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Are Nuclear Weapons Illegal?

Amela Skiljan

Abstract Humanity has been developing legal responses to the threat of nuclear weapons since 1945. These responses are not only reflected in international treaties like the NPT or the TPNW, but also in the many norms derived from international humanitarian law, human rights law, environmental law and international criminal law. Many of them are of a customary nature, which makes them binding for all states, such as the general prohibition on the use and threat of use of nuclear weapons. This article shows that many norms from different fields of international law reinforce each other in confirming the illegality of nuclear weapons in various aspects. In this regard, the TPNW is a landmark in nuclear disarmament, which not only confirms existing law, but develops it further.

Keywords Nuclear weapons, international law, customary law, disarmament, NPT, TPNW

Sind Atomwaffen illegal?

Abstract Seit 1945 ist die Menschheit mit der Bedrohung durch Atomwaffen konfrontiert, und seither gab es rechtliche Antworten auf diese Bedrohung. Diese spiegeln sich nicht nur in internationalen Verträgen wie dem NVV oder dem AVV wider, sondern auch in vielen Normen, die sich aus dem humanitären Völkerrecht, den Menschenrechten, dem Umweltrecht oder dem internationalen Strafrecht ergeben. Viele dieser Normen haben Gewohnheitscharakter, was sie für alle Staaten verbindlich macht, wie das generelle Verbot des Einsatzes und der Androhung des Einsatzes von Kernwaffen. Dieser Beitrag zeigt, dass viele Normen aus unterschiedlichen Bereichen des Völkerrechts sich gegenseitig in der Bestätigung der Illegalität von Atomwaffen in verschiedenen Aspekten bekräftigen. In dieser Hinsicht ist der AVV ein Meilenstein der nuklearen Abrüstung, der nicht nur bestehendes Recht bestätigt, sondern es auch weiterentwickelt.

Keywords Kernwaffen, Völkerrecht, Gewohnheitsrecht, Abrüstung, NVV, AVV

Kontakt: Amela Skiljan, LL.M.Eur, Stv. Vorsitzende IALANA Deutschland e. V. – Vereinigung für Friedensrecht – Deutsche Sektion der International Association of Lawyers Against Nuclear Arms, Marienstr. 19–20, 10117 Berlin, E-Mail: amela.skiljan@ialana.de.

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1. Nuclear Weapons Today

One of the biggest challenges and threats that humanity is facing today is that of nuclear weapons. The United Nations Office for Disarmament Affairs (UNODA) describes them as "the most dangerous weapons on Earth"[1] and they certainly are. Their destructive power was unveiled in 1945, when first an atomic bomb, with explosive power equivalent to 16kt of TNT, named "Little Boy" hit Hiroshima on August 6. Three days later, on August 9, "Fat Man" – a plutonium bomb, was dropped on Nagasaki. Each single atomic bomb destroyed a complete city where thousands lost their lives and left many dying and severely wounded. Fortunately, these were the only atomic bombs ever used in an armed conflict. However, nuclear explosions did not stop as many nuclear tests occurred in the past decades.

Immediately after World War II, voices were raised calling for nuclear disarmament. The first resolution of the UN General Assembly adopted on 24 January 1946 called for the "[…] elimination from national armaments of atomic weapons and all other major weapons adaptable to mass destruction"[2]. Yet, this goal has not been achieved. According to the Stockholm International Peace Research Institute, 13080 nuclear weapons currently exist[3], most of them owned by the USA and Russia. Nonetheless, other nuclear states with smaller nuclear arsenals also pose a huge threat, not only to any adversaries involved in a conflict, but to the entire world. For example, a regional nuclear war between India and Pakistan would result in millions of deaths, a devastated infrastructure and catastrophic consequences for the ecosystems and the climate, triggering global famine[4]. Recent studies examining nuclear warfare and its effects have reached similar conclusions.[5]

The struggle to prevent such a catastrophe started in 1945 and continues today. There exists a global nuclear disarmament movement with the Hibakusha[6] at its forefront, demanding the global prohibition of nuclear weapons. Indeed, in 2021 the world came one step closer to this goal as the Treaty on the Prohibition of Nuclear Weapons (TPNW)[7] entered into force. This treaty is truly a milestone for the nuclear disarmament movement, but it is important to stress that this is not the only step towards a nuclear weapons-free-world, rather it complements and builds on many previous steps, including a wide range of norms from international humanitarian law (IHL), human rights law (HRL), international environmental law, international criminal law (ICL) or even space law. Some of these norms are of customary character and therefore binding to all states, including nuclear weapons states. This is the reason why the importance of customary norms cannot be stressed enough in this context. Nuclear disarmament law deals with a whole patchwork of norms originating from different fields of law, and also from international treaties such as the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)[8], the TPNW or nuclear weapons free-zones agreements that directly deal with nuclear weapons. This article aims to present an overview of applicable

1 Nuclear Weapons – UNODA 2021.
2 UN General Assembly, Resolution 1 Establishment of a Commission to Atomic Energy, 24 January 1946.
3 SIPRI 2021.
4 Helfand 2012.
5 Hess 2021; Jägermeyr et al. 2020; Toon et al. 2019.
6 Survivors of the atomic bombing in either Hiroshima or Nagasaki in 1945.
7 Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
8 Treaty on the Non-Proliferation of Nuclear Weapons, *UNTS 729, p. 161*.

norms, reflect on these norms and show how they interrelate to each other and how they reinforce each other.

2. Fields of International Law Applicable to Nuclear Weapons

This section will focus on different bodies of international law, whose aims are not to deal with nuclear weapons directly, but which are nevertheless applicable to them and, as a result, constitute significant limits to their use.

2.1. International Humanitarian Law

IHL, *ius in bello* or the law of armed conflict is an indispensable body of international law when considering nuclear weapons. Assuming that the use of these weapons is more likely to occur in an armed conflict, this is the first set of rules to examine. There is neither a specific IHL norm nor a norm of customary international law (CIL), that deals with nuclear weapons explicitly, but there are rules and principles of IHL that are applicable to all types of weapons. To begin with, in any armed conflict, the right of the parties to the conflict to choose methods or means of warfare is not unlimited[9]. Being involved in an armed conflict cannot justify or permit the use of any type of weapon. Moreover, the International Court of Justice (ICJ) concluded in its famous Advisory Opinion from 1996 that the "threat or use of nuclear weapons would generally be contrary to the rules of international law applicable in armed conflict, and in particular the principles and rules of humanitarian law"[10]. In reaching this conclusion, the Court relied on cardinal principles of IHL, and in particular, on the principle of distinction between combatants and civilians[11], the principle of the prohibition of superfluous injury or unnecessary suffering[12] and on the prohibition to the employment of methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment[13]. The Court also found that the use of nuclear weapons or the threat of use violate the principle of neutrality[14]. Moreover,

9 Art. 35 (1) Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, *UNTS 1125, p. 3*.

10 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, 2E.

11 Articles 48, 51(2), 52(2) Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflict, 1977, and Article 13(2) Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts, 1977.

12 Art. 35 (2) Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, *UNTS 1125, p. 3*.

13 Art. 35 (3) Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, *UNTS 1125, p. 3*.

14 The principle of neutrality is enshrined in Art. 1, Convention (V) respecting the Rights and Duties of Neutral Powers and Persons in Case of War on Land, *USTS 540, 2 A.J.I.L. Supp. 117* . When addressing the neutrality principle, the ICJ quoted the position made by Nauru, see ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, para. 88. Kreß argues that "the most plausible way to read the Opinion in this context is to assume that the Court embraced Nauru's position implicitly and included the principle of neutrality into that body of principles and rules or the law of armed conflicts which, according to this view, will 'generally' be violated by a use of nuclear weapons." See Kreß 2013, p. 279. The ICJ further adds that the principle of neutrality is "of a fundamental character similar to that of the humanitarian principles and rules" and "is applicable […] to all international armed conflict, whatever type of weapons might be used", ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, para. 89.

it emphasised the applicability of the Martens Clause[15], which aims to protect the civilian population under all circumstances. As the Court pointed out, these principles are customary norms and are binding to all states including nuclear weapons states.

Previously in 1963, the Tokyo District Court declared in the Shimoda Case[16] that the use of atomic bombs by the USA violated the rules and principles of international law applicable at that time. The court held that although there was no specific prohibition on nuclear weapons, their use violated the prohibition of indiscriminate bombing of undefended cities, making the attacks on Hiroshima and Nagasaki unlawful under customary law. Further, the court concluded that the bombings of the two cities violated the prohibition of unnecessary suffering due to the radioactive radiation released in the process.

On the level of IHL in force today, this argumentation was then further developed in the ICJ´s Advisory Opinion. According to the operative paragraph 2D, the Court explicitly applies IHL to the use and threat of use of nuclear weapons. It has been pointed out that this sets the threshold so high for nuclear weapons states that they would need to comprehensively change their nuclear weapons to the level that they effectively act the same as conventional weapons.[17]

Nonetheless, the Advisory Opinion contains an operative provision, which continues to be disputed by scholars and academics. Some argue that the ICJ did not set a clear and absolute prohibition and even left a *non-liquet* for the use of nuclear weapons in an extreme self-defence situation. The Court did state that "in view of the current state of international law, and of the elements of fact at its disposal, the Court cannot conclude definitively whether the threat or use of nuclear weapons would be lawful or unlawful in an extreme circumstance of self-defence, in which the very survival of a state would be at stake"[18]. The Court did not refer to the "general" right to self-defence enshrined in Article 51 UN Charter, but to an "extreme self-defence" situation. Unfortunately, nor the ICJ, or treaty law or custom define such a situation, but it is certain that any self-defence situation has to comply with Article 51 of the UN Charter, including the principles of necessity and proportionality.

Most importantly, leaving a question open is by no means an answer in the affirmative to the question. One of the reasons why the ICJ dealt with this question was due to some nuclear weapons states argued that so-called "clean" nuclear weapons, which would comply with the rules and principles of IHL, may be developed. They asked the Court whether self-defence with "clean" nuclear weapons in an extreme situation in which the existence of the state is at stake would be legal.[19] Based on the presented assumption of these states and their inability to present evidence of the existence of such weapons[20], "the Court reached a point

15 Art. 1 (2) Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, *UNTS 1125, p. 3*.

16 Tokyo District Court, Shimoda case - Compensation claim against Japan brought by the residents of Hiroshmina & Nagasaki), 7 December 1963. In: Hanrei Jiho, vol. 355, p. 17; translated in The Japanese Annual of International Law, vol. 8, 1964, p. 231.

17 Darnton 2020, p. 182. In this regard, Judge Weeramantry rightly asks "why a conventional weapon would not be adequate for the purpose for which a nuclear weapon", that complies with the rules and principles of IHL and have no other characteristics peculiar to nuclear weapons, is used. See Weeramantry 1996, p. 546.

18 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, 2E.

19 See more on this argumentation and how "clean nuclear weapons polluted the Court" in Bedjaoui 2009, p. 139 and 141.

20 Weeramantry 1996, p. 546; Ranjeva 1996, p. 303.

in its reasoning beyond which it could not proceed without running the risk of adopting a conclusion which would go beyond what seemed to the Court to be legitimate"[21]. It therefore found itself in a situation where it could not provide a definitive answer, as the Court dealt only with the weapons as they are[22], not what they might be. But the ICJ is clear in defining what means can be used for the purpose of self-defence according to Article 51 UN Charter, by stating that self-defence is *only* possible by means that comply with rules and principles of IHL[23]. A state cannot produce a situation in which it would exonerate itself from compliance with the "intransgressible" norms of IHL[24]. "The yardsticks of proportionality and IHL are applicable to any use of nuclear weapons or of any other weapon, as the Court demonstrated in the Advisory Opinion. The *raison d'etre* of IHL is precisely to limit the effects of an armed conflict, regardless of who is waging the conflict and in what circumstances."[25] Accordingly, the inherent right of states to self-defence is limited by the conditions of necessity and proportionality, but also by the rules and principles of IHL. Nuclear weapons that exist today certainly do not comply with these requirements. This leads to the conclusion that they cannot be used under any circumstances. As the ICJ´s President Bedjaoui put it in his Declaration to the Advisory Opinion "atomic warfare and humanitarian law therefore appear to be mutually exclusive"[26].

Leaving the question whether the use of nuclear weapons in an extreme self-defence situation where the survival of the state is at stake open was the most disputed point among the judges deciding on the Advisory Opinion. The operating paragraph 2E had seven "yes" votes and seven "no" votes, the President's vote was casting. In his Declaration to the Advisory Opinion, President Bedjaoui repeatedly emphasised that "the Court's inability to go beyond this statement of the situation can in no way be interpreted to mean that it is leaving the door ajar to recognition of the legality of the threat or use of nuclear weapons"[27]. He further concluded that, considering the effect of the use of nuclear weapons, "it would thus be quite foolhardy unhesitatingly to set the survival of a state above all other considerations, in particular above the survival of mankind itself"[28].

President Bedjaoui was not the only one concerned about the effects of nuclear weapons. The ICJ was well aware of the "unique characteristics" of nuclear weapons. It notes that radiation is peculiar to nuclear weapons, that their destructive power cannot be contained in either space or time, their ability to destroy all civilization and the entire ecosystem of the planet as well as their capacity to cause untold human suffering, and their ability to cause damage to generations to come.[29] Against this background, the Court held that nuclear weapons pose a danger to humankind and that they must be eliminated. It called for the "long-promised complete nuclear disarmament"[30]. Following this line, it reiterated the

21 Bedjaoui 1996, para. 18.
22 Weeramantry 1996, p. 546.
23 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, para. 42.
24 Bedjaoui 1996, para. 22.
25 Mohr 1997, p. 100.
26 Bedjaoui 1996, para. 20.
27 Bedjaoui 1996, para. 11.
28 Bedjaoui 1996, para. 22.
29 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, paras. 35–36.
30 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, para. 98.

disarmament obligation of Article VI NPT and set it for all states as a customary norm[31]. It reads as follows: "There exists an obligation to pursue in good faith and bring to a conclusion negotiations leading to nuclear disarmament in all its aspects under strict and effective international control"[32].

2.2. Human Rights Law

In contrast to IHL, which applies only to armed conflicts, HRL is not limited to special circumstances; it is applicable in times of armed conflict and in peace time. For example, HRL applies to the development stage or to the testing phase of nuclear weapons as well. Other reasons why it is important to include HRL in the assessment of the legality of nuclear weapons are that HRL poses obligations on states to protect individuals from human rights infringements. The nature of human rights includes the normative supremacy of certain human rights and the customary status of some human rights, as well as the existence of legal remedies against the violation of human rights that individuals have at their disposal.[33] Apart from the right to life, there are many human rights relevant to this discussion, such as the right to respect for private and family life, the right to property and the non-derogative prohibition of inhumane and degrading treatment.[34] In addition, it has been concluded that the use of nuclear weapons would constitute a total denial of all basic human rights, not only infringing civil rights but also including economic, social, and cultural rights.[35]

When examining the relationship between nuclear weapons and human rights, special focus should be given to the right to life – the supreme right, which cannot be derogated even in an emergency or a conflict. It is incorporated in all international and regional human rights sources, such as the Universal Declaration of Human Rights[36], the European Convention on Human Rights[37] and the International Covenant on Civil and Political Rights (ICCPR)[38] to name just a few. The latter is of particular importance, as the right to life is enshrined in Article 6 ICCPR. It's opening paragraph states:

"Every human being has the inherent right to life. This right shall be protected by law. No one shall be arbitrarily deprived of his life."

31 Operative provision 2F of the dispositive does not explicitly say that the expressed twofold obligation relies on the obligation given in Art. VI NPT nor that it is of a customary nature. This vagueness might be deliberate, as it fits into the Court´s style, described as "diplomatic", see on this matter Kreß 2013, p. 292. However, the ICJ did use the term "general obligation", implying that this obligation goes beyond the obligation of the NPT parties. On one hand, Judges Oda and Guillaume argue that "2F represents a reproduction of Art. VI NPT, see Oda 1996, p. 373; Guillaume 1996, p. 292–293. On the other, Judge Weeramantry notes that the Advisory Opinion "reminds *all nations* of their obligation to bring these negotiations to their conclusion in all their aspects" (emphasis added), Weeramantry 1996, p. 434. Moreover, President Bedjaoui asserts "that there is in fact a twofold general obligation, opposable *erga omnes* […]." He further adds that "it is not unreasonable to think that, considering the at least formal unanimity in this field, this twofold obligation to negotiate in good faith and achieve the desired result has now, 50 years on, acquired *a customary character*", Bedjaoui 1996, p. 273–274.

32 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, 2F.

33 Rietiker 2021, pp. 19–21.

34 See, for an overview, Rietiker 2018, pp. 141–253.

35 Rietiker 2021, p. 27.

36 Art. 3, Universal Declaration of Human Rights, Resolution 217 A (III).

37 Art. 2, European Convention on Human Rights: Under its Art. 15, the right to life can be derogated from under certain circumstances.

38 International Covenant on Civil and Political Rights, *UNTS 999, p. 171*.

It aims to protect human life under any circumstances. The scope of protection partially overlaps with one of the aims of IHL, namely to spare the lives of civilians not directly involved in warfare.[39] The use of nuclear weapons can be regarded as an "arbitrary deprivation" of life of thousands of people. This situation would also be aggravated by the fact that the detonation of an atomic bomb would destroy local infrastructure and therefore make any rescue action or proper medical care impossible.[40]

The scope of the provisions from the ICCPR are clarified and interpreted by the Human Rights Committee (HRC), which is in charge of supervising the ICCPR´s implementation. Although general comments are not legally binding, the ICJ pointed out "great weight"[41] should nevertheless be ascribed to the HRC´s interpretation of the treaty provisions.[42] The Committee has addressed the right to life three times in general comments so far. The first time was in 1982, then it did not address nuclear weapons in connection with the right to life directly, but gave rather general instructions, such as "it is a right which should not be interpreted narrowly", "[…] war and other acts of mass violence continue to be a scourge of humanity and take the lives of thousands of innocent human beings every year", and that "states have the supreme duty to prevent wars, acts of genocide and other acts of mass violence causing arbitrary loss of life"[43]. Only two years later, in 1984, the Committee adopted the General Comment 14 entitled "Nuclear weapons and the right to life"[44] sharing its concern that "it is evident that the designing, testing, manufacture, possession and deployment of nuclear weapons are among the greatest threats to the right to life which confront mankind today. This threat is compounded by the danger that the actual use of such weapons may be brought about, not only in the event of war, but even through human or mechanical error or failure."[45] It further argues that "the production, testing, possession, deployment and use of nuclear weapons should be prohibited and recognized as crimes against humanity"[46].

However, the most important and most comprehensive general comment on the right to life was adopted recently, in 2018, replacing its predecessors from 1982 and 1984. It is a remarkable document that connects HRL, IHL and nuclear disarmament law. General Comment 36 addresses the relationship of the right to life and nuclear weapons in paragraph 66, which reads:

"The threat or use of weapons of mass destruction, in particular nuclear weapons, which are indiscriminate in effect and are of a nature to cause destruction of human life on a catastrophic scale is incompatible with respect for the right to life and may amount to a crime under international law. States parties must take all necessary measures to stop the proliferation of weapons of mass destruction, including measures to prevent their acquisition by non-state actors, to refrain from developing, producing, testing, acquiring, stockpiling, selling, transferring and using them, to destroy existing stockpiles, and to take adequate measures

39 Ohm 2021, p. 21.
40 Rietiker 2018, pp. 157–161.
41 ICJ, Republic of Guinea v. Democratic Republic of the Congo, 30 November 2010. In: ICJ Reports 2010, p. 639, para. 66.
42 See more in Venzke 2018, paras. 59–63.
43 General Comment No. 6, *HRI/GEN/1/Rev.9 (Vol. I) p.176*.
44 General Comment No. 14, *HRI/GEN/1/Rev.9 (Vol. I) p. 188*.
45 General Comment No. 14, *HRI/GEN/1/Rev.9 (Vol. I) p. 188*.
46 General Comment No. 14, *HRI/GEN/1/Rev.9 (Vol. I) p. 188*.

of protection against accidental use, all in accordance with their international obligations. They must also respect their international obligations to pursue in good faith negotiations in order to achieve the aim of nuclear disarmament under strict and effective international control and to afford adequate reparation to victims whose right to life has been or is being adversely affected by the testing or use of weapons of mass destruction, in accordance with principles of international responsibility."[47]

Essentially, the HRC reinforces the general prohibition of the use or the threat of use of nuclear weapons set out in the ICJ´s Advisory Opinion based on IHL and, in particular, the principle of distinction. It states that the use or threat to use nuclear weapons is incompatible with the right to life and even declares that the use or threat of use may amount to a crime under international law. It further calls on states to refrain from developing, producing, testing, acquiring, stockpiling, selling, transferring and using nuclear weapons – actions that are also prohibited by the NPT[48], the Comprehensive Test Ban Treaty (CTBT)[49] and the TPNW. The fact that the Comment urges states to protect against accidental use, highlights the HRC´s view on nuclear weapons as a constant threat to the right to life. The mere existence of these weapons can be considered a threat to life. It also calls on states to destroy existing stockpiles, thereby containing a direct and explicit elimination requirement. Additionally, General Comment 36 reaffirms the disarmament obligation that originates from the Advisory Opinion and the NPT.

Importantly, the General Comment also reminds states of their obligation to afford adequate reparation to victims of testing or use of weapons of mass destruction. This duty originates from the general duty to make reparations for injuries under the Draft Articles on Responsibility of States for Internationally Wrongful Acts[50] as well as Article 2 (3) of the ICCPR that imposes on states parties the duty to provide an effective remedy for the victims. In summary, the General Comment is such an elaborated and comprehensive document that brilliantly connects different fields of international law. At this point it is noteworthy that the ICCPR counts 173 state parties, including all nuclear-armed states except China, which is a signatory.

2.3. International Environmental Law

As previously discussed, the use of nuclear weapons is disastrous for the environment. Not only because they would destroy the environment at sites of detonations and spread radioactivity across borders, but they could be responsible for an instant climate change that would impact on all life on Earth. Although there are IHL provisions that protect the environment, it is important to note that every aspect of nuclear weapons is closely tied to resource depletion and environmental pollution, from development to production, stockpiling, testing,

47 General Comment No 36, *CCPR/C/GC/36*, para. 66.

48 Note that the NPT prohibits nuclear weapons states to transfer to any recipient whatsoever nuclear weapons or direct/indirect control over such weapons and to in any way assist, encourage, or induce any non-nuclear weapons state to manufacture or otherwise acquire nuclear weapons. Under this treaty, non-nuclear weapons states are prohibited to receive the transfer from any transferor whatsoever of nuclear weapons or direct/indirect control over such weapons; to manufacture or otherwise acquire nuclear weapons; and to seek or receive any assistance in the manufacture of nuclear weapons.

49 Comprehensive Nuclear-Test-Ban Treaty, *adopted by resolution A/RES/50/245, contained in document A/50/1027*.

50 Draft Articles on Responsibility of States for Internationally Wrongful Acts:, see in particular Art. 31.

transport, modernization (upgrading) and maintenance. However, some stages usually do not take place during an armed conflict and so IHL is not applicable. For example, uranium mining needed for the production of these weapons or the disposal of waste.

Moreover, radiological contamination from nuclear weapon-related activities can occur in any of the four spheres (atmosphere, hydrosphere, lithosphere and biosphere) and typically spreads to all of them through ecological cycles, air and water currents, and through migratory species.[51] If it pollutes the territory of the nuclear weapon possessing state alone, there could be a violation of international treaties or global or regional conventions on the protection of places, habitats, species, or biological diversity. In this case, environmental treaties can play an important role. However, in the case of transboundary pollution, there could additionally be a violation of CIL, specifically two principles of international environmental law: the prohibition of significant transboundary pollution and the principle of prevention – both deriving from the due diligence of a state in its territory and the no-harm rule. The no-harm rule [52], based on principle 21 of the Stockholm Declaration[53] and principle 2 of the Rio Declaration[54], allows states to exploit their own resources, but also requires them not to conduct or even permit conducting any activities under their jurisdiction that may cause significant environmental harm to other states. The ICJ confirmed this principle in the Advisory Opinion stating:

"The existence of the general obligation of states to ensure that activities within their jurisdiction and control respect the environment of other states or of areas beyond national control is now part of the corpus of international law relating to the environment."[55]

The principle of prevention has also been confirmed by the ICJ in the case Pulp Mills, pronouncing that this customary rule obliges every state "not to allow knowingly its territory to be used for acts contrary to the rights of other states. A state is thus obliged to use all the means at its disposal in order to avoid activities which take place in its territory, or in any area under its jurisdiction, causing significant damage to the environment of another State."[56] At this point it is important to note that the International Law Commission (ILC) has been working on these rules for several years. The outcome was two publications: Draft Articles on Prevention of Transboundary Harm from Hazardous Activities[57] and Draft Principles on the Allocation of Loss in the Case of Transboundary Harm Arising out of Hazardous Activities[58].

There are general provisions dealing with the subject of environmental destruction resulting from war and military activities. Resolution 2/15 adopted on 4 August 2016 by the UN Environment Assembly of the UN Environment Program "calls on all member states to implement applicable international law related to the protection of the environment in situations of armed conflict"[59]. In order to take an environmental law approach through the lens

51 Geneva Academy 2014, p. 13.
52 See Jervan 2014.
53 Declaration of the United Nations Conference on the Human Environment, *UN Doc. A/CONF.48/14/Rev.1*.
54 Rio Declaration on Environment and Development, *A/CONF.151/26 (Vol. I)*.
55 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, para. 29.
56 ICJ, Pulp Mills on the River Uruguay (Argentina v. Uruguay), 20 April 2010. In: ICJ Reports 2010, p.14, para. 101.
57 Draft Articles on Prevention of Transboundary Harm from Hazardous Activities.
58 Draft Principles on the Allocation of Loss in the Case of Transboundary Harm Arising out of Hazardous Activities.
59 Para. 4, Resolution 2/15 Protection of the Environment in Areas Affected by Armed Conflict, *UNEP/EA.2/Res.15*.

of IHL, it is necessary to recall that IHL prohibits the employment of "methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment". This principle is enshrined in Article 35 (3) and Article 55 of the Additional Protocol I and mentioned in the Advisory Opinion too.

According to the study on Customary IHL of the International Committee of the Red Cross (ICRC) there are three IHL customary rules applicable to the natural environment. The first rule regulates the application of general principles on the conduct of hostilities that apply to the natural environment[60], including the protection of the natural environment from a military attack, unless it is a military objective. This principle derives from the principle of distinction between military objectives and civilian objects. It also includes the prohibition of environmental destruction, unless required by imperative military necessity. Most importantly, this rule prohibits launching an attack against a military objective which may be expected to cause incidental damage to the environment which would be excessive in relation to the concrete and direct military advantage anticipated.[61]

The second customary rule identified by the ICRC is based on the precautionary principle. It requires the parties to an armed conflict to take all feasible precautions to avoid, and in any event to minimize incidental damage to the environment in the conduct of military operations. It further states that lack of scientific certainty as to the effects on the environment of certain military operations does not absolve a party to the conflict from taking such precautions.[62] The third customary rule is the previously mentioned prohibition to cause widespread, long-term and severe damage to the natural environment. It is emphasised that the destruction of the natural environment may not be used as a weapon.[63]

The ICJ also addressed environmental law implications in relation to IHL in the reasoning of the Advisory Opinion. It found that environmental law "does not specifically prohibit the use of nuclear weapons"[64], but "states must take environmental considerations into account when assessing what is necessary and proportionate in the pursuit of legitimate military objectives. Respect for the environment is one of the elements that go to assessing whether an action is in conformity with the principles of necessity and proportionality."[65]

To sum up with the words of Judge Weeramantry, who addresses the relationship between the environmental law principles and nuclear weapons in his Dissenting Opinion to the Advisory Opinion, "Environmental law incorporates a number of principles which are violated by nuclear weapons. The principle of intergenerational equity and the common heritage principle […]. Other principles of environmental law, which this request enables the Court to recognize and use in reaching its conclusions, are the precautionary principle, the principle of trusteeship of earth resources, the principle that the burden of proving safety lies upon the author of the act complained of, and the 'polluter pays principle', placing on the author of environmental damage the burden of making adequate reparation to those affected."[66] He further concludes that "these principles do not depend for their validity on treaty

60 Rule 43, Henckaerts et al. 2005, p. 143.
61 Henckaerts et al. 2005, pp. 143–146.
62 Rule 44, Henckaerts et al. 2005, p. 147.
63 Rule 45, Henckaerts et al. 2005, p. 151.
64 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, para. 33.
65 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, para. 30.
66 Weeramantry 1996, pp. 502–503.

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provisions. They are part of customary international law. They are part of the *sine qua non* for human survival."[67]

2.4. International Criminal Law

Given that the use of nuclear weapons in an armed conflict would violate IHL, in particular the rules and principles of IHL, such acts can potentially be subject to rules and proceedings under ICL. The use of nuclear weapons can amount to crimes that fall under the jurisdiction of the International Criminal Court (ICC). Non-nuclear weapons states even considered introducing a prohibition of nuclear weapons into the Rome Statute, but unfortunately were not able to reach an agreement.[68]

Before discussing which international crimes a nuclear attack might represent, it is important to note that the ICC has jurisdiction if the alleged perpetrator is a national of a state party or if the crime was committed on the territory of a state party.[69] States that are not parties to the Rome Statue to the ICC (Rome Statute) may decide to accept the ICC´s jurisdiction.[70] A special case, where these conditions do not apply, is when the Security Council, acting under Chapter VII of the UN Charter, refers a situation to the Office of the Prosecutor.[71] So, the Security Council may decide on a universal jurisdiction of the ICC, however all of the permanent members of the Security Council are nuclear weapons states and, as a result of the fact that resolutions within Chapter VII have to be taken unanimously (which by implication follows from Article 27 (2) UN Charter) they have a right to veto and can block such an initiative.

An individual person will be criminally responsible and liable for punishment, if he or she commits a crime alone or jointly, orders, solicits or induces the commission of such a crime, abets or otherwise assists or in any other way contributes to the commission of a crime. Therefore, the whole nuclear-chain-command can be held liable for the crimes described below.[72]

2.4.1. Genocide

The crime of genocide is defined in Article 6 of the Rome Statute as any act (such as killing[73] or causing serious bodily or mental harm[74]) "committed with intent to destroy, in whole or in part, a national, ethnical, racial or religious group, as such". This definition is based on the definition given in the Convention on the Prevention and Punishment of the Crime of Genocide[75]. As the ICJ stated, the prohibition of genocide would be pertinent, "if the recourse to nuclear weapons did indeed entail the element of intent, towards a group as such"[76]. This intent has to be proven taking into consideration all circumstances of the case. Nevertheless,

67 Weeramantry 1996, p. 504.
68 Bersagel 2014, pp. 222–230.
69 Art. 12 (2), Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
70 Art. 12 (3), Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
71 Art, 13 (b), Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
72 Colangelo and Hayes 2019, p. 225.
73 Art. 6 (a), Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
74 Art. 6 (b), Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
75 Art. II, Convention on the Prevention and Punishment of the Crime of Genocide, *UNTS 78, p. 277*.
76 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, para. 26.

Judge Weeramantry argued that "there can be no doubt that the [nuclear] weapon targets, in whole or in part, the national group of the state at which it is directed", taking into account the ability of nuclear weapons to wipe out blocks of population ranging from hundreds of thousands to millions.[77]

2.4.2. Crime Against Humanity

According to the Rome Statute, a crime against humanity is any of the variety of acts[78], including murder[79], extermination[80] or "other inhumane acts […] causing great suffering, or serious injury"[81] when committed as part of a "widespread or systematic attack directed against any civilian population, with knowledge of the attack"[82]. Article 7 (2)a Rome Statute defines an "attack directed against any civilian population" as a conduct "pursuant to or in furtherance of a state or organizational policy to commit such attack". According to this language, three requirements need to be fulfilled in order for a nuclear strike to constitute a crime against humanity. "First, it requires the commission of a predicate crime such as murder or extermination. Second, it requires the commission of the predicate crime in furtherance of a widespread or systematic attack. Finally, the actor must have knowledge that his act or acts form part of the widespread or systematic attack."[83]

A nuclear attack would definitely result in the murder of thousands of people and it would cause great suffering, perhaps even extermination, so the first condition would be fulfilled. As regards to the second, according to the ICC, "widespread" refers to the large-scale nature of the attack and to the number of targeted persons, whereas the adjective "systematic" reflects the organised nature of the acts of violence and the improbability of their random occurrence.[84] Thus, the attack is systematic if it follows a predetermined plan or policy.[85] A nuclear strike would meet this condition too, as it is by its very nature widespread. If it is systematic depends on the nuclear policy or plan. Lastly, the perpetrator must know that the act in question is part of the widespread or systematic attack against the civilian population; the motive for the act is irrelevant.[86] Accordingly, the actor in the nuclear chain-of-command cannot insulate him or herself from responsibility merely because he or she was "following orders". In other words, without any regard for *why* a strike order was followed, *if* a nuclear strike order is followed, the final requirement has been satisfied.[87]

77 Weeramantry 1996, 502.
78 Art. 7 (1)a-k, Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
79 Art. 7 (1)a, Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
80 Art. 7 (1)b, Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
81 Art. 7 (1)k, Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
82 Chapter of Art. 7 (1), Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
83 Colangelo and Hayes 2019, p. 229.
84 ICC, The Prosecutor v. Germain Katanga, 7 March 2014. In: ICC-01/04–01/07, para. 1123.
85 Hahnfeld 2005, p. 41.
86 ICC, The Prosecutor v. Germain Katanga, 7 March 2014. In: ICC-01/04–01/07, para. 1125.
87 Colangelo and Hayes 2019, pp. 12–13.

2.4.3. War Crimes

Any serious violation of the principles of IHL, is considered a war crime.[88] War crimes are defined in the Rome Statute in Article 8 (2). Accordingly, war crimes constitute a long list of acts (almost three pages) that violate the Geneva Conventions[89] or other serious violations of the laws and customs of IHL. Although this Article lists 26 actions that are serious violations of the rules and principles of IHL, this section will only highlight those that will be most likely violated in the event of a nuclear attack.

The principles of distinction, proportionality, necessity and the prohibition to cause unnecessary suffering would be violated by "intentionally directing attacks against the civilian population as such or against individual civilians not taking direct part in hostilities"[90], "intentionally directing attacks against civilian objects"[91] or "attacking or bombarding, by whatever means, towns, villages, dwellings or buildings which are undefended and which are not military objectives"[92]. Undoubtedly, a nuclear strike would violate all these principles and it would hence constitute a war crime. In this context, "intentionally" means that the perpetrator intends to act in the way that constitutes the crime and wants the consequences. Since the use of a nuclear weapon is inevitably tied to its catastrophic consequences, the perpetrator cannot object that he or she did not intend them.[93]

Noteworthy is that Article 8 (2)b iv prohibits "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 clearly excessive in relation to the concrete and direct overall military advantage anticipated". It is unequivocal that a nuclear strike would cause severe and widespread damage to the environment. Including this principle in the Rome Statute combines ICL and the protection of the environment. Nevertheless, some voices argue that ecocide[94] is missing on the list of crimes under the jurisdiction of the ICC. Depending on the *actus reus* of ecocide, nuclear weapons have the ability to cause an ecocide, when and if it is established as an international crime.

2.4.4. Crime of Aggression

The Rome Statute defines aggression as "planning, preparation, initiation or execution, by a person in a position effectively able to exercise control over or direct the political or military action of a state, of an act of aggression which, by its character, gravity and scale, constitutes a manifest violation of the Charter of the UN."[95] It further explains that aggression is "the use of armed force by a state against the sovereignty, territorial integrity or political inde-

88 Colangelo 2018, p. 101.
89 Art, 8 (2)a, Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*
90 Art. 8 (2)b i, Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
91 Art. 8 (2)b ii, Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
92 Art. 8 (2)b v, Rome Statute of the International Criminal Court, *UNTS 2187, p. 3*.
93 Hahnfeld 2005, p. 41.
94 Colangelo and Hayes 2019, pp. 231–233; Higgins et al. 2012; Higgins 2010, pp. 61–92; Darnton 2020, p. 101.
95 Art. 8 bis (1), Amendments to the Rome Statute of the International Criminal Court on the Crime of Aggression, *C.N.651.2010.TREATIES-8*.

pendence of another state, or in any other manner inconsistent with the Charter of the UN"[96]. An act that qualifies as an act of aggression, is, *inter alia*, the "bombardment […] against the territory of another state or the use of any weapons by a state against the territory of another state"[97]. A nuclear strike, initiated as a first-strike, would clearly fall under this definition. In this context it is important to stress that the Rome Statute prohibits the "planning, preparation and initiation" of a (first) strike. "Hence those all the way up the chain of command who have a hand in determining the legality of an aggressive nuclear strike explicitly can be held liable under international law."[98]

2.5. Space Law

Although the activities "in the exploration and the use of outer space" are governed by specific provisions of space law (*lex specialis*), it has to be emphasised that norms of general international law and the provisions of the UN Charter are binding for these activities too.[99] This is of paramount importance, as it affirms the applicability of i. e., IHL in space. In addition, these activities should be carried out in "the interest of maintaining international peace and security and promoting international cooperation and understanding". Moreover, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty, OST) explicitly states that the "Moon and other celestial bodies shall be used by all states parties to the treaty exclusively for peaceful purposes"[100]. That nuclear weapons cannot be used for peaceful purposes should be incontestable, but the treaty further states in Article VI that state parties "undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner." Moreover, this Article continues by emphasising that the "establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden."

According to the wording, it is obvious that the installation of nuclear weapons in orbit around the Earth, celestial bodies and outer space is explicitly forbidden as well as nuclear tests on celestial bodies. In this regard it is also important to note that the Partial Nuclear-Test-Ban Treaty (PTBT) prohibits nuclear explosions in outer space[101]. Despite the language described above, the word "transit" is absent, indicating that nuclear weapons can enter outer space, through intercontinental ballistic missiles[102]. The OST does not prohibit the deployment of ground-based nuclear systems designed for use in outer space or against

96 Art. 8 bis (2), Amendments to the Rome Statute of the International Criminal Court on the Crime of Aggression, *C.N.651.2010.TREATIES-8*.

97 Art. 8 bis (2)b, Amendments to the Rome Statute of the International Criminal Court on the Crime of Aggression, *C.N.651.2010.TREATIES-8*.

98 Colangelo and Hayes 2019, p. 225.

99 Art. 3, Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *UNTS 610, p. 205*.

100 Art VI (2), Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *UNTS 610, p. 205*.

101 Art. 1 (1)a, Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water, *UNTS 480, p. 43*.

102 Bill Boothby 2017, p. 203.

space objects either.[103] Most importantly, there is no explicit prohibition of use in outer space, though it is hard to imagine that the installation of these weapons is prohibited without an intention to prohibit their use. The relationship between nuclear weapons and outer space remains under the shadow of the ambiguity of these provisions. More clear are the provisions regarding celestial bodies. The OST prohibits military establishments, testing and military manoeuvers, thus in addition to the installation prohibition, nuclear weapons cannot be tested or detonated on celestial bodies.

The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement) reaffirms these provisions, develops them further, stating that "any threat or use of force or any other hostile act or threat of hostile act on the Moon is prohibited"[104]. The provisions from this agreement also apply to other celestial bodies within the solar system other than Earth. According to the Moon Agreement, states are prohibited from placing nuclear weapons in "orbit around or other trajectory to or around the Moon" or from *using* nuclear weapons on the Moon[105] and from testing nuclear weapons[106]. Although this agreement has only a handful of state parties, it is a supplement of the OST and it is important to point out that the Convention on the prohibition of military or any other hostile use of environmental modification techniques (ENMOD Convention) applies in outer space[107] as well and it, therefore prohibits the "military or any other hostile use of environmental modification techniques having wide-spread, long-lasting or severe effects"[108].

In the recent few decades, space gained importance for strategic reasons and the global trend is being directed towards the weaponization of space. In order to prevent an arms race in space, Russia and China presented a draft Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects in 2008 to the Conference on Disarmament. Further development remains to be seen.

3. Specific Nuclear Weapons Treaties

This part will focus on international treaties explicitly dealing with nuclear weapons. However, because of the limited space available, nuclear-weapon-free zones (NWFZ) agreements[109] will not be discussed further nor any bilateral nuclear weapons treaties, but their importance for international security and for reaching a nuclear weapons-free world is beyond doubt. Apart from the 5 established NWFZs, the Antarctic is also a *de facto* NWFZ

103 Mosteshar 2019, p. 2.

104 Art. 3 (2), Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, *UNTS 1363, p. 3*.

105 Art. 3 (3), Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, *UNTS 1363, p. 3*.

106 Art. 3 (4), Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, *UNTS 1363, p. 3*.

107 Art. II, Convention on the prohibition of military or any other hostile use of environmental modification techniques, *UNTS 1108, p. 151*.

108 Art. I, Convention on the prohibition of military or any other hostile use of environmental modification techniques, *UNTS 1108, p. 151*.

109 Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean, *UNTS 634, p. 281*; South Pacific Nuclear-Free Zone Treaty, *UNTS 1445, p. 177*; Treaty on the Southeast Asia Nuclear-Weapon-Free Zone, *UNTS 1981*; Central Asian Nuclear-Weapon-Free Zone, *UNTS 2970*; African Nuclear-Weapon-Free Zone Treaty, *UN document A/50/426* In this regard, special attention should be paid to the efforts on the establishment of a NWFZ in the Middle East, see UN General Assembly Resolution A/RES/72/24.

based on the Antarctic Treaty[110]. As a result of all these agreements together, nuclear weapons are outlawed from the entire southern hemisphere.

The placement of nuclear weapons on the seabed is also prohibited. According to the Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof (Seabed Treaty), states are prohibited from emplanting or emplacing on the seabed and the ocean floor and in the subsoil thereof beyond the outer limit of a seabed zone […] any nuclear weapons […] as well as structures, launching installations or any other facilities specifically designed for storing, testing or using such weapons.[111]

It is also important to note that there are two international treaties dealing with nuclear testing. The first is the previously mentioned PTBT that, besides prohibiting nuclear explosions in outer space, prohibits nuclear tests in the atmosphere and also under water. In addition, Article I (1)b PTBT prohibits nuclear testing "in any other environment if such explosion causes radioactive debris to be present outside the territorial limits of the State under whose jurisdiction or control such explosion is conducted". The second treaty is the CTBT, which prohibits in Article I (1) "nuclear explosion at any place". However, it still has not entered into force, although it has 170 ratifications, because according to Article XIV, it will enter into force after all 44 states listed in Annex 2 to the Treaty have ratified it. Unfortunately, eight states are still missing – Egypt, China, India, Israel, Iran, North Korea, Pakistan and USA. China, Egypt, Iran, Israel and the USA have signed but not ratified and North Korea, India and Pakistan have not yet signed.

3.1. The Non-Proliferation Treaty

The NPT, signed in 1968, entered into force in 1970, is one of the most universal treaties in international law in general. It has 191 deposited ratifications, leaving only four states (Israel, India, Pakistan and South Sudan) that did not accede thereto. North Korea remains a special case, although it has ratified the treaty, in 2003 it announced its withdrawal from the NPT and started its nuclear programme. Nevertheless, the NPT has prevented and in some cases stopped a much wider proliferation of nuclear weapons[112]. Experts assume that without this treaty the number of nuclear weapon states would grow rapidly to 40 or more.[113]

The NPT regime rests on four pillars:

I. Nuclear weapons states undertake not to transfer nuclear weapons nor exhort direct or indirect control over them to any recipient whatsoever; and not to assist, encourage, or induce any non-nuclear weapons state to manufacture or otherwise acquire nuclear weapons or obtain control over them (based on Article I NPT).

110 The Antarctic Treaty, *UNTS 407, p. 71* In Article I it states that Antarctica shall be used only for peaceful purposes. It further prohibits "any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military manoeuvers, as well as the testing of any types of weapons." Article V provides that any nuclear explosion in Antarctica and the disposal there of radioactive waste is prohibited. In accordance with these provisions, nuclear weapons are outlawed from the Antarctic.

111 Art. I (1), Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof (Seabed Treaty), *UNTS 995, p. 115*.

112 Abe 2020, pp. 225–227.

113 IALANA 2019, p. 15.

II. Non-nuclear weapons states undertake not to receive the transfer from any transfer or whatsoever of nuclear weapons or have direct or indirect control over such weapons; not to manufacture or otherwise acquire nuclear weapons; and not to seek or receive any assistance in the manufacture of nuclear weapons (based on Article II NPT).

III. All states undertake to start and pursue good-faith negotiations with the aim of complete nuclear disarmament and strict and effective international control (based on Article VI NPT).

IV. All NPT member states have the right to access nuclear technology and its "civilian usage" (based on Article IV NPT).

Despite the successes of the NPT, there have been some clear violations of it. The first is the so called "nuclear sharing policy", under which non-nuclear weapons states (Germany, Italy, Belgium, The Netherlands and Turkey) allow the USA to station nuclear weapons on their territory as part of the NATO programme. The bombs continue to be owned by the US, but the order to use them will be executed by soldiers of the non-nuclear weapons states. Moreover, armed forces of non-nuclear weapons states maintain nuclear weapon delivery systems such as the Tornado aircraft stationed at Büchel, Germany. They regularly conduct nuclear-weapon exercises like the Steadfast Noon exercise, conducted by the German armed forces. The moment armed forces of a non-nuclear weapons state transport and/or execute the order to use an atomic bomb, they gain control over the nuclear weapon[114], so the non-nuclear weapons state violates Article II NPT (not to receive direct or indirect control over nuclear weapons), whereas the US infringes Article I (not to transfer direct or indirect control over nuclear weapons).[115] There are opinions that even an exercise, such as Steadfast Noon, represents a violation of the NPT, but the acceptance among states remains to be seen.[116]

Further, all NATO countries refer to the so called "war reservation", that would exclude the applicability of the NPT if "a decision was made to go to war"[117]. However, there are substantial legal arguments against such a reservation, both formal and material. First, the "war reservation" was not "formulated in writing and communicated to the contracting parties"[118] and second, even if the formal requirements were met, this reservation seems clearly "incompatible with the object and purpose of the treaty"[119]. In addition, the USA has, contrary to Article I NPT, supported some states in the development of nuclear weapons programmes and the acquisition of nuclear weapons. This was the case with Israel, Pakistan and India.[120]

Perhaps the most obvious treaty violation consists of the failure of any single nuclear weapons state[121] and their allies to start and participate in negotiations with a view to com-

114 Ambos and Lippold 2020b, p. 915.

115 More on the illegality of the NATO nuclear strategy in Hahnfeld 2005, pp. 39–40.

116 Hayashi 2021, pp. 9–11.

117 IALANA 2019, p. 40 The alleged reservation was declared in the «Rusk letter» of July 9, 1968 to President Johnson and the US Senate.

118 Art. 23 (1), Vienna Convention on the Law of Treaties, *UNTS 1155, p. 331*.

119 Art. 19 (c), Vienna Convention on the Law of Treaties, *UNTS 1155, p. 331*.

120 IALANA 2019, pp. 19–20.

121 "The evidence preferred by nuclear weapons states themselves to establish their compliance with this obligation appears to be incomplete and erroneously offered. Furthermore, even proceeding to an analysis of the ques-

plete nuclear disarmament. This is the obligation enshrined in Article VI NPT and repeated by the ICJ in the Advisory Opinion. As stated above, this obligation exists for any state regardless of their adherence to the NPT. Nuclear weapons states may argue that they comply with this obligation by reducing their nuclear arsenals[122], but they neglect the twofold nature of this obligation, namely to "negotiate in good faith and to achieve the desired result"[123]. In this regard, the Republic of the Marshall Islands filed applications against India, Pakistan and the UK; accusing the UK of violating Article VI NPT and India and Pakistan of violating the customary obligations with respect to the cessation of the nuclear arms race at an early date and to nuclear disarmament.[124] Unfortunately, the ICJ did not proceed to the merits, because it decided to uphold the objection to jurisdiction based on the absence of a dispute between the parties.[125]

3.2. Treaty on the Prohibition of Nuclear Weapons

The TPNW is the most recent instrument of nuclear disarmament law. It was adopted in 2017 and came into force in January 2021. This treaty is, like any other international treaty, binding to the parties of the treaty, although it contains some provisions that are already of customary character. It is a landmark in the development of nuclear disarmament, especially because of the resistance of nuclear weapons states and their allies.

By Resolution 71/258[126], the UN General Assembly decided to convene a conference to negotiate a legally binding instrument to prohibit nuclear weapons, leading towards their total elimination. The conference was marked by impressive participation of civil society and unprecedented cooperation between representatives of states and civil society. Nuclear weapons states and their allies (except the Netherlands), however, chose not to participate in the negotiations for reasons that are more excuses than substantive arguments, i. e. such a treaty would undermine the NPT[127]. Moreover, it is known that the US government had sent a letter to all NATO[128] members encouraging them to boycott participation in negotiations, because otherwise there would be a risk of NATO nuclear policy losing its legitimacy.

Looking at this situation from an NPT perspective, it can be argued that the nuclear weapons states and their allies are ignoring or at least neglecting their obligation under Article VI. On the other hand, states that initiated and participated in the negotiations took this

tion of whether there has been in the practice of the nuclear weapons states the pursuit of negotiations in good faith on effective measures relating to nuclear disarmament […] when compared to the actual state practice of nuclear weapons states, each and all of the NPT nuclear weapons states are in non-compliance with the Article VI obligation relating to nuclear disarmament." Joyner 2014, p. 417.

122 Note that in 2021, only the USA and Russia reduced their nuclear warheads, Israel and France kept the same number as in 2020, whereas the UK, China, India, Pakistan and Noth Korea are expanding their nuclear arsenals. See SIPRI 2021.

123 Bedjaoui 1996, pp. 273–274.

124 Latest developments | Obligations concerning Negotiations relating to Cessation of the Nuclear Arms Race and to Nuclear Disarmament (Marshall Islands v. Pakistan) | International Court of Justice 2021.

125 Ambos and Lippold 2020a.

126 Resolution 71/258 Taking forward multilateral nuclear disarmament negotiations, *A/RES/71/258*.

127 In fact, contrary to what some states claim, the NPT and the TPNW do not compete with each other, they rather complement each other. See more: Wissenschaftlicher Dienst des Deutschen Bundestages 2021, p. 36 "Overlap is not necessarily problematic, as it can reinforce the normative force of the underlying norms, questions of coordination need to be addressed." See more in Kadelbach 2020, p. 314.

128 Copy of the letter, IALANA 2019, pp. 42–45.

obligation very seriously. Although the outcome – the TPNW – has not led to complete nuclear disarmament (yet), it is nevertheless a step in that direction. Therefore, the TPNW can be regarded as a partial fulfilment of the obligations of Article VI NPT. However, this is not the only connection to the NPT, which the TPNW refers to as "the cornerstone of the nuclear disarmament and non-proliferation regime"[129].

The TPNW also repeats the disarmament obligation[130] from Article VI and from the Advisory Opinion. In its preamble, the TPNW recalls, as a basis, the rules and principles of IHL, in particular "the principle that the right of parties to an armed conflict to choose methods or means of warfare is not unlimited, the rule of distinction, the prohibition against indiscriminate attacks, the rules on proportionality and precautions in attack, the prohibition on the use of weapons of a nature to cause superfluous injury or unnecessary suffering, and the rules for the protection of the natural environment"[131]. It further considers that *any* use of nuclear weapons would be contrary to IHL[132] and it would be "abhorrent to the principles of humanity and the dictates of public conscience"[133] directly relating to the Martens Clause.

The preamble is not only important because it refers to existing law, but it is also an expression how the state parties interpret the law they refer to. In addition, the preamble of the TPNW truly shows the humanitarian disarmament[134] approach, from which this treaty derives. Right at the beginning, the parties to the treaty emphasise their concern about the "catastrophic humanitarian consequences"[135], and they also recall the ethical imperatives for nuclear disarmament. This approach is not new; the Advisory Opinion also states that nuclear weapons are "scarcely reconcilable"[136] with IHL, but the TPNW brings in a new dimension. It warns against the catastrophic consequences[137].

3.2.1. Negative Obligations

Article 1 TPNW contains the prohibitions or the negative obligations[138] for states. The chapeau of the Article defines when the prohibitions are valid, stating "never under any circumstances". From this language it is clear that the treaty does not allow any exceptions, the prohibitions are absolute. In addition, the treaty does not allow any reservations[139] to it either, excluding any possibility to avoid the prohibitions. Furthermore, the wording of the chapeau indicates that those acts are forbidden not only vis-à-vis other states parties, but also with regards to non-parties and even non-state actors, such as rebel groups or terrorists.[140]

129 Preamble, para. 18, Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
130 Preamble, para. 17, Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
131 Preamble, para. 9, Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
132 Preamble, para. 10, Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
133 Preamble, para. 11, Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
134 Mohr 2018, pp. 126–127.
135 Preamble, para. 2, Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
136 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, para. 95.
137 Preamble, para. 4, Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
138 Burroughs 2017.
139 Art. 16, Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
140 Rietiker and Mohr 2018, p. 13.

State parties are required to not "develop, test, produce, manufacture, otherwise acquire, possess or stockpile"[141] nuclear weapons as well as not to transfer[142] or receive [143] nuclear weapons or direct or indirect control over them. Many of these prohibitions overlap with the prohibitions of the NPT, but the TPNW goes further than the NPT, and most importantly, it does not differentiate between obligations for nuclear weapons states and non-nuclear weapons states. Furthermore, the TPNW forbids all kinds of tests of nuclear weapons, reinforcing the CTBT. "While the TPNW refers to nuclear "test" very generally, without defining the term, the CTBT prohibits "any nuclear weapon test explosion or any other nuclear explosion" in its Article 1 (1). In other words, nuclear weapon tests not involving an explosion, such as sub-critical tests and computer-simulated tests, would be prohibited by the new treaty too."[144]

The core prohibition is enshrined in letter (d) of Article 1. Accordingly, each state party undertakes not to "use or threaten to use nuclear weapons". Together with the above cited paragraphs from the preamble, it hereby confirms and builds on the general prohibition of use or threat to use from the Advisory Opinion, setting an absolute prohibition. It definitely closes the discussion on a possible *non-liquet* or any exceptions on the legal use or threat of use of nuclear weapons.[145]

It is of utmost importance that the TPNW not only prohibits the use, but also the threat to use. The first draft[146] of the treaty contained only the prohibition of use. It was thanks to the efforts of some civil society organizations, including the IALANA, that the threat of use was later included into the final text. "Taken together with the ban on possession of nuclear weapons, nuclear policies based on deterrence are further brought into question and delegitimized (at least politically) by the TPNW."[147] In this regard, it is important to note that this treaty has the potential to end the nuclear sharing policy, as letter (g) prohibits state parties to allow any stationing, installation or deployment of any nuclear weapons on their territories.

The TPNW also prohibits states to assist, encourage or induce anyone to engage[148] in activities prohibited by the TPNW or to seek or receive assistance[149] for any of the prohibited activities. There is a slight overlap with the NPT prohibitions again, but the NPT is more limited in its scope. For example, it prohibits nuclear weapons states to "assist, encourage, or induce any non-nuclear weapon state to manufacture or otherwise acquire nuclear weapons", whereas the TPNW prohibits these acts to all states parties. Moreover, the TPNW prohibits assistance "in any way" for any activity prohibited under it. This would, therefore, implicitly include financing of nuclear programmes too, as it could be interpreted as assistance of development. Nevertheless, a certain degree of disappointment was felt among the representatives of civil society, because the treaty has no explicit prohibition on financing and because it permits peaceful uses of nuclear energy[150]. This provision could also impact

141 Art. 1 (a), Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
142 Art. 1 (b), Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
143 Art. 1 (c), Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
144 Rietiker and Mohr 2018, p. 42.
145 Mohr 2018, p. 128.
146 Draft Convention on the Prohibition of Nuclear Weapons, *A/CONF.229/2017/CRP.1*.
147 Mohr 2018, pp. 14–15.
148 Art. 1 (e), Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
149 Art. 1 (f), Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
150 Preamble, para. 21, Treaty on the Prohibition of Nuclear Weapons, 2017. See more in the criticism of peaceful uses of nuclear energy in Darnton 2021, p. 38.

the relationship between the NATO and its member states. If a NATO member state accedes the TPNW, it would have at least the obligation to "distance" itself from the NATO nuclear strategy and not to assist this strategy in any way.[151]

3.2.2. Positive Obligations

Besides the negative obligations provided in Article 1, the TPNW also contains positive obligations that are a reflection of the humanitarian disarmament approach and consideration of HRL and international environmental law. Not only is the treaty mindful of the "unacceptable suffering" of the Hibakusha and the victims of nuclear weapons testing[152], but it obliges state parties to provide "age- and gender-sensitive assistance […] including medical care, rehabilitation, psychological support as well as […] social and economic inclusion"[153] to victims of the use or testing of nuclear weapons. Apart from the victim assistance, in Article 6 (2) TPNW it also sets an obligation for environmental remediation of areas contaminated by the use or testing of nuclear weapons.

It is important to emphasise that these obligations apply to past, present and future use or testing.[154] Both paragraphs impose obligations on states on whose territory the use or testing of nuclear weapons took place. "This can be criticized, but it is fair to stress that this primary burden is nevertheless tempered in several ways. First of all, paragraph 3 of Article 6 recalls that the obligations of any other State under international law or bilateral agreements shall remain unaffected"[155], like any bilateral reparation agreements[156]. The obligations from Article 6 should be read in conjunction with Article 7 TPNW. Paragraph 3 of this Article poses an obligation to states in a position to do so, to provide technical, material and financial assistance to states affected by the use or testing of nuclear weapons, whereas paragraph 4 imposes an obligation to assist victims of the use or testing of nuclear weapons. In addition, paragraph 6 is of particular importance, as it defines the duty of states that have used or tested nuclear weapons "to provide assistance to affected states for the purpose of victim assistance and environmental remediation".

Article 4 of the TPNW sets the goal of the treaty; it is entitled Towards the Total Elimination of Nuclear Weapons and addresses the conditions under which nuclear weapons states and nuclear sharing states can join the TPNW. However, these provisions can only be invoked if nuclear weapons states and nuclear sharing states join the treaty.

3.2.3. Can the TPNW establish customary rules?

According to Article 38 (1)b of the ICJ Statute, a customary norm is defined "as evidence of a general practice accepted as law". So, apart from the general practice conducted by the majority of states, this practice has to be accepted as law (*opinio juris*). When addressing the legality and illegality of nuclear weapons, the ICJ reached the conclusion that such a

151 Ambos and Lippold 2020b, p. 919.
152 Preamble, para. 6, Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
153 Art. 6 (1), Treaty on the Prohibition of Nuclear Weapons, *UN Doc.A/CONF.229/2017/8*.
154 Rietiker and Mohr 2018, p. 25.
155 Rietiker and Mohr 2018, p. 27.
156 For example, reparations that the USA owes to the Marshall Islands according to the "Compact of Free Association" Agreement. See more in Rietiker and Mohr 2018, p. 27.

customary norm does not exist[157], but it also pointed out "[…]that the adoption each year by the General Assembly, by a large majority, of resolutions […] requesting the member States to conclude a convention prohibiting the use of nuclear weapons in any circumstance, reveals the desire of a very large section of the international community to take, by a specific and express prohibition of the use of nuclear weapons, a significant step forward along the road to complete nuclear disarmament."[158] The Court further described this stage as *nascent opinio juris*, but it also stated that it is hampered by adherence to the practice of deterrence.

Nevertheless, the Court did declare the use and threat of use to be generally contrary to the rules and principles of IHL and those are norms of a customary nature. Therefore, the prohibition of the use and the threat of use of nuclear weapons contained in Article 1 (d) is a customary norm, as are the principles recalled in paragraph 9 of the preamble[159] and they are generally applicable to all states.

The obligations of victim assistance and environmental remediation have the potential to become customary, relying on HRL and international environmental law. The essence of these obligations lies in, as already stated, the humanitarian disarmament approach, "with focusing on pragmatic and humanitarian solutions rather than striving for the ideal, comprehensive political and disarmament outcome. It is deeply rooted in IHL as well as the protection of human rights and the environment. Having such rules established in the treaty, in the politically sensitive context of nuclear weapons, is of paramount importance. These are rules which may become effective even without the treaty membership of nuclear weapons states."[160]

It is necessary to stress that with the TPNW the *nascent opinio juris* was confirmed and further developed. There are academics arguing for a norm-building nature[161] of the treaty. On the other hand, nuclear weapons states and their allies reject any argument stating that the TPNW is contributing to the development of CIL.[162] They act as so called "persistent objectors". "In light of the ICJ´s jurisprudence, it is important to point out that a persistent objector cannot hinder a customary norm to be established, but only avoid the application of the norm on its behalf.[163] Moreover, if the rule to be created concerns a peremptory norm of international law (*jus cogens*), it is applicable to all states and no state can pretend to be a persistent objector[164]."[165] Yet, with 56 state parties and 86 signatory states (as of 15.10.2021) it is too early to discuss these effects. Notwithstanding how the effects the TPNW might develop, the customary rules included in it remain effective without prejudice.

157 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, 2B.
158 ICJ, Legality of the Threat or Use of Nuclear Weapons, 8 July 1996. In: ICJ Reports 1996, p. 66, para. 73.
159 Mohr 2018, pp. 128–129.
160 Rietiker and Mohr 2018, p. 26.
161 Rietiker 2017, pp. 24–28.
162 United States Mission to the United Nations 2017.
163 See in this regard Conclusion 11, which sets forth how a treaty provision may reflect a customary rule. ILC 2018, pp. 143–146.
164 Conclusion 15, in particular paragraph 3, which states: "The present draft conclusion is without prejudice to any question concerning peremptory norms of general international law (*jus cogens*)" ILC 2018, pp. 152–154.
165 Rietiker 2017, p. 27.

4. Conclusion

This overview shows that there is a set of rules of international law that apply to nuclear weapons, confirming and developing their illegality in different aspects. These norms derive from IHL, IHLR, environmental law, space law and ICL or international treaties like the NPT or the TPNW. Together with the nuclear weapon free-zone agreements, nuclear weapons are outlawed in every aspect for the majority of states.

Many of these norms are customary and therefore binding, regardless of the accession status of states to certain legal instruments. This is the case for the use and threat of use of nuclear weapons as well as the disarmament obligation. Victim assistance and environmental remediation can in future become customary too. Other acts such as development, manufacture, stockpiling, acquisition, transfer, receipt, testing or assistance are forbidden to the majority of states through several instruments simultaneously, as shown in the table below.

The development process of treaty and customary norms has not been completed yet. On the contrary, these norms are still being developed. For example, the TPNW confirms and reaffirms existing law, but it also contributes to its further development and strengthens the delegitimization process of nuclear weapons. The combination of the norms described above lead towards the total elimination of nuclear weapons, because there can be no real security while these weapons exist.

Prohibition	Obligation	Source	Binding for
Use		IHL principles, UN Charter – CIL, TPNW, ICCPR (GC Nr.36), Tlatelolco, Rarotonga, Bangkok, Pelindaba, CANWFZ, Moon Agr., Antarctic T.	all states (as CIL) & SP (state parties)
Threat of use		UN Charter, IHL-CIL, TPNW, ICCPR, Tlatelolco, Rarotonga, Bangkok, Pelindaba, CANWFZ	
	Disarmament obligation	CIL, NPT, (TPNW- preamble), ICCPR[166]	all states & SP
Development, acquisition, manufacture, possession		NPT[167], TPNW, ICCPR, Tlatelolco, Rarotonga, Bangkok, Pelindaba, CANWFZ	SP
Stockpiling, storage		TPNW, ICCPR, Tlatelolco, Rarotonga, CANWFZ	SP

166 The General Comment 36, in para. 66, refers to state's international obligation to pursue in good faith negotiations in order to achieve the aim of nuclear disarmament under strict and effective international control.

167 For non-nuclear weapons states under the NPT.

Prohibition	Obligation	Source	Binding for
Transfer or receipt		NPT[168], TPNW, ICCPR, Tlatelolco	SP
Testing		TPNW, CTBT, PTBT, Tlatelolco, Rarotonga, Bangkok, Pelindaba, ICCPR, EL principles, OST, Moon, Agr., Antarctic T.	SP (some norms are customary)
(Seek or receive) assistance, encouragement, inducement		TPNW, NPT1[169], ICCPR, Tlatelolco, Rarotonga, Bangkok, Pelindaba, CANWFZ	SP
Stationing, installation, deployment, placement		TPNW, ICCPR, Tlatelolco, Rarotonga, Bangkok, Pelindaba, CANWFZ, OST, Moon Agr., Antarctic T., Seabed T.	SP
	Victim assistance and environmental remediation	TPNW, ICCPR, EL principles	SP (some norms are customary)
State parties of the treaties as of 15.10.2021 NPT: P5 (5 possessing nuclear weapons states)+185 (non-nuclear weapons states)+1 (North Korea), TPNW: 56, ICCPR: 173, Tlatelolco: 33, Rarotonga: 13, Bangkok: 10, Pelindaba: 39+1 (the Sahrawi Arab Democratic Republic is recognized by the African Union is not a UN member state), CANWFZ: 5, CTBT: 170, PTBT: 126, OST: 110, Moon Agr.: 11, Antarctic T.: 54, Seabed T.: 94.			

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168 The NPT prohibits nuclear weapons states to transfer to any recipient whatsoever nuclear weapons or direct/indirect control over such weapons; non-nuclear weapons states are prohibited to receive the transfer from any transferor whatsoever of nuclear weapons or direct/indirect control over such weapons.

169 Non-nuclear weapons states are prohibited to seek or receive any assistance in the manufacture of nuclear weapons; whereas nuclear weapons states are prohibited to, in any way, assist, encourage, or induce any non-nuclear weapons state to manufacture or otherwise acquire nuclear weapons.

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