

Use of Nuclear Weapons and the Law of Armed Conflict

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Abstract

The breakdown of the arms control regime bolstered by the ongoing arms race in the development of new weapon and delivery systems is of grave concern to the international community. Under the concept of flexible deterrence, nuclear weapons upgrades and modifications to lower yields are supposed to expand options for their deployment. The question that arises is, would such use on the modern battlefield be legal under the law of armed conflict, or would it constitute a severe violation of this body of law. The authors argue that most customary principles and rules of the law of armed conflict would not necessarily deem the use of nuclear weapons illegal. However, such use would gravely violate the fundamental principle of prohibition of weapons of a nature to cause superfluous injury or unnecessary suffering. The authors examine medical data gathered from Hiroshima and Nagasaki, including data related to the long-term health effects of the nuclear bombings. Ionizing radiation emitted during a nuclear explosion serves no military purpose; it offers no military advantage while unnecessarily aggravating the suffering of affected combatants. While the use of nuclear weapons might not necessarily violate other fundamental principles applicable during the conduct of hostilities such as proportionality, distinction or precautions, depending on the method of deployment, the use of nuclear weapons would violate the customary rule of prohibition of employment of weapons of a nature to cause superfluous injury or unnecessary suffering.

1. Introduction

The law of armed conflict (LOAC), the law of war, international humanitarian law, are more less synonymous terms referring to the rules applicable in international or non-international armed conflicts. The main objective is to alleviate the suffering and damage and regulate the conduct of hostilities. The law of armed conflict does not include the legitimacy of the use of force, i.e., whether the resort to violence is legitimate or not. It applies to all parties of the conflict, states, individuals, combatants, or non-combatants. The reasons behind an armed conflict are, therefore, irrelevant from the perspective of LOAC. The law has developed throughout history, but its codification can be traced back to the late 19th century with the Geneva and Hague Conventions. Hence the law itself consists of Geneva and Hague Law that later merged into two Additional Protocols of 1977. Geneva law is focused predominantly on protected personnel, combatants *hors de combat*¹, prisoners of war, medical staff, or civilian non-combatants. The Hague law is concerned with means and methods of warfare. Means of warfare include weapons and weapon systems, while methods of warfare are ways hostilities are conducted. For instance, a fighter jet or a missile represent means of warfare, while bombardment is a method.

Geneva law originated with its codification in 1864 with the Geneva Convention on the Amelioration of the Condition of the Wounded in Armies in the Field. Additional Articles were subsequently adopted in 1868. These rules were further revised in the Geneva Convention of 1906, later including the prohibition of asphyxiating gases in 1925 and Geneva Convention of 1929, which focused on the treatment of POWs or prisoners of war. The negotiations regarding the Geneva Convention of 1864 was originally initiated by the International Committee of the Red Cross, which was established by Henry Dunant (Clapham: p.5). In his book, *A Memory of Solferino*, Henry Dunant (1959) describes his hellish experience when visiting the battlefield of Solferino. The indescribable suffering of combatants had an impact on Dunant, who therefore set to establish one of the most respected humanitarian organizations in the world, the International Committee of the Red Cross or the ICRC. The ICRC further serves as an important guardian of the Geneva Conventions.

The respect for international humanitarian law received severe setbacks in WWI with extensive violations, including the use of chemical weapons. Further violations occurred during WWII. Unfortunately, violations even on modern battlefield, are not rare. However, the fact that there are violations of international humanitarian law even today does not mean the law itself is failing. Similarly, the fact that violent crimes occur does not mean that criminal law is ineffective. Nevertheless, the Geneva Conventions were revised after World War II in the Geneva Conventions

¹ *Hors de combat* or “out of combat” generally referring to combatants who are wounded, sick or captured, and therefore unable to continue engaging in hostilities (Corn et al., : p.78).

of 1949 that include four conventions. Geneva I, on wounded and sick in the field, Geneva II on wounded and sick at sea, Geneva III on prisoners of war and Geneva IV on civilians. Hague law that is concerned with means and methods of warfare consists of conventions of 1899 and 1907, respectively. These conventions generally regulate the conduct of hostilities on land, at sea, and air - regarding projectiles launched from balloons. As stated above, Hague and Geneva Law afterward merged into two Additional Protocols to Geneva Conventions negotiated in 1977. Additional protocol I (API) applicable to international armed conflict or IAC and Additional protocol II (APII) concerned mainly with non-international armed conflict or NIAC. Article 35 of API further reaffirms a customary rule that means and methods of warfare are not unlimited. The rule was introduced in the St. Petersburg declaration of 1868, later reaffirmed in the Hague Conventions and further in military manuals. It therefore represents one of the fundamental customary rules. It is important to remember that the law of armed conflict applies only during international or non-international armed conflict. These are defined in Geneva Conventions; however, in reality, it is sometimes difficult to precisely define the nature of a particular conflict, and these are often interchangeable, i.e., IAC can become NIAC and vice versa. Sometimes IAC can occur simultaneously with NIAC. Concurrently, it is essential to acknowledge the application of other rules, such as domestic law or international human rights law (IHRL). Even though there might be inevitable friction between the law of armed conflict or LOAC with IHRL regarding, for instance, the definition of combatants, treatment of prisoners of war, or judicial proceedings. However, human rights law and the law of armed conflict should be seen as complementary not contradictory.

Nevertheless, rules related to the conduct of hostilities and targeting are predominantly customary. Customary rules apply therefore to all nations, regardless of the nature of the conflict, i.e., whether it is international or non-international. Customary rules are a generally consistent state practice that includes the principle of a legal obligation under *opinio juris sive necessitatis* or *opinio juris* in short. Specific treaty rules, such as the rule that means and methods are not limited, as explained above, can, therefore, achieve customary status. The ICRC, in its study, identified 161 customary rules. 13 applicable to IAC, two in NIAC, and three are different in IAC and NIAC with 146 applicable in both². Considering the fact that States are the primary sources of customary rules, the interpretation of the ICRC may sometimes differ from that of a State. However, the most fundamental rules include military necessity, distinction, proportionality, and humanity³. Military necessity is, of course, challenging to define objectively. However, it is a principle that according to the US DoD Manual of the Law of War (Newton 2018) refers to:

“...the principle that justifies the use of all measures needed to defeat the enemy as quickly as

² See Henckaerts, Jean-Marie (2005: p.22)

³ See UK Ministry of Defense (2004: pp.21-26)

efficiently as possible and are not prohibited by the law of war.”

The UK MoD Manual of the Law of Armed Conflict (2004) interprets the principle as follows:

... “permits the use of only that degree and kind of force not otherwise prohibited by the law of armed conflict to achieve legitimate purpose...complete or partial submission of the enemy at the earliest possible moment with the minimum expenditure of lives and resources.”

Therefore, both definitions acknowledge that the means and methods are not unlimited, i.e., military necessity cannot justify the use of prohibited weapons. In contrast, other means, not prohibited, are perfectly legal. Hence, does it mean that the use of nuclear weapons is perfectly legal under the law of armed conflict? As explained above, actual conduct of hostilities is predominantly ruled by customary law and principles. Therefore, the use of means of warfare which are not specifically prohibited by a treaty are still subject to other fundamental principles. One of these fundamental principles is, as stated above, distinction. States must always differentiate between military objectives and civilian objects when engaged in hostilities. The rule of distinction constitutes part of *ius cogens* where no derogation is permitted⁴.

The definition of military objective is included in Article 52(2) of the Additional Protocol I. It states that:

“military objectives are objects which by their nature location purpose or use make an effective contribution to military action or whose total or partial destruction, capture or neutralization in the circumstances ruling at the time offers a definite military advantage.”

On the other hand, an indiscriminate effect is defined as:

“an attack which may be expected to cause incidental loss of civilian life, injury to civilians damage to civilian objects, or a combination thereof, which would be excessive to the concrete and direct military advantage anticipated.” Art.51(5)b, API

An attack has to be, therefore, proportionate to the military advantage anticipated from such an attack or from an employment of a certain weapon. Thus, proportionality represents another fundamental customary rule. The value of the target is therefore determined at tactical, operational, or strategic level. Further principle that would apply to methods of warfare or

⁴ See Decision No. C-291/07, Constitutional Court, 25 April 2007, available at: <https://ihl-databases.icrc.org/ihl-nat/0/9A201B6236721E62C125757F00481B08> <Accessed on 2020/02/25>

targeting is precautions where an attacking party but needs to do everything feasible to verify the target and take feasible precautions. Rule codified under Article 57(1) API. Obligations also befall upon defending party which shall adopt reasonable precautions to prevent incidental loss of life by, for instance, placing military installations outside urban areas. States have, therefore, an obligation to select means and methods of attack, which will cause the least incidental damage.

An important principle that is in the authors view the most applicable to the use of nuclear weapons is the principle of humanity that appeared in St. Petersburg declaration⁵ and as Martens Clause in the Hague Convention of 1899. Somewhat rooted in the principle of humanity is the prohibition of weapons of a nature to cause superfluous injury or unnecessary suffering. The term can be confusing. In 1899 Hague regulations it was referred to as prohibition of weapons and methods of *a nature to cause unnecessary suffering or superfluous injury (SI/US)* while in 1907, it was referred to as weapons *calculated to cause superfluous injury or unnecessary suffering*. The principle got later reaffirmed in Additional protocol Art.35(2) in a form: “... *of a nature to cause superfluous injury or unnecessary suffering*.” The term suffering further has a connotation of implying psychological or psychosomatic injuries as well (Boothby 2016: p.50).

2. Superfluous Injury and Unnecessary Suffering

However, the concept of the prohibition of weapons of a nature to cause superfluous injury is closely connected to the principle of humanity in the preamble of Hague Convention 1899 that states:

“Until a more complete code of the laws of war has been issued, the High Contracting Parties deem it expedient to declare that, in cases not included in the Regulations adopted by them, the inhabitants and the belligerents remain under the protection and the rule of the law of nations, as they result from the usages established among civilized peoples, from the laws of humanity and the dictates of public conscience.”

The Hague Convention was preceded by the St. Petersburg Declaration that states:

“that the progress of civilization should have the effect of alleviating as much as possible the calamities of war; that the only legitimate object which States should endeavor to accomplish during war is to weaken the military forces of the enemy; that for this purpose it is sufficient to disable the greatest possible number of men; that this object would be exceeded by the

⁵ See St. Petersburg declaration available at: <https://ihl-databases.icrc.org/ihl/full/declaration1868> <Accessed on 2020/02/25>

employment of arms which uselessly aggravate the sufferings of disabled men, or render their death inevitable. That the employment of such arms would, therefore, be contrary to the laws of humanity;” (St. Petersburg Declaration, 1868)

The word suffering was later reiterated in Article 23 of the 1899 Hague Convention as a regulation that prohibited weapons “*of a nature to cause*” superfluous injury and later in Article 23 of 1907 Hague declarations that prohibits weapons “*calculated to cause*” superfluous injury. The 1907 wording denotes intent in the design of the weapon to cause superfluous injury. The principle was later confirmed in the Additional Protocol I in Article 35.par.2 in its “final version” as follows:

“It is prohibited to employ weapons, projectiles and material and methods of warfare of a nature to cause superfluous injury or unnecessary suffering.” The principle there forms part of fundamental customary rules and is applicable to both weapons and targeting laws.”

To clearly define superfluous injury or unnecessary suffering is extremely difficult. So is measuring such injury or suffering. In 1997, the ICRC gathered medical experts in an effort to provide yet more clarity into the principle and its application to weapons and their effects. Drawing from large database of the ICRC, the group attempted to precisely define what wounds would be in breach of SI/US using medical data. The project, however, focused only on conventional weapons. Nevertheless, it included a specific proposal on determining SI/US empirically. It included four criteria that were dependent on weapon design and foreseeable effects:

“Criterion 1: specific disease, specific abnormal physiological state, specific abnormal psychological state, specific and permanent disability, or specific disfigurement.

Criterion 2: field mortality of more than 25% or a hospital mortality of more than 5%.

Criterion 3: Grade 3 wound as measured by the Red Cross wound classification (such as the location of the wound, nature of the wound, including depth and size, need for transfusion or complex medical operation...)

Criterion 4: effects for which there is no well recognized and proven treatment.”
(the SIrUS Project, 1997)

These criteria were developed by examining wounds from conventional weapons to further point out specific injuries caused by non-conventional weapons with a potential to violate the SI/

US principle. Needless to say, the project was rejected by the States. The main factor was its omission of military necessity. For this reason, the SI/US principle cannot be argued solely by effects-based approach using only medical data. It needs to include an assessment of use of a certain weapon under military necessity. Thus, the SIrUS project and its proposals were dismissed, and the ICRC subsequently withdrew the study. The degree of injury is, therefore, insufficient. It is its excessiveness concerning the generic military purpose of the weapon, i.e., suffering that has no military purpose that would be considered unnecessary. Therefore, a mere fact that a weapon inflicts horrendous injuries does not mean the weapon is inherently illegal. The law of armed conflict and its principles need to be assessed *de lege lata*, that is, as the law actually is, contrary to *lex ferenda*, or law as it should be or as we wish it to be.

When discussing the use of nuclear weapons, the principle of superfluous injury is often discussed together with the above-mentioned indiscriminate attack or disproportionate attack (Darnton, 2015: p.37). However, an indiscriminate attack includes method and means which cannot be directed at a specific military objective or is of nature to strike military objectives and civilian objects without distinction. The two rules seem to render the use of nuclear weapons unlawful. However, considering other weapons, such as napalm, thermobaric bombs or flechette bombs, that are lawful, it is difficult to argue the illegality of nuclear weapons under the prohibition of indiscriminate or disproportionate weapons. The lethal radius of the weapon can be calculated so can lethal dose, or LD be calculated for nuclear weapons. Given the data from Hiroshima and Nagasaki atomic bombings, we have enough material to analyze the effects of a nuclear explosion and its effect on the human body⁶. However, it is crucial to keep in mind that the cases of Hiroshima and Nagasaki bombings cannot be applied for the analysis in their entirety. The circumstances and situations in 1945 were very different from today. Also, our understanding of nuclear technology, including the effects of ionizing radiation, has improved. The medical assistance and availability of treatment were also scarce after the bombings⁷. Extreme poverty contributed to the spread of diseases and further fatalities. The layout and materials used in the Japanese houses have to be considered as well since most of the Japanese buildings were wooden houses. The consequent spread of fires and the formation of fire tornadoes further devastated the city and took human lives. In May 1945, incendiary weapons, including magnesium and phosphorus-based napalm bombs were used against Tokyo in a massive air raid. This massive bombardment took the lives of more than eighty thousand people in one raid. The instant death toll in Hiroshima was approx. seventy thousand lives in an instant. As Neer (2013) points out, the bomb got the press while the loss of lives was initially higher in Tokyo. Napalm today is amongst legal, but restricted weapons.

⁶ See The Committee for the Compilation of Materials on Damage Caused by the Atomic Bombs in Hiroshima and Nagasaki (1979)

⁷ For first-hand experience regarding medical assistance, see Junod, Marcel (1951).

However, a significant difference comes from the specific effects of a nuclear explosion, and that is the emission of primary and secondary ionizing radiation in the form of neutrons, gamma rays, and alpha, beta particles (Los Alamos, 1956). The affected persons or *hibakusha* are still suffering to this day. Research into the long-term health effects continues at Hiroshima University and the Radiation Effects Research Foundation (RERF). At the RERF even the second generation is being examined in the so-called F1 study (The RERF 2016). F1 study considering offsprings of *hibakusha* tries to determine whether the fact that their parents were exposed to ionizing radiation has any effect. Nevertheless, in general, the long-term health effects that were identified include blood disorders such as leukemia, growth and developmental disturbances, malignant tumors, chromosomal changes and genetic effects when exposed in utero. Leukemia usually peaked within ten years of exposure then declined; however, solid cancers followed and persisted until the end of life. When determining these long-term health effects, it is crucial to keep in mind that these effects are dose-dependent. Therefore, when discussing long-term health effects of ionizing radiation, we talk about excess relative risk when compared to a received dose⁸. It is somewhat a paradox that chemical and biological weapons, when banned, were argued to cause unnecessary suffering, often being marked as inhumane or despicable. That is nonetheless true; according to Atlas of Mustard Gas Injuries (Inai 2012), exposure to sulphur mustard or so-called mustard gas causes malignant neoplasms in its victims. These neoplasms include predominantly gastrointestinal, lung-bronchial, lymph-hematology, skin, central-nervous-system, and other cancers (Inai 2012: p.53).

3. Nuclear Weapons and the Law of Armed Conflict

When comparing the use of nuclear weapons to the principles explained above, it becomes apparent that the use would not necessarily violate all of them. It is, therefore, sometimes incorrectly pointed out that the use of nuclear weapons is contrary to the principles of the law of armed conflict. That is simply not always the case, especially under targeting law. If we, for instance, consider the principle of distinction, this would not be violated in several instances. An electromagnetic pulse attack or EMP attack would render electronic devices useless while possibly limiting casualties or even could result in no casualties. It is without a doubt that such an attack would give the attacker a tremendous strategic advantage since most of the weapon systems are electronic systems. The same works for so-called bunker busters that would penetrate inside a fortified bunker or mountain and eliminate its military objectives without violating the principle of distinction. Another often applied scenario includes a remote military installation. Proportionality

⁸ RERF study employs the ratio of ERR / Gy or excess relative risk to dose unit - Gray.

could very well be met with a modification of the yield (explosive energy) of the device to lower yields⁹, even as low as 5 to 10kt or third or half of that of Hiroshima or Nagasaki. Military necessity could very well argue for an EMP strike and might even be preferable than conventional strike. As the International Court of Justice (ICJ) argued in its Advisory Opinion (1996) on the threat or use of nuclear weapons, it could not determine whether such use would be lawful or unlawful under extreme circumstances where the survival of a state is at stake. It is, of course, difficult to interpret this statement. What does the very survival at stake means is far from clear. The ICJ further contradicted this statement by saying it would generally be against the objectives of international humanitarian law. Military necessity may as well call for the use against submarines by using so-called naval mines. These would further limit any collateral damage and would be proportionate. Furthermore, the UK Ministry of Defense Manual of the Law of armed conflict (2004), for instance, states that:

“There is no specific rule of international law, express or implied, which prohibits the use of nuclear weapons. The legality of their use depends upon the application of the general rules of international law, including those regulating the use of force and the conduct of hostilities. Those rules cannot be applied in isolation from any factual context to imply a prohibition of a general nature. Whether the use or threatened use of nuclear weapons in a particular case is lawful depends on all the circumstances. Nuclear weapons fall to be dealt with by reference to the same general principles as apply to other weapons.”

(UK MoD, Manual of the Law of Armed Conflict, 2004).

Even though the international community developed substantial effort to prohibit nuclear weapons by adopting the treaty on the prohibition of nuclear weapons (the TPNW), the weapons are not prohibited under any conventional or treaty law. The TPNW is not yet in force, and none of the nuclear states signed. Not even Japan, which is the only country that suffered nuclear bombings. Japan remains under the US nuclear umbrella. Therefore, as explained above, customary rules applicable during the conduct of hostilities, i.e., distinction, proportionality, precautions, or necessity, would apply but not necessarily render the use of nuclear weapons in violation. However, the use of nuclear weapons would violate the SI/US principle based on the effects of ionizing radiation that serves no military purpose.

Hence the only principle applicable to the use of nuclear weapons of any yield that could render their use unlawful is the prohibition of weapons of a nature to cause superfluous injury or unnecessary suffering. It is essential to mention that the principle of superfluous injury or

⁹ Lower-yield in this case would mean a yield that is appropriate considering the military value of the target.

unnecessary suffering applies to combatants. The applicability to combatants is for obvious reasons; deliberate targeting of civilians is unlawful. Nevertheless, even though the circumstances would be different from those of Hiroshima or Nagasaki, the effects of ionizing radiation would not significantly change. Physical injuries, including leukemia and malignant tumors, including psychosomatic suffering and anxiety, have to be considered as well. As Lifton (1991: p.37) pointed out, the anxiety is extremely high amongst those exposed and further prolongs and deepens their suffering. It is the unknown that causes enormous stress in the victims. The affected do not know whether, in the following months or years, they develop blood disorders or carcinoma. This stress was also seen in the so-called atomic veterans that volunteered or were volunteered to be placed in the proximity of nuclear explosions during the US atmospheric nuclear tests. Specific symptoms related to solid cancers or anxiety are coincidental with those exposed in Hiroshima and Nagasaki.

4. Conclusion

Defining unnecessary suffering or superfluous injury is extremely problematic in itself. Further, objectively analyzing military necessity is also a difficult task. However, from the perspective of *ius in bello*, ie. the law of war, including its most fundamental customary principles such as distinction, proportionality, precautions or humanity¹⁰, it is safe to argue that the only effect that would render the use of nuclear weapons unlawful during hostilities would be the ionizing radiation and its specific long-term effects. These specific long-term effects are predominantly represented by leukemia and malignant tumors. Ionizing radiation does not offer any military advantage to the attacker.

Considering the legality of incendiary weapons, the use of low-yield nuclear weapons could arguably be perfectly legal, if not for the ionizing radiation that would affect the exposed combatants. Furthermore, it is somewhat a paradox that chemical and biological weapons and anti-personnel landmines were banned with the principle of unnecessary suffering often referred to during the negotiating process. While the suffering of the victims of chemical weapons or anti-personnel landmines is no lesser than those exposed to a nuclear explosion and radiation effects, it remains as a legal paradox that nuclear weapons are not prohibited based on their long-term health effects. Weapon arsenals of most of the developed countries include high-tech missiles, guided systems, or conventional munition that would decrease the scale of collateral damage while

¹⁰ The principles of distinction, proportionality, precautions and humanity are considered fundamental principles under weapons and targeting law. Primarily, targeting and the use of weapons are regulated by customary rules. While not a source of customary law, an indicator of what states consider “customary” during hostilities are military manuals, military practice, and official statements (Boothby 2016).

accomplishing the military objective. The States, therefore, still have in their possession a variety of other means and methods that would be perfectly legal and not controversial. It is distressing that with the recent deployment of low-yield SLBMs¹¹ the world got closer to the actual use of nuclear weapons. Many forget the tremendous suffering of *hibakusha* who suffer still up to this day. While the nature of modern battlefield has changed, high-intensity or total wars are exceptions rather than the rule, the use of nuclear weapons would violate the principle of employment of weapons of a nature to cause superfluous injury or unnecessary suffering due to its emitting of ionizing radiation that serves no military purpose whatsoever, while unnecessarily aggravating the suffering of affected combatants and therefore such use would be in violation of the customary rules of armed conflict. As stated above, means and methods of warfare are not unlimited.

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¹¹ See Federation of American Scientists, “US Deploys New Low-Yield Nuclear Submarine Warhead”, by William M. Arkin and Hans M. Kristensen, posted January 29, 2020. Available at: <https://fas.org/blogs/security/2020/01/w76-2deployed/>. <Accessed on 2020/02/25>

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