

# The protection of nuclear installations in time of armed conflict – Old rules, new challenges

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### ABSTRACT

In 2022, for the first time in some while, the public around the world was confronted with an armed conflict between states, which directly involved a nuclear facility, specifically a nuclear power plant in operation. Unfortunately, the situation following Russia's armed attack on Ukraine on 24 February 2022 and the acts of war around the Zaporizhzhya nuclear power plant once again draw attention to the need to protect nuclear facilities during armed conflicts. Therefore, this paper reviews the relevant rules of public international law and scrutinizes the norms that have been established through international legislation and soft law mechanisms to protect and guarantee the nuclear safety and security of nuclear installations.

### KEYWORDS

nuclear installation, international humanitarian law, armed conflict, additional protocol, customary international law

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## 1. INTRODUCTION

The protection of nuclear facilities<sup>1</sup> in times of armed conflict is an essential issue,<sup>2</sup> since guaranteeing nuclear safety and security even in times of conflict is a priority for public health and safety reasons. The designation of a nuclear facility as a military target entails serious and grave risks and damage, while it may also offer military advantages easily available to the states and combatants involved in an armed conflict. It is important to note that this study deals explicitly with the rules guaranteeing the safety and security of the operation of nuclear facilities by prohibiting their designation as military targets. Beyond that, the present study does not deal with the international regime of nuclear weapons. The study will present in detail the relevant treaty and customary norms and other documents of international law (e.g. decisions of international organisations, *etc.*), which are relevant to the subject matter and which are regrettably topically relevant to the situation around the Zaporizhzhya nuclear power plant in the recent time.<sup>3</sup>

## 2. SOURCES OF PUBLIC INTERNATIONAL LAW AND THE PROTECTION OF NUCLEAR INSTALLATIONS IN TIME OF ARMED CONFLICTS

### 2.1. General international law (law of armed conflict, humanitarian law)

Among the general rules of international law, the study recalls few relevant norms explicitly prohibiting such an attack.<sup>4</sup> The reasons are manifold: *first*, the prohibition of causing

<sup>1</sup>The study uses this umbrella term that includes nuclear installations for power generation, research reactors, and even facilities for the permanent and temporary storage of all nuclear materials. For the most comprehensive legal definition of nuclear installations, see 1994 Convention on Nuclear Safety, Article 2, point (i) which reads as follows: “nuclear installation” means for each Contracting Party any land-based civil nuclear power plant under its jurisdiction including such storage, handling and treatment facilities for radioactive materials as are on the same site and are directly related to the operation of the nuclear power plant. Such a plant ceases to be a nuclear installation when all nuclear fuel elements have been removed permanently from the reactor core and have been stored safely in accordance with approved procedures, and a decommissioning programme has been agreed to by the regulatory body.’

<sup>2</sup>Lamm (2003) 29–38.

<sup>3</sup>The Zaporizhzhya nuclear power plant is located in the Zaporizhzhya region of Ukraine, near the town of Enerhodar. It is the largest of the four operating nuclear power plants in Ukraine, the first in Europe and the 9th largest in the world, and before 2022 it provided nearly one fifth of Ukraine’s electricity production. In March 2022, Russian armed soldiers occupied Enerhodar, then a town of about 52,000 inhabitants, and the subsequent armed activities threatened the safety of the plant on several occasions, leading to a partial shutdown of power generation. See [International Atomic Energy Agency \(2023\)](#). As of November 2023, the nuclear power plant is effectively under the supervision of the Russian state nuclear energy company, Rosatom, with mostly Ukrainian staff. The power plant is in constant technical communication and data exchange with the International Atomic Energy Agency (IAEA). In August–September 2022, an IAEA mission visited the plant (headed by Director General Grossi) and IAEA experts have been present at the nuclear installation ever since. The IAEA regularly reports that the installations’s cooling system (which is essential to avoid a nuclear hazard) is in place, and therefore there is no immediate and imminent danger of a nuclear incident or accident (according to the INES scale), but the risk remains real. The International Nuclear and Radiological Event Scale (INES) is a scale adopted by the IAEA to guide Member States in categorising the severity of nuclear accidents and incidents. [Link1](#).

<sup>4</sup>Dienelt (2022).



unjustified suffering beyond the main aim of military advantage (and thus of attacking nuclear facilities for military purposes) can be implicitly inferred from the more general humanitarian aspects reflected in the norms applicable during armed attacks; *secondly*, it was only after these norms had been established that the nuclear industry, which was to become a major global player in energy production, developed to any significant extent (in the 1960s and 1970s), and *thirdly*, the use of radioactive hazards in warfare appeared to be almost a taboo in the post-WW2 period.

Regarding the general norms of military law and humanitarian law, reference should be made first and foremost to Additional Protocol I to the Geneva Conventions of 1949 (protection of victims of international armed conflicts).<sup>5</sup> In this context, based on expert opinions and treaty provisions as well as state practice, the customary nature of humanitarian law is reflected by the Customary International Humanitarian Law Rules (CIHL).<sup>6</sup>

Article 1, paragraph 2, of the Additional Protocol I states that ‘civilians and combatants remain under the protection and authority of the principles of international law derived from established custom, from the principles of humanity and from the dictates of public conscience.’ This lays down the principle of protection in general terms. Besides, it is identified as the source of protection under international treaties, customary law, the laws of humanity and the conscience of mankind, from which, in my view, we can infer the absolute prohibition of causing serious and unnecessary suffering to civilians not engaged in combat. For such unnecessary suffering, one of the most obvious examples is nuclear damage caused for military purposes. The same Protocol states under the heading ‘Methods and means of warfare’ [Article 35(2) and (3)] that ‘it is prohibited to employ weapons, projectiles and material and methods of warfare of a nature to cause superfluous injury or unnecessary harm.’ In addition, it is also prohibited ‘to employ 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 Additional Protocol I, and international law in general, makes a fundamental distinction between military and civilian objects,<sup>7</sup> which is one of the most important pillars of the law of armed conflicts. Hence, it is difficult to argue that nuclear power plants that supply electricity to civilians are not civilian objects and therefore these nuclear installations cannot, as a general rule, be attacked.<sup>8</sup>

This Additional Protocol I also refers directly to the protection of the natural environment, and Article 55(1) reads as follows:

care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare

<sup>5</sup>Additional Protocols I and II to the Conventions for the Protection of Victims of War, concluded at Geneva on 12 August 1949.

<sup>6</sup>Henckaerts and Doswald-Beck (2005).

<sup>7</sup>The general rule in Article 48 states that ‘in order to ensure respect for and the protection of the civilian population and civilian property, the Parties to the conflict shall at all times distinguish between civilians and combatants and between civilian property and military targets and shall therefore only engage in hostilities against military targets.’

<sup>8</sup>If there is any doubt as to whether an object is (also) used for civilian or military purposes, there is a presumption that it is for used civilian purposes under Article 52 of Additional Protocol I. On this basis, as a general rule, the presumption of military object cannot prevail.



which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.

The risk of incidents and accidents on the INES scale (as humanity has unfortunately experienced many times in history; see, for example, the 1986 Chernobyl disaster and the 2011 Fukushima disaster) could well exhaust these provisions, since they have caused serious damage to the natural environment and human health, while claiming huge loss of human life, too.

However, the most specific prohibition is found in Article 56 of the Additional Protocol I (Protection of works and installations containing dangerous forces), which stipulates that facilities containing dangerous forces (such as nuclear power plants that supply electricity for peaceful purposes) must be given special protection by the belligerents. The extremely long article, which consists of seven paragraphs, goes into detail on, *inter alia*, the types of installations and the cases in which special protection may be withdrawn, then the prohibition of retaliatory attacks as well as the possibility of identifying them with a distinctive sign and the need to establish rules to ensure a further increase in the level of protection.

According to Article 56 (protection of installations containing dangerous forces), the dams,<sup>9</sup> dykes and nuclear electrical generating stations<sup>10</sup> which fall within the scope of these installations may not be attacked by combat actions even if they are identified as military targets. Such stations may not be taken if the attack could release dangerous forces and thereby expose the civilian population to serious casualties (for instance due to the radiation). The special protection status and prohibition contained in this paragraph 1 of Article 56 is immediately lifted by the same paragraph 2, according to which the strict protection status is lifted, if the following conditions appear:

- a) for a dam or a dyke only if it is used for other than its normal function and in regular, significant and direct support of military operations and if such attack is the only feasible way to terminate such support; b) for a nuclear electrical generating station only if it provides electric power in regular, significant and direct support of military operations and if such attack is the only feasible way to terminate such support; c) for other military objectives located at or in the vicinity of these works or installations only if they are used in regular, significant and direct support of military operations and if such attack is the only feasible way to terminate such support.

In addition, Article 56 prohibits retaliatory attacks against such facilities (dams, dykes and nuclear electrical generating stations).<sup>11</sup> The special feature of the international legal relevance of this prohibition is that the principle of proportionality within the scope of the right to individual or collective self-defence under Article 51 of the United Nations Charter is no longer applicable.

<sup>9</sup>The explosion of the Kahovka reservoir in the summer of 2023 could also fall under this provision, but the IAEA considers that this alone has not yet resulted in an imminent and serious threat to the Zaporizhzhya nuclear power plant.

<sup>10</sup>It is important to highlight that the Protocol only includes nuclear power plants that supply electricity, thus, for example, research reactors are not covered by these rules.

<sup>11</sup>Article 56, para. 4. read as follows: 'it is prohibited to make any of the works, installations or military objectives mentioned in paragraph 1 the object of reprisals.'



For instance, the destruction by a State of a nuclear power plant of another State cannot be a legitimate ground for retaliation when the attacked State makes an attack on a similar installation of the same nature which is proportionate to the damage suffered.

Article 56(5) also lists a general rule and an immediate exception to the general rule. According to this paragraph, the parties of an armed conflict must endeavour to avoid placing military targets near dams, dykes and nuclear power stations supplying electricity. It should be noted, however, that the main rule here is a rather enigmatic obligation to strive for, rather than an absolute prohibition. This is further resolved by the provision in the same paragraph that can justify that

installations erected for the sole purpose of defending the protected works or installations from attack are permissible and shall not themselves be made the object of attack, provided that they are not used in hostilities except for defensive actions necessary to respond to attacks against the protected works or installations and that their armament is limited to weapons capable only of repelling hostile action against the protected works or installations.

However, customary rules of international humanitarian law require both attacking and defending forces to exercise particular care and precaution when attacking nuclear power plants and other facilities in their vicinity. The aim is to avoid the release of dangerous forces and the consequent heavy casualties among the civilian population.<sup>12</sup>

It also follows from Article 58 of the Additional Protocol I (precautions against the effects of attacks) that the parties (or any of them) are obliged to 'avoid locating military objectives within or near densely populated areas' and to '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.'

According to Article 85(3) of the Additional Protocol I, the launching of an indiscriminate attack against works or installations containing dangerous forces (such as nuclear power plants) in the knowledge 'that such attack will cause excessive loss of life, injury to civilians or damage to civilian objects' may be considered a grave breach of the Additional Protocol I. Moreover, paragraph 5 of that Article provides that serious breaches of the Additional Protocol I shall be considered a war crime too.<sup>13</sup>

Although in the case of the Russian-Ukrainian international armed conflict, the Additional Protocol I applies, it should also be pointed out that another rule of international humanitarian law - the rules being applicable to non-international armed conflicts - is also referred to in Additional Protocol II to the 1949 Geneva Conventions.<sup>14</sup> Article 15 of Additional Protocol II (Protection of Installations Containing Dangerous Forces) states that

works or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, shall not be made the object of attack, even where these objects are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population.

In the light of the abovementioned sections, it can therefore be stated that, under Additional Protocols I and II (the latter applicable only to non-international armed conflicts) to the 1949

<sup>12</sup>Henckaerts and Doswald-Beck (2005), Rule 42.

<sup>13</sup>As the paragraph recalls, 'without prejudice to the application of the Conventions and of this Protocol, grave breaches of these instruments shall be regarded as war crimes.'

<sup>14</sup>Additional Protocol II of the Geneva Conventions source.



Geneva Conventions, the designation of nuclear power plants serving as civilian objects as military targets is, as a general rule, not justified in any case if it would seriously endanger the civilian population or the natural environment.

## 2.2. Nuclear legal standards

Beyond the general norms of international humanitarian law and the law of armed conflicts,<sup>15</sup> the treaty regime of nuclear law is essentially focused on the peaceful uses of nuclear energy, so that beyond nuclear liability, the relevant norms are more predominantly concerned with the internal, technical safety of the power plant. Pursuant to the nuclear safety and security glossary of the International Atomic Energy Agency, there is a clear distinction between the internal, technical safety of a power plant (*safety*) and the physical protection of nuclear forces, i.e. the form of safety that is threatened by external, possibly malicious actors (*security*). The 2022 (Interim Edition) of IAEA Nuclear Safety and Security Glossary defines nuclear safety as the ‘achievement of proper operating conditions, prevention of accidents and mitigation of accident consequences, resulting in protection of workers, the public and the environment from undue radiation risks’, whilst nuclear security means ‘the prevention and detection of, and response to, criminal or intentional unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities or associated activities.’<sup>16</sup>

It is important to emphasize that international treaties on peaceful nuclear energy production also focus primarily on the internal, technical safety of the power plants, and there are few references to armed conflicts and war in nuclear treaties, and these mostly occur only when states have formulated reasons for exemption from nuclear damage in various international treaties.

Neither the Convention on the Physical Protection of Nuclear Material<sup>17</sup> nor the Convention on Nuclear Safety explicitly<sup>18</sup> addresses the issue of the protection of nuclear facilities in the event of armed conflict. While the former treaty primarily addresses nuclear materials used for peaceful purposes in the course of their international nuclear transport, the latter focuses on the issue of internal technical *safety*, without explicitly referring to the direct threat of external attacks on internal power plant safety.<sup>19</sup>

The Convention<sup>20</sup> for the Suppression of Acts of Nuclear Terrorism also explicitly refers to the exception (in Article 4) that

the Convention shall not apply to the activities of armed forces in armed conflict which are defined and regulated by international humanitarian law, nor shall it apply to activities undertaken by the military forces of a State in the performance of their official duties, insofar as they are governed by the rules of international law.

However, this problem is therefore not left unresolved, since the general rules of international law (armed conflicts, international humanitarian law) set out above shall be applied.

<sup>15</sup>Carnahan (1992) 529–32.

<sup>16</sup>International Atomic Energy Agency (2022).

<sup>17</sup>Convention on the Physical Protection of Nuclear Material (1979).

<sup>18</sup>Convention on Nuclear Safety (1994).

<sup>19</sup>Flakus-Johnson (1998) and de Kagenek-Pinel (1998).

<sup>20</sup>Convention for the Suppression of Acts of Nuclear Terrorism (2005).



It is also important to mention the IAEA Nuclear Security Series.<sup>21</sup> Since 2006, these series have been examining various aspects of nuclear security in a number of documents, and although they provide recommendations to Member States, these recommendations are neither legally binding, nor enforceable. Hence, the IAEA Nuclear Security Series do not legally require the protection of nuclear installations during armed conflict, but their main aim, philosophy and approach to security certainly suggest that the protection of such facilities is of paramount importance.

### 2.3. Other branches of international law (e.g. environmental law)

In addition to the general norms of armed conflicts and international humanitarian law, and the relevant rules of nuclear law mentioned above, other rules of international law sporadically refer to the protection of nuclear facilities in times of armed conflict. The problem, however, is mainly due to the fact that these rules are either narrowly accepted or not ratified by the most affected states, or their generally binding nature is also controversial, as they can be considered as non-enforceable soft law at best.

However, bilateral treaties seem to be the most effective solution, whereby the two parties to an armed conflict conclude a bilateral treaty that they will not attack each other's nuclear facilities. For instance, the 1988 agreement between India and Pakistan completely and explicitly prohibits this type of attack (1988 Agreement on the Prohibition of Attack Against Nuclear Installations and Facilities).<sup>22</sup>

There are also examples of international environmental law rules,<sup>23</sup> which are mainly of a *soft law* nature, where the states have decided to prohibit the military use of environmental modification procedures. It is not difficult to argue, on the basis of the Convention<sup>24</sup> on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (hereinafter: the ENMOD Convention), that a situation possibly caused by an attack on a nuclear installation could definitely be defined as an environmental modification.<sup>25</sup> And for such activity, Article I, paragraph 1 states that 'each State Party to this Convention undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party.'

In the area of international criminal law, which focuses on individual criminal liability, the Rome Statute (Statute of the International Criminal Court)<sup>26</sup> also mentions two types of crimes, which could include the crime of attacking a nuclear facility. The crimes against humanity under the Article 7 of the Rome Statute include 'inhumane acts of a similar character intentionally

<sup>21</sup>IAEA Nuclear Security Series (2006).

<sup>22</sup>Agreement on the Prohibition of Attack Against Nuclear Installations and Facilities (1988).

<sup>23</sup>Dinstein (2001) 539-43.

<sup>24</sup>Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (1978).

<sup>25</sup>According to Article 2 of the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 'the term "environmental modification techniques" refers to any technique for changing - through the deliberate manipulation of natural processes - the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space.'

<sup>26</sup>Rome Statute (1998).



causing great suffering, or serious injury to body or to mental or physical health.’ Similarly, Article 8 of the Statute of the International Criminal Court includes among the war crimes ‘other serious violations of the laws and customs applicable in international armed conflict, within the established framework of international law’ when the intentional launching of an 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.’ There is an obvious possibility that potential damage to nuclear installations caused by an accident or incident as a result of an attack could reach the level of the Statute.

Among the *soft law*, i.e. non-binding norms, the study recalls the Guidelines on the Protection of the Natural Environment in Armed Conflict, adopted by the International Committee of the Red Cross in 2020.<sup>27</sup> Its legal and even customary nature is disputed, although it analyses a number of treaty rules and common practices of States (being equivalent to the customary law nature of such practice). It is quite certain that if compliance with and enforcement of the general rules of laws of armed conflict and international humanitarian law is problematic, this is even more so for these guidelines whose binding legal nature is disputed.<sup>28</sup> However, this document also focuses on the issue of nuclear weapons (which is beyond the scope of the present study) and mentions the rules of the Additional Protocol I to the 1949 Geneva Conventions (Articles 1, 35, 55 and 56), discussed above. The other major document, although non-binding and probably not even identifiable as a collection of customary laws, does not contain an *expressis verbis* reference to the protection of nuclear installations in the event of armed conflict. The non-binding 2022 draft of the International Law Commission<sup>29</sup> summarises the principles for the protection of the environment in times of armed conflict. Principles 4 and 18 of the soft law document, which is a continuous reflection of the ENMOD Convention mentioned above, refer to the designation and protection of zones of environmental importance (but with the exception of those zones where a belligerent party has defined a military purpose for its territory). In Principles 13 and 17, the document stated that serious damage to the environment may only be caused if the environment itself is designated as a military objective by a belligerent,<sup>30</sup> and in Principle 17, it underlines a general prohibition of environmental modification. These

<sup>27</sup>International Committee of the Red Cross (2020).

<sup>28</sup>It is worth noting that already, the horrors of World War II, involving the significant and negative impact of armed attacks on the environment and thus on the living conditions of the civilian population, prompted the International Committee of the Red Cross in 1956 to adopt a draft code of practice to limit the dangers to civilians in wartime, which of course can only be considered a set of customary laws at best. It already contained the idea that states should seek special arrangements, or treaties, in peacetime to ensure the protection of installations for peaceful purposes in times of armed conflict, and also commit themselves not to classify such installations as military targets. The original 1956 draft focused mainly on dams and hydroelectric power stations, but the International Committee of the Red Cross later included nuclear power stations, which were now increasingly being used for power generation. Draft Rules for the Limitation of the Dangers incurred by the Civilian Population in Time of War (1956). The draft was not supported by the states, and the issue was reopened in the 1960s, resulting in the two 1977 Additional Protocols to the 1949 Geneva Conventions, which eventually entered into force as a binding treaty. See. Lamm, 2003, 29–30.

<sup>29</sup>International Law Commission (2022).

<sup>30</sup>However, proportionality, precaution and distinction still apply, as can be seen from the rules of Additional Protocol I and, in the case of proportionality, from Rule 14 of the IHL rules, which reflect customary law. Customary International Humanitarian Law, Rule 14.





rules thus include, as a general rule, a number of exceptions to the prohibition, although, the rules of law of armed conflicts and international humanitarian law shall be applied in cases where these exceptions emerge. Other miscellaneous sources of international law include resolutions adopted by international organisations, among which is the resolution adopted by the General Conference of the International Atomic Energy Agency (on 18 September 2009),<sup>31</sup> in which the plenary decision-making body of the organisation declares a prohibition of armed attack or threat of armed attack against nuclear installations in operation or under construction.

The Board of Governors of the IAEA, supporting the proposal of Director General Grossi, in response to the situation around the Zaporizhzhya nuclear power plant in March 2022, decided to communicate the seven pillars for the safe operation of nuclear power plants in general. This communication and roadmap is an important but general contribution of the global nuclear United Nations 'related organization' to ensure the two aspects of nuclear safety (*security* and *safety*). These pillars are the following: i) the physical integrity of the facilities must be ensured as a priority; ii) the safety and security systems must be maintained and must be fully operational; iii) the operating personnel must be able to perform their safety and security duties by having the capability to make decisions without undue pressure; iv) the off-site power supply must be ensured at the nuclear site; (v) logistical supply chains and transportation to and from the sites should be uninterrupted; (vi) the effective on-site and off-site radiation monitoring systems and emergency preparedness and response measures should be ensured; and (vii) reliable communication with authorities and regulators shall be continuous.<sup>32</sup>

It is not difficult to see, however, that these requirements can be derived from the existing and widely applied safety standards and can only be achieved with the combined will of the belligerents (or at least without being obstructed by one of the belligerents). So, this version of communication would not on its own clearly solve the existing problems.

### 3. CONCLUSION

To summarise the normative background analyzed within this study, first, it can be concluded that international law is far from containing detailed, enforceable and explicit rules for the protection of nuclear facilities in times of armed conflict. However, among the rules of armed conflicts as well as international humanitarian law, Additional Protocols I (applicable in the event of international armed conflict) and II (in a non-international armed conflict, i.e. applicable to a situation within a state, typically a civil war) to the 1949 Geneva Conventions contain articles referring to norms for the protection of nuclear power plants (with exceptions). But beyond these rules, there are no literal references or provisions for the specific situation for the sake of absolute prohibition. As the study has highlighted, the rules of nuclear law do not deal specifically with the issue, at most the principles and general requirement of safety and security of nuclear installations may be invoked if the military action on a nuclear installation in times of armed conflict is underway. The rules on the protection of the natural environment during armed conflicts may even include a prohibition of the use of weapons and military actions that

<sup>31</sup>Prohibition of armed attack or threat of attack against nuclear installations, during operation or under construction (2009).

<sup>32</sup>Link2.



significantly modify the environment, but it is not an absolute certainty at what point does an attack on a nuclear power plant or a nuclear accident or incident (depending on its seriousness) reach this level.

A bilateral agreement between the parties involved in an armed conflict could also be a solution to the problem (see the bilateral treaty between India and Pakistan of 1988, mentioned above). Furthermore, the concept of a demilitarized zone between the Republic of Korea and the Democratic People's Republic of Korea could be operational in the event of an armed conflict, whereby the parties agree to a total ban on hostilities in a defined area around a nuclear installation. Article 60 of Additional Protocol I itself (and Rule 36 of the rules of international humanitarian law) serve as the legal basis for these demilitarized zones.<sup>33</sup> As the Protocol itself states: a zone may be declared a demilitarised zone only by agreement (i.e. by common consent) of the parties to the conflict. This can therefore only be done bilaterally and therefore requires the political and military will and discretion of the belligerents.

In conclusion, an operational nuclear power plant has not so far become a direct military target (however, shelling took place in the vicinity of the Zaporizhzhya plant); the consequences would be unforeseeable, while the clearly prohibiting rules of international law are also missing from the (soft as well as hard law-based) legal branches of international law analysed above.

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<sup>33</sup> Article 60, first three paragraphs, states that

1. It is prohibited for the Parties to the conflict to extend their military operations to zones on which they have conferred by agreement the status of demilitarized zone, if such extension is contrary to the terms of this agreement.
2. The agreement shall be an express agreement, may be concluded verbally or in writing, either directly or through a Protecting Power or any impartial humanitarian organization, and may consist of reciprocal and concordant declarations. The agreement may be concluded in peacetime, as well as after the outbreak of hostilities, and should define and prescribe, as precisely as possible the limits of the demilitarized zone and, if necessary, lay down the methods of supervision.
3. The subject of such an agreement shall normally be any zone which fulfils the following conditions:
  - (a) all combatants, as well as mobile weapons and mobile military equipment, must have been evacuated;
  - (b) no hostile use shall be made of fixed military installations or establishments;
  - (c) no acts of hostility shall be committed by the authorities or by the population; and
  - (d) any activity linked to the military effort must have ceased.'



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*Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*. International Committee of the Red Cross (ICRC), Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977, 1125 UNTS 3.

*Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II)*. International Committee of the Red Cross (ICRC), Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II), 8 June 1977, 1125 UNTS 609.

## LINKS

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Link1: International Atomic Energy Agency, 'International Nuclear and Radiological Event Scale (INES scale)' <<https://www.iaea.org/resources/databases/international-nuclear-and-radiological-event-scale>> accessed 31 July 2023.

Link2: 'IAEA Director General Grossi's Initiative to Travel to Ukraine', *International Atomic Energy Agency* <<https://www.iaea.org/newscenter/pressreleases/iaea-director-general-grossis-initiative-to-travel-to-ukraine>> accessed 11 September 2023.

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