

**COMMAND RESPONSIBILITY OF AUTONOMOUS WEAPONS SYSTEMS:
INTERNATIONAL HUMANITARIAN LAW PERSPECTIVE**

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ABSTRACT

War and technological development have been connected for an era. States and military leaders have been searching for weapon systems that will minimize the risk for soldiers. It is because the current technological development has enabled the destruction of combatants and non-combatants at levels not seen previously in human history. International Humanitarian Law treaties do not specifically regulate Autonomous Weapon Systems (AWS). Autonomous weapons systems are appearing as the keys of technologies of future warfare. So far, academic debates concentrate on the legal-ethical implications of accountability on Autonomous Weapons Systems. However, these do not capture how AWS may shape norms through defining diverging standards of appropriateness in practice. This study tries to reveal the concept of command responsibility of Autonomous Weapons Systems under International Humanitarian Law. The study is normative legal research with Statute Approach and Case Approach. By using the qualitative descriptive method, this study will be elaborated on how the command responsibility can be implemented on Autonomous Weapons Systems under International Humanitarian Law perspective. The result shows that in term of humanitarian issue, the commander can be liable for responsibilities if there is a criminal commit by Autonomous Weapons Systems.

Key Words: *Autonomous Weapons Systems, Command Responsibility, International Humanitarian Law*

I. Preliminary

At the beginning of the last century, weapons such as tanks, air warfare, and the long-range missile have been used by soldiers participating in the hostilities. Weapons are becoming more and more advanced, and humans are moving further away from the battlefield. It can be said that weapons are becoming more and more autonomous. The trend towards autonomous functions in weapons is not new. During the Second World

War, the Germans used *Zaunkönig Torpedoes*.¹ These weapons are acoustic torpedoes and once launched, the torpedo could find its target by using sound waves. Much has changed since then. Currently, there are weapons where a pilot is sitting in an operating room, and the pilot can control an Unmanned Aerial Vehicle (UAV) better known as “drone” to conduct lethal targeting operations on the other side of the world. Today’s weapons systems require some human intervention, but the next step about weapons systems will be removing the human from the process altogether.²

War and technological development have been linked together for centuries. For ages, states and military leaders have been searching for weapons systems that will minimize the risk for soldiers. Weapons systems are becoming more and more advanced, and humans are moving further away from the battlefield. Mainly due to the development of artificial intelligence, weapons systems with limited human involvement have been developed.³ Autonomous Weapons Systems (AWS) are emerging as key technologies of future warfare.

International Humanitarian Law categorizes the use of Autonomous Weapons to means and methods of warfare, the context of means in International Humanitarian Law is what kind of weapons used in hostilities. This term specifically refers to the physical means that belligerents use to inflict damage on their enemies during combat. As such, the term includes all weapons and includes weapons systems.⁴ Different from the method of warfare,³ the term generally describes how weapons are utilized by parties to an armed

¹ Chantal Grut, 2013, “The Challenge of Autonomous Lethal Robotics to International Humanitarian Law”, *Journal of Conflict & Security Law* Vol.18, No.1, Oxford, Oxford University Press, p. 5.

² *Ibid.*

³ Geneva Academy of International Humanitarian Law and Human Rights, 2014, *Academy Briefing No. 8: Autonomous Weapons Systems under International Law*, Geneva, Geneva Academy, p. 3.

⁴ International Committee of Red Cross, “*How does Law Protect in War?*”, <https://casebook.icrc.org/glossary/means-warfare> accessed on 26 February 2019 at 5:23 p.m.

conflict in the conduct of hostilities.⁵ Autonomous Weapons Systems, as defined, are not explicitly regulated by International Humanitarian Law (IHL) treaties. However, it is undisputed that any Autonomous Weapons Systems must be capable of being used and must be used by IHL. The responsibility for ensuring this rests, first and foremost, with each State that is evolving, deploying and using weapons.⁶ Autonomous Weapons Systems, which can select targets and delivering force without human interaction, have already been developed. However, these weapons systems are, at this moment, only used as defense systems. In the future, they might be used as combat systems.

So far, academic debate concentrates on the legal-ethical implications of AWS, but these do not capture how AWS may shape norms through defining diverging standards of appropriateness in practice. The new use of Autonomous Weapons Systems will cause difficulties in establishing the form of responsibility for the application of International Humanitarian Law when numerous individuals are complicated, and the actor is a robot. Even though the technology behind unmanned systems is rapidly developing, there is a slow assessment of their legal aspects.⁷

Therefore, it is important to regulate Autonomous Weapons Systems. To regulate Autonomous Weapons Systems, one of the many questions that need to be answered is if the commander can be held responsible when an Autonomous Weapons Systems commits a crime.⁸

⁵ Geneva Academy of International Humanitarian Law and Human Rights, “*Method of Warfare*”, <http://www.weaponslaw.org/glossary/method-of-warfare> accessed on 26 February 2019 at 6:20 p.m.

⁶ Neil Davison, 2017, “A Legal Perspective: Autonomous Weapons System under International Humanitarian Law”, *UNODA Occasional Papers*, No.30, New York, United Nation Publisher, p. 7.

⁷ International Committee of the Red Cross, 2014, “*Autonomous Weapons Systems: Technical, Military, Legal and Humanitarian Aspects*”, Background Paper for Meeting of Experts 57. <http://www.icrc.org/.../4221-002-autonomous-weapons-systems-full-report-2.pdf> accessed on 1 February 2019 at 3:20 p.m.

⁸ Marcus Schulzke, 2017, *The Morality of Drone Warfare and the Politics of Regulation*, London, Palgrave Macmillan UK, p. 204.

II. Problem Formulation

How the commander can be responsible on the issue of Autonomous Weapons System under International Humanitarian Law?

III. Research Method

A. Type of Research

The research was conducted under normative legal research methods, which means that the research shows how the Command Responsibility of Autonomous Weapons Systems under International Law. International Law and International Humanitarian Law perspective through convention, charter, and some regulations related to the Command Responsibility of Autonomous Weapons Systems which apply in International Law and International Humanitarian Law.

The normative legal research is often called as legal studies in the books. The research used statute approach and case approach. The statute approach was conducted by highlighting some regulations that related to the issues while the case approach is conducted by reviewing the case that related to the issues.⁹

B. Type of Data

The data used in the research belong to secondary data that consist of primary, secondary, and tertiary legal materials.

1. Among primary legal materials are several regulations and conventions such as:
 - a. Geneva Convention 1949
 - b. Additional Protocol I
 - c. Customary International Humanitarian Law
 - d. Rome Statute on ICC 1998

⁹ Peter Mahmud Marzuki, 2011, *Penelitian Hukum*, Jakarta, Kencana Prenada Media Group, p. 24.

- e. ICTY Statute
2. Secondary legal materials consist of several documents related to the primary legal materials as follows:
- a. Books
 - b. Scientific journals
 - c. Other legal documents related to the issue
 - d. Other non-legal documents related to the issue
 - e. Trusted sites internet
3. Tertiary legal materials include several documents below:
- a. Dictionary
 - b. Encyclopedia

C. Method of Collecting Data

The method of collecting data in the research was through library research by literature learning. The data in the research were collected by reading, selecting, validating, and analyzing the information related to the topic of the thesis. After having information from the documents such as international legal instrument, book, journal, and other related documents, the discussion and analysis were conducted until the author reached the conclusion.

D. Method of Data Analysis

The data were analyzed systematically through descriptive qualitative included in the qualitative research. Systematically means the data were analyzed based on International Law and International Humanitarian Law perspective and on the related issues. The author also classified, directed, disposed of unnecessary data, and organized the data so that the conclusion could be drawn.

IV. Finding and Analysis

A. The Rise of Autonomous Weapons Systems

The weapons systems used today are remotely controlled instead of capable of autonomously operating on their own.¹⁰ From the perspective of International Humanitarian Law, remotely operated weapons systems are rarely uncontroversial because they are under the control of a human operator.¹¹ The International Committee of Red Cross (ICRC) has defined Autonomous Weapons Systems as: “Any weapons systems with autonomy in its critical functions. That is, a weapon system that can select (i.e., search for or detect, identify, track, select) and attack (i.e., use force against, neutralize, damage or destroy) targets without human intervention.”¹²

Autonomous military systems have been used by armed forces around the world for many decades. All of these can suggest their past to as early as the First World War, and the importance of that autonomous weapon to the battlefields of the future is only set to grow exponentially. For centuries, States and Military leaders have responded to the changes in the means and methods of warfare. These developments have ranged from hardware development, such as the crossbow and gunpowder, to developments in tactics.¹³ This development is still ongoing, and weapons become increasingly autonomous.

The development of Autonomous Weapons Systems (AWS) in the next ten years is predicted to be more disruptive to international order than the development of

¹⁰ Hin-Yan Liu, 2012, “Categorization and Legality of Autonomous and Remote Weapons System”, *International Review of the Red Cross* Volume 94 Number 886 Summer 2012, Cambridge, Cambridge University Press, p. 631.

¹¹ *Ibid.*

¹² Neil Davison, *Op. Cit.*, p. 5.

¹³ Darren M. Stewart, 2011, *New Technology and the Law of Armed Conflict*, Newport, U.S Naval War College, p. 271.

nuclear weapons in the 1940s.¹⁴ Autonomous Systems will allow the richest developed nations to fight at any intensity of warfare with fewer casualties and risk than ever before. However, this technology will be clustered around only those States and non-state actors that have the necessary resources and technological infrastructure, combined with a highly educated workforce.

1. Legal Category of Autonomous Weapons Systems

At the outset, it must be stated that there does not exist in International Humanitarian Law (IHL) in any category of weapon or weapon system called an Automatic or Autonomous Weapon System, nor is there a prohibited weapon or weapon system so-called. Associated with this absence, IHL also does not have a general prohibition on the development and use of “new” weapons or weapons systems such as “Autonomous Weapon Systems.”¹⁵

Article 36 of Additional Protocol to The Geneva Conventions 1949, and relating protection of victim in International Armed Conflicts (Additional Protocol I)¹⁶ deals with new weapons and reads: “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 rules of international application to the High Contracting Party”.

Besides the protection of Victim in International Armed Conflict, especially on new weapons, International Humanitarian Law also regulates what kind of

¹⁴ P.S. Excell and R.A. Earnshaw, “The Future of Computing – the Implications for Society of Technology Forecasting and the Kurzweil Singularity” in *IEEE International Symposium on Technology and Society*, 11-12 November 2015.

¹⁵ Antonio Cassese, Guido Acquaviva, Mary D Fan and Alex Whitin, 2011, *International Criminal Law, Cases and Commentary*, Oxford, Oxford University Press, p. 134.

¹⁶ Additional Protocol on the Geneva Conventions of 12 August 1949.

weapons that prohibited, the following is an overview of weapons that are regulated by IHL treaties:

Table 4.1. Categorization of Prohibited-Weapons with Treaty.¹⁷

Weapon	Treaty
Explosive Projectiles weighing less than 400 grams	The Declaration of Saint Petersburg (1868)
Bullets that expand or flatten in the human body	The Hague Declaration (1899)
Poison and Poisoned Weapons	The Hague Declaration (1907)
Chemical Weapons	The Geneva Protocol (1925) The Convention on the Prohibition of Chemical Weapons (1993)
Biological Weapons	The Geneva Protocol (1925) The Convention on the Prohibition of Biological Weapons (1972)
Weapons that injure by fragments which, in the human body, escape detection by X-Rays	The Protocol I (1980) to the Convention on Certain Conventional Weapons
Incendiary Weapons	Additional Protocol III (1980) to the Convention on Certain Conventional Weapons
Blinding Laser Weapons	Additional Protocol IV (1995) to the Convention on Certain Conventional Weapons
Mines, booby traps, and “other devices.”	Additional Protocol II, as amended (1996) to the Convention on Certain Conventional Weapons

¹⁷ International Committee of the red cross, “Weapons”, published in <https://www.icrc.org/en/document/weapons> accessed 31 January 2019 05:50 p.m.

Anti-Personnel Mines	The Convention on the Prohibition of Anti-Personnel Mines (Ottawa Treaty) (1997)
Explosive Remnants of War	Additional Protocol V (2003) to the Convention on Certain Conventional Weapons
Cluster Munitions	Convention on Cluster Munitions (2008)

Source: <https://www.icrc.org/en/document/weapons>

Also, Customary Rule of International Humanitarian Law regulated the kind of weapon that is prohibited in hostilities (Rule 70-86 of Customary Rule of International Humanitarian Law).¹⁸ In banning weapons, there are three reasons to ban certain weapons.¹⁹

First, means and methods of war are prohibited if the weapon cannot distinguish between military targets on the one hand, and civilians and civilian objects on the other side. These weapons can strike their targets accurately, but the effects are uncontrollable. For example, bacteriological weapons which will inevitably spread and infect civilian or Autonomous Weapons Systems that conduct cyber-attacks and the malware used will spread into a civilian network.²⁰

Second, International Humanitarian Law prohibits weapons that are causing unnecessary suffering or superfluous injury.²¹ An example of such a weapon is a laser weapon that causes permanent blindness.²²

¹⁸ Customary International Humanitarian Law, Rule 70-86.

¹⁹ AIV, CAVV, *Autonomous Weapons Systems: the Need for Meaningful Human Control*, No 97 AIV/ No. 26 CAVV, 2015, p. 20.

²⁰ *Ibid*, p. 21.

²¹ *Ibid*.

²² *Ibid*.

The third reason to prohibit weapons is if their effects cannot be controlled in a manner prescribed by International Humanitarian Law, which results in indiscriminate harm to soldiers and civilians.²³ Besides of those reasons on banning some certain weapons, it is universally accepted for Autonomous Weapons Systems, but, AWS must be able to be used in compliance with the “basic principles of humanitarian law” including the principles of distinction and proportionality.²⁴

2. Autonomous Weapons Systems in Current Use

As a general matter, AWS are weapons that can select, detect, and engage the targets with little to no human intervention. However, there is no singularly accepted definition of AWS; the term typically covers a broad range of potential weapons systems, reaching from fully autonomous weapons that can launch attacks without any human intervention to semi-autonomous weapons that require human affirmative action to execute a mission. Critics of AWS focus primarily on fully autonomous weapons, dubbing AWS “killer robots” and questioning their ability to respect human life and comply with International Humanitarian Law (IHL).²⁵

The rising level of autonomy within weapons systems raises issues about international law. Therefore, it is important to make a clear distinction between the different levels of autonomy within a weapon system and to define an Autonomous Weapon System. An Autonomous Weapon System can be defined as: “a weapon

²³ *Ibid.*

²⁴ Jean-Marie Henckaerts and Louis Doswald Beck, 2005, Customary International Humanitarian Law, Volume 1: Rules Oxford University Press, p.237.

²⁵ Hayley Evans, Natalie Salmanowitz, Lethal Autonomous Weapons Systems: Recent Developments, <https://www.lawfareblog.com/lethal-autonomous-weapons-systems-recent-developments> accessed on 28 May 2019 at 9:12 p.m.

system that employs autonomous functions.”²⁶ Human Rights Watch has made a classification in order to categorize the various forms of autonomous weapons systems.²⁷ Human Rights Watch differentiate between human in the loop weapons which are semi-autonomous weapons, human on the loop weapons which are weapons systems that can autonomously select and engage specific targets and human out of the loop weapons which are weapons systems that are programmed to choose autonomously individual targets and attacks them in a pre-programmed selected area during a certain period of time.²⁸

Once the human out of the loop weapon system is activated, a human cannot intervene to stop the attack.²⁹ Autonomous Weapons Systems are mostly categorized as human out of the loop weapons systems. However, some classify Autonomous Weapons Systems as a human beyond the broader loop weapons systems.³⁰ These weapons systems can make decisions based on self-learned or self-made rules and selects and engages targets without any human involvement.³¹

B. International Humanitarian Law on Autonomous Weapons Systems

Artificial intelligence (AI) and machine learning are rapidly entering the arena of modern warfare. This trend presents extraordinarily complex challenges for policymakers, lawyers, scientists, ethicists, and military planners, and also for society

²⁶ Crootof, Rebecca, “War, Responsibility, and Killer Robots” (February 24, 2015). *North Carolina Journal of International Law and Commercial Regulation*, Vol. 40, No. 4, 2015, Chapel Hill, UNC School of Law, Available at SSRN: <https://ssrn.com/abstract=2569298>

²⁷ Human Rights Watch, “Losing Humanity: The Case against Killer Robots”, <https://www.hrw.org/report/2012/11/19/losing-humanity/case-against-killer-robots#> accessed on 14 May 2019 at 6:32 p.m.

²⁸ Adviesraad Internationale Vraagstukken, Commissie van Advies inzake Volkenrechtelijke Vraagstukken. 2015, *Autonomous Weapons Systems: the need for meaningful human control*, No 97 AIV/ No. 26 CAVV, p. 9.

²⁹ Human Rights Watch, 2012, “Losing Humanity: The Case against Killer Robots”, <https://www.hrw.org/report/2012/11/19/losing-humanity/case-against-killer-robots#> accessed on 14 May 2019 at 6:52 p.m.

³⁰ AIV, CAVV, *Op. cit.* p.10.

³¹ *Ibid.* p.17

itself. Some militaries are already far advanced in automating everything from personnel systems and equipment maintenance to the deployment of surveillance drones and robots. Some States have even deployed defensive systems that can stop incoming missiles or torpedoes faster than a human could react. These weapons have come online after extensive review of their conformity with longstanding principles of the laws of armed conflict, including International Humanitarian Law. These include the ability to hold individuals and States accountable for actions that violate norms of civilian protection and human rights.³²

International Humanitarian Law provides no dedicated principles with respect to autonomous weapons. Because of this, some argue that autonomous weapons are to be considered illegal and should be banned for military applications. However, it is a general principle of law that prohibitions must be clearly stated or otherwise do not apply. During the armed conflict, the IHL's principles of distinction, proportionality and unnecessary suffering must be applied. This also implies the obligation for States to review their weapons to confirm they are in line with these principles. In general, this does not impose a prohibition on any specific weapon. In fact, it accepts any weapon, means or method of warfare unless it violates international law, and it puts the responsibility on the States to determine if its use is prohibited. Therefore, autonomous systems cannot be classified as unlawful as such. Like any other weapons, means or method of warfare, it must be reviewed with respect to the rules and principles codified in international law.³³

³² Ted Piccone, 2018, "How can International Law Regulate Autonomous Weapons?" <https://www.brookings.edu/blog/order-from-chaos/2018/04/10/how-can-international-law-regulate-autonomous-weapons/> accessed on 3 July 2019 at 8:32 p.m.

³³ André Haider, 2018, "Autonomous Weapon Systems in International Humanitarian Law", *The Journal of the JAPCC Vol.27*, Römerstrasse, Joint Air Power Competence Centre, p. 46.

C. The Doctrine of Command Responsibility

In the development of doctrine of command responsibility, there are several cases as an important role in the development of this doctrine.

1. Yamashita Case

The first modern case which dealt with the doctrine of command responsibility was the Yamashita case in 1945. The Yamashita judgment has played a key role in the development of the doctrine of command responsibility. Yamashita was the commanding general of the Imperial Japanese Army in the Philippines. He has been charged, convicted and sentenced to death by the U.S. War Crimes Commission. The U.S. War Crimes Commission charged him for: “unlawfully disregarded and failed to discharge his duty as commander to control the operations of the members of his command, permitting them to commit brutal atrocities.”³⁴ The defense of Yamashita argued that he could not make contact with his subordinates. Therefore, he had no control over the actions of his subordinates, and he did not know about the atrocities committed by his soldiers.³⁵

2. Nuremberg Tribunal

Another important role in the development of the doctrine of command responsibility was Nuremberg Tribunal. The tribunal was charged prosecuting those Nazi leaders to be responsible for organizing and directing Germany’s aggressive wars and atrocities. Nuremberg tribunal proclaimed that individual possesses international duties which exceed the obligation of national compliance. It is clear that the commander might be prosecuted for ordering, planning,

³⁴ In Yamashita case Report 317 U.S. 1; 66 S. 340, 4 February 1946.

³⁵ *Ibid.*

participating in war crimes or in crimes against humanity.³⁶ The tribunal implicitly invoked the doctrine of command responsibility in convicting several civilian officials. The defendant in these cases were determined to have been well-aware of the misbehaviors of individuals under their command.

Wilhelm Frick was Minister of the Interior during the war, he possessed jurisdiction over nursing homes, hospitals and asylums in which euthanasia was practiced. Fritz Sauckel was Supreme General for Utilization of Labor. Fritz Sauckel's decisions extended the doctrine of command responsibility to civilian officials. At the same time, these cases harrowed the intend standard. Unlike Yamashita case, Fritz Sauckel clearly possessed knowledge of the crimes committed by their subordinates.

3. Tokyo Tribunal

The Allied Powers charged the Japanese cabinet and high-level military officers and administrative officials with varying degrees of responsibility for safeguarding prisoners of war.³⁷ Military and civilian officials who exercised direct authority over prisoners who possessed actual or constructive knowledge of mistreatment, or would have acquired such knowledge absent of their own negligence. The Tokyo tribunal refined and replace the *Yamashita* standard with and actual knowledge requirement. For instance, Shimada Shigetaro, Navy Minister in the Tojo Cabinet between 1941 and 1944, was acquitted on the grounds that he had neither ordered, authorized, permitted or had been aware of the murders of prisoners in the Pacific.³⁸

³⁶ United States v Herman Goering. 1948, XXII Trials of Major War Crimes, before the International Tribunal, p. 446.

³⁷ Leon Friedman, 1972, *The Law of War: A Documentary History Vol. 1*, Michigan, Random House, p. 1029.

³⁸ *Ibid.*

As showed by the Koiso judgment, a government official with knowledge of war crimes was required to act in an affirmative style. Hideki Tojo was named Minister of War in 1940, and thereafter was appointed Prime Minister in October 1941, a position in which he continued until July 1944.³⁹ The tribunal also held that a high-ranking official who receives assurances that criminal conduct will be curtailed might not ignore continued reports of criminal conducts. In summary, Tokyo Tribunal imposed a duty upon civilian and military officials to take such steps as were within their power and authority to investigate, prevent, stop and to punish war crimes.

D. Concept of Command Responsibility of Autonomous Weapons System

The issue of Command Responsibility for remote warfare involving a human operator is relatively straightforward. It is a matter of identifying the individual responsible for carrying out an attack and what he or she knew or should have known at the time of relevant actions or decisions. However, for AWS, accountability for when things go wrong is one of the more contentious issues. Many commentators are concerned with the morality and ethical issues associated with a machine deciding whether to kill a human being, and some argue that the issues with attributing accountability for war crimes committed by an AWS are insurmountable. This is raised as another reason for seeking a preventive ban on the development of AWS.⁴⁰ In the Nuremberg International Military Tribunal 1946, individual criminal responsibility for breaches of the law of war is affirmed. ‘Crimes against international

³⁹ *Ibid.* p. 1154.

⁴⁰ Human Rights Watch, 2012, “Losing Humanity: The Case against Killer Robots”, <https://www.hrw.org/report/2012/11/19/losing-humanity/case-against-killer-robots#> accessed on 20 May 2019 at 7:32 p.m.

law are committed by men, not by abstract entities, and only by punishing individuals who commit such crimes can the provisions of international law be enforced.⁴¹

Assuming that the AWS is capable of discrimination to the standard required by law, the position of the human operator relative to the AWS decision loop to use force will be an important factor in considering individual accountability. However, while the three system models outlined in the current U.S policy particulate where the human operator is situated with respect to the AWS decision loop, it does not provide the complete answer on where accountability could lie for war crimes. Obvious candidates for individual accountability with respect to AWS extend beyond the human operator to commanders, programmers, and manufacturers.⁴²

There is a strong technological development towards fully Autonomous Weapon Systems, and they will be used on future battlefields. While weapons review does not assess any possible uses of a weapon, certain uses may violate IHL. Persons responsible for those uses must be accountable. Autonomous weapons trigger questions in this regard since they can make decisions without human authorization. That absence of human authorization need not create an “accountability gap.” In dealing with AWS, the proper mechanism for accountability is the familiar doctrine of command responsibility. Under command responsibility, a person in command is accountable for crimes committed by subordinates if the leader knew or should have known that subordinates were engaged in illegal activity and failed to take reasonable steps to prevent such acts.

⁴¹ International Military Tribunal for the Trial of German Major War Criminals, Nuremberg, 30 September – 1 October 1946, p. 544.

⁴² Jens David Ohlin, 2016, *The Combatant's Stance: Autonomous Weapons on the Battlefield*, New York, Cornell Legal Studies, p. 177.

The use of Autonomous Weapons Systems is governed by International Humanitarian Law and principles of International law. One of the requirements of International Humanitarian Law is the possibility to hold someone accountable for crimes that have been committed.⁴³ However, it is unclear who can be held responsible for deaths caused by Autonomous Weapon Systems. After all, Autonomous Weapon Systems can select targets and make decision autonomously without a human in/on the loop. Sparrow has argued that no one will be responsible because it is not possible to describe any responsibility for the behavior of Autonomous Weapons Systems to a human.⁴⁴

Others, such as Hellstorm and Asaro, are of the opinion that an Autonomous Weapon System will be, one day, responsible for their behavior.⁴⁵ Human Rights Watch has identified three human actors who could be held responsible when the Autonomous Weapon System is used and commits a crime. These are the commander, the program, and the manufacturer. However, the opinions of author are divided on whether any of these three human actors can be held responsible for the conduct of an Autonomous Weapons Systems.

In order to hold a commander directly responsible, the *actus reus* (an illegal act) and *mens rea* (intent) need to be established. Sassóli stated that: “it is as fair to hold a commander of a robot accountable as it would be to hold accountable a commander who instructs a pilot to bomb a target he describes as a military headquarters, but which turns out to be a kindergarten.”⁴⁶

⁴³ Robert Sparrow, 2007, “Killer Robots”, *Journal of Applied Philosophy* Vol. 24 Issue 1 February 2007, United Kingdom, University of Aberdeen, p. 67.

⁴⁴ *Ibid.*

⁴⁵ Merel Noorman, Deborah G. Johnson, 2014, *Negotiating Autonomy and Responsibility in Military Robots, Ethics and Information Technology*, Dordrecht, Business Media Dordrecht, p. 52.

⁴⁶ Sassoli M, 2014, *Autonomous Weapons and International Humanitarian Law: Advantages, Open Technical Questions and Legal Issues to be Clarified*. Newport, U.S Naval War College, p. 308–340.

However, to proof, whether a developer is accountable for an attack by AWS, is a bit problematic.⁴⁷ Gubrud evaluates that any use of violent force, whether it is lethal or non-lethal, there must be a human who decides another word; this must always be under the control of a human.⁴⁸ "Developers," it refers broadly to people who play some significant role in defining the behavior of an autonomous weapon system, as opposed to "operators," which refer to those responsible for utilizing the system in some situation during armed conflict.⁴⁹ A weapons system is an inanimate object; any harm resulted from it, is a result of its developers.⁵⁰ In that case, a highly Autonomous Weapons is potentially partly or fully replaces combat personnel from their duty which occupied traditionally, so that accountability for specific acts committed through such systems is not likely easily ascribed to the personnel or the commander.⁵¹

E. Legal Review on Autonomous Weapons Systems

1. Legal Review on Weapons Law

In a review of weapons law and targeting, the law must be applied to AWS. About weapons law, there is currently no international treaty or ban that prohibits the fielding of AWS. While certain non-governmental organizations, such as Human Rights Watch and the International Committee for Robots Arms Control have banded together to encourage nations to adopt a preemptive prohibition on

⁴⁷ Solis G.D, 2016, *The Law of Armed Conflict 2nd Edition*. Cambridge, Cambridge University Press, p. 544.

⁴⁸ M. Gubrud, 2014, "Stopping Killer Robots", *Bulletin of the Atomic Scientist* Vol. 70(1), New York, SAGE Publications, p. 37.

⁴⁹ *Ibid*

⁵⁰ *Ibid*

⁵¹ *Ibid*, p. 366.

fully automated weapons systems without human control, known as the Campaign to Stop Killer Robots, the movement has not achieved its aim.⁵²

The legal principles that opponents of AWS believe would be violated have been mentioned previously in weapons and targeting law, but their opposition is also based on “non-legal,” or ethical, protections. These considerations include a supposed need to have human emotion present in an attacker to curtail killing and violating of LOAC. In March 2016, the UN Special Rapporteur on the rights to freedom of peaceful assembly and of association and the Special Rapporteur on extrajudicial, summary or arbitrary executions produced a joint report recommending an AWS prohibition for warfare and for law enforcement use because of the lack of human control.⁵³ While some nations do support such a ban, they outwardly project other pragmatic reasons for desiring a prohibition, not simply for the same legal and ethical rights for the campaign.⁵⁴

2. Legal Review on Targeting Law

Under targeting law, there are no international treaties restricting certain legal uses of AWS, similar to regulations on the use of land mines, outside of those applied to all weapons and weapons systems under international law. A restriction on AWS could be a more viable alternative as opposed to a prohibition.⁵⁵ This use limitation would be preferable because of the benefits of AWS in a war that would sway nations away from a ban and the benefits of guiding the evolution of AWS

⁵² Dom Galeon, 2017, “Following Elon Musk Letter, UK Government Plans to Ban Fully Autonomous Weapons”, <https://futurism.com/following-elon-musk-letter-uk-government-plans-to-ban-fully-autonomous-weapons> accessed 26 June 2019 at 1:43 p.m.

⁵³ The Special Rapporteur on the Rts. to Freedom of Peaceful Assembly and of Ass’n and the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions on the Proper Mgmt. of Assemblies, Hum. Rts. Council on Its Thirty-First Session, at 15, U.N. Doc. A/HRC/31/66 2016.

⁵⁴ Mary Wareham, 2017, “*Banning Killer Robots in 2017*”, <https://www.thecipherbrief.com/article/tech/banning-killer-robots-2017-1092>. accessed on 28 June 2019 at 3:44 p.m.

⁵⁵ Kenneth Anderson, 2014, *Adapting the Law of Armed Conflict to Autonomous Weapon Systems*, International Law Study. p. 386.

technology to ensure nations are aware they need to be tightly bound to established LOAC and IHL principles. A use limitation would also prove to be beneficial to close legal loopholes nations might use to subvert any ban, due to the enforceability hurdles and dangers of any attempt to prohibit AWS.

Therefore, if it would be reasonable for a human, under certain circumstances, to fire on a target that turns out not to be valid, neither the human nor an AWS under similar circumstances, would be found to violate LOAC. Additionally, while the lack of emotion has been proposed as a reason why AWS should not be fielded because they could not identify such emotion, this could be an advantage. AWS's lack of fear means that AWS can put themselves more at risk of a surprise attack, even sacrifice themselves, in order to identify if a possible target is legitimate.

3. Legal Review on Accountability

The accountability of Autonomous Weapons Systems characteristics above should not be mistaken for uncontrolled enthusiasm. While Autonomous Weapons Systems have extraordinary capabilities, experts have not yet analyzed those strengths together into a system that will pass a weapons review and be suitable for deployment against humans in an armed conflict. In dealing with AWS, a suitable mechanism for accountability is the familiar doctrine of command responsibility. However, on the issue of command responsibility, the commander can be held directly responsible when the commander gives an illegal command to subordinate on using Autonomous Weapons Systems.

International Humanitarian Law regulates activity during armed conflict and situations of occupation. Also, regulate the principle that must be applied in a conflict situation and the body of law that regulates the recourse to armed force.

On the use of Autonomous Weapons Systems, there are three main principles that must be considered. Those are the principle of Distinction, Proportionality, and Unnecessary Suffering.

V. Conclusion and Recommendation

A. Conclusion

International Humanitarian Law regulates activity during armed conflict and situations of occupation. It also contains the principle that must be applied in an armed conflict and the body of law that regulates the recourse to the armed force. On the use of Autonomous Weapons Systems, there are three main principles that must be considered. Those are the principle of distinction, proportionality, and unnecessary Suffering. The issue of accountability is perhaps the most serious with the intention of a commander who is directly responsible, the *actus reus* and *mens rea* needs to be established the commander can be held responsible when a commander gives an illegal order, and an Autonomous Weapon System acts upon that order. However, there might be uncertainty about who has given/programmed the illegal order. Therefore, arrangements should be made about what kind of orders would be incorporated in the programming of an Autonomous Weapon System before they will be given to the commander. These arrangements will be important for the commander and for the programmer of an Autonomous Weapon System.

B. Recommendation

The issue of Autonomous Weapons Systems is getting serious nowadays. International Humanitarian Law is the most relevant body of international law governing the development of Autonomous Weapons Systems and their employment in armed conflicts. There must be a consensus that the potential development and employment of any Autonomous Weapons Systems must remain in compliance with

existing of International Law and in times of armed conflict, particularly with IHL. Also, there must be an amendment on the regulation, starting from the Geneva Convention 1949, Additional Protocol, and any other regulations which are in line with the humanitarian issues. If the use of an Autonomous Weapon System results in a serious violation of IHL, and if that violation is the consequences of responsible fault on the part of a human being, the latter may be subjected to criminal prosecution.

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