

The International Law Dilemma of Autonomous Weapon System

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Abstract: This paper aims to highlight the potential for serious humanitarian disasters caused by the rapid development of autonomous weapons systems, as they are currently unable to fully grasp the ability to analyze their targets and clearly distinguish between combatants and military targets due to current technological limitations. There is also controversy over whether autonomous weapons systems are combatants, and there is a certain degree of regulatory deficiencies in the field of international law. Existing international treaties are unable to perfectly regulate autonomous weapons systems and punish unlawful behavior. The paper mainly uses the method of analyzing specific problems based on legal principles and draws conclusions by referring to some cases. The conclusion of this paper is that the international community needs to establish a new, targeted international legal treaty, establish a more reasonable and realistic international soft law, establish and improve a broader international exchange system, and encourage countries to work together to solve this problem.

Keywords: International Law, Autonomous Weapon Systems, Humanitarian Disaster

1. Introduction

The world's weapons are developing rapidly, among which autonomous weapons are constantly updated, causing casualties on the world's battlefields. However, the attack of autonomous weapons is not completely determined by human beings, and autonomous weapons strike the enemy according to their calculations, which has also impacted the existing rules and mechanisms of international law and humanitarian principles. The international community is unsure how to take responsibility for the humanitarian disasters caused by the misuse of autonomous weapons systems and how to improve the legal regime in this area, whether by using new international laws and regulations or by amending existing legal treaties. Therefore, there is an urgent need for the international community to discuss the distribution of responsibility for the use of autonomous weapons in war from the perspective of international law and to come up with feasible solutions.

2. Realistic Problems

2.1. Existing treaty limitation

The development and update speed of autonomous weapons has greatly exceeded the speed of the generation of relevant legal systems. The existing international treaties and laws cannot effectively supervise the development of autonomous weapons. The existing international treaties on arms regulation mainly include: *Declaration of St. Petersburg*, *Hague Conventions*, etc. At the same time, there are also many such as the 1976 *ENMOD Convention*, the 1980 *Convention on Certain Conventional Weapons*, the 1993 *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction*, the 1997 *Convention on the Prohibition of the Use of Anti-personnel Landmines* and *Rome Statute of the International Criminal Court* etc. These international conventions are mainly for conventional weapons and specific weapons to supervise and manage, and are also the international conventions that are preferred to be used in international judicial practice. But at the same time, they also have obvious disadvantages, namely, they are old, difficult to supervise effectively, and not strongly targeted at new weapons.[1]

2.2. The nature of autonomous weapons

It is worth noting that autonomous weapons have a certain ability to make independent judgments and fight independently, and a considerable part of autonomous weapons can exclude manual operation. This raises the question of whether autonomous weapon systems should be regarded as weapons or combatants.[2] If they are combatants, it is obviously beyond common sense. The specific difficulties in the accountability of autonomous weapons: autonomous weapons themselves can not be the subject of accountability. We can draw lessons from relevant similar laws and regulations on whether a subject can be identified as the subject of crime:

- 1 Objectively implemented the criminal act.
- 2 Subjectively have a clear understanding of their own criminal act.
- 3 Can bear legal responsibility for their own criminal act.[3]

The reality of autonomous weapons is that autonomous weapons do not have emotional awareness, and their actions are completely based on algorithms and program settings.[4] Therefore, it should be correct to qualitatively locate autonomous weapons as weapons,[5] and the first question that arises is how to confirm the subject of liability.

2.3. Responsibility problem

Since autonomous weapons cannot be held accountable, should the state or individual who sets up the weapons be held accountable? The problem is that the setter does not directly command the autonomous weapon to engage in inhumane military activities. If the strike is completely made by the weapon itself, it is difficult to determine whether the setter has a deliberate mentality, so it is difficult to directly hold the setter of autonomous weapons accountable.[6]

3. Liability for Crimes Caused by Autonomous Weapon Systems

3.1. State responsibility

According to international treaties and international practices, states are legally responsible for their armed forces and war crimes. For whether the state should bear the responsibility caused by autonomous weapons,[7] the principle of the unity of subjective and objective should be followed.

At the subjective level: criminal acts can be attributed to *state responsibility*. Although the deployment and equipment of autonomous weapons is performed by the combatant, if the action is

performed by the state order, the responsibility should be borne by the state. According to the *Articles on the responsibility of States for internationally wrongful acts*, if one person or a group of people actually act under the state's instruction, command or control, their acts should be regarded as state acts. Therefore, the state should also be required to bear responsibility. Although as mentioned above, the attack of autonomous weapons is carried out by the weapon system itself, and its attack is not controlled by human beings, it itself does not have the ability to bear legal liability. As a national asset, the damage caused by it should be responsible by the country it belongs to.[8] For example, on July 3, 1988, Iran filed a lawsuit with the International Court of Justice, accusing the United States of shooting down its flight IR655 and causing the accident. After the lawsuit, the United States was finally ordered to compensate Iran \$1318 million.[9] The weapon used by the United States to shoot down the Iranian technology involves the autonomous weapon system operating in semi-autonomous mode, which also proves that the state should bear corresponding specific responsibilities in the abuse of autonomous weapon systems.

3.2. Joint responsibility between countries

Should the government of the host country bear responsibility for the crime caused by the deployment of autonomous weapons by the armed forces stationed in other countries? It needs to be fully considered whether the government of the host country has knowledge of and influence on the military deployment and equipment placement of the garrison troops. If the government of the host country has lost actual control over the area due to military aggression and occupation, it is obviously unreasonable to require it to bear responsibility in this state. But for the two sides stationed based on diplomatic or military alliances, the government of the host country should be required to bear responsibility for similar incidents. Because they have not lost control of the military deployment in the garrison, and have the obligation to require the garrison to use their own weapons legally and reasonably, they should bear corresponding responsibility for the humanitarian disasters caused by the garrison intentionally or negligently.

3.3. Personal responsibility

Personal responsibility is a supplement to national responsibility. Because national responsibility is relatively abstract and the final implementation of national decisions is realized by people, people should bear corresponding responsibilities. The question is who should bear these responsibilities. Some people think that the person who finally issues the order should be responsible, that is, the ultimate contact principle.[10] For example, the military commander or operator who finally issues the deployment order. Such discussion needs to be discussed separately according to the differences in the types of autonomous weapons. At present, autonomous weapons can be roughly divided into two categories, namely the so-called "Human-on-the-Loop Weapons" and "Human-out-of-the-Loop Weapons".[11] In the specific use of the former, the human operator can select the target and carry out the attack operation. If the human operator thinks it is necessary, the operator can terminate and cancel the attack of the autonomous weapon. The latter is completely carried out by the autonomous weapon itself. Therefore, if the weapon is "Human-on-the-Loop Weapons", it is reasonable to implement the ultimate contact principle and require the commander or operator to bear corresponding responsibilities, because it is possible to overthrow the autonomous weapon and implement the human decision.[11] Therefore, the ultimate contact has direct or indirect responsibility for the crime caused in this case. However, such a single rule model also has an obvious problem, that is, the humanitarian disaster caused by autonomous weapons is likely to be beyond the will of the deployer. For example, the weapon belongs to Human-out-of-the-Loop Weapons. Similarly, it is obviously unreasonable to hold the designer accountable in accordance with the

algorithm logic of designing autonomous weapons, because autonomous weapons cannot obtain the same judgment ability as human beings, nor can they obtain human moral emotions. Therefore, the designer of autonomous weapons does not have the intentional psychology of crime subjectively.

There are several situations that clearly require the designer or deployer of autonomous weapons to bear personal responsibility:

1 The actor intentionally caused the result.

2 There is indeed the consciousness of using autonomous weapons to carry out inhumane attacks.[12]For example, the deployment and use of autonomous weapons are still deployed and used knowing that how to deploy and use autonomous weapons will cause or may cause humanitarian disasters or other serious consequences.

3 There is negligence, that is, subjectively opposed to the humanitarian disaster caused by autonomous weapons, but the catastrophic consequences are caused by negligence and other factors. In this case, the responsibility should still be borne, so as to avoid evading responsibility and concealing crimes by taking negligence as an excuse.

In the case of Jeen-pierre Bemba Gombo, the International Court of Justice divided criminal psychology into first-degree intention, second-degree intention and unnecessary intention, among which the first two are also reflected in Article 30 of the *Rome Statute of the International Criminal Court*(*Rome Statute*).[12]At the same time, I still think that the person with the negligence attitude should be held legally responsible, because it is possible to use negligence as an excuse to escape responsibility. The serious consequences are analogous to the no-fault principle in civil law and the civil law system of the Continental Law System. Autonomous weapons have strong lethality and harmfulness. Since their algorithms have not yet reached a level of full perfection that can eliminate all dangers, the deployment and installation of autonomous weapons by the state or the army may cause damage to civilians and civilian facilities.[13]Therefore, higher management requirements should be put forward for the holders and users of autonomous weapons.

4. How to Define the Illegal use of Autonomous Weapons

In addition to the subject of responsibility for crimes committed by autonomous weapons, how to define the illegal use of autonomous weapons needs to be explored. This issue is based on the principle of distinction and proportion in the Law of Combat Behavior.

4.1. The principle of distinction

The principle of distinction is an important basis for defining the legality of the use of autonomous weapons, which is called the first principle in international humanitarian law.[14]This principle requires that combatants, civilians, civilian facilities and military targets must be distinguished during combat. According to the provisions of Article 48 of the *First Protocol to the Geneva Conventions* in 1977, "in order to ensure the respect and protection of civilians and civilian objects", the two parties to the conflict should at all times distinguish between civilians and combatants, civilian objects and military targets. Therefore, the military action of one party to the conflict should be aimed at military targets. Therefore, a general conclusion can be drawn according to this principle: that is, the acts that take civilians, residents and civilian facilities as the targets of attack are illegal. But there are also other derivative issues.

4.1.1. The difference between civilians and combatants

In modern warfare, the difference between civilians and combatants is not obvious, and there are often civilians participating in military operations. According to the *Fourth Hague Convention*, the traditional requirements for combatants are: a commander responsible for his subordinates, a certain

badge that can be identified from a distance, open carrying of weapons, compliance with the rules of engagement and practices, etc. Such requirements obviously cannot meet the requirements for differentiation in the current war environment. In addition to the requirements for combatants, the international law of war has failed to provide an appropriate and sufficient definition for civilians, thus creating a large legal gap, making it more difficult to define the identity of combatants in special cases. The latest legal documents on the definition of combatants are the *First Additional Protocol* adopted in 1977 and the *Second Additional Protocol* on non-international armed conflicts. The Protocol stipulates that "the armed forces of a party to the conflict consist of organized armed forces, groups and units under the command of a command responsible for the actions of its subordinates, even if the party is represented by a government or authority not recognized by the enemy.[15] The armed forces shall be subject to an internal disciplinary system, which shall, among other things, enforce the rules of international law applicable to armed conflicts. This expands the definition of combatant, and supplements the basic rules in the two Additional Protocols to the Geneva Conventions: except for direct participation in hostilities and when directly participating in hostilities, they shall enjoy protection from direct attack.[15] It also provides a reference for the formulation of relevant rules, which should be used as the basis for the definition of autonomous weapons, that is, when autonomous weapons allow manual intervention to determine the method of striking the target, the civilian targets shall be excluded from the rule.[16]

4.1.2. The distinction between civilian facilities and military targets

Military targets are objects that, by virtue of their nature, location, purpose or use, have made a real contribution to military operations, and are totally or partially destroyed, captured or rendered useless under the circumstances. This also requires that the destruction, capture or loss of usefulness must have a direct contribution and value to military operations, otherwise they cannot be called targets.[15] Indeed, in the field of international law, there are considerable controversies about the discussion of civilian facilities and military targets. In actual practice, it is common for civilian facilities to be militarized or military operations to use civilian facilities. The destruction and capture of civilian targets may indirectly affect the results of military operations. However, when armed forces use autonomous weapons to carry out attacks, they should also be required not to have an unacceptable negative impact on civilians, even if they have an indirect impact on the enemy, as determined by the principle of proportionality. Based on whether autonomous weapons can be operated by operators, the specific issues should also be discussed separately. For facilities that can clearly be identified as military targets, such as military defense facilities, supply depots, military airports, etc. It is relatively easy to define. These places exclude the possibility of civilian participation. However, for some facilities, their nature is more difficult to identify because of their location and use, which may be beneficial to both civilians and military operations. For example, bridges, roads and other facilities, although they may not have been used for military purposes, but according to their location and the military purposes of the warring parties, they may be used for military operations in the future,[17] which has a certain subjectivity. For operations that allow operators to intervene, when attacks on such facilities will seriously affect the legitimate rights and interests of civilians, they have the obligation to intervene and oppose serious destruction. For autonomous weapon systems that exclude operator operation, they need to meet the requirements of not violating relevant humanitarian crimes, and when there is evidence that the purpose of the object will be used for military purposes, they can be struck. This process does not need to have actually achieved or is achieving military purposes.

4.2. Proportionality Principle

As an important legal basis, the proportionality principle also seriously affects the determination of the abuse of autonomous weapons. According to the provisions of the *First Additional Protocol*, collateral damage mainly includes collateral damage to civilians and damage to civilian objects. The use of autonomous weapons must meet the necessary limits, and shall not inflict damage on civilians or civilian facilities in excess of the limits, causing humanitarian disasters. Different from the direct intentional or indirect intentional abuse of autonomous weapon systems, the proportionality principle emphasizes the situation of legitimate attacks, requiring that legitimate and reasonable attacks shall not exceed the necessary limits to limit the possibility of humanitarian disasters.

5. Suggestions for Institutional Improvement

5.1. International Treaty on New Autonomous weapons

As mentioned in the previous article, the existing international law treaties on autonomous weapons are seriously inadequate and cannot play a role in regulating autonomous weapons. International treaties represented by the *Declaration of St. Petersburg* and the *Hague Conventions* have limited binding scope and cannot effectively constrain autonomous weapon systems. Therefore, it is difficult to adjust the original treaties. At present, autonomous weapons are developing rapidly. If strong requirements are imposed to restrict the research and development of autonomous weapons by all countries, it will be difficult to achieve and not conducive to the progress of modern military technology. Moreover, autonomous weapon systems are usually even conducive to reducing humanitarian disasters, because autonomous weapon systems can prevent humanitarian disasters caused by subjective factors of combatants, such as indiscriminate killings caused by hatred or anger. Therefore, The international community should establish new regulations on autonomous weapons. Take the *Declaration of St. Petersburg* as an example, it requires participating countries to fully consider humanitarian law when developing and using new weapons, and to follow higher moral requirements for the design of new technologies and new weapons to avoid the occurrence of humanitarian disasters.

5.2. International Exchange Mechanisms

In addition to establishing new international treaties, it is also an important means to regulate the development of transparent weapons by urging countries to supervise each other in a relatively open and transparent international environment. Such supervision and communication are usually realized by signing international treaties, such as the *Protocol on Landmines, Booby Traps and Other Devices* and the *Protocol on Inflammable Weapons*. As the first international treaties to be used and studied, their existence has to a large extent regulated the equipment and use of relevant weapons and equipment. Therefore, states should call for the establishment of a broad and reasonable review mechanism to enrich relevant policies in this field and reduce the abuse of autonomous weapon systems.

Countries around the world should focus on using more open and transparent mechanisms of international exchange to establish more effective arms sales and monitoring institutions. Compared with the development and use of autonomous weapon systems between countries, it is worth our attention that armed groups outside of countries obtain autonomous weapon systems, such as terrorist organizations, local warlords, etc., whose abuse of autonomous weapon systems leads to humanitarian disasters.

6. Conclusion

Given the legal dilemmas of autonomous weapon systems, States should keep an open mind about improvements and advances in weapons technology. The regulation of responsibility for abuse of autonomous weapons should adhere to the principle of distinction and proportionality under the framework of state responsibility and individual responsibility. At the same time, international community should pay attention to the establishment of new and more perfect international treaties and international exchange and supervision mechanisms, so as to control the development and use of autonomous weapon systems within a reasonable and perfect range.

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