services Act of 1997 defines access to water as a right. Similarly, it enunciates that ‘everyone has a right of access to basic water supply and basic sanitation.’

Source: South African Water Services Act 108 of 1997, last amended 2004, Article 3 (1).

The Russian Federation also accepted that ‘each citizen has the right to have access to the water objects of general use and use them for personal and household needs free of charge if other is not provided by the present Code, other federal laws.’

Source: Water Code of the Russian Federation, Law No. 74-FZ of 3 June 2006, amended 19 June 2007 (Unofficial translation), Article 6 (2).

²⁰⁵ Centre on Housing Rights & Evictions, *supra note 202*, pp.74-81.

iii. Relevant cases addressing the right to water

In relation to enforcing the human right to water, there are court decisions addressing the right of access to water and the protection of water infrastructure and water-related infrastructure.²⁰⁶ States are also continuously pushed by regional human rights mechanisms to ensure the right to water under the ambit of the right to life, health and adequate housing.

Box 36. The right to water in national case law and regional human rights mechanisms

Following a petition before the Israeli Supreme Court to challenge the extensive imposition of curfews on the civilian population in Hebron, which impacted their access to basic services, including water, by the Israeli Defense Force, the court held that there was no basis to find that the measure was unreasonable or disproportionate. Significantly, however, the government responded, showing its commitment, among other things, to respect the right to water, mentioning that ‘there are also procedures that enable the supply of special urgent needs of the population - taking of ill persons to hospital, repair of supply of water and electricity, and so forth - also during the curfew.’

Source: Sufian Abed Al-Rahman Sultan v. IDF West Bank Military Commander, HCJ 854/03, 9 July 2003, §§ 2-6.

The Inter-American Court of Human Rights (IACtHR), in the case of Sawhoyamaya Indigenous Community, brought against the government of Paraguay, addressed a lack of access to safe drinking water and sanitation as related to the right to life. The Court considers that the living conditions of the Sawhoyamaya indigenous peoples, without any basic services, such as health care, safe drinking water or sanitation caused the death of several of their members. This constitutes a violation of their right to life. The Court ordered the Government to immediately, regularly, and permanently adopt measures to supply sufficient drinking water for consumption and personal hygiene to the community members.

Source: IACHR, Case of the Sawhoyamaya Indigenous Community v. Paraguay, March 29, 2006, §§ 156-166, & 230.

²⁰⁶ For the list of cases on the right to water, see Centre on Housing Rights & Evictions, *supra* note 202, pp.277-308.

iv. Peace agreements and the right to water

The right to water and, to a less extent, the right to sanitation have also been essential components of various agreements, mainly with ANSAs, following or during armed conflicts. In post-conflict situations, peace agreements often serve as a basis for negotiating the constitution and domestic laws. Thus, they can provide the first opportunity for enshrining a rights-based approach in a post-conflict state's policy and legal framework.²⁰⁷ Even when not expressly included in peace agreements, the centrality of access to basic public services is increasingly recognized.

Box 37. The right to water in peace agreements

In the agreement of 2016, Colombia and FARC agreed to work towards ensuring 'sustainable development: that is to say, a development that is environmentally and socially sustainable, requiring protection and promotion of access to water, as part of an ordered concept of territory' and acknowledged the need 'to guarantee access to drinking water and the management of wastewater.'

Source: Colombia and FARC, Final Agreement to end the Armed Conflict and build a stable and lasting peace, 2016, pp.14&27.

The peace agreement with rebels in Darfur indicates that the 'government of Sudan shall, in accordance with relevant provisions of the (Doha Document for Peace in Darfur (DDPD), promote the general welfare and economic growth in Darfur through the provision of basic services and infrastructure including water.'

Source: Agreement between the Government of Sudan and the Justice and Equality Movement-Sudan on the Basis of the Doha Document for Peace in Darfur, 6 April 2013, Article 2 (4).

The practices observed reveal that Principle 3 of the Geneva Principles is in line with existing rules and practices. The scope of the practice also includes respect for the right to water by ANSAs, mainly through their commitments under peace agreements. Nevertheless, the right to sanitation is less acknowledged in national frameworks than the right to water.

²⁰⁷ See Mara Tignino, 'Water in the practice of the United Nations Security Council: trends and new perspectives,' in Tignino and Bréthaut (eds), *Research Handbook on Freshwater Law and International Relations*, 2018, p.119.

2. Protection of water as part of the environment

The protection of the environment in armed conflict is getting greater attention from international actors, including ILC and ICRC. In 2022, The Principles on the Protection of the environment in relation to armed conflicts have been adopted by the ILC and annexed in a resolution of the UN General Assembly. Principle 4 of this document affirms that ‘states should designate, by agreement or otherwise, areas of environmental importance as protected zones in the event of an armed conflict, including where those areas are of cultural importance.’²⁰⁸ These areas may also include, for example, areas of an aquifer which are particularly sensitive to pollution. The ICRC’s Guidelines elaborate IHL rules applicable to the natural environment.

Both treaty and customary IHL rules provide the *natural* environment with specific and general protection (the natural environment is civilian in character).²⁰⁹ The IHL rules on the specific protection of the natural environment prohibit employing methods or means of warfare that are intended, or may be expected, to cause *widespread, long-term, and severe damage* to the natural environment.²¹⁰ Under the treaty provisions, the scope of Article 35 of AP I is broader than what is enshrined under Article 55 as the latter follows an anthropocentric approach and requires that the prohibition of such damage to the environment should prejudice the health or survival of the population. Article 55 (2) prohibits attacks against the natural environment by way of reprisals. In addition to the specific protection, it also benefits from general protection under the principles of distinction, proportionality and precautions in attack and against the effects of attacks.²¹¹

Specific to the protection of the environment as a civilian object, some states expressed reservations (e.g., Croatia and El Salvador) while the United States questioned whether environmental considerations are *always* relevant for the application of the principle of proportionality.²¹² It is worth noting that the rules of IHL have been developed partly to minimize the suffering of the civilian population - the environment was not a priority concern. Yet, during the 1999 Kosovo war, North Atlantic Treaty Organization (NATO)

²⁰⁸ ILC, Principles on protection of the environment, *supra* note 7, Principle 4.

²⁰⁹ See ICRC Guidelines, *supra* note 6, pp.21-22, §§ 22-24. Both treaty and customary IHL invariably refer to ‘the natural environment’ while ILC uses ‘the environment’. In line with the latter, the Geneva List uses - ‘the environment’.

²¹⁰ See AP I, Arts.35 and 55; and ICRC’s study on Customary IHL, Rules 43-45.

²¹¹ See ICRC Guidelines, *supra* note 6, Rules 5-9.

²¹² See ICRC Guidelines, *supra* note 6, p.19, fn 33.

spokeswoman indicated that NATO included ‘all possible collateral damage, be it environmental, human or to the civilian infrastructure’ when making targeting decisions.²¹³

As water resource is an integral part of the environment, protection of the environment is intimately linked with the protection of water resources.²¹⁴ The IHL norms protecting the natural environment contribute to preserving water resources, though ‘they only protect access to natural resources like water in extreme cases of need or pollution.’²¹⁵ Principle 15 of the Geneva Principles included the specific protection under IHL in a manner that reflects the progressive development in the area.

Principle 15: Protection of the environment

Water infrastructure and water-related infrastructure should not be made the object of attack, even when these are military objectives, if such attack is intended, or may be expected, to cause significant damage to the environment.

The UNGA adopted a resolution stressing that ‘the destruction of the environment, not justified by the military necessity and carried out wantonly, is contrary to existing international law.’²¹⁶ In the ILC’s Principles on the Protection of the environment in relation to armed conflicts, under the section dealing with state responsibility, it restated the decision of the UN Compensation Commission that finds Iraq responsible for ‘any direct loss or damage - including environmental damage and the depletion of natural resources, or injury to foreign Governments, nationals and corporations as a result of its unlawful invasion and occupation of Kuwait’.²¹⁷ The ILC pointed out that this is a ground-breaking development ‘in the area of reparations for wartime environmental harm, and an important point of reference beyond armed conflicts.’²¹⁸

Though common Article 3 of the Geneva Conventions and AP II are silent about such protection in NIACs, the ICRC’s study on Customary IHL indicates that the rules protecting

²¹³ See Chris Hedges, ‘Serbian Town Bombed by NATO Fears Effects of Toxic Chemicals’, *The New York Times*, 14 July 1999.

²¹⁴ See Frederick M. Lorenz, ‘[The Protection of Water Facilities under International Law](#)’, A Research Project Sponsored by the International Water Academy, Oslo, Norway, PCCP Publication 2001-2003, p.10.

²¹⁵ Mara Tignino, ‘Water During and After Armed Conflicts: What Protection in International Law?’ (2016) 1 *International Water Law* 4, pp.3-4 & 16.

²¹⁶ UNGA, Protection of the Environment in Times of Armed Conflict, UN Doc. A/RES/47/37 (Nov. 25, 1992).

²¹⁷ ILC, Principles on protection of the environment, *supra note* 7, Principle 9 commentary, §5. This responsibility of Iraq was also explicitly indicated in the UNSC Resolution 687 (1991), 3 April 1991, § 16.

²¹⁸ *Ibid.*, Principle 9, § 6.

the natural environment are *arguably* applicable in NIACs.²¹⁹ The extent to which the rules protecting the environment in IACs apply as a matter of customary law in NIACs still remain unsettled.

The works of the ILC and the ICRC's Guidelines show that the topic is now gaining attention. Being cognizant of the fact that the natural environment cannot be anymore a silent casualty of war and the adverse consequences thereof, and hoping to assist the instruction and training of the armed forces on its protection under IHL, the ICRC developed 'Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict' in 1994. In 2020, the ICRC updated the 1994 Guidelines to reflect developments in a treaty and customary IHL and recommendations to better protect the natural environment in armed conflict.²²⁰ The ICRC's Guidelines provide that 'methods and means of warfare must be employed with due regard to the protection and preservation of the natural environment' (Rule 1); and 'the use of methods or means of warfare that are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment is prohibited' (Rule 2).²²¹ According to the ICRC's Guidelines, the 'natural environment' includes water resources,²²² thus the latter benefits from such protections.

The updated ICRC's Guidelines serve as a reference tool for states, parties to a conflict, and all other actors, and they are intended to facilitate the adoption of concrete measures to enhance respect for IHL rules protecting the natural environment, including the promotion of these rules and their incorporation into military manuals, national policy, and legal frameworks.

In national legal frameworks, it is not uncommon to include provisions dealing with the protection of the environment in military manuals. There was also a call from the UNGA that 'urged states to take steps to incorporate the provisions of international law applicable to the protection of the environment into their military manuals and to ensure that they are effectively disseminated.'²²³

²¹⁹ See ICRC's study on Customary IHL, Rules 45 commentary (emphasis added). See also ICRC Guidelines, *supra* note 6, Rule 2, p.31

²²⁰ See, ICRC, '[Rules and recommendations relating to the protection of the natural environment under international humanitarian law, with commentary](#)' 25 September 2020.

²²¹ ICRC Guidelines, *supra* note 6, pp.29 & 31.

²²² *Ibid*, pp.17-18, §16.

²²³ UNGA, A/RES/47/37, *supra* note 216, §3.

Box 38. The protection of the natural environment in military manuals

For example, the Danish manual prohibits employing ‘methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.’

Source: Denmark, Military manual 2016, §10.14.

New Zealand’s manual recognizes ‘a general obligation to protect the natural environment and prevent widespread, long-term and severe environmental damage. Methods and means of warfare that are intended, or maybe expected, to cause such damage are prohibited, as are attacks against the natural environment by way of reprisals.’

Source: New Zealand, Manual of armed forces law 2017, § 3.2.14, and § 7.2.3 (c).

States also criminalized acts that could cause *widespread, long-term* and *severe* damage to the environment.²²⁴ Ongoing discussion exists on whether these three conditions should remain cumulative or be assessed as alternative requirements. In this regard, the approach taken by the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques of 1977 (ENMOD Convention), i.e., to use the three conditions as *alternatives*, not as cumulative requirements, is a progressive step in strengthening the protection of the natural environment. Some countries also criminalized ‘ecocide’ (understood as mass destruction of the fauna and flora, contamination of the atmosphere or water resources, as well as other acts capable of causing an ecological catastrophe).²²⁵ Moreover, the ICC’s Office of the Prosecutor announced a potentially momentous change of focus, declaring that it would prioritize crimes such as ‘the destruction of the environment, the illegal exploitation of natural resources or the illegal dispossession of land.’²²⁶

The ICRC’s Guidelines also adopt the definition of ‘ecocide’ as an exceptionally catastrophic event or destruction of the natural environment. According to the ICRC, ‘ecocide’ could

²²⁴ See e.g., Australia, ICC implementation Act 2002, § 268.38 (2); New Zealand, International Crimes and ICC Act 2000, Section 11 (2). Ethiopia, Criminal Code 2004, Art.270 (n).

²²⁵ See The Russian Federation, Criminal Code 1996, Art.358; Ukraine, Criminal Code 2001, Art.441; Armenia, Penal Code, 2003, Art.394; Belarus, Criminal Code, 1999, Art.131; Kazakhstan, Penal Code, 1997, Art.161; Kyrgyzstan, Criminal Code, 1997, Art.374; Republic of Moldova, Penal Code, 2002, Art.136; Tajikistan, Criminal Code, 1998, Art.400; and Viet Nam, Penal Code, 1999, Art.342.

²²⁶ ICC Office of the Prosecutor, ‘Policy paper on case selection and prioritization’, 15 September 2016, §§ 7 & 41.

also violate other rules of IHL, including those governing distinction or proportionality.²²⁷ ICRC further pointed out that ‘states have expressed explicit condemnation when such acts are carried out for the purpose of destroying the natural environment, thereby affirming that they merit clear outrage and action from the international community.’²²⁸ In a recent development in France, the French Citizens’ Council on the Environment proposes making ‘ecocide’ illegal.²²⁹ These efforts would strengthen the protection given to the natural environment and thereby contribute to the protection of water resources and water infrastructure during and after armed conflicts. Moreover, from some declarations and unilateral commitments, it could be inferred that some ANSAs respect the prohibition regarding the natural environment.

Box 39. Practice of ANSAs in relation to the protection of the natural environment

For example, ELN in Colombia declares that when carrying out acts of sabotage, its forces shall not target installations more valuable to the community than the enemy and that, as far as possible, avoid causing environmental damage.

Source: National Liberation Army (*Ejército de Liberación Nacional*) (ELN), ‘Code of war’, (Unofficial Translation).

In 1995, the PKK/HPG made a declaration of ‘Application of the Geneva Conventions of 1949 and Protocol I of 1977’ and sent the letter to the Swiss Federal Department of Foreign Affairs (the depository of the treaties). This implies that the group has accepted to respect the provisions of AP I dealing with protecting the ‘natural environment’ and ultimately contributing to protecting water resources.

Source: PKK/HPG, ‘[Declaration of Application of the Geneva Conventions of 1949 and Protocol I of 1977](#),’ 1995.

²²⁷ ICRC Guidelines, *supra* note 6, pp.42-43, §§ 77-79.

²²⁸ *Ibid*, p.42, § 77.

²²⁹ ‘[French citizens’ council on the environment proposes making ‘ecocide’ illegal](#),’ *France24*, 22 June 2020

With regard to the specific protection of the natural environment under IHL rules, military manuals and other practices adopted a threshold that prohibits causing ‘widespread, long-term *and* severe’ damage to the natural environment – all the three cumulative elements. However, Principle 15 of the Geneva Principles recommends a standard that requires not causing ‘significant damage to the environment.’ In fact, acts falling below this high threshold under IHL are not automatically permitted, as further assessment under general protection, such as the principle of proportionality might prohibit them. In this regard, one can cite as an example that the use of most types of nuclear weapons will exceed the proportionality test.²³⁰ Besides, as mentioned earlier, the ENMOD convention uses the ‘widespread, long-term, or severe damage’ as an alternative requirement.

In addition to IHL, other international law rules protecting the environment, including IEL and IWL, continue to apply during IAC and NIAC.²³¹ The standard of ‘not causing significant harm’ is recognized under different branches of international law. The obligation to ensure that activities of a state *do not cause significant* cross-boundary environmental damage constitutes the cornerstone of environmental law.²³² In this regard, in the *Pulp Mills case* involving the issue of protecting the environment, ICJ held that ‘*not to cause a significant damage*’ to the environment is part of the corpus of international law relating to the environment.²³³ Similarly, under IWL, states have an obligation not to cause *significant harm* to other watercourse states in utilizing transboundary watercourses.²³⁴ Moreover, Article 29 of the 1997 UN Convention on the Law of the Non-navigational Uses of International Watercourses explicitly makes a cross-reference to IHL, i.e., watercourses and related installations, facilities, and other works shall enjoy the protection accorded by the principles and rules of IHL. Under Article 10, the Convention also provides special consideration for the ‘vital human needs’ (sufficient water to sustain human life, including drinking water and water required for food production to prevent starvation).

Furthermore, under the Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, states have ‘the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.’²³⁵ Furthermore, there is progress in criminalizing serious damages to the

²³⁰ The Denmark Military Manual 2016, § 2.15, p.424

²³¹ See ILC, Draft Articles on the Effects of Armed Conflicts on Treaties (2011), reproduced in UN General Assembly, *Report of the International Law Commission*, UN Doc. A/66/10, 2011, Art.3, p.175, §100.

²³² See *Trail smelter case* (United States v. Canada), Report of International Arbitral Awards, Vol. III, 11 March 1941, p.1965.

²³³ *Case Concerning Pulp Mills on the River Uruguay* (Argentina v. Uruguay) (Judgment) 2010, §101.

²³⁴ See UN Watercourses Convention, *supra* note 115, Art.7.

²³⁵ See Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, 17 June 1999, Art.5.

environment under domestic law, i.e., ‘ecocide,’ which is an encouraging sign to enhance compliance. In the context of IAC, the Rome Statute of the ICC stipulates that ‘intentionally launching an attack in the knowledge that such attack will cause incidental loss of life or injury to civilians or damage to civilian objects or *widespread, long-term and severe damage* to the natural environment which would be excessive in relation to the concrete and direct overall military advantage anticipated.’²³⁶

Water treatment plants and pumping stations may have reserves of toxic industrial chemicals, such as substances for the treatment of water- chlorine, or fuel for backup generators, which, if released, can potentially have significant adverse effects on the environment. Hence, states must take measures to protect the environment, including respecting IHL rules governing conduct of hostilities.²³⁷ The recommendation under the Geneva Principles has given due consideration to developments in different branches of international law, including IEL and IWL. It encourages states to take additional measures to protect water resources and infrastructure indispensable to life in armed conflict situations.

²³⁶ See Rome Statute of the International Criminal Court, 1998, Art.8 (2) (b) (iv).

²³⁷ United Nations Environment Programme (UNEP), ‘Protecting the Environment During Armed Conflict: An Inventory and Analysis of International Law’, November 2009, p.52 (‘the general humanitarian principles of distinction, necessity, and proportionality may not be sufficient to limit damage to the environment’).

3. Water in peace agreements

The report does not address in detail ‘peace agreements’ as mostly they are not specific to water resources or infrastructure. However, it is essential to note that one should think of peace and peace agreements even in armed conflicts. The inclusion of water in peace agreements contributes towards a long-lasting peace through building confidence and mutual trust between parties, thus excluding the potential reoccurrence of violence.

Whenever peace agreements are negotiated, people’s human rights to water and sanitation need to be considered. This is particularly important because of the adverse effects of armed conflicts on water infrastructure and water-related infrastructure.²³⁸

There are also indications that since the late 1990s, the UN Security Council has given due consideration to managing and protecting natural resources while dealing with peace and security issues, including in its post-conflict peace-building efforts. Moreover, the Global High-Level Panel on Water and Peace (GHLPP) has recommended the inclusion of water issues and water cooperation in peace agreements.²³⁹ Accordingly, Principle 19 of the Geneva Principles recalls that peace agreements must not deprive people of the rights to water and sanitation. In the context of transboundary water resources, agreements need to be in line with the principles of equitable and reasonable utilization.

Principle 19: Peace agreements

1. Peace agreements must not deprive peoples of their rights to water and sanitation.
2. Peace agreements should be concluded in accordance with the principle of equitable and reasonable utilisation of water resources.

As can be inferred from pertinent examples of peace agreements, in particular involving ANSAs, discussed previously (see Box 37), such as the agreement between the Government of Sudan and the Justice and Equality Movement-Sudan (2013) and the peace deal of Colombia and FARC final agreement (2016), water resources and water infrastructure received some importance.

²³⁸ See Tignino, *Water and Peace*, *supra* note 78, pp.647-674.

²³⁹ Global High-Level Panel on Water and Peace (GHLPP), *A Matter of Survival*, Report 2017, p.31.

4. The role of joint mechanisms and commissions as drivers for peace during and after armed conflicts

In addition to the protections already provided in the law, including those foreseen under Article 56 (6) of API that urge parties to a conflict to conclude special agreements to provide additional protection for objects containing dangerous forces, IWL rules have complementary roles with regard to the protection of ‘international watercourses and related installations, facilities and other works’ on such waters. As specified under the Principle 20 of the Geneva Principles, joint mechanisms or commissions dealing with shared water resources are vital as they usually continue their operations during armed conflicts and serve as a means of communication between the parties to an armed conflict.

Principle 20: Joint mechanisms and commissions

Watercourse States should create joint mechanisms and commissions, or in any case cooperate and coordinate, with a view to ensuring the protection, safe operation and maintenance of water infrastructure located on transboundary water resources.

To cite some examples, the Lake Chad Basin Commission (LCBC), established on 22 May 1964, manages the Lake Chad waters, fosters cooperation at the regional level, and assists in resolving any dispute over water between the basin states. The LCBC has assumed an evolving role in managing water resources, promoting socio-economic development, and maintaining peace and security in the region.²⁴⁰ Also, the Permanent Indus Commission, established under the Indus Waters Treaty between India and Pakistan, has maintained its work through armed conflicts between the states. The Organization for the Development of the Senegal River (*in French Organisation pour la mise en valeur du Fleuve Senegal* (OMVS)) continued its work during the conflict between Mauritania and Senegal and had a role in reinitiating the diplomatic ties between the two countries. Moreover, the Mekong Committee also did not discontinue its activities during the conflict in Vietnam. In addition to these examples, in 2002, the International Sava River Commission established between Bosnia and Herzegovina, Croatia, Serbia and Slovenia, was the first joint mechanism created after the war in the Balkanic region. Its objective includes raising the living conditions of the riparian population in the region.

In NIACs, creating some mechanism might be essential to address water access problems. For example, the peace agreement between the National Government of Colombia and the Revolutionary Armed Forces of Colombia- People’s Army (FARC-EP) points out that the

²⁴⁰ The role the LCBC plays in terms of ensuring peace and security in the region is also acknowledged by the UNSC, see UNSC Resolution, S/RES/2349(2017).

government ‘will set up and implement the National Irrigation and Drainage Plan (*Plan Nacional de Riego y Drenaje*) for the rural, family-run and community-based economies.’²⁴¹ Another example is a Joint Declaration for Keeping the Water Infrastructure Out of the Cycle of Violence adopted in 2001 by the Joint Water Committee of Israeli and Palestinians, which was set up under the Interim Agreement of 1995.²⁴² Needless to say that joint mechanisms and commissions are crucial for inducing states to respect their obligations concerning the right to water.

²⁴¹ Colombia and FARC, *Final Agreement*, *supra* note 189, p.25.

²⁴² Israel - Palestinian Joint Water Committee: Joint Declaration for Keeping the Water Infrastructure out of the Cycle of Violence, 31 January 2001.

5. Peacekeeping operations and protection of water infrastructure and water-related infrastructure

Peacekeeping operations are one of the principal mechanisms the UN employs to restore and maintain international peace and security and provide political and peacebuilding support to countries affected by conflict or in the transition from there. The mandates given to each peacekeeping mission differ according to the specificity of the situation at hand. The mandates could include the ‘protection of civilians,’ ‘the provision of essential services, and delivery of humanitarian assistance,’ ‘to promote and support the rapid restoration of state authority over the whole territory of the country and to assist governmental institutions, including through technical assistance, and to increase their capacity to perform basic government functions and deliver basic services’ and, at times, like in the case of Kosovo, ‘supporting the reconstruction of key infrastructure and other economic reconstruction.’ On a few occasions, i.e., in Cambodia, Sierra Leone, Liberia, the DRC, and Abyei, the UN missions were given a direct mandate to address ‘natural resources.’²⁴³ These broad mandates do imply the protection of water resources and water infrastructure.²⁴⁴ In line with this, Principle 22 recognized the roles peacekeeping operations play and suggested that, where appropriate, reconstruction, rehabilitation and repair of water infrastructure and water-related infrastructure should be included in their mandates.

Principle 22: Peacekeeping operations

1. Protection of water infrastructure and water-related infrastructure and their reconstruction, rehabilitation and repair should be included in the mandates of the peacekeeping operations, where appropriate.
2. Peacekeeping operations should support and provide assistance to the local authorities in the reconstruction, rehabilitation, repair, operation and maintenance of the water infrastructure and water-related infrastructure.

Peacekeepers are usually deployed in areas severely affected by armed conflict where the provision of basic public services is minimal. Among other things, the core challenge is the need to reconstruct or build damaged water infrastructure. The GHLPWP, in this regard, suggested that the possible deployment of water specialists in peace operations to

²⁴³ UNEP, *Greening the Blue Helmets: Natural Resources and UN Peacekeeping Operations*, Report 2012, p.42.

²⁴⁴ Mara Tignino and Oyku Irmakkesen, ‘Water in Peace Operations: The case of Haiti’, *RECIEL* 2020, pp.34-36.

‘rehabilitate and rebuild water supply systems’ should be encouraged.²⁴⁵ In fact, in some of the UN peacekeeping missions, including in Kosovo, Liberia, Haiti, South Sudan, and Central African Republic (CAR), and the UN-African Union Hybrid Operation in Darfur (UNAMID), there have been some practices of assisting the national efforts to ensure the civilian population obtains better access to water and sanitation.²⁴⁶ It goes without saying that whenever the UN peacekeeping mission engages in armed conflict (e.g., like the DRC situation and arguably Mali and CAR), it should respect all the rules mentioned earlier for protecting water resources, water infrastructure and water-related infrastructure.²⁴⁷ ILC’s Principles on the Protection of the environment in relation to armed conflicts also provides that ‘States and international organizations involved in peace operations established in relation to armed conflicts shall consider the impact of such operations on the environment and take, as appropriate, measures to prevent, mitigate and remediate the harm to the environment resulting from those operations.’²⁴⁸

²⁴⁵ GHLPWP, *A Matter of Survival*, *supra* note 239, p.27.

²⁴⁶ See e.g., UNEP, *Greening the Blue Helmets*, *supra* note 243, pp.20-35.

²⁴⁷ See e.g., UN Secretary-General’s Bulletin. *Observance by United Nations forces of international humanitarian law*, ST/SGB/1999/13, 6 August 1999, Sections 5 and 6.

²⁴⁸ ILC, Principles on protection of the environment, *supra* note 7, Principle 7.



Conclusions and way forward

The prohibition on intentionally targeting water infrastructure and water-related infrastructure, using them as a means and method of warfare is rooted in law, custom, religious rules and ethical codes of behaviour extending back thousands of years. National legal frameworks have incorporated international law rules on the protection of water resources, water infrastructure and water-related infrastructure, including in national legislation, military manuals, regulations and peace agreements. There are also some good practices relating to protecting, repairing and reconstruction of damaged water infrastructure and water-related infrastructure during armed conflicts and in situations of occupation. In addition, national case laws and human rights mechanisms contribute to better implementing international law norms in this respect. The duty to respect and protect water-related personnel, humanitarian organizations and other local actors working in armed conflict situations and objects necessary for their activities, including repairing, maintaining or rehabilitating water infrastructure and water-related infrastructure merits special mention. Furthermore, the recognition of the human rights to safe drinking water and sanitation and progressive developments in IEL and IWL also have positive impacts on the protection of water and water-related infrastructure during and after armed conflicts.

Nevertheless, this report confirms that violence against water infrastructure and water-related infrastructure is a critical problem and has devastating short and long-term consequences. Thus, effort should be made to increase the effectiveness of the protection offered to water infrastructure, water-related infrastructure, water-related personnel and objects necessary for their activities. To that end, a mixture of approaches can be taken at different levels. Based on our findings and extensive discussions and exchanges with militaries, academics and representatives of international and non-governmental organizations, we forward the following recommendations, in no order of preference.

Parties to armed conflicts:

1. Must respect and ensure respect for international obligations applicable to armed conflicts and sensitize their forces about the interdependence of essential public services, such as water, health, and electricity and the catastrophic consequences of attacks or damages to such facilities.
2. When launching an attack or responding to it, they must take into consideration potential impact, including the reverberating effects, and take all feasible precautions with a view to avoiding or in any event to minimizing harm to the civilian population and damage to civilian objects.

3. Must refrain from attacking or misusing water infrastructure and water-related infrastructure and need to conduct after-action reviews of alleged attacks on such infrastructure and water-related personnel, and if the allegations are substantiated, take appropriate measures.
4. Must allow and facilitate access to deliver relief and allow safe and unimpeded access for water-related personnel for the operation, maintenance and repair of water infrastructure and water-related infrastructure.
5. Should unequivocally express commitment and develop operational policy to avoid using explosive weapons with wide area effects in populated areas.
6. Put in place mechanisms that could facilitate coordination and ensure preparedness to address challenges faced during armed conflicts. This calls for effective partnerships between local authorities, belligerents, third states, humanitarian actors, and international organizations to ensure resilient water infrastructure and water-related infrastructure during and after armed conflicts.

States:

1. Must respect and ensure respect for international obligations applicable to armed conflict.
2. Must take appropriate measures to implement their international obligations and adopt a holistic approach to their national legal frameworks. This includes:
 - a. To explicitly include the protection of water resources, water infrastructure and water-related infrastructure in military manuals, rules of engagement, and other domestic legislation and clarify norms governing new developments and challenges, such as cyber operations.
 - b. To recognize the interdependence of essential services and the grave impact of protracted armed conflict on the civilian populations.
 - c. To develop guidelines or a blueprint, potentially in collaboration with the ICRC and other pertinent institutions, to improve the national implementation of IHL. In such guidelines, it is imperative to propose specific rules for situations of prolonged occupation with the possibility of implying the harmonious application of IHRL, IEL, and IWL.
 - d. To take preventive and safety measures for water-related personnel, guarantee safer access and provide resources to maintain and repair damaged infrastructure.

- e. To monitor, report and ensure accountability. In cases of violations, specific measures to effectively repress and sanction such violations must be taken.
3. To develop a better understanding of the nature and consequences of violence against water infrastructure and water-related infrastructure to facilitate adequate response:
 - a. Recognize the complexity of challenges concerning protecting such infrastructure during armed conflicts and accordingly plan in advance and enhance preparedness to ensure that they remain resilient in the face of armed conflicts.
 - b. Draw attention to the need to make such infrastructure safer by disseminating the legislation and providing relevant training for the militaries and personnel working in this area to develop a culture of compliance.
 - c. Must segregate military objectives from civilians and civilian objects, including water infrastructure and water-related infrastructure.
 - d. Should identify and mark essential civilian infrastructure and designate protected zones around water infrastructure and water-related infrastructure to spare them from attacks.
 4. Should condemn attacks against water resources, water infrastructure, water-related infrastructure, and water-related personnel. States must not encourage violations of IHL and must exert their influence, to the degree possible, to stop violations of IHL when they occur.
 5. Should take appropriate measures to enhance coordination between the different stakeholders in order to allow for a better-organized and more efficient emergency response to alleviate the suffering of the civilian population.
 6. Should assess the impact of military operations on the environment and map fragile areas like aquifer recharge and identify these as de-militarized zones.
 7. Should support the establishment of a global alliance on the protection of water resources, water infrastructure, water-related infrastructure, and water-related personnel. Such alliance should include states and other stakeholders and provide a space to exchange recommendations and good practices.

ANSAs:

1. Must respect their obligations under IHL and other relevant rules of international law.
2. Unilateral declarations or commitments and special agreements signed with parties to an armed conflict should address the protection of water infrastructure and water-related infrastructure.
3. Humanitarian organizations should be encouraged to engage ANSAs to safeguard water infrastructure and promote a culture between warring parties to better protect water resources, water infrastructure and water-related infrastructure.

The UNSC:

1. Should take an active role in tackling challenges relating to ensuring access to water in conflict situations, as attacks against water infrastructure and water-related infrastructure are attacks against the civilian population.
2. As the question of the protection of water resources, water infrastructure and water-related infrastructure contributes to international peace and security, it should demand all parties to armed conflict to fully comply with their obligations, including the protection of the humanitarian personnel responsible for the operation, maintenance and repair of such infrastructure.
3. Whenever water infrastructure or water-related infrastructure is attacked or misused, it should consider adopting resolutions or presidential statements as appropriate.
4. Should consider encouraging the Secretary-General to include, in thematic and country-specific reports, information about attacks on water infrastructure and water-related infrastructure and the impacts on the civilian population.

Humanitarian organizations and other stakeholders:

1. As water is a unique and irreplaceable resource, they should form a global coalition involving states and push for the promotion of the Geneva Principles through international mechanisms such as the UNSC, UNGA, UNEP, and the Human Rights Council.
2. As attacks against or damage to water infrastructure and water-related infrastructure can have immediate and long-term impacts on the civilian population, they should continue to assist in mitigating such impacts and post-conflict reconstruction efforts.
3. Should play a role in documenting and providing systematic, reliable and verifiable data on attacks, damages and misuse of water infrastructure and water-related

infrastructure, analysing the impacts of these conducts, and advocating for ending the violations.

4. Should mainstream reporting on attacks against water infrastructure and water-related infrastructure into other relevant existing humanitarian reporting mechanisms, such as humanitarian and protection analyses.

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This report assesses the extent to which existing national legal frameworks adhere to international law regarding the protection of water infrastructure and water-related infrastructure during and after armed conflicts. It provides guidance to parties to armed conflicts and a wide range of stakeholders who play different roles in promoting compliance with the relevant norms, including military experts, humanitarian organizations, and advocacy groups. The report is based on the 2019 Geneva List of Principles on the Protection of Water Infrastructure ('the Geneva Principles'), which systematizes and restates the main rules which afford protection to water infrastructure and water-related infrastructure during and after armed conflicts, as well as to water-related personnel and objects necessary to operate, repair, reconstruct, and rehabilitate such infrastructure.

The report incorporates the growing body of knowledge on the protection of water resources under the human rights to safe drinking water and sanitation, and as part of the environment - e.g., the Guidelines on the Protection of the Natural Environment in Armed Conflict issued by the International Committee of the Red Cross in 2020 and the International Law Commission's Principles on the protection of the environment in relation to armed conflicts annexed in a resolution adopted by the UN General Assembly in 2022. The report also reviews published research and benefits from extensive consultation with military experts, government lawyers, representatives of humanitarian organizations and academics. With the aim of promoting greater respect for and implementation of international law, the report clarifies areas of uncertainty, identifies good practices, and makes recommendations which facilitate compliance with the rules of international law.

The Geneva List of Principles on the Protection of Water Infrastructure is available in English, French, Russian and Arabic at

