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## LEGAL PERMISSIBILITY OF AUTONOMOUS WEAPON SYSTEMS, WITH SPECIFIC REFERENCE TO THE PRINCIPLES OF INTERNATIONAL HUMANITARIAN LAW

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Autonomous weapon systems have been used in armed conflicts for the past twenty years. The first country in the world to use them was the United States. Namely, they have proven to be a very effective tool in the fight against terrorism, but also a very effective means of warfare. In recent years, other states have been using them as well. For instance, Azerbaijan was using operational-tactical drones in the Second War against Armenia and was the first state to win a convincing victory by employing them. At present, drones are also being used in the Russo-Ukrainian war. Many world governments are showing massive interest in purchasing them, as well as other types of autonomous weapon systems, for military-strategic advantages. However, it is not only states that are acquiring that kind of weapons. Terrorist organizations, as well as other non-state actors, do so as well. The international community is divided on the issue of permissibility of the use of autonomous weapons. Some states require an absolute ban on their employment, while others do not entirely oppose them, but propose the adoption of an internationally binding agreement to regulate their use. As there is yet no such binding agreement, their permissibility should at the present moment be assessed by examining their compatibility with the existing principles of international humanitarian law. This paper aims at demonstrating that autonomous weapon systems do not meet the requirements of the IHL principles, although development of such weapons is still in progress and is yet to be seen whether this development will lead to a different conclusion.

**Key words:** *autonomous weapon systems, lethal autonomous weapon systems, drones, the principle of humanity (Martens clause), the principle of military necessity, the principle of distinction, the principle of proportionality*

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## 1. INTRODUCTION

With the coming to power of George W. Bush, the United States launched a war against terrorism. For the first time in human history, drones were used on a large scale by the United States against members of Al Qaeda. The next American president, Barack Obama, followed in the footsteps of President Bush and used drones against various terrorist organizations. For example, a total of 122 attacks on terrorist groups were carried out in Pakistan in 2010, then in Yemen two years later, in Somalia, Afghanistan, and Libya in 2015.<sup>1</sup> Given the usefulness of drones in asymmetric conflicts, the number of countries that own drones is gradually increasing. However, drones are also used by non-state actors, including terrorist organizations, to achieve their goals. As an example, the 2021 terrorist attack on an Indian military facility can be mentioned.<sup>2</sup> A great danger coming from the use of drones derives from their very easy modification and modernization. Demand for such new modified and modernized technology is constantly growing among armed forces around the world.<sup>3</sup>

Given that drones, as an autonomous weapon system, are widely being used, several significant legal questions are raised in relation to their permissibility.<sup>4</sup> Some of the important issues are related to finding an internationally accepted definition of autonomous weapons systems, determining the appropriateness of international humanitarian law to regulate the development and use of autonomous weapons systems, as well as answering the questions of whether the principle of humanity allows life and death decisions to be made by an autonomous weapons systems.<sup>5</sup> Some authors argue that such a new war technology has the potential to offer more effective adherence to the principles of distinction and proportionality.<sup>6</sup> However, such a standpoint may be questioned, as there are many contentious, and yet unanswered questions, related to the use of autonomous weapon systems. It is, for instance, not clear whether autonomous weapon systems the use of which requires a remote weapon system can distinguish a combatant from a civilian, as well as who

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<sup>1</sup> Modebadze, V., *The importance of drones in modern warfare and armed conflicts*, KutBilim Journal of Social Sciences and Arts, Vol. 1, No. 2/2021, p. 91, 94, 95.

<sup>2</sup> Ganguly, S., *Drone Strike Blasts Open a New Front in the Kashmir Dispute*, Foreign policy, <https://foreignpolicy.com/2021/07/01/drone-strike-blasts-open-a-new-front-in-the-kashmir-dispute/>, November 6, 2023.

<sup>3</sup> Osiecki, M.; Fortonska, A.; Berus, M.; Włodarczyk, M., *Drone as a Target of Terrorist Attack and a Weapon against Terrorism – Analysis in the Light of International Law*, Journal of Intelligent & Robotic Systems, Vol. 106, No. 6/2022, p. 5-6.

<sup>4</sup> International Committee of the Red Cross (ICRC), *Autonomous weapon systems - Q & A*, <https://www.icrc.org/en/document/autonomous-weapon-systems-challenge-human-control-over-use-force>, June 6, 2023.

<sup>5</sup> ICRC, *Autonomous weapons systems technical, military, legal and humanitarian aspects*, <https://www.icrc.org/en/document/report-icrc-meeting-autonomous-weapon-systems-26-28-march-2014#VGRgYlMUUwp>, June 6, 2023.

<sup>6</sup> See more in: Schmitt, M. N.; Thurnher, J. S., *Out of the loop: Autonomous Weapon Systems and the Law of Armed Conflict*, Harvard National Security Journal, Vol. 4, No. 231/2013, p. 231-281, Sassóli, M., *Autonomous Weapons and International Humanitarian Law: Advantages, Open Technical Questions and legal Issues to be Clarified*, International Law Studies, Vol. 90, No. 308/2014, p. 308-340.

would be responsible for violating the rules of international humanitarian law if an error of the system occurs and a war crime is consequently committed. Furthermore, the question is whether the autonomous remote weapon systems can be categorized as “weapons” at all.<sup>7</sup>

Both states and academics, as well as other relevant actors, have very different views on the issues of permissibility of autonomous weapon systems. Some find them incapable of replacing human behavior and reactions, while others, among which certainly the most powerful states, pursue and advocate their development.<sup>8</sup> In any case, any discussion involving legal permissibility of autonomous weapon systems must take into consideration that not all autonomous weapons are the same – they differ significantly from one another in various ways, including in the level of autonomy. In continuation, some key terms for distinguishing different forms of autonomous weapons will be elaborated on. Then, autonomous weapons will be observed in the light of the basic principles of international humanitarian law, after which some basic remarks on the future legal regulation of those systems will be given.

## 2. KEY TERMS FOR DISTINGUISHING AUTONOMOUS WEAPON SYSTEMS

The development of an autonomous weapon system is considered revolutionary in military technology.<sup>9</sup> In scientific literature, there are different approaches to clarifying the concept of an autonomous weapon system. What all approaches have in common is the level of capability in algorithmic decision-making.<sup>10</sup> Given that autonomous weapon systems are increasingly working independently at their critical points, i.e. without human intervention, autonomous weapon system models of human-machine interactions can be divided into the following categories: *human-*

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<sup>7</sup> Liu, H.-Y., *Categorization and legality of autonomous and remote weapons system*, International Review of the Red Cross, Vol. 94, No. 886/2012, p. 628., Boothby, W., *The regulations of weapons under IHL*, in: De Vidts, B.; Beruto, G. L. (eds.), *Weapons and the International Rule of Law, 39<sup>th</sup> Round Table on Current Issues of International Humanitarian Law* held in Sanremo, 8<sup>th</sup>-10<sup>th</sup> September 2016, International Institute of Humanitarian Law, Sanremo, 2016, p. 37-41.

<sup>8</sup> Arguments of proponents and opponents of autonomous weapon systems see in: Winter, E.: *The Compatibility of Autonomous Weapons with the Principles of International Humanitarian Law*, Journal of Conflict & Security Law, Vol. 27, No. 1/2022, p. 5. See also: Blanchard, A.; Taddeo, M., *Jus in bello Necessity, The Requirement of Minimal Force, and Autonomous Weapon Systems*, Journal of Military Ethics, Vol. 21, No. 3-4/2022, p. 286-303.

<sup>9</sup> Singer, P. W., *Wired for War: The Robotics Revolution and Conflict in the 21st Century*, Penguin Press, New York, 2009, p. 179.

<sup>10</sup> Schmitt, M. N. *et al.*, *op. cit.*, note 6, p. 231., 280.

*in-the-loop*, *human-on-the-loop*, and *human-out-of-the-loop*.<sup>11</sup> The *human-in-the-loop* model represents an autonomous weapon system the functions of which are remotely controlled by a human.<sup>12</sup> The *human-on-the-loop* model refers to an autonomous weapon system in which the role of human is limited. More precisely, the operator could monitor the results of the autonomous weapon system, but not actually control the machine during the performance of its mission.<sup>13</sup> The *human-out-of-the-loop* model completely removes the requirement for humans to control autonomous weapon systems.<sup>14</sup>

As there exist different types of autonomous weapon systems, it is necessary to distinguish between various models of human-machine interactions. Lethal autonomous weapon systems (LAWS) or “killer robots” independently identify their targets. Therefore, we can classify them as the *human-out-of-the-loop* model. Unlike them, unmanned aerial systems, or unmanned aircraft systems, or remotely piloted aircrafts, commonly referred to as drones, although they may have some other autonomous features, such as autopilot and/or navigation, require human intervention in their target selection, guidance, and, finally, activation of the attack.<sup>15</sup> While LAWS are characterized by the complete loss of human control, drones are characterized by insufficient human intervention and control. Therefore, there is a possibility of conflict escalation and also the possibility of non-compliance with the rules on the conduct of hostilities for the protection of the civilian population. Due to such possibility, the use of autonomous weapon systems presents a challenge for the respect of international humanitarian law, and international law in general. Apart from posing a challenge to international law, the use of autonomous weapon systems raises fundamental ethical and moral concerns for humanity.<sup>16</sup>

### 3. AUTONOMOUS WEAPON SYSTEMS AND THE BASIC PRINCIPLES OF HUMANITARIAN LAW

Before we engage in a discussion on the (il)legality of the threat and use of autonomous weapon systems in armed conflicts, it is firstly necessary to examine

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<sup>11</sup> The term “loop” which means observe, orient, decide, act (OODA Loops) was used by Colonel John Boyd to describe the stages of the decision-making process. See more in: Hammond, G. T. (ed), *A Discourses on Winning and Losing, John R. Boyd*, Air University Press, Alabama, 2018, p. 145, 382, 383-385; In the context of the discussion on the autonomous weapon system see more in: Marra, W. C.; McNeil, S. K., *Understanding “The Loop”: Regulating the Next Generation of War Machines*, Harvard Journal of Law and Public Policy, Vol. 36, No. 3/2013, p. 1-62.

<sup>12</sup> See *infra*, Chapter 4.

<sup>13</sup> Amoroso, D., *Autonomous Weapons Systems and International Law, A Study on Human-Machine Interactions in Ethically and Legally Sensitive Domains*, Edizioni Scientifiche Italiane, Napoli, 2020, p. 8.

<sup>14</sup> *Loc. cit.*

<sup>15</sup> Kleczkowska, A., *Autonomous Weapons and the Right to Self-Defence*, Israel Law Review, Vol. 56, No. 1/2023, p. 25.

<sup>16</sup> ICRC, *ICRC Position on Autonomous Weapon Systems*, Geneva, 12 May, 2021, p. 2.

those rules and principles of the law of armed conflict (LOAC) that necessarily refer to the use of LAWS and autonomous weapon systems in general.

As is well known, the central international law instruments governing behavior in armed conflicts are the 1949 Geneva Conventions and the 1977 Additional Protocols. The Protocol I, apart from codifying rules on the treatment and protection of wounded, sick and shipwrecked, also embodies the rules on the conduct of hostilities, which include targeting rules.<sup>17</sup> Moreover, it prescribes a rule on the means and methods of warfare, which is relevant for the present analysis.

As the purpose of the LOAC is to protect the victims of armed conflicts and to regulate the means and methods of warfare, armed forces are obliged to comply with these rules in the event of armed conflicts. This is confirmed by the International Court of Justice Advisory Opinion of 8 July 1996.<sup>18</sup> In its Opinion on nuclear weapons, the Court called for respect for international humanitarian law and the fundamental principle of distinction, the principle of proportionality, and the prohibition of unnecessary suffering<sup>19</sup> that should be *observed by all States whether or not they have ratified the conventions that contain them, because they constitute intransgressible principles of international customary law*.<sup>20</sup> The Court further concludes that these principles of armed conflict apply *to all forms of warfare and to all kinds of weapons, those of the past, those of the present and those of the future*.<sup>21</sup> It is worth emphasizing that the International Court of Justice also refers to the observance of the Martens Clause,<sup>22</sup> which proved to be an effective means of dealing with the rapid development of military technology.<sup>23</sup> The rules and principles of LOAC are of pivotal importance because they represent a universal value according to which military behavior in armed conflicts is evaluated.<sup>24</sup> The premise is that these rules and principles apply to autonomous weapon systems and therefore to LAWS and as such represent a cornerstone for the adoption of an international legal instrument for already existing autonomous weapon systems used in armed conflicts, but also for those that will be used in the future, as countries with highly developed robotic technology will seek to use their advantage in armed conflicts.<sup>25</sup>

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<sup>17</sup> See more in Henckaerts, J.-M.; Doswald-Beck, L., with contributions by Alvermann C.; Dormann, K.; Rolfe, B., *Customary International Humanitarian Law, Rules*, ICRC, Cambridge University Press, Vol. 1/2005.

<sup>18</sup> Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996, p. 226.

<sup>19</sup> *Ibid.*, para. 78.

<sup>20</sup> *Ibid.*, para. 79.

<sup>21</sup> *Ibid.*, para. 86.

<sup>22</sup> *Infra*, Chapter 3.1.

<sup>23</sup> I.C.J. Reports 1996, *op. cit.*, note 18, para. 78.

<sup>24</sup> "When no specific rule applies, the principles of the law of war form the general guide for conduct during war", in: Office of General Counsel Department of Defense, *Department of Defense Law of War Manual*, United States of America, Washington, 2015, p. 51.

<sup>25</sup> Demir, K. A.; Caymaz, E., *Robotic warfare, Law of armed conflict, and Law of robotic armed conflict*, at the 12<sup>th</sup> International Scientific Conference "Defense resources management in the 21<sup>st</sup> century", Braşov, November 9<sup>th</sup>-10<sup>th</sup> 2017, p. 6, [https://www.academia.edu/43000054/ROBOTIC\\_WARFARE\\_LAW\\_OF\\_ARMED\\_CONFLICT\\_AND\\_LAW\\_OF\\_ROBOTIC\\_ARMED\\_CONFLICT](https://www.academia.edu/43000054/ROBOTIC_WARFARE_LAW_OF_ARMED_CONFLICT_AND_LAW_OF_ROBOTIC_ARMED_CONFLICT), November 12, 2023.

### 3.1. The principle of humanity

The principle of humanity, also known as the Martens clause, serves as the central principle of constraint in armed conflicts and represents an essential counterweight to the principle of military necessity.<sup>26</sup>

The Martens Clause has been introduced in several international treaties related to international humanitarian law.<sup>27</sup> Its core content is encapsulated in the 1977 Additional Protocol I, which provides that *[i]n cases not covered by this Protocol or by other international agreements, 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*.<sup>28</sup> Similar provision is contained in the Additional Protocol II, where the Clause is not integrated into the main body of the treaty, but in its preamble.<sup>29</sup>

The Clause emphasizes that armed parties to the conflict are subject to certain imposed restrictions, with the aim of protecting and respecting the principles of humanity. The International Court of Justice itself declared that there should be no doubt about the permanent existence and applicability of the Clause.<sup>30</sup> It means that its very content represents the moral values of the behavior of soldiers during the conduct of armed conflicts,<sup>31</sup> but it also represents the moral values of human behavior in general, for example of civilians, paramedics, etc. The Clause prevents

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<sup>26</sup> Crawford, E.; Pert A., *International Humanitarian Law*, 2<sup>nd</sup> ed., Cambridge University Press, Cambridge, 2020, p. 49.

<sup>27</sup> The Martens clause is found for the first time in the preamble to the 1899 Hague Convention II with Respect to the Laws and Customs of War on Land and to the 1907 Hague Convention IV respecting the Laws and Customs of War on Land. See: Convention (II) with Respect to the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land, The Hague, 29 July 1899, <https://ihl-databases.icrc.org/assets/treaties/150-IHL-10-EN.pdf>, November 15, 2023; Convention (IV) respecting the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land, The Hague, 18 October 1907, <https://ihl-databases.icrc.org/assets/treaties/195-IHL-19-EN.pdf>, November 15, 2023. In Convention IV, in relation to the clause in Convention II, minor language changes were introduced. "Populations and belligerents" is replaced with "the inhabitants and the belligerents," and "principles of international law," by "principles of the law of nations." Given that the changes to the text appear only in the English version of the clause, while the authenticity of the French text remains unchanged, the scope of the clause remains unchanged. In the four 1949 Geneva Conventions, the Martens Clause is integrated into the main body of the Conventions, more specifically, in the final provisions, relating to denunciation. See: Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field; Geneva Convention for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea; Geneva Convention Relative to the Treatment of Prisoners of War; Geneva Convention Relative to the Protection of Civilian Persons in Time of War, Geneva, 12 August 1949, United Nations Treaty Series, vol. 75, p. 973.

<sup>28</sup> Article 1 paragraph 2 of the Additional Protocol I. 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, United Nations Treaty Series, vol. 1125, p. 3.

<sup>29</sup> 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, United Nations Treaty Series, vol. 1125, p. 609.

<sup>30</sup> I.C.J. Reports 1996, *op. cit.*, note 18, para. 87.

<sup>31</sup> Ticehurst, R., *The Martens Clause and the Laws of Armed Conflict*, International Review of the Red Cross, No. 317/1997, p. 126.



the assumption that anything which is not explicitly prohibited by the relevant treaties is therefore permitted.<sup>32</sup> In other words, what is not expressly prohibited by the agreement does not mean that it is allowed.<sup>33</sup>

The Martens Clause provides a normative structure for assessing new technological advances in weaponry and impacts of those weapons, when abiding by the principle of humanity is concerned. It can be said that the Clause, although it cannot by itself represent the primary basis for banning the use of autonomous weapon systems, can fully apply to their use and ensure the protection of persons who become targets of those systems. The Clause, therefore, serves as a source of law which, together with other principles and rules of humanitarian law, forms the basis for the legal regulation of the threat and use of such a weapon.<sup>34</sup> Nevertheless, the adoption of the convention which would be specifically tailored for regulating the autonomous weapon systems, remains crucial.

### 3.2. The principle of military necessity

The principle of military necessity, introduced in the 1868 Saint Petersburg Declaration,<sup>35</sup> and later articulated in the 1907 Hague Regulations, forbids the destruction or seizure of the enemy's property, unless such destruction or seizure are imperatively demanded by the necessities of war.<sup>36</sup> The basis of the principle is the achievement of a legitimate goal with the purpose of weakening the enemy's military forces, that is, their incapacitation. Emphasis is, therefore, placed on military forces and on those actions necessary to achieve such a legitimate goal. Hence, the complete destruction of the enemy or his armed forces or property would be a violation of the principle of military necessity.<sup>37</sup>

In armed conflict, the principle of military necessity must yield to the demands of humanity.<sup>38</sup> For example, the use of weapons apt for achieving military advantage is not allowed if such weapons would cause extreme injury and suffering in contact

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<sup>32</sup> Davison, N., *A legal perspective: Autonomous weapon systems under international humanitarian law*, in: UNODA, *Perspectives on Lethal Autonomous Weapon Systems*, UNODA Occasional Papers, No. 30/2017, p. 5-18.

<sup>33</sup> Ticehurst, *op. cit.*, note 31.

<sup>34</sup> Chesterman, S., *Artificial intelligence and the problem of autonomy*, Notre Dame Journal on Emerging Technologies, Vol. 1, No. 2/2020, p. 232.

<sup>35</sup> Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grammes Weight. Saint Petersburg, 29 November/11 December 1868, <https://ihl-databases.icrc.org/assets/treaties/130-IHL-6-EN.pdf>, November 20, 2023. The concept of military necessity was first codified by Francis Lieber during the American Civil War. His Instructions for the Government of Armies of the United States in the Field (Lieber Code) represented the origin of the Project of an International Declaration concerning the Laws and Customs of War, presented at the Brussels conference in 1874. These rules also encouraged the adoption of the Hague Conventions on Land Warfare of 1899 and 1907. See: Instructions for the Government of Armies of the United States in the Field (Lieber Code), 24 April 1863, <https://ihl-databases.icrc.org/assets/treaties/110-IHL-L-Code-EN.pdf>, November 20, 2023.

<sup>36</sup> Convention (IV), *op. cit.*, note 27.

<sup>37</sup> Crawford, E., *et al.*, *op. cit.*, note 26, p. 45.

<sup>38</sup> I.C.J. Reports 1996, *op. cit.*, note 18, paras.78, 79.

with the human body. Achieving a balance between humanitarian principles on the one hand and military necessity on the other is necessary<sup>39</sup> and it is beyond any doubt that military necessity does not allow military forces in armed conflicts to ignore humanitarian law.<sup>40</sup> Acting contrary to this imperative results in a commission of a war crime.<sup>41</sup>

When speaking about military necessity, one of the central questions is the one of the weapons used in conflict, as there are types of weapons which are excessive in their nature and exceed the purpose of achieving certain military goals.

International law places a ban on the use of certain type of weapons. Due to humanitarian reasons, the use of any projectile of a weight below 400 grammes, which is either explosive or charged with fulminating or inflammable substances is prohibited by the Saint Petersburg Declaration.<sup>42</sup> The same rule was later translated into the Hague Declarations,<sup>43</sup> which refer to the Saint Petersburg Declaration in their preambles. The most recent formulation of the prohibition of the use of weapons capable of causing excessive injury or unnecessary suffering is found in Protocol I to the Geneva Conventions.<sup>44</sup> The International Court of Justice characterized this fundamental principle of international humanitarian law as a norm of customary international law.<sup>45</sup>

When speaking about weapons that cause excessive suffering, it is important to answer the following two questions: first, the availability of alternative means of warfare and, second, the determination of the degree of suffering from the use of certain weapons that are considered inhumane. The answer to the first question can be found in the reasoning of the International Court of Justice that connects unnecessary suffering with the occurrence of damage, greater than the damage *which is inevitable for the achievement of legitimate military objectives*.<sup>46</sup> In other words, the partial subjugation of the enemy with the least possible loss of life and resources as opposed to the complete subjugation of the enemy with the maximum loss of life and resources would mean the achievement of legitimate military objectives. However, with such a seemingly simple interpretation of the concept of unnecessary suffering and its connection with the occurrence of damage, it is still necessary to be careful because of the choice of weapons that leads to the inevitable death or permanent incapacitation of the enemy.<sup>47</sup> The use of such weapons is prohibited,

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<sup>39</sup> UK Ministry of Defence, *The Manual of the Law of Armed Conflict*, Oxford University Press, Oxford, 2004, p. 21-23.

<sup>40</sup> ICRC, <https://ihl-databases.icrc.org/en/ihl-treaties/st-petersburg-decl-1868>, November 20, 2023.

<sup>41</sup> Rome Statute of the International Criminal Court, Article 8 (2)(b), United Nations Treaty Series, vol. 2187, p. 3.

<sup>42</sup> Saint Petersburg Declaration, *op. cit.*, note 35, para. 6.

<sup>43</sup> Coupland, R.; Loye, D., *The 1899 Hague Declaration concerning Expanding Bullets, A treaty effective for more than 100 years faces complex contemporary issues*, *RICR Mars*, IRRC, Vol. 85, No. 849/2003, p. 136 – 137.

<sup>44</sup> Protocol I, *op. cit.*, note 28, Article 35 (2).

<sup>45</sup> I.C.J. Reports 1996, *op. cit.*, note 18, paras.78–79.

<sup>46</sup> *Ibid.*, 78.

<sup>47</sup> Henckaerts, J.-M., *et al.*, *op. cit.*, note 17, p. 241.



regardless of any circumstances of their use. The problem appears with the answer to the second question. More precisely, in relation to the classification of suffering in the medical sense.<sup>48</sup> Considering the principle of proportionality, any suffering not justified by the military interaction could be considered excessive suffering, or disproportionate to the military interaction in terms of the expected use of weapons. Observing this problem in the light of international humanitarian law as we know it today and international law in general, this claim could be interpreted in such a way that capturing the enemy causes a lower degree of suffering than wounding the enemy, that is, that wounding the enemy represents less pain than killing the enemy. As a matter of fact, excessive injury or unnecessary suffering is considered when no military necessity can be expected from a certain military action, nor resorting to the weapon in question.<sup>49</sup> As a result, it is difficult to reach interstate compromises regarding the production and selection of “new” weapons, as well as weapons in general. Why is that so? Namely, states often, especially large military powers, do not want to accept the fact that certain weapons are prohibited.<sup>50</sup> This means that attempts to legally regulate this issue are limited by states’ interests. And this likewise applies to the use of autonomous weapon systems in armed conflicts. Another conclusion could be related to the effect of existing weapons that have already been used in armed conflicts in the past. This could lead us to the conclusion that autonomous weapon systems, hence drones, serve only as a platform for the attachment of certain appropriate weapons. The use of drones, that is, autonomous weapon systems in general, in an armed conflict will not affect the legality of the autonomous system *per se*, but only of the weapon attached to them. Accordingly, a weapon will not comply with the requirement to prohibit unnecessary suffering and excessive pain if the effects of the weapon themselves create such unnecessary suffering and pain. Violation of that principle will therefore not depend on the autonomous weapon system’s degree of autonomy. With such an assumption, we are back to the initial question of whether autonomous weapon systems, and in this connection LAWS, can be defined as a new weapon of warfare at all.

### 3.3. The principle of distinction

The principle of distinction lies at the heart of modern LOAC, particularly in wartime targeting operations. The respect for the principle of distinction stems from the obligation to distinguish civilians from combatants, but also from the obligation

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<sup>48</sup> Verchio, D. M., *Just say no! The SIrUS project: well-intentioned, but unnecessary and superfluous*, Air Force Law Review, Vol. 51, No. 1/2001, p. 183. See also: Coupland, R. M. (ed.), *The SIrUS Project, Towards a determination of which weapons cause “superfluous injury or unnecessary suffering”*, ICRC, 1997, p. 3-43.

<sup>49</sup> Solis, G. D., *The Law of Armed Conflict: International Humanitarian Law in War*, Cambridge University Press, Cambridge, 2010, p. 270-271.

<sup>50</sup> Henckaerts, J.-M., *et al.*, *op. cit.*, note 17, p. 237-243.

to prohibit the targeting of civilians and civilian objects. As such, it forms part of customary international law.<sup>51</sup>

*In order to ensure respect for and protection of the civilian population and civilian objects, the Parties to the conflict shall at all times distinguish between the civilian population and combatants and between civilian objects and military objectives and accordingly shall direct their operations only against military objectives.*<sup>52</sup>

The principle of distinction was invoked by many states that participated at the International Court of Justice in the 1996 Advisory proceedings on the Legality of the Threat or Use of Nuclear Weapons. The Court reached a conclusion in which it emphasized that the principle of distinction is one of the main principles of humanitarian law.<sup>53</sup> Further, the Court concluded that *methods and means of warfare, which would preclude any distinction between civilian and military targets, or which would result in unnecessary suffering to combatants, are prohibited.*<sup>54</sup>

In article 51, paragraph 4 Protocol I lists indiscriminate attacks that violate Article 48. The term *indiscriminate attacks* refers to those attacks that are not directed at a specific military objective; to those attacks that use a method or combat means that cannot be directed at a specific military objective, as well as to those attacks which employ a method or means of combat which cannot be directed at a specific military objective and to those which employ a method or means of combat the effects of which cannot be limited as required by Protocol, and are of a nature to strike military objectives and civilians or civilian objects without distinction. An attack on military facilities, causing civilians to be injured or killed, can also be considered a violation of the principle of distinction, even though the attack on military facilities was not intended to target civilians and civilian facilities. On the other hand, attacks in which the attacker does not care if civilians and/or civilian objects will be affected, can be qualified as a war crime. It can be inferred that in armed conflicts it is necessary to control the effect of the weapons used between the warring parties, that is, whenever weapons are used in armed conflicts, the principle of distinguishing civilians and civilian objects from combat soldiers and military objects must be complied with. For example, the use of weapons over which the belligerent party has absolutely no guidance or direction control (and hence the attacker is not able to know where such a weapon/projectile will ultimately fall) means that prescribed rules for types of attacks from Protocol I, Article 51, paragraph 4 are not fulfilled, and such weapons are considered an illegal means of warfare.

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<sup>51</sup> Turns, D., *The Law of Armed Conflict (International Humanitarian Law)*, in: Evans, M. D. (ed.), *International Law*, 5<sup>th</sup> ed., Oxford University Press, Oxford 2018, p. 857.

<sup>52</sup> Protocol I, *op. cit.*, note 28, Article 48.

<sup>53</sup> I.C.J. Reports 1996, *op. cit.*, note 18, para. 78: "The cardinal principles contained in the texts constituting the fabric of humanitarian law are the following. The first is aimed at the protection of the civilian population and civilian objects and establishes the distinction between combatants and non-combatants;..."

<sup>54</sup> *Ibid.*, para. 95.

When it comes to autonomous weapons systems, their use can lead to a large-scale violence, as it does not depend on the number of people available to wage war. In combination with other technologies, they choose their own targets and more easily hide the identities of those who control them. Besides, there is always the possibility of technical errors, such as software failure, which can result in the targeting of the civilian population or target substitution, i.e. targeting civilians instead of enemy soldiers in armed conflicts.<sup>55</sup>

Making life and death decisions in armed conflicts would necessarily require the presence of the human factor. The decision about which weapon will be used in war should be made by humans, not only because humans are capable the most to assess the situation and reach a decision, but also because they bear responsibility for the consequences of their actions. If such decisions are transferred to autonomous weapon systems, the question is whether this would be in accordance with humanitarian law. Article 36 of Protocol I stipulates that the study, development, acquisition, or adoption of new weapons, means or methods of warfare requires the states parties to determine whether the use of such new weapons, means or methods of warfare would violate international law.<sup>56</sup> In the context of international law, the emphasis is again placed on indiscriminate weapons or those weapons that cause unnecessary suffering and excruciating pain.<sup>57</sup> It could be assumed that the use of new means of warfare or weapons primarily depends on their comparison with the already existing means or weapons of warfare. In this regard, can the use of autonomous weapon system with the absence of a human factor qualify as an indiscriminate attack? In other words, can an autonomous weapon system distinguish a soldier from a civilian, that is, military targets from civilian targets?

For the time being, human control over the use of weapons and the use of force is necessary. Although autonomous weapons systems are already very successful in identifying targets, in comparison to humans they lack ability to interpret contextual changes in particular situations.<sup>58</sup> Their system is preprogrammed to recognize certain objects, but should any circumstance change, an error is likely to occur. This is what current studies, not conducted on autonomous weapons, but comparable to situations of their use, suggest.<sup>59</sup> Future progress of autonomous weapon systems will require new testing of their performance and will show whether machines could ever equalize with humans in terms of being capable of complying to the principle of distinction.

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<sup>55</sup> Trager, R. F.; Luca, L. M., *Killer Robots Are Here – and We Need to Regulate Them*, Foreign Policy, <https://foreignpolicy.com/2022/05/11/killer-robots-lethal-autonomous-weapons-systems-ukraine-libya-regulation/>, November 29, 2023.

<sup>56</sup> Protocol I, *op. cit.*, note 28, Article 36.

<sup>57</sup> Lawand, K., with contribution by Coupland R.; Herby P., *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare, Measures to Implement Article 36 of Additional Protocol I of 1977*, ICRC, 2006, p. 16.

<sup>58</sup> Winter, *op. cit.*, note 8, p. 14.

<sup>59</sup> *Loc. cit.*

### 3.4. The principle of proportionality

The principle of proportionality is closely related to all of the principles previously mentioned, namely the principle of military necessity, the principle of humanity (Martens Clause) and the principle of distinction. It requires achieving balance between pursuing military objectives, on the one hand, and humanitarian and other individual, collective and universal values, on the other hand.<sup>60</sup>

The principle of proportionality is contained in various international documents, treaties, conclusions and/or judges' opinions. The main goal of its creation was to ensure the provision of state protection to soldiers in the armed forces operations through permitted means and methods of warfare that were commensurate with the expected military advantages. In other words, an effort was made to limit the cruelty of war and its consequences,<sup>61</sup> which was reflected in the Declaration from Saint Petersburg, Hague Convention (IV) from 1907, and, after indiscriminate air attacks during the First World War, in the Hague Rules of Air Warfare from 1923.<sup>62</sup> Furthermore, the customary nature of the principle of proportionality, which is directly related to international humanitarian law, is confirmed by international judicial practice.<sup>63</sup>

Given that there is a high risk of destruction due to a possible escalation of the use of autonomous weapon system, the principle of proportionality must be given additional weight. The International Court of Justice, within the context of the nuclear weapons, noted *that the very nature of all nuclear weapons and the profound risks associated therewith are further consideration to be borne in mind by States believing they can exercise a nuclear response in self-defense in accordance with the requirements of proportionality*.<sup>64</sup> The same opinion of the Court could apply to the use of autonomous weapon systems. Aside from the *ius in bello* considerations of proportionality, the principle must be respected in the context of *ius ad bellum*, that is, in the context of the threat of force or the use of force as a means of defense. Referring to the case of Military and Paramilitary Activities in and against Nicaragua, the International Court of Justice in its Nuclear Weapons Advisory Opinion indicated that Article 51 of the Charter of the United Nations does not explicitly require proportionality but recognizes that

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<sup>60</sup> Cannizzaro, E., *Proportionality in the Law of Armed Conflict*, in: Clapham, A.; Gaeta, P. (eds.), *The Oxford Handbook of International Law in Armed Conflict*, Oxford University Press, Oxford, 2014, p. 334.

<sup>61</sup> *Loc. cit.*

<sup>62</sup> The Hague Rules of Air Warfare from 1923 were never adopted or achieved treaty status, however, they have become central to the study of international law of war. See more: Hanke, H. M., *The 1923 Hague Rules of Air Warfare – A contribution to the development of international law protecting civilians from air attack*, International Review of the Red Cross, Vol. 33, No 292/1993, p. 12-44.

<sup>63</sup> Vail, C., *The legality of nuclear weapon for use and deterrence*, Georgetown Journal of International Law, Vol. 48, 2017, p. 850-851. See also: Maroonian, A., *Proportionality in International Humanitarian Law: A Principle and a rule*, Lieber Institute, West Point, <https://lieber.westpoint.edu/proportionality-international-humanitarian-law-principle-rule/>, November 30, 2023.

<sup>64</sup> I.C.J. Reports, *op. cit.*, note 18, para. 43.

proportionality is derived from already existing customary rules.<sup>65</sup> Furthermore, in the Nicaragua case, the Court acknowledged the existence of a well-established rule in customary international law according to which self-defense would warrant only those necessary and proportionate measures in response to an armed attack.<sup>66</sup>

Although no conventional text explicitly mentions the principle of proportionality, nor is it defined by international agreements, its content generally appears in treaty texts related to means and methods of warfare.<sup>67</sup> According to the opinion of the majority of authors, Article 51, paragraph 5 of Protocol I to the Geneva Conventions, includes the principle of proportionality, giving it a conventional character in the field of international humanitarian law.<sup>68</sup> The aforementioned article mentions the following indiscriminate attacks prohibited by international humanitarian law: *an attack by bombardment by any methods or means which treats as a single military objective a number of clearly separated and distinct military objectives located in a city, town, village or other area containing a similar concentration of civilians or civilian objects; 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 in relation to the concrete and direct military advantage anticipated.*<sup>69</sup> Therefore, at the conventional level, the principle of proportionality is also associated with indiscriminate attacks.

As autonomous technical systems work according to preprogrammed algorithms, it can be assumed that operators can harmonize these algorithms according to the principle of proportionality<sup>70</sup> and that autonomous weapon systems could pass the so-called Turing test.<sup>71</sup> However, it is not enough if the principle of proportionality is abided by only in the phase of planning. It is essential that the respect for the principle is assured throughout the execution of the attack.<sup>72</sup> This means that their constant adaptation to the changing circumstances between the warring parties in armed conflict is necessary and that such autonomous weapon system should have the ability to recognize the necessary update to return to its operator on its own,

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<sup>65</sup> *Ibid.*, para. 41.

<sup>66</sup> Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America), Merits, Judgment, I.C.J. Reports 1986, p. 14, para. 176.

<sup>67</sup> For example: *supra*, note 29, the 1949 Fourth Geneva Convention does not explicitly mention the principle of proportionality, but refers to the prohibition of indiscriminate destruction of private and public property, except when such destruction is absolutely necessary due to military operations (Article 53).

<sup>68</sup> See more in: Baxter, R. R., *The Duties of Combatants and the Conduct of Hostilities (The Law of the Hague)*, in *International Dimensions of Humanitarian Law*, Henry-Dunant Institute/UNESCO, Geneva, 1986, p. 93-133.

<sup>69</sup> Protocol I, *op. cit.*, note 28, Article 51 (5a, 5b).

<sup>70</sup> Schmitt, M. N., *Autonomous Weapon Systems and International Humanitarian Law: A Reply to the Critics*, Harvard National Security Journal Features, Vol. 1/2013, p. 20.

<sup>71</sup> The Test refers to a method of inquiring whether a computer thinks like a human being. See: Nasu, H., *Artificial Intelligence and the Obligation to Respect and to Ensure Respect for International Humanitarian Law*, ECIL Working Paper 2019/3, p. 1.

<sup>72</sup> Amoroso, *op. cit.*, note 13, p. 16.

without commands, should circumstances so require.<sup>73</sup> As concluded within the discussion on the principle of distinction, such scenario is not unimaginable in the future, although skepticism towards ability of the machines to abide by the principle of proportionality in all the phases of their use naturally exists.

#### 4. TO BAN OR NOT TO BAN?

Banning or not banning the use of an autonomous weapon system will depend on two issues. The first is the autonomy of such a system and the second is a weapon attached to an autonomous weapon system.

According to Scharre, the problem with determining the level of autonomy lies in the fact that “autonomy” is often perceived as having a unique meaning, while in fact it has three different dimensions.<sup>74</sup> The first dimension concerns the human-machine command-and-control relationship and refers to the distinction between “human-in-the-loop”, “human-on-the-loop” and “human-out-of-the-loop”.<sup>75</sup> The second concerns the complexity of the machine. There are different degrees of complexity, labeled as either “automatic”, “automated”, “autonomous” or “intelligent”, where no consensus exists on the exact contents of each of these concepts and difference between them.<sup>76</sup> The third dimension concerns the type of function being automated, as different machines have different tasks automated, but also the same machine can be autonomous in relation to some functions and not in relation to others.<sup>77</sup> Given the existence of the three mutually independent dimensions of autonomy, Scharre is of the opinion that it is necessary to speak about “operationally-relevant autonomy” – the one needed to have the task performed.<sup>78</sup>

Although the increasingly developed autonomous weapon technology refers to autonomous weapon systems without human intervention, the fact is that the programming of such systems comes from humans. Whether this system will ultimately perform tasks independently and make independent decisions about selected and targeted targets in armed conflicts will depend on the complexity of the system itself and its programming. Thus, autonomy refers to the relationship between the software and the human who controls it, and not to the artificial intelligence of the machine itself. Therefore, the commands programmed in the autonomous weapon system cannot be considered illegal if the human determination of the target, ultimately the human decision, does not contradict international humanitarian law and international law in general. To fully trust the software that independently

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<sup>73</sup> Amoroso, Daniele, *Jus in bello and jus ad bellum arguments against autonomy in weapons systems: A re-appraisal*, QIL, Zoom-in, Vol. 43/2017, p. 16-17.

<sup>74</sup> Scharre, P., *Between a roomba and a terminator: What is autonomy?*, War on the Rocks, <https://warontherocks.com/2015/02/between-a-roomba-and-a-terminator-what-is-autonomy/>, December 7, 2023.

<sup>75</sup> See *supra*, notes 11-14.

<sup>76</sup> Scharre, *op. cit.*, note 74.

<sup>77</sup> *Loc. cit.*

<sup>78</sup> *Loc. cit.*



decides the issue of life and death would be unacceptable. Consequently, the initiation of attacks without the human factor (as this violates the legal principles of international humanitarian law) should be prohibited and illegal.

However, is it sufficient to base the (in)admissibility and (il)legality of an autonomous weapon system solely on the degree of its autonomy, or is it also necessary to observe this issue in light of the “means” or weapons of war? In response to the latter question, inadmissibility and illegality of the threat and/or use of an autonomous weapon system will depend on the attached specific weapon that the autonomous weapon system transports to the respective designated target with the purpose of the attack. If an autonomous system is observed independently of the weapon attached to it, it then represents only a tool that is not lethal *per se*. Legal permissibility of a weapon should then be assessed, and the compliance with the principles of international humanitarian law will depend precisely on the effects of the attached weapon.

An assessment of whether autonomous weapon systems comply with the principles of international humanitarian law and international law in general will ultimately depend on two major factors. First is the autonomy – covering both the technical characteristics of the weapon system, as well as the relation between a machine and a human – and second is the weapon attached to this system. The issue of a weapon is, in principle, not so disputable, as it suffices that the weapon in question is not prohibited under international law. The issue of autonomy is a more complex one, causing extensive debates on the international level.

## **5. INTERNATIONAL DISCUSSIONS ON AUTONOMOUS WEAPON SYSTEMS**

The issue of an autonomous weapon system is the subject of discussion within the framework of the 1980 Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects.<sup>79</sup> The CCW is supplemented by additional protocols on certain types of conventional weapons, which indicates its flexibility and at the same time gives it room for proposing new protocols in relation to new types of means and weapons of warfare that have arisen as a result of technological

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<sup>79</sup> Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects (CCW), United Nations Treaty Series, vol. 1342, p. 137

weapons development, modernization and modification of already existing means and weapons of warfare.<sup>80</sup>

Since 2014, states have been holding meetings in Geneva to discuss the issue of banning or restricting rules on autonomous weapon systems.<sup>81</sup> They have agreed that the decision to adopt a document that would ban autonomous weapon systems or prescribe appropriate binding rules should be made by consensus among states.<sup>82</sup> According to the ICRC, general limitations on the use of autonomous weapon systems are necessary in terms of their *predictability, types of target, duration and geographical scope of operation, situation of use and human control*.<sup>83</sup> The rules, which should take the form of an international legal instrument that will determine the prohibition or certain limitations of the use of an autonomous weapon systems, are necessary for the protection of the civilian population and general compliance with international humanitarian law. However, little progress has been made so far. States are not able to harmonize their positions and therefore, the same or similar problems arise as with the adoption of an international document on the prohibition of nuclear weapons. The impossibility of reaching a consensus is most evident regarding the definition of an autonomous weapon system and the extent of restrictions or prohibitions that should be imposed within the framework of the use of an autonomous weapon system. The largest military powers are cautiously approaching the idea of introducing strict restrictions regarding the use of the technology of autonomous weapons systems. The United States, Russia, Israel, United Kingdom oppose bans or binding rules on the use of autonomous weapons systems because of fears that such bans or binding rules will bring them military-strategic disadvantages.<sup>84</sup> Nevertheless, the consensus that the autonomous weapon systems must be in accordance with international law has been reached. Also, states seem to agree on the need for the autonomous weapon systems to be controlled by the human factor during its use, especially in the case of selecting and attacking

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<sup>80</sup> CCW, Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons System, Geneva, 6-10 March, and 15-19 May 2023, Report of the 2023 session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems, CCW/GGE.1/2023/CRP.2, 06 May 2023, Conclusions, para. 16, p. 3, [https://docs-library.unoda.org/Convention\\_on\\_Certain\\_Conventional\\_Weapons\\_-Group\\_of\\_Governmental\\_Experts\\_on\\_Lethal\\_Autonomous\\_Weapons\\_Systems\\_\(2023\)/CCW\\_GGE1\\_2023\\_CRP.2\\_12\\_May.pdf](https://docs-library.unoda.org/Convention_on_Certain_Conventional_Weapons_-Group_of_Governmental_Experts_on_Lethal_Autonomous_Weapons_Systems_(2023)/CCW_GGE1_2023_CRP.2_12_May.pdf), December 12, 2023.

<sup>81</sup> Dawes, J., *UN fails to agree on 'killer robot' ban as nations pour billions into autonomous weapons research*, The Conversation, <https://theconversation.com/un-fails-to-agree-on-killer-robot-ban-as-nations-pour-billions-into-autonomous-weapons-research-173616>, December 12, 2023.

<sup>82</sup> UN, Meeting of the High Contracting Parties to the Convention on Prohibitions or Restrictions on the use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, Geneva, 13-15 November 2019, CCW/MSP/2019/9, 13 December 2019, <https://digitallibrary.un.org/record/3856241#:~:text=Symbol%20CCW%2FMSP%2F2019%2F9%20Title%20Final%20report%20%3A%20Meeting%20of,to%20Have%20Indiscriminate%20Effects%2C%20Geneva%2C%202013-15%20November%202019,December%2015,2023>.

<sup>83</sup> ICRC, *ICRC Commentary on the "Guiding Principles" of the CCW GGE on "Lethal Autonomous Weapons Systems"*, July 2020, p. 1-4.

<sup>84</sup> Stauffer, B., *An Agenda for Action Alternative Processes for Negotiating a Killer Robots Treaty*, Human Rights Watch, <https://www.hrw.org/report/2022/11/10/agenda-action/alternative-processes-negotiating-killer-robots-treaty>, December 20, 2023.

targets.<sup>85</sup> The negotiations on this issue have been generally aggravated by the aggressive war against Ukraine in 2022. Due to the sanctions imposed in March 2022, Russia blocked the meeting and prevented the start of negotiations. Also, Germany is reluctant to negotiate because it does not want to give up the military advantages that autonomous weapons systems can bring.<sup>86</sup>

A group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons System points out that international humanitarian law *applies fully to the potential development and use of the LAWS*.<sup>87</sup> In order to comply with international law, especially international humanitarian law, it is important to maintain control over weapon systems that use new technologies in the field of LAWS. This includes adhering to the principles of distinction, proportionality, and attack precautions.<sup>88</sup> International law requires states to determine whether a new weapon, means, or method of warfare violates international law. When developing or adopting such technologies, it is important to consider whether their use would be prohibited in certain circumstances. States are encouraged to exchange best practices while keeping in mind national security concerns and commercial restrictions on proprietary information.<sup>89</sup>

As autonomous weapon systems are considered a novel means of warfare and, whether lethal or not, may violate international law, the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons System has submitted a Draft Protocol on Autonomous Weapon Systems (Protocol VI).<sup>90</sup>

In the Preamble of the Draft Protocol VI, the High Contracting Parties considered the serious risks and challenges posed by autonomous weapon systems and therefore confirmed the need for the continuation of codification and progressive development of international law to protect human dignity, respect humanitarian reasons and maintain international peace and security. Furthermore, the Preamble emphasizes

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<sup>85</sup> *Id.*, *Killer Robots: Negotiate Treaty in New Forum, Delaying Needed Law Endangers Civilians, Generates Insecurity*, Human Rights Watch, <https://www.hrw.org/news/2022/11/10/killer-robots-negotiate-treaty-new-forum>, December 22, 2023.

<sup>86</sup> Werkhäuser, N., *'Killer robots': Will they be banned?* DW, <https://www.dw.com/en/killer-robots-will-they-be-banned/a-62587436>, December 22, 2023.

<sup>87</sup> CCW, Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons System, Geneva, 6-10 March, and 15-19 May 2023, Report of the 2023 session of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems, CCW/GGE.1/2023/2, 24 May 2023, Conclusions, para. 21 (a), p. 4, <https://meetings.unoda.org/ccw-/convention-on-certain-conventional-weapons-group-of-governmental-experts-on-lethal-autonomous-weapons-systems-2023>, December 22, 2023.

<sup>88</sup> *Loc. cit.*, para. 21 (c), p. 4.

<sup>89</sup> *Loc. cit.*, para. 23, p. 4.

<sup>90</sup> CCW, Draft Protocol on Autonomous Weapon Systems (Protocol VI), Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons System Geneva, 6-10 March, and 15-19 May 2023, CCW/GGE.1/2023/WP.6, 11 May 2023, Submitted by Argentina, Ecuador, El Salvador, Colombia, Costa Rica, Guatemala, Kazakhstan, Nigeria, Palestine, Panama, Peru, Philippines, Sierra Leone and Uruguay, <https://meetings.unoda.org/meeting/67246/documents>, January 9, 2024.

the necessity of maintaining human control over the use of force because of the security concerns posed by autonomous weapon systems.<sup>91</sup>

The general provisions of the Draft Protocol VI are applicable to autonomous weapon systems. The High Contracting Parties agree to comply with the obligations specified in Draft Protocol VI in accordance with the Charter of the United Nations and the rules of international law. States retain the right to access, develop, research, produce, procure, transfer, and use emerging technologies, including AI, for peaceful purposes without hindrance.<sup>92</sup>

Article 2 of Draft Protocol VI proposes the characteristics of an autonomous weapon system, but not its definition. *Autonomous weapon systems refer to weapon systems that incorporate autonomy into the critical functions of selecting, targeting, engaging and applying force to targets.*<sup>93</sup> In the description of *Meaningful Human Control*, the High Contracting Parties reflect human action, human judgment, and intervention over the use of force including elements of redefining or modifying targets, disabling, or interrupting operations and limiting self-initiation functions. Attribution of responsibility in working with the weapon system is also prescribed by the same article of Draft Protocol VI.<sup>94</sup>

Article 2 of the Draft Protocol VI requires explanations. Section 1 describes the dimension of autonomy but excludes the presence of human control in the initial phase of the use of autonomous weapon systems. In particular, the description of autonomous weapon systems excludes autonomy without any presence of the human factor and human intervention. From the aspect of the offered description of meaningful human control, this is very important. If meaningful human control refers to human action and its judgment and intervention over the use of force, then prescribing the first dimension of autonomy in the description of autonomous weapon systems is necessary. Directing, choosing, targeting the target, as well as terminating the use of force, will depend on human intervention, while the decision made by the human factor will result in the individual responsibility of the person using the autonomous weapon system. Furthermore, autonomous weapon systems without any human intervention cannot meet the requirements of international humanitarian law presented in the Preamble of this Draft Protocol VI, the technological advances of which will in the near or distant future pose a perhaps even greater danger than nuclear weapons. We already stated earlier in this paper that the possibility of algorithm failure is always possible, as well as the fact that it is difficult to predict that autonomous weapon systems that operate completely independently of humans will be able to predict a failure in their system or distinguish a military target from civilian targets.

It is true that Article 3 of the Draft Protocol VI provides for certain prohibitions, however, these again refer exclusively to the functions of selecting, targeting, or

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<sup>91</sup> *Ibid.*, Preamble.

<sup>92</sup> *Ibid.*, Article 1.

<sup>93</sup> *Ibid.*, Article 2, Sec. 1.

<sup>94</sup> *Ibid.*, Article 2, Sec. 2, 2.1., 2.2., 2.3.

involving the use of force.<sup>95</sup> Regulations deriving from Article 4 of Draft Protocol VI require effective human oversight of any weapon systems for intervention and deactivation.<sup>96</sup> It is impossible to comply with such a request, because the effective provision of human supervision of autonomous weapon systems that operate without human intervention is impossible to control, given that it operates independently from the moment of its activation. The same applies to autonomous weapon systems in the critical functions of selecting, targeting, or engaging in the use of force. Another reason for the impossibility of complying with such a request in its entirety is the fact that an autonomous weapon system does not represent a machine that is *per se* intelligent but represents a connection between software and a human who has wrote and installed *data* into an autonomous weapon system. In relation to an autonomous weapon system that operates through the human factor, this connection will refer to the software and the human who controls it. However, significant human control of autonomous weapon systems when using force is not sufficient. Autonomous weapon systems should be controlled by the human factor during their use from the very beginning until the end of the armed operation. Furthermore, in terms of regulations, measures to limit the complexity of data processing methods to guarantee the predictability of weapon systems, but also to guarantee the avoidance of automation of biases in the operation of the system and the exclusion of algorithmic biases<sup>97</sup> are necessary, but not sufficient considering the possibility of system failure.

Article 5 of Draft Protocol VI prescribes the inspection of weapons.<sup>98</sup> This article should be revised because autonomous weapon systems *per se* are not defined as weapons by this Protocol. The effectiveness of the weapon as mentioned earlier will depend on the type of specific weapon attached to the autonomous weapon system, not on the modification and development of already existing autonomous weapon systems. The development or modification of autonomous weapon systems today and in the future will depend on the degree of their autonomy, and not on the weapons they transport or transfer in and on them. Article 6 of Draft Protocol VI prescribes security measures to reduce the risk of the use of autonomous weapon systems by non-state actors, terrorist groups, and especially proliferation during the development or acquisition of autonomous weapon systems.<sup>99</sup> The cooperation of states to achieve appropriate legislative measures regarding autonomous weapon systems for the functioning of the provisions of the protocol are prescribed by Article 7 and Article 8 of the Draft Protocol VI.<sup>100</sup>

The new Protocol VI should primarily determine the legal qualification of an autonomous weapon system, that is, define an autonomous weapon system as a means of transportation or transmission, or specifically as a weapon of war. The

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<sup>95</sup> *Ibid.*, Article 3.

<sup>96</sup> *Ibid.*, Article 4., Sec 1.1.

<sup>97</sup> *Ibid.*, Article 4., Sec. 1.5., Sec. 2.

<sup>98</sup> *Ibid.*, Article 5.

<sup>99</sup> *Ibid.*, Article 6.

<sup>100</sup> *Ibid.*, Article 7, 8.

author is more inclined to the definition of an autonomous weapon system in terms of a transport and/or transfer means or their combination presented in this paper.<sup>101</sup> Furthermore, it is necessary to distinguish between the degree of autonomy, but it is also necessary to specify the types of autonomous system. It is also very important to prescribe a ban with the new Protocol VI and the illegality of using autonomous weapon systems that operate independently without the human factor. The new Protocol VI should also contain provisions on compliance with all principles of international humanitarian law, as well as provisions on all types of weapons that are prohibited in accordance with international instruments and as such may not even be attached to autonomous weapon systems. The responsibility within the scope of the new Protocol VI for the use of autonomous weapon systems in armed conflicts should consider the construction, development, modification, and modernization of autonomous weapon systems from their initial stage, i.e. their origin, for example, the organization or the individual person who built it, i.e. modified it. The responsibility for the use of autonomous weapon systems should continue up to the operator who embeds the algorithms in the autonomous system itself, up to the commander of armed operations, as well as the persons who manage it. All the above is necessary due to the addition of state responsibility and the establishment of individual responsibility in case of non-compliance with the main principles of international law.

## 6. CONCLUSION

Achieving a consensus on the limitations of the use of autonomous weapon systems, that is, on their prohibition, is of paramount importance. Without the existence of a universal international document, the advanced future technology of autonomous weapon systems, which would rely solely on embedded artificial intelligence, would generate making its own decisions on target selection, unselectively targeting people and objects, either military or civilian. Without effective human supervision and human intervention, autonomous weapon systems function unpredictably, which raises serious concerns. The fact that the possession of autonomous weapon systems is not limited to global superpowers is also worrying. Namely, their cheap production enables the development of the military technology of poorer, unstable countries, as well as non-state actors, including terrorist groups.

To prevent autonomous weapon systems from facing the same legal uncertainty as nuclear weapons, it is crucial to establish clear guidelines for their use.<sup>102</sup> In that respect, the first step would be to provide a legal definition of autonomous weapon systems in a new international document. A distinction would thus be made between weapons and weapon systems, all in accordance with their degrees of autonomy. Weapon systems which operate without human supervision would be illegal. In

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<sup>101</sup> *Supra*, p. 18., 19.

<sup>102</sup> I.C.J. Reports, *op. cit.*, note 18, para. 105 (2E).



this connection, the responsibility of the state and the personal responsibility of the individual in connection with the development, production, modification and modernization of autonomous weapon systems and their use would be easier to determine.

Before an agreement on autonomous weapon systems is adopted, it is necessary to observe those weapon systems through the prism of international humanitarian law principles. To respect those principles, autonomous weapon systems should be able not only to identify their targets, but to adjust to the situation and change the course of their actions should circumstances so require. At the moment, technological features of the existing weapon systems do not meet such demands and thus a meaningful human control over them is necessary. Not to mention the possibility of the software error occurrence.

The challenge in determining the legal faith of autonomous weapon systems, however, lies in their constant improvement in terms of technical sophistication. It is predicted that it will not take more than couple of decades before autonomous weapon systems are capable of performing complex tasks and of becoming context-aware. Should this happen, complying with the principles of humanitarian law might also be possible. But even in such a scenario, a wider legal debate on autonomous weapon systems, involving issues such as human rights, or responsibility, will surely continue.

## BIBLIOGRAPHY

### Books

1. Amoroso, D., *Autonomous Weapons Systems and International Law, A Study on Human-Machine Interactions in Ethically and Legally Sensitive Domains*, Edizioni Scientifiche Italiane, Napoli, 2020.
2. Baxter, R. R., *The Duties of Combatants and the Conduct of Hostilities (The Law of the Hague)*, in: *International Dimensions of Humanitarian Law*, Henry-Dunant Institute/UNESCO, Geneva, 1986, p. 93-133.
3. Boothby, W., *The regulations of weapons under IHL*, in: De Vidts, B.; Beruto, G. L. (eds.), *Weapons and the International Rule of Law, 39th Round Table on Current Issues of International Humanitarian Law*, International Institute of Humanitarian Law, Sanremo, 2016, p. 37-41.
4. Cannizzaro, E., *Proportionality in the Law of Armed Conflict*, in: Clapham, A.; Gaeta, P. (eds.), *The Oxford Handbook of International Law in Armed Conflict*, Oxford University Press, Oxford, 2014., p. 332-352.
5. Crawford, E.; Pert, A., *International Humanitarian Law*, 2<sup>nd</sup> ed., Cambridge University Press, Cambridge, 2020.
6. Hammond, G. T. (ed.), *A Discourses on Winning and Losing, John R. Boyd*, Air University Press, Alabama, 2018.

7. Singer, P. W., *Wired for War: The Robotics Revolution and Conflict in the 21<sup>st</sup> Century*, Penguin Press, New York, 2009.
8. Solis, G. D., *The Law of Armed Conflict: International Humanitarian Law in War*, Cambridge University Press, Cambridge, 2010.
9. Turns, D., *The Law of Armed Conflict (International Humanitarian Law)*, in: Evans, M. D. (ed.), *International Law*, 5<sup>th</sup> ed., Oxford University Press, Oxford, 2018., p. 840-876.
10. Office of General Counsel Department of Defense, *Department of Defense Law of War Manual*, United States of America, Washington, 2015.
11. UK Ministry of Defence, *The Manual of the Law of Armed Conflict*, Oxford University Press, Oxford, 2004.

### Journal Articles

1. Amoroso, D., *Jus in bello and jus ad bellum arguments against autonomy in weapons systems: A re-appraisal*, QIL, Zoom-in, Vol. 43, 2017, p. 5-31.
2. Blanchard, A.; Taddeo, M., *Jus in bello Necessity, The Requirement of Minimal Force, and Autonomous Weapon Systems*, Journal of Military Ethics, Vol. 21, No. 3-4/2022, p. 286-303.
3. Chesterman, S., *Artificial intelligence and the problem of autonomy*, Notre Dame Journal on Emerging Technologies, Vol. 1, No. 2/2020, p. 210-250.
4. Hanke, H. M., *The 1923 Hague Rules of Air Warfare - A contribution to the development of international law protecting civilians from air attack*, International Review of the Red Cross, Vol. 33, No. 292/1993, p. 12- 44.
5. Kleczkowska, A., *Autonomous Weapons and the Right to Self-Defence*, Israel Law Review, Vol. 56, No. 1/2023, p. 24-40.
6. Marra, W. C.; McNeil, S. K., *Understanding "The Loop": Regulating the Next Generation of War Machines*, Harvard Journal of Law and Public Policy, Vol. 36, No. 3/2013, p. 1-62.
7. Modebadze, V., *The importance of drones in modern warfare and armed conflicts*, KutBilim Journal of Social Sciences and Arts, Vol. 1, No. 2/2021, p. 89-98.
8. Osiecki, M.; Fortonska, A.; Berus, M.; Włodarczyk, M., *Drone as a Target of Terrorist Attack and a Weapon against Terrorism – Analysis in the Light of International Law*, Journal of Intelligent & Robotic Systems, Vol. 106, No. 6/2022, p. 2-10.
9. Sassóli, M., *Autonomous Weapons and International Humanitarian Law: Advantages, Open Technical Questions and legal Issues to be Clarified*, International Law Studies, Vol. 90, No. 308/2014, p. 308-340.
10. Schmitt, M. N., *Autonomous Weapon Systems and International Humanitarian Law: A Reply to the Critics*, Harvard National Security Journal Features, Vol. 1, 2013, p. 1-37.
11. Schmitt, M. N.; Thurnher, J. S., *"Out of the loop": Autonomous Weapon Systems and the Law of Armed Conflict*, Harvard National Security Journal, Vol. 4, No. 231/2013, p. 231-281.

12. Vail, C., *The legality of nuclear weapon for use and deterrence*, Georgetown Journal of International Law, Vol. 48, 2017, p. 839-872.
13. Verchio, D. M., *Just say no! The SIrUS project: well-intentioned, but unnecessary and superfluous*, Air Force Law Review, Vol. 51, No. 1/2001, p. 183-228.
14. Winter, E., *The Compatibility of Autonomous Weapons with the Principles of International Humanitarian Law*, Journal of Conflict & Security Law, Vol. 27, No. 1/2022, p. 1-20.

### **International Committee of the Red Cross sources**

1. Coupland, R. M. (ed.), *The SIrUS Project, Towards a determination of which weapons cause "superfluous injury or unnecessary suffering"*, ICRC, 1997, p. 3-43.
2. Coupland, R.; Loye, D., *The 1899 Hague Declaration concerning Expanding Bullets, A treaty effective for more than 100 years faces complex contemporary issues*, RICR Mars, IRRC, Vol. 85, No. 849/2003, p. 135-142.
3. Henckaerts, J.-M.; Doswald-Beck, L., with contributions by Alvermann C.; Dormann K.; Rolfe B., *Customary International Humanitarian Law, Rules*, ICRC, Cambridge University Press, Vol. 1, 2005, p. 3-628.
4. Lawand, K., with contribution by Coupland R.; Herby P., *A Guide to the Legal Review of New Weapons, Means and Methods of Warfare, Measures to Implement Article 36 of Additional Protocol I of 1977*, ICRC (2006), p. 1-34.
5. Liu, H.-Y., *Categorization and legality of autonomous and remote weapons system*, International Review of the Red Cross, Vol. 94, No. 886/2012, p. 627-652.
6. Ticehurst, R., *The Martens Clause and the Laws of Armed Conflict*, International Review of the Red Cross, No. 317/1997, p. 125-134.
7. ICRC, *ICRC Commentary on the "Guiding Principles" of the CCW GGE on "Lethal Autonomous Weapons Systems"*, July 2020, p. 1-4.
8. ICRC, *Autonomous weapon systems - Q & A*, <https://www.icrc.org/en/document/autonomous-weapon-systems-challenge-human-control-over-use-force>, June 6, 2023.
9. ICRC, *Autonomous weapons systems technical, military, legal and humanitarian aspects*, <https://www.icrc.org/en/document/report-icrc-meeting-autonomous-weapon-systems-26-28-march-2014#>.VGRgYIMUWp, June 6, 2023.
10. ICRC, *ICRC Position on Autonomous Weapon Systems*, Geneva, 12 May, 2021, p. 2.
11. ICRC, <https://ihl-databases.icrc.org/en/ihl-treaties/st-petersburg-decl-1868>, November 20, 2023.
12. ICRC, *Towards Limits on Autonomy in Weapon*, <https://www.icrc.org/en/document/towards-limits-autonomous-weapons>, November 20, 2023.

### **Treaties and Declarations**

1. Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field, United Nation Treaty Series, vol. 75, p. 970.
2. Convention for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Member of Armed Forces at Sea, United Nation Treaty Series, vol. 75, p. 971.

3. Convention relative to the Treatment of Prisoners of War, United Nation Treaty Series, vol. 75, p. 972.
4. Convention relative to the Protection of Civilian Persons in Time of War, United Nation Treaty Series, vol. 75, p. 973.
5. Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, United Nations Treaty Series, vol. 1342, p. 137.
6. Convention (II) with Respect to the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land, The Hague, 29 July 1899, <https://ihl-databases.icrc.org/assets/treaties/150-IHL-10-EN.pdf>, November 15, 2023.
7. Convention (IV) respecting the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land, The Hague, 18 October 1907, <https://ihl-databases.icrc.org/assets/treaties/195-IHL-19-EN.pdf>, November 20, 2023.
8. Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grammes Weight. Saint Petersburg, 29 November / 11 December 1868, <https://ihl-databases.icrc.org/assets/treaties/130-IHL-6-EN.pdf>, November 20pro, 2023.
9. Instructions for the Government of Armies of the United States in the Field (Lieber Code), 24 April 1863, <https://ihl-databases.icrc.org/assets/treaties/110-IHL-L-Code-EN.pdf>, November 20, 2023.
10. Protocol Additional to the Geneva Conventions of 1949, and relating to the Protection of Victims of International Armed Conflicts, United Nations Treaty Series, vol. 1125, p. 3.
11. Protocol Additional to the Geneva Conventions of 1949, and relating to the Protection of Victims of Non-International Armed Conflicts, United Nations Treaty Series, vol. 1125, p. 609.
12. Rome Statute of the International Criminal Court, United Nations Treaty Series, vol. 2187, p. 3.

### **Case Law**

1. Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996, p. 226.
2. Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America), Merits, Judgment, I.C.J. Reports 1986, p. 14.

### **United Nations sources**

1. GA Res. 2444 (XXIII)
2. GA Res. 2675 (XXV)
3. CCW/MSP/2019/9
4. CCW/GGE.1/2023/CRP.2
5. CCW/GGE.1/2023/2

6. Draft Protocol on Autonomous Weapon Systems (Protocol VI), CCW/GGE.1/2023/WP.6

## Other Sources

1. Davison, N., *A legal perspective: Autonomous weapon systems under international humanitarian law*, in UNODA, *Perspectives on Lethal Autonomous Weapon Systems*, UNODA Occasional Papers, No. 30/2017, p. 5-18.
2. Dawes, J., *UN fails to agree on 'killer robot' ban as nations pour billions into autonomous weapons research*, The Conversation, <https://theconversation.com/un-fails-to-agree-on-killer-robot-ban-as-nations-pour-billions-into-autonomous-weapons-research-173616>, December 12, 2023.
3. Demir, K. A.; Caymaz, E., *Robotic warfare, Law of armed conflict, and Law of robotic armed conflict*, at the 12<sup>th</sup> International Scientific Conference "Defense resources management in the 21<sup>st</sup> century", Braşov, November 9<sup>th</sup>-10<sup>th</sup> 2017, pp. 1-11, [https://www.academia.edu/43000054/ROBOTIC\\_WARFARE\\_LAW\\_OF\\_ARMED\\_CONFLICT\\_AND\\_LAW\\_OF\\_ROBOTIC\\_ARMED\\_CONFLICT](https://www.academia.edu/43000054/ROBOTIC_WARFARE_LAW_OF_ARMED_CONFLICT_AND_LAW_OF_ROBOTIC_ARMED_CONFLICT), November 12, 2023.
4. Ganguly, S., *Drone Strike Blasts Open a New Front in the Kashmir Dispute*, Foreign Policy, <https://foreignpolicy.com/2021/07/01/drone-strike-blasts-open-a-new-front-in-the-kashmir-dispute/>, November 6, 2023.
5. Maroonian, A., *Proportionality in International Humanitarian Law: A Principle and a rule*, Lieber Institute, West Point, <https://lieber.westpoint.edu/proportionality-international-humanitarian-law-principle-rule/>, November 30, 2023.
6. Nasu, H., *Artificial Intelligence and the Obligation to Respect and to Ensure Respect for International Humanitarian Law*, ECIL Working Paper 2019/3.
7. Scharre, P., *Between a roomba and a terminator: What is autonomy?*, War on the Rocks, <https://warontherocks.com/2015/02/between-a-roomba-and-a-terminator-what-is-autonomy/>, December 7, 2023.
8. Stauffer, B., *An Agenda for Action Alternative Processes for Negotiating a Killer Robots Treaty*, Human Rights Watch, <https://www.hrw.org/report/2022/11/10/agenda-action/alternative-processes-negotiating-killer-robots-treaty>, December 20, 2023.
9. Stauffer, B., *Killer Robots: Negotiate Treaty in New Forum, Delaying Needed Law Endangers Civilians, Generates Insecurity*, Human Rights Watch, <https://www.hrw.org/news/2022/11/10/killer-robots-negotiate-treaty-new-forum>, December 20, 2023.
10. Trager, R. F.; Luca, L. M., *Killer Robots Are Here – and We Need to Regulate Them*, Foreign Policy, <https://foreignpolicy.com/2022/05/11/killer-robots-lethal-autonomous-weapons-systems-ukraine-libya-regulation/>, November 29, 2023.
11. Werkhäuser, N., *'Killer robots': Will they be banned?*, DW, <https://www.dw.com/en/killer-robots-will-they-be-banned/a-62587436>, December 22, 2023.