THE LEGALITY OF AUTONOMOUS WEAPON SYSTEMS UNDER INTERNATIONAL HUMANITARIAN LAW

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"The world is watching, the clock is ticking." [1]

ABSTRACT

Technological developments constitute an integral part of modern reality. Present and future technological advances have a potential far-reaching impact on our standard of living. Within a few decades, improved algorithms will replace humans on the battlefield during armed conflict and make their presence less of a military necessity. This irreversible process of technological advances has made a discussion of the legal, ethical, and political challenges that autonomous weapons systems pose unavoidable. While it is undeniable that artificial intelligence can reduce civilian casualties, it is also highly feasible that technologies designed for the use of civilians might be transformed into lethal weapons where people may lose control over the battlefield.

This Article reviews key issues related to autonomous weapon systems under international humanitarian law. An analysis of advantages and disadvantages indicates that weapons that are unlimited in time and space are *per se* illegal, that fully autonomous weapons systems should be banned, that the scope of international humanitarian law and human rights law should be expanded to regulate autonomous weapons systems, which does not exclude human control, that the rights and obligations of States should be clearly defined, and that the accountability gap should be closed.

Key words: Autonomous Weapon systems; International Humanitarian Law; Human Rights Law

INTRODUCTION

The new technology *per se* is not in contradiction with international humanitarian law; however, inherent legal, ethical and political challenges make it necessary to explore the various facets of autonomous weapons systems.[2] Special attention should be paid in this regard to the ambiguity, unpredictability and unreliability deriving from their capacity to act independently.

The proliferation of autonomous weapon systems will drastically change the situation on the battlefield, as artificial intelligence will make lethal decisions instead of human beings. Thus, the legality of autonomous weapons systems has to be assessed in conformity with

[1] Secretary-General's Message to the Meeting of the Group of Governmental Experts on Emerging Technologies in the Area of Lethal Autonomous Weapons Systems (25 March 2019).

[2] International Committee of the Red Cross, Statements to the Convention on Certain Conventional Weapons Group of Governmental Experts on Lethal Autonomous Weapons Systems (2019), 1; Human Rights Watch, Heed the Call (A Moral and Legal Imperative to Ban Killer Robots) (2018), 6.

the fundamental principles of international humanitarian law.[3] Among others, issues such as human control over autonomous weapons systems, liability for violations, treatment of persons *hors de combat*, attacks on dual-use objects, use by non-state actors, and detention in armed conflict, have to be analysed carefully.

1. THE DEFINITION OF AUTONOMOUS WEAPON SYSTEMS

While there is no internationally agreed definition of autonomous weapon systems, it is crucial to differentiate between fully autonomous weapons systems and semi-autonomous ones.[4] Various definitions comprise the element of "*autonomy*" that includes the performance of essential functions without human supervision and of making discretionary decisions.[5]

For the purposes of the International Committee of the Red Cross (ICRC), autonomous weapons systems are "*any weapon system with autonomy in its critical functions - that is, a weapon system that can select and attack targets without human intervention.*"[6] Human Rights Watch refers to unmanned robotic weapons, which are divided into three categories based on the amount of human involvement in their actions: (i) "*Human-in-the-Loop Weapons*" that can select targets and use force only pursuant to a human command; (ii) "*Human-on-the-Loop Weapons*" that can select targets and deliver force under the oversight of a human operator who can override the robot's actions; and (iii) "*Human-out-of-the-Loop Weapons*" that are capable of selecting targets and delivering force without any human input or interaction.[7] The United States Department of Defense has the following definition: "*A weapon system that once activated can select and engage targets without further intervention by a human operator*."[8]

2. AUTONOMOUS WEAPON SYSTEMS IN A STATE'S ARMS' ARSENAL

The United States, China, the Russian Federation, the United Kingdom, France, Israel and South Korea are leading in the area of artificial intelligence development.[9] More than 380 autonomous weapons have been developed thus far in at least 12 States,[10] including

[3] Advisory Council on International Affairs and Advisory Committee on Issues of Public International Law, Need for Meaningful Human Control (2015), 8.

[4] Michael N. Schmitt, Autonomous Weapon Systems and International Humanitarian Law: A Reply to the Critics, Harvard National Security Journal 1 (2013), 7.

[5] AIV and CAVV, supra 2, 3, 9; Andrew Williams, Defining Autonomy in Systems: Challenges and Solutions, Andrew P. Williams and Paul D. Scharre, Autonomous Systems (Issues for Defense Policymakers) 27 (2015), 33.

[6] Neil Davison, A Legal Perspective: AWS under International Humanitarian Law, United Nations Office for Disarmament Affairs, Perspectives on Lethal Autonomous Weapon Systems 5 (2017), 5-6.

[7] Human Rights Watch, Losing Humanity: The Case against Robots (2012); This is advocated by the most of experts. Paul Scharre and Michael C. Horowitz, An Introduction to Autonomy in Weapon Systems (2015), 6.

[8] United States Department of Defense, Directive on Autonomy in Weapon Systems (2012), 3. The view is shared by the British, French, Dutch officials.

[9] Women's International League for Peace and Freedom, Killer Robots (2019), 3.

[10] Mattha Busby, Killer Robots: Pressure Builds for Ban as Governments Meet (2018) https://www.theguardian.com/technology/2018/apr/09/killer-robots-pressure-builds-for-ban-as-governments-meet [accessed 01.07.2020].

the United States (X-47B, Patriot, Aegis, Phalanx, Sea Hunter),[11] China (Blowfish A2, CH-7, Wing Loong, Swarms),[12] the Russian Federation (Uran-9, Kamikaze Drone),[13] the United Kingdom (Drone Swarms, Taranis, Fire-and-for-get, Autonomous Warrior),[14] Israel (Iron Dome, Sky Striker, Mini Harpy),[15] South Korea (Dronebot Jeontudan, Striker Drone, Harpy, Super Aegis II, Prison Guard).[16] Israel is the first State to declare that it has deployed an autonomous weapons system in the Gaza Strip.[17] North Korea has deployed Samsung SGR 1 and SGR-A1 for patrolling in the demilitarized zone.[18]

Large companies continue to produce autonomous weapons systems without legal regulations. The manufacturers include Lockheed Martin, Boeing and Raytheon (United States), AVIC and CASC (China), IAI, Elbit and Rafae (Israel), Rostec (Russian Federation).[19] Practices are ruled by secrecy; and it is possible that weapons be made accessible to non-state actors.[20]

3. REGULATING AUTONOMOUS WEAPON SYSTEMS

There is general consensus that obligations under international humanitarian law apply to autonomous weapons systems.[21] While there is no specific provision in international humanitarian law governing autonomous weapons systems,[22] this absence of regulations does not "conclude the discussion."[23] Autonomous weapons systems may *per se* be illegal or unlawful because of the methods used by a State to conduct an attack.[24] In addition to the

[11] Michael T. Klare, Autonomous Weapons Systems and the Laws of War (2019) https://www.armscontrol.org/act/2019-03/features/autonomous-weapons-systems-laws-war [Available 01/07/2020]; Congressional Research Service, United States Ground Forces Robotics and Autonomous Systems and Artificial Intelligence: Considerations for Congress (2018).

[12] WILPF, supra n. 9, 3.

[13] Frank Wolfe, Companies Developing Lethal Autonomous Weapons, As Groups Seek Ban, Report Says (2019) https://www.aviationtoday.com/2019/12/02/companies-developing-lethal-autonomous-weapons-as-groups-seek-ban-report-says/ [accessed 01.07.2020].

[14] Del Prado, These are Killer Robot Weapons That Terrify Artificial Intelligence Researchers (2015); Damien Gayle, UK, US and Russia among Those Opposing Killer Robot Ban (2019) https://www.theguardian.com/science/2019/mar/29/uk-us-russia-opposing-killer-robot-ban-un-ai [accessed 01.07.2020].

[15] Ajey Lele, A Military Perspective on Lethal Autonomous Weapon Systems, United Nations Office for Disarmament Affairs, Perspectives on Lethal Autonomous Weapon Systems 5 (2017), 59.

[16] PAX, State of AI, Artificial Intelligence, the Military and Increasingly Autonomous Weapons (2019), 31.

[17] The Hague Centre for Strategic Studies, Artificial Intelligence and the Future of Defense: Strategic Implications for Small-and Medium-Sized Force Providers (2017), 80; Yaakov Katz and Amir Bohbot, The Weapon Wizards - How Israel became a High-Tech Military Superpower (2017).

[18] Mary Wareham and Stephen Goose, Growing International Movement against Killer Robots (2017).

[19] PAX, The Arms Industry and Increasingly Autonomous Weapons (2019), 5.

[20] Peter Warren Singer, The Future of War will be Robotic (2015) https://edition.cnn.com/2015/02/23/opinion/singer-future-of-war-robotic/index.html [accessed 01.07.2020].

[21] Ian S. Henderson, Patrick Keane and Josh Liddy, 'Remote and Autonomous Warfare Systems: Precautions in Attack and Individual Accountability, Jens David Ohlin, Research Handbook on Remote Warfare 335 (2017), 340.

[22] Michael W. Meier, Lethal Autonomous Weapons Systems: Conducting a Comprehensive Weapons Review, Temple International and Comparative Law Journal 119 (2016), 128.

[23] Neil Davison, supra n. 6, 7.

[24] Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 8 July 1996, ICJ Reports 226 (1996), p. 39.

legal assessment, political and moral challenges also have to be addressed.[25] However, the mere fact that autonomous weapons systems cannot make subjective decisions, does not make them *per se* illegal.[26]

3.1 A Legal Assessment under Article 36 of the First Additional Protocol

The discussion should begin with Article 35 (1) of the First Additional Protocol to the Geneva Conventions of 1949: "*in any armed conflict, the right of the Parties to the conflict to choose methods or means of warfare is not unlimited*." International humanitarian law establishes another obligation under Article 36 of the First Additional Protocol that provides that "*in the study, development, acquisition or adoption of a new weapon, means or method of warfare, a High Contracting Party is under an obligation to determine whether its employment would, in some or all circumstances, be prohibited by this Protocol or by any other rule of international law applicable to the High Contracting Party*." Article 36 applies to all States, regardless of whether they are States Parties to the First Additional Protocol. This stems from the general prohibition under international customary law not to use illegal weapons, methods and means illegally.[27]

The legality of the autonomous weapons system has to be assessed pursuant to the principle of distinction, military necessity, the principle of proportionality, prohibition of superfluous injury or unnecessary suffering, the principle of precautions, and the Martens Clause.[28] It is also necessary to consider the technical capabilities of the weapons[29], and to assess collectively the risks posed to civilians.[30] With the increase in the numbers of armed conflicts and rapid technological changes, environmental standards[31] have to be taken into account and continuous updates in assessing the legality of the weapons systems be made.[32]

4. CONSEQUENCES OF THE LEGAL ASSESSMENT OF AUTONOMOUS WEAPON SYSTEMS

In 2012, the Directive 3000.9 on Autonomy in Weapons Systems released by the United States Department of Defense and a report by the international NGO Human Rights

[25] Keneth Anderson, Daniel Reisner and Matthew Waxman, Adapting the Law of Armed Conflict to Autonomous Weapon Systems, 90 International Law Studies 386 (2014), 393.

[26] Peter Asaro, On Banning Autonomous Weapon Systems: Human Rights, Automation, and the Dehumanization of Lethal Decision-Making, 94 International Review of the Red Cross 687 (2012), 689.

[27] International Committee of the Red Cross, A Guide to the Legal Review of Weapons, Means and Methods of Warfare, Measures to Implement Article 36 of Additional Protocol of 1977 (2006), 4.

[28] These obligations are an integral part of customary international law. ICRC, Customary Database, https://ihl-databases.icrc.org/customary-ihl/eng/docs/home [accessed 01.07.2020].

[29] Marco Sassòli, Autonomous Weapons and International Humanitarian Law: Advantages, Open Technical Questions and Legal Issues to be Clarified, 91 International Law Studies 308 (2014), 311.

[30] ICRC, Summary of the Document for UN Secretary-General's High-Level Panel on Digital Cooperation (2019), 6.

[31] Antoine Bouvier, Protection of the Natural Environment in Time of Armed Conflict (1991); Michael W. Meier, supra n. 22, 130-131.

[32] ICRC, Artificial Intelligence and Machine Learning in Armed Conflict: A Human-centered Approach (2019), 1.

Watch jumpstarted the discussion on autonomous weapons systems.[33]

After three years of negotiations, in 2016, the Group of Governmental Experts under the Convention on Certain Conventional Weapons was established to discuss challenges and problems related to autonomous weapons systems. Meetings of States Parties to the Convention on Certain Conventional Weapons (adopted in 1980) are governed by decision-making by consensus.[34] Although there is no international consensus on autonomous weapons systems, the UN Convention on Certain Conventional Weapons is considered to be the appropriate instrument for regulating autonomous weapons systems.

At the 2019 meeting of the High Contracting Parties of the Convention , UN Secretary-General Antonio Guterres emphasized the importance of involving technicians, academia and civil society in finding a workable solution. He noted that "*machines with the power and discretion to take lives without human involvement are politically unacceptable, morally repugnant and should be prohibited by international law*."[35]

4.1 Advocating for the Development of Autonomous Weapon Systems

Some experts point out that the advantage of using an autonomous weapons system lies in its technological capabilities that include mobilizing a greater amount of information, receiving the data with sensors, and assessing situations more accurately. The experts further emphasize that in the absence of fatigue, fear, hatred, prejudice and other impediments to the decision-making process, compliance with Article 52 (2) of the First Additional Protocol to the Geneva Conventions on targeting objects that are military objectives would be improved.[36] They also argue that the principle of proportionality could be maintained in some respects when using automatic weapons systems; however, there is general agreement that some human involvement may be necessary for some time to come.[37]

An autonomous weapons system has the capacity to obtain reliable information in selecting targets.[38] After being activated by the operator, it does not need to receive additional information to conduct a military operation and can function even in places where communication is impossible.[39] An autonomous weapon system will be capable to carry

[33] United States Department of Defense, supra n. 8.

[34] Meetings within the framework of the Government Expert Group in 2019 were held on 25-29 March, 20-21 August and 13-15 November.

[35] United Nations News, Autonomous Weapons that Kill Must be Banned, insists UN chief (2019) https://news.un.org/en/story/2019/03/1035381 [accessed 01.07.2020].

[36] Amitai Etzioni, Pros and Cons of Autonomous Weapons Systems, Military Review 72 (2017) 75.

[37] Michael N. Schmitt, supra n. 4, 19; Peter W. Singer Wired for War: The Robotics Revolution and Conflict in the 21st Century (2009), 124-127.

[38] Ronald C. Arkin, Ethical Robots in Warfare (2009); Ian S. Henderson, Patrick Keane and Josh Liddy, Remote and Autonomous Warfare Systems: Precautions in Attack and Individual Accountability in Jens David Ohlin, Research Handbook on Remote Warfare 335 (2017), 341-343.

[39] AIV and CAVV, supra n. 3, 11.

out a specific mission[40], reduce corollary damage,[41] undertake proactive investigation,[42] and reduce the extent of the armed conflict.[43]

Professor Marco Sasoli points out that "*human beings often kill others to avoid being killed themselves. The robot can delay the use of force until the last, most appropriate moment, when it has been established that the target and the attack are legitimate*."[44] It is further argued that it is not necessary for a robot to act like a human. The conformity of autonomous weapon systems with international humanitarian law must be determined not by their hypothetical ideal, but by their comparison with human and drawing parallels.[45]

4.2 Resisting the Development of Autonomous Weapon Systems

Autonomous weapons systems are the subject of criticism by many experts. In a 2013 report, UN Special Rapporteur Christof Heyns raised a key issue, namely whether human dignity is violated by a lethal decision that is taken by an autonomous weapons system.[46] Undoubtedly, the principles of distinction and proportionality require human judgment,[47] which is ruled out in the case of an autonomous weapon system. Autonomous weapons will not be able to make informed, context-appropriate decisions during military operations.[48] Over time, these tools will become more accurate, but may still not have the capacity to avoid danger for non-combatants completely and to change decisions during an attack.[49] The autonomous weapons system may not have the ability to delay or terminate a lethal mission in the event that a person's legal status appears to be unclear.[50] Furthermore, in the absence of appropriate communication, persons *hors de combat*[51] and dual-use objects[52] may be harmed and rules of detention in armed conflict not be honored.[53] Human Rights

[40] Michael Busby, Killer Robots: Pressure Builds for Ban as Governments Meet, The Guardian (2018).

[41] Jakob Kellenberger, International Humanitarian Law and New Weapon Technologies, 94 International Review of the Red Cross 809 (2012), 812.

[42] Philip Alston, Lethal Robotic Technologies: The Implications for Human Rights and International Humanitarian Law 21 (2012), 52.

[43] Peter M. Asaro, How Just Could a Robot War Be? in Philip Brey, Current Issues in Computing and Philosophy 50 (2008), 65.

[44] Marco Sassòli, supra n. 29, 310.

[45] Alexander Bolt, The Use of Autonomous Weapons and the Role of the Legal Advisor, in Dan Saxon, International Humanitarian Law and the Changing Technology of War 123 (2013), 133-134.

[46] Christof Heyns, Report of the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions (2013), p. 91, 92.

[47] David Akerson, The illegality of Offensive Lethal Autonomy in Dan Saxon, International Humanitarian Law and the Changing Technology of War 65 (2013), 69-70.

[48] Daniele Amoroso, Jus in Bello and Jus ad Bellum Arguments against Autonomy in Weapons Systems: A Re-appraisal, Questions of International Law Journal 6 (2017), 12.

[49] Antoine Bousquet, The Eye of War: Military Perception from the Telescope to the Drone (2018).

[50] Michael N. Schmitt, supra n. 4, 16.

[51] Bill Boothby, How Far Will the Law Allow Unmanned targeting to go? in Dan Saxon, Series of International Humanitarian Law and the Changing Technology of War 43 (2013), 59-60.

[52] Markus Wagner, Autonomy in the Battlespace: Independently Operating Weapon Systems and the Law of Armed Conflict in Dan Saxon, International Humanitarian Law and the Changing Technology of War 99 (2013), 111-112.

[53] Ashley Deeks, Detaining by Algorithm (2019), https://blogs.icrc.org/law-and-policy/2019/03/25/detaining-by-algorithm/ [accessed 01.07.2020].

Watch also questions the compliance with the Martens Clause (of providing protection to individuals caught up in armed conflict even when there is no specific applicable rule of international humanitarian law) [54] and with the principle of proportionality.[55] Additionally, doubts as to the ability to make subjective decisions,[56] to provide for some human control[57], and to make proportional calculations are voiced.[58]

The remoteness of a human from the battlefield impedes establishing responsibility. Since humans do not participate in the selection of the target and conduct of the operation, an "*accountability gap* " may arise as a result.[59] In practical terms, the commander's remoteness from the battleground makes it difficult for the commander to be held liable for violations committed there.[60] On the other hand, the autonomous weapon system is not a combatant[61] and accountability cannot shift to a machine, a computer program, or a weapons system.[62] Further technological advances over time will make greater autonomy on the battlefield possible,[63] but human control should not disappear. Only by maintaining human control the principles of international humanitarian law can be upheld.[64] "*Effective control*" or a "*proper level of human judgment,*" must be maintained to use force.[65]Among other shortcomings are insecurity in cyberspace, use by non-state actors,[66] use to suppress peaceful protests, the increase and spread of fighting that might lead to the establishment of a global battlefield.[67] On a more philosophical and political level, weapons of artificial intelligence do not perceive historical and cultural contexts, do not understand the essence of the right to life, and can pose a risk to international peace and security.[68]

[54] The development of autonomous weapons systems was condemned at a meeting of a Group of Government Experts on Technologies developed in the field of Lethal Autonomous Weapons Systems.

[55] Human Rights Watch and IHRC, The Need for and Elements of a New Treaty on Fully Autonomous Weapons (2020), 2.

[56] Markus Wagner, The Dehumanization of International Humanitarian Law: Legal, Ethical, and Political Implications of Autonomous Weapon Systems, 47 Journal of International Law 1 (2014), 36; Vincent Boulanin, Implementing Article 36 Weapon Reviews in the Lights of Increasing Autonomy is Weapon Systems in SIPRI, SIPRI Insights on Peace and Security 1 (2015), 10.

[57] Hayley Evans, Lethal Autonomous Weapons Systems at the First and Second UN GGE Meetings (2018).

[58] Robert Sparrow, Twenty Seconds to Comply: Autonomous Weapon Systems and the Recognition of Surrender, 91 International Law Studies 699 (2015), 702.

[59] Branka Marijan, Autonomous Weapons, the Military, AI, and Why it's Time to Worry,'40 Ploughshares Monitor 15 (2019), 17.

[60] Neil Davison, supra n. 5, 7.

[61] Qiang Li and Dan Xie, Legal Regulation of AI Weapons under International Humanitarian Law: A Chinese Perspective (2019), https://blogs.icrc.org/law-and-policy/2019/05/02/ai-weapon-ihl-legal-regulation-chinese-perspective/ [accessed 01.07.2020].

[62] Neil Davison, supra n. 5, 7.

[63] Armin Krishnan, Killer Robots: Legality and Ethicality of Autonomous Weapons (2009).

[64] Roni A. Elias, Facing the Brave New World of Killer Robots: Adapting into the Framework of the International Law of War, 3 Indonesian Journal of International and Comparative Law 101 (2016), 103.

[65] Neil Davison, supra n. 5, 11.

[66] Qiang Li and Dan Xie supra n. 61.

[67] Noel Sharkey, Global Security in Mary Warehan, Let's Stop Killer Robots before It is too Late (2019); Peter Warren Singer, The Future of War will be Robotic (2015).

[68] Rob Sparrow, Ethics as a Source of Law: The Martens Clause and Autonomous Weapons (2017), https://blogs.icrc.org/law-and-policy/2017/11/14/ethics-source-law-martens-clause-autonomous-weapons/ [accessed 01.07.2020].

5. IS BANNING AUTONOMOUS WEAPON SYSTEMS THE BEST SOLUTION?

There is no consensus on the regulation of autonomous weapons systems. However, the primary purpose of the UN Convention on Certain Conventional Weapons is to prohibit weapons that are of a nature to cause superfluous injury and unnecessary suffering in armed conflict.[69] Thirty States, at present, support the ban on fully autonomous weapons systems.[70] They argue that despite technological advances, the system will never have the characteristics of a human.[71] In this context, the Human Rights Watch is citing the prohibition of blinding lasers - they share similar challenges (risk of proliferation, incompatibility with the Martens Clause).[72] In view of the above, autonomous weapon systems should be banned based on this precedent.[73] The "*Stop Killer Robots*" Campaign advocates the need to create a legally binding instrument that prohibits weapons systems that exclude human control. The Human Rights Committee opposes the deployment of autonomous weapons during armed conflict and peacetime until there will be a normative framework to ensure compliance with the right to life under Article 6 of the ICCPR.[74]

The EU has adopted a clear position regarding systems of lethal autonomous weapons, namely that international law, including international humanitarian and human rights law, applies to all types of weapons systems; that persons who make decisions on the use of lethal force retain control and are responsible for the consequences; and that the UN Convention on Certain Conventional Weapons is the proper legal framework and the process of technological developments should not be hindered.[75]

The United States, the United Kingdom, Israel, and South Korea do not support the automatic weapons ban. Eleven-point guidelines developed by France and Germany, along with other principles, stipulate that international humanitarian law applies to autonomous weapons systems, that the liability for violations must remain with humans, and that states must fulfill their legal assessment obligations.[76]

While the international community must come to terms with the fact that the "autonomy"

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[69] 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 (1980).

[70] Algeria, Argentina, Austria, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Cuba , Djibouti, Ecuador Egypt, El Salvador, Ghana, Guatemala, Holy See, Iraq , Jordan, Mexico, Morocco, Namibia, Nicaragua, Pakistan, Panama, Peru, State of Palestine, Uganda, Venezuela, Zimbabwe https://www.stopkillerrobots.org/ [accessed 01.07.2020].

[71] Human Rights Watch, Making the Case: The Dangers of Killer Robots and the Need for a Preemptive Ban (2016), 41.

[72] Daniele Amoroso, supra n. 48, 22.

[73] Human Rights Watch, Precedent for Preemption: The Ban on Blinding Lasers as a Model for a Killer Robots Prohibition (2013), 2.

[74] Human Rights Committee, General Comment No. 36 on Article 6 of the International Covenant on Civil and Political Rights, on the Right to Life, Revised Draft Prepared by the Rapporteur (2017), p. 12.

[75] European External Action Service, Autonomous Weapons Must Remain under Human Control, Mogherini says at European Parliament (2018), 2; In 2014, it passed a resolution banning the development, production and use of deadly autonomous weapons, which can be carried out without human intervention. In 2018, the European Parliament passed a resolution calling for a ban on fully autonomous weapons. An interim agreement was reached on February 20, 2019, under which the European Defense Fund will refuse to fund the development of deadly autonomous weapons.

[76] Declaration on LAWS (2019) https://www.diplomatie.gouv.fr/en/french-foreign-policy/united-nations/alliance-for-multilateralism-63158/article/11-principles-on-lethal-autonomous-weapons-systems-laws [accessed 01.07.2020].

of weapons systems will be increasing over time within the frames of legality,[77] risk monitoring and the reduction of negative outcomes has to be integral to such a development. However, this does not preclude that technological advances cannot be rejected. Weapons that cannot be controlled, and that are unpredictable and unlimited in time and space, are *per se* illegal. Fully autonomous weapons systems should be banned. The scope of international humanitarian law and human rights law should be expanded to regulate autonomous weapons systems with human control. A robot cannot be held accountable; human control must apply to every stage of the weapons' existence, including research and development, testing, evaluation and certification, deployment, training, command and control, use and termination, and subsequent assessment.[78] The context of the planned operation, the features and capabilities of the weapons systems, must be borne in mind when engaging in military interventions. All technical, legal, political, military and ethical issues have to come within the ambit of human responsibility .

In cooperating with each other, States should rely on the agreement reached by the Convention on Conventional Weapons/Group of Government Experts in August 2018, according to which human control must be maintained over the use of weapons systems and the use of force. The standards concerning human control should be precise, effective, and practical.[79] "*Autonomy*" must be limited in space and time, to targets, and types of attack.[80] This would make it possible to conform to the principles of international humanitarian law.

CONCLUSION

Discussing the legality of autonomous weapons systems under international humanitarian law is particularly difficult because of both the advantages and disadvantages that are inherent in those weapons systems. It is therefore necessary to balance competing interests when drawing conclusions: on the one hand (i) *Autonomous weapons systems operate for long periods of time quickly, accurately, and with reduced losses. They pose fewer risks to a State's armed forces, reduce pain and hunger of the population, and are more transparent because of their data recording system ; on the other hand* (ii) *The principles of international humanitarian law may be violated by the use of autonomous weapons systems. Making lethal decisions beyond human control is contrary to human dignity and creates an "accountability" gap. Its use is unacceptable, politically and morally.*

An analysis of the pros and cons including the analysis of legal as well as moral, ethical and political challenges leads to the conclusion that the Parties to an armed conflict should deploy all weapons, including autonomous weapons systems, in accordance with international humanitarian law. Attacks, in their entirety, should be guided by human decisions – International Humanitarian Law applies to humans only. Responsibility

[77] Robin Geiss, The International-law Dimension of Autonomous Weapons Systems (2015), 4.

[78] Neil Davison, supra n. 6, 16-18.

[79] ICRC, supra n. 32, 1.

[80] Paul Scharre, Human Judgment and Lethal Decision-making in War (2018), https://blogs.icrc.org/law-and-policy/2018/04/11/human-judgment-lethal-decision-making-war/ [accessed 01.07.2020].

cannot be assumed by, or imposed on, a machine – at no instant during the entire cycle of the weapons' existence. Human control is required at any time. Weapons that are not supervised, are unpredictable and unlimited in time and space, and are *per se* illegal.

The parameters laid out above will be implemented through the cooperation among States and negotiations efficiently conducted in order to achieve the following goals: (i) *To develop a precise definition of autonomous weapons and to determine what is unacceptable with regard to autonomy;* (ii) *To ban fully autonomous weapons, and to extend and strengthen the scope of international humanitarian and human rights law in respect of autonomous weapons systems that do not preclude human control;* (iii) *To clearly define the rights and responsibilities of States and address the legal, moral, ethical, and political challenges;* (iv) *To prevent the development of fully autonomous weapons systems at an early stage, an international treaty should not only prohibit their use, but also their development and production;* (v) *To ensure that States are responding to technological advances;and* (vi) *To facilitate research and technological improvements, with the benefit of the civilian population.*