



Controlling Lethal Autonomous Weapons (LAWs)

by Daniel White

Old Dominion University Graduate Program in International Studies

Introduction

There is wide agreement that new technologies will transform the character of war in coming decades. The technologies on display in Ukraine, the Middle East and Armenia-Azerbaijan have made those wars very different from anything before. But drones and battlefield robotics, are only harbingers of bigger changes soon to come. Of greatest concern to many observers, after the risks of nuclear weapons and other weapons of mass destruction, is the danger of Lethal Autonomous Weapons (LAWs).¹

Weapons that make their own decisions about when, where and how to strike, who to kill, promise to make war much quicker, more unpredictable and much more dangerous. The promises of LAWs could undermine global stability, making all international relations less predictable and more dangerous. They could tempt governments and non-state actors into starting wars they hope to turn to their advantage.

Autonomous weapons first appeared in the inventories of major powers in the 1980s, when autonomous weapons like the Phalanx air defense

system was first deployed by the US and allied navies to intercept attacking cruise missiles and anti-ship missiles. The Phalanx can be operated autonomously, but it raised little controversy since it is not mobile and defensive.² Tracked robots were introduced by the US in Afghanistan and Iraq in 2004.³ But these required a man-in-the-loop, a human operator who made crucial decisions.

Technologies emerging now promise to be very different, with offensive capabilities to initiate attacks. They may use artificial intelligence to identify specific targets based on facial recognition, and invent their own tactics. They might make war more precise and less destructive, or they might allow destruction on a scale never possible before. With these dangers in mind, in July 2023, Secretary-General António Guterres presented his New Agenda for Peace, with an urgent call to the UN's Member States to adopt a treaty for 'outright prohibition on the fully autonomous LAWs, and regulation of all other types regulate autonomous weapons systems by 2026.'⁴

The Member States of the UN have moved much slower. They have considered the problem of

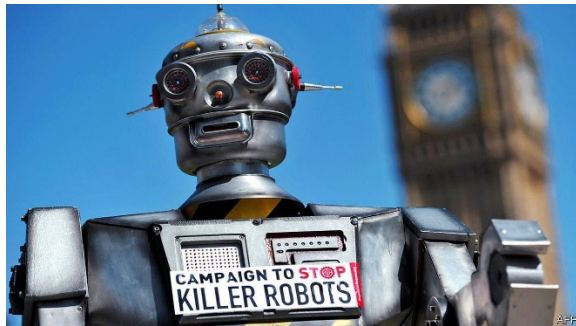
¹ 'Autonomous weapons and the new laws of war: A technology that may prove hard to restrain', *The Economist*, 19 January 2029, <https://www.economist.com/briefing/2019/01/19/autonomous-weapons-and-the-new-laws-of-war>

² 'Phalanx CIWS', *Wikipedia*, n.d., https://en.wikipedia.org/wiki/Phalanx_CIWS

³ Peter W. Singer, 'Military Robots and the Laws of War', *Brookings Institution*, 11 February 2009, <https://www.brookings.edu/articles/military-robots-and-the-laws-of-war/>

⁴ António Guterres, *Our Common Agenda. Policy Brief 9: A New Agenda for Peace*. New York: United Nations, July 2023, p. 27, <https://www.un.org/sites/un2.un.org/files/our-common-agenda-policy-brief-new-agenda-for-peace-en.pdf>; and Isabelle Jones, 'UN Secretary-General calls for new international law to regulate and prohibit killer robots by 2026', *Stop Killer Robots*, 26 July 2023, <https://www.stopkillerrobots.org/news/un-secretary-general-calls-for-new-international-law-to-regulate-and-prohibit-killer-robots-by-2026/>

regulating LAWs, but avoided major decisions. Leading powers agree it is early, the technologies are hard to evaluate, and the problems of agreeing on a verifiable treaty pose serious obstacles. They are keeping their options open. Critics, who sometimes refer to the problem of *Killer Robots*, insist action must come early to be effective, before these weapons undermine the morality of armed conflict. This is the dilemma for delegates at ODUMUNC 47 to solve.



Cute, but crude.

Three basic problems

Technological development has always directly impacted warfare. From the clashing of stone and copper, muskets overtaking swords, and tanks replacing horses, technology has caused war to change its tactics and adopt new strategies. Presently, the world faces the most recent iteration of this cycle: the development and usage of new lethal autonomous weapons [LAWs].

LAWs are generally separated into three categories based on the range of autonomous control over the weapons:

- *Supervised*: Supervised weapons are less autonomous with humans controlling their functions and operations. This allows them to be operate in an overseen environment in

case of error and to give the operators more time for any corrections.

- *Semi-Supervised*: Semi-supervised weapons are half control by humans and artificial intelligence. Humans oversees the weapon's usage, but the operations are more automated.
- *Unsupervised*: Unsupervised weapons have no human control over them. The weapons are fully automated in deciding what target to attack and when to attack it with very little time to make corrections.

These new weapon systems promise to reduce the risk to the militaries that employ them by removing soldiers from the battlefield and allowing them to engage in combat from a safer distance. Despite this promise, there are worries that the more automated this technology becomes, the potential for its abuse and misuse will rise.

There are three main concerns the Member States of the UN face on the issue of LAWs.

- First, there is no working definition of an autonomous weapon. States developing these weapons retain their own definitions because there is a wide spectrum of what classifies a weapon system as being autonomous. Currently, Unmanned Combat Aerial Vehicles (UCAV), known as drones, can share the same classifications as newer weapons being developed that completely remove human oversight by being controlled by artificial intelligence.
- Secondly, the more a country relies on LAWs, the more the tactics of warfare will change from close fighting to distance fighting. When fighting over large distances, fears arise that militaries will become more detached and desensitized to killing. This has the likelihood of a military solution being the favored response to a

crisis situation with the increasing chance of human rights violations.

- Thirdly, further development will lead to the creation of Lethal Autonomous Robots (LARs). These new weapons will further remove human control in favor of artificial intelligence. This is seen not as another weapons upgrade but as a “change in identity of who controls the weapons.”⁵ Without human control, it could, in the future, be difficult to account for where and when LAWs and LARs will attack. The AI controlling their operations might reach a level of autonomy where they no longer obey human commands and attack indiscriminately.



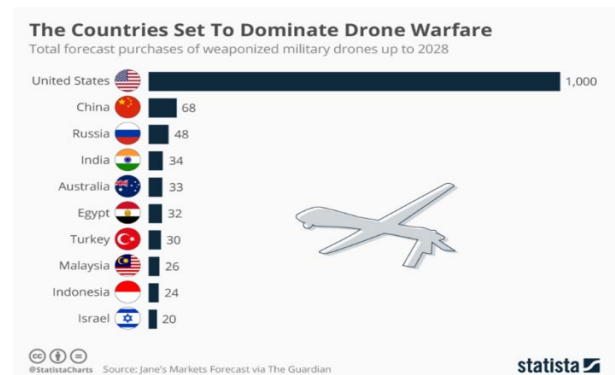
Background

The development of lethal autonomous weapons spans centuries. Landmines are regarded as the first form of LAWs. Originally using a pressure detonation system, technological development continued until landmines became equipped with computer sensors and remote controls. They established the precedent of how LAWs were created and how they became more sophisticated over time. Today, most of the concern on LAWs

revolves around drones. They are used for two primary purposes: surveillance or combat.

Drones used for surveillance is an accepted reality in modern warfare. These drones can remove humans from the danger of reconnaissance gathering by following targets from high in the atmosphere and relaying information back to human operators. From there, military leaders can assess the information before approving on further action

It is when drone usage moves from surveillance to combat that international debate arises. There still remains no universal accepted definition of LAWs. As a result, one states definition and potential use of the weapons can either be viewed as acceptable or reprehensible by another state. Equally so, the classification of a weapon as a LAW can vary between states. This ambiguity is causing confusion over the direction the development LAWs should take and how they can be deployed in combat.



Since this is a new and developing situation, there are no UN resolutions regarding LAWs. Even though there is strong precedence for UN agreements concerning weapons control, such as the 1993 Chemical Weapons Convention and the 1996 Comprehensive Nuclear-Test-Ban-Treaty, no substantial agreement has yet been approved by the

⁵ Heyns, Christof. *Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions*. New York, NY: UN Headquarters, 2013.

https://www.ohchr.org/sites/default/files/Documents/HRBodies/HRCouncil/RegularSession/Session23/A-HRC-23-47_en.pdf



Controlling Lethal Autonomous Weapons



UN. The direction and capabilities of LAWs are developing faster than policy can be made.

The UN Convention on Conventional Weapons (CCW) released a report tying the issue of LAWs to humanitarian law in 2019, but progress addressing the issue soon stagnated.

It was not until October of 2022 that the UN General Assembly passed a Joint Statement regarding LAWs. 70 states agreed that work should continue to be conducted on the definitions, legality, and humanitarian impact of LAWs. The goal is to ultimately pass the first UN resolution to standardize the international policy of LAWs. While an agreement is being deliberated, member states are publicizing their stances on the issue.

Positions of some states known to be developing LAWs

Australia is actively developing and testing various LAWs systems. As a result, Australia does not support an international treaty to ban their use or inhibit the reliance on artificial intelligence over human control. Reasons cited for this decision come from the fact that AI is more reliable on selecting military over civilian targets, and thus will reduce civilian casualties.

China has frequently changed its position on LAWs over the last decade. Between 2013 and 2016, China expressed concerns on how LAWs could start a new arms race and change the international strategic balance of power, and called for banning aspects of the emerging technology. By 2018 China called for a ban on the use in combat of all fully autonomous weapons, but that their development and production should still be permitted. After the joint resolution of 2022, China has stated that LAWs should be developed and used

in war only if they remain subjected to human control and follow the principles of International Humanitarian Law.

France has consistently held the position that regardless of how LAWs develop, they always need to be under human control. France has participated in the CCWs assessment of LAWs and is calling for any agreement to include any future LAWs be sustained under human control.

India: As a developer of LAWs, India's position both calls for state autonomy and international regulation. While states should be free to pursue their development, regulations should be created to keep the weapons out of non-state actors. Also, human control over AI should be required.

Israel is one of LAWs staunchest supporters. Israel has repeatedly called for states to be open to the development and usage of LAWs since they have the potential to reduce human casualties in combat, both civilian and military. Israel firmly rejects any international treaty or agreement to ban LAWs or full AI control.

The Republic of Korea (South Korea) welcomes the ongoing development of LAWs. While not developing weapons, the Republic of Korea is investing in artificial intelligence for military applications and calls legally binding agreements premature.





Russia views legally binding agreements or further development of policy on LAWs as unnecessary. Since a litany of work has already been accomplished on arms control and humanitarian law, LAWs regulation should be included in previous agreements. Russia notes that since there still is no agreed upon definition of laws it is pointless to proceed in creating an agreement regarding their regulation, especially since any

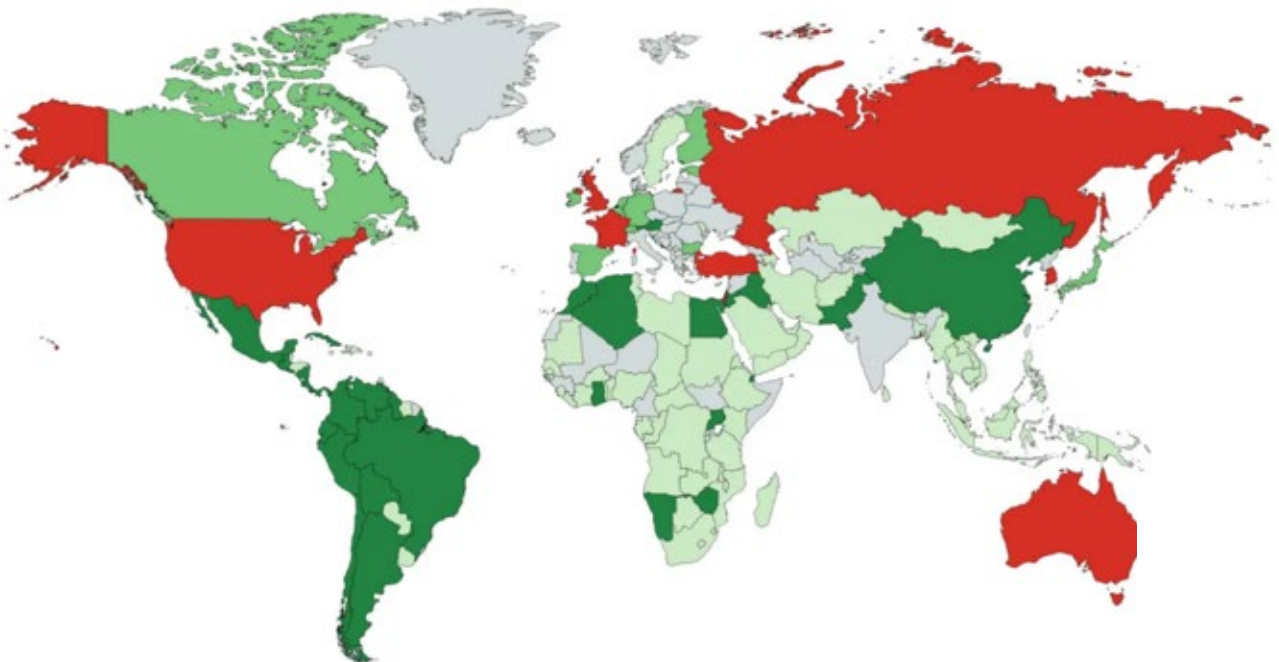
regulation may infringe upon the non-military use and development of robots.

Turkey: As a major exporter of drones, Turkey is not open to international agreements banning LAWs. Major Turkish drones, such as the widely

exported Bayraktar TB2 are not entirely autonomous, but may have upgrade potential. Though Turkey is researching weapons with artificial functions, they affirm that weapons should ultimately remain under human control.

International Positions Regarding Autonomous Weapons

-  Against regulation or ban on lethal AWS
-  Voted in favor of TPNW (if not already dark green or medium green)
-  Support regulate and/or maintain human control over lethal AWS
-  Support legally binding ban treaty on lethal AWS



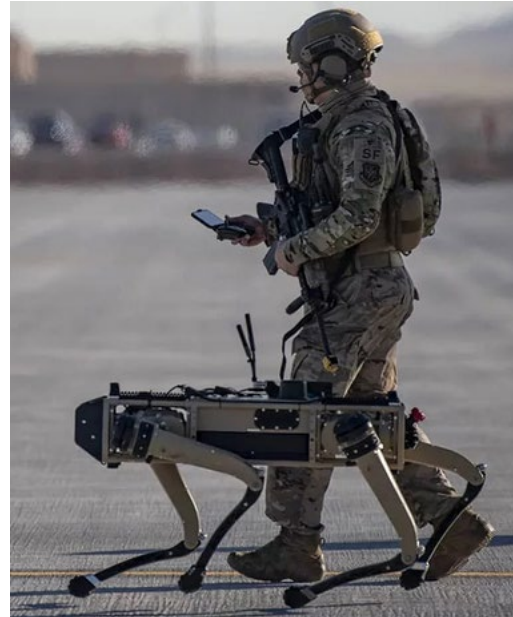
United Kingdom, as a state developing weapons with autonomous functions, it does not support a ban or international regulations of LAWs. Concerning with other states that humans must retain control over the decision to use LAWs in combat, the United Kingdom does believe artificial intelligence can be incorporated into LAWs to increase their efficiency.

United States has spent the previous decade heavily investing in the development and potential application of LAWs. Not only does the United States continue to use UCAVs in military operations, but it is researching artificial intelligence so that future weapon systems could be fully autonomous without human control. The United States has touted the potential benefits of LAWs such as keeping soldiers safe and applying them to solve humanitarian problems. While agreeing that LAWs should be used in compliance with International Humanitarian Law, no resolution or treaty needs to be proposed compelling a ban on human controlled and fully autonomous systems.

Role of the United Nations

The UN General Assembly has yet to pass a major resolution on LAWs issues. Member States seem to agree it is extremely important to act, to guide the emergence of the technology before it is too late. But they also want to keep some options for themselves. The result is a hesitation to act.

Instead, countries are acting domestically, at home. In the UN, the major effort is a report on problems of definitions and restrictions internationally. On 10 March 2023, the UN released this document, summarizing major positions on LAWs issues. Three major positions were developed there.



Western-oriented UN Member States—Australia, the Republic of Korea, the United Kingdom, the United States and others—are in agreement of the following four principles:

- a) *weapons systems must not be designed to be used to conduct attacks against the civilian population, including attacks to terrorize the civilian population;*
- b) *weapons systems must not be designed to cause incidental loss of civilian life, injury to civilians, and damage to civilian objects that would invariably be excessive in relation to the concrete and direct military advantage expected to be gained;*
- c) *the autonomous functions in weapons systems must not be designed to be used to conduct attacks that would not be the responsibility of the human command under which the weapon system would be used; and*

d) *weapons systems are to be developed such that their effects in attacks can be anticipated and controlled, as may be required, in the circumstances of their use, by the principles of distinction and proportionality and such that attacks conducted with reliance upon their autonomous functions will be the responsibility of the human command under which the system was used.*⁶

China's position is similar to the above proposals. But China emphasizes greater human control:

1. *Firstly, lethality, meaning sufficient lethal payload (charge) and means.*
2. *Secondly, autonomy, meaning absence of human intervention and control during the entire process of executing a task.*
3. *Thirdly, impossibility for termination, meaning that once started, there is no way to terminate the operation.*
4. *Fourthly, indiscriminate killing, meaning that the device will execute the mission of killing and maiming regardless of conditions, scenarios and targets.*
5. *Fifthly, evolution, meaning that through interaction with the environment, the device can learn autonomously, expand its functions and capabilities in a degree exceeding human expectations.*
6. *Acceptable Autonomous Weapons Systems could have a high degree of autonomy, but are always under human control. It means they can be used in a secure, credible, reliable and manageable manner; can be suspended by human beings at any time and comply with basic principles of international humanitarian law in military*

*operations, such as distinction, proportionality and precaution.*⁷

Finally, Russia's main aim is to see that LAWS are universally defined as their development continues. Their position in the report states:

- *There is no consensus definition of LAWS in existing international law. Since the issue pertains to prospective types of weapons, the definition of LAWS should not be interpreted as limiting technological progress and detrimental to research on peaceful robotics and artificial intelligence.*
- *The definition of LAWS should meet the following requirements:*
 - *contain the description of the types of weapons that fall under the category of LAWS, conditions for their production and testing as well as their usage procedure;*
 - *not be limited to the current understanding of LAWS, but also take into consideration the prospects for their future development;*
 - *be universal in terms of the understanding by the expert community comprising scientists, engineers, technicians, military personnel, lawyers and ethicists.*
- *A lethal autonomous weapons system is a fully autonomous unmanned technical means other than ordnance that is intended for carrying out combat and support missions without any involvement of the operator.*⁸

⁶ United Nations, Office for Disarmament Affairs. *Non-exhaustive Compilation of Definitions and Characterizations*. New York, NY: UN Headquarters, 2023, CCW/GGE.1/2022/WP.2

⁷ CCW/GGE.1/2022/WP.6

⁸ CCW/GGE.1/2022/WP.9

While the General Assembly has yet to agree on a resolution to guide further action, there are precedents from it to build on. The following treaties on arms control and disarmament are part of international law. The Member States of the UN can use these as a basis for defining and regulating LAWs:

- *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* (CCW), adopted 10 October 1980, entered into force in 1983. This little-known treaty is most relevant to LAWs, since it focuses on specific conventional weapons, thought to be inhumane. With the agreement of the parties, it could be amended to prohibit or regulate different kinds of LAWs.
- *The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction* (CWC), 13 January 1993. The CWC bans chemical weapons, ensuring that signatories cannot use chemical weapons to arm their LAWs. It also establishes a precedent for limiting the kind of armament LAWs are allowed to use generally. Like all disarmament treaties, it is only as strong as the Member States make it. Russia is believed to have used a chemical weapon in at least one assassination attempt on foreign territory, and Syria used nerve agents and chlorine gas to kill thousands of its people in its civil war.
- *Comprehensive Nuclear Test Ban Treaty*, (CTBT), 24 September 1996. The CTBT does not ban nuclear weapons, but prohibits testing. It ensures that signatories cannot use their LAWs to test nuclear weapons. Like all disarmament treaties, it is only as strong as the Member States make it. The United States

refuses to ratify the treaty, and Russia recently began the process of reversing its ratification.

- *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction*, 18 September 1997. The anti-personnel landmine treaty, the Ottawa Convention, makes it illegal under international law to arm LAWs with many, but not all, forms of weapons that kill automatically. It establishes a major precedent for action controlling LAWs.
- *Treaty on the Prohibition of Nuclear Weapons*, (the TPNW or the Ban Treaty), agreed 2017, entered into force among its signatories on 7 July 2020. By prohibiting all possession, testing and use of nuclear weapons, the Ban Treaty creates a major limit of how LAWs can be armed, too. But the treaty currently only is an agreement among nuclear have-nots. Not one of the nine nuclear weapons armed countries have signed the agreement, and none show any interest or willingness.

These treaties serve as examples of how international agreement on weapons control is possible. However, there are limits to the power of the General Assembly. The Member States remain sovereign. The General Assembly can pass resolutions, conventions and treaties. But member states always have the option of not participating in them. Non-participation may hinder international efforts to confront LAWs, but a framework can be established that defines them and keeps their development under UN supervision.

Secretary-General Guterres recently called for outright prohibiting lethal autonomous weapons systems. His recommendation goes far beyond the expectations of many major Member States. If his goal was to create tension between his office and the country delegations, he succeeded. Specifically, he said:

Fully autonomous weapons systems have the potential to significantly change warfare and may strain or even erode existing legal frameworks. In the absence of specific multilateral regulations, the design, development and use of these systems raise humanitarian, legal, security and ethical concerns and pose a direct threat to human rights and fundamental freedoms. Machines with the power and discretion to take lives without human involvement are morally repugnant and politically unacceptable and should be prohibited by international law.⁹

To deal with the problem, he called for nothing less than outright prohibition on the fully autonomous LAWs, and regulation of all other types:

Recommendations: Building on the progress made in multilateral negotiations, conclude, by 2026, a legally binding instrument to prohibit lethal autonomous weapon systems that function without human control or oversight, and which cannot be used in compliance with international humanitarian law, and to regulate all other types of autonomous weapons systems.¹⁰



Some possible proposals for the UN General Assembly

If the Member States of the UN can come to a consensus on the need to control LAWs, they have a long history of weapons control ideas on which to draw. Despite the unprecedented nature LAWs pose in contemporary conflict, they are weapons. Weapons control efforts have been implemented before and have enjoyed measures of success. Based on current efforts concerning LAWs, three possible proposals can be created ranging from the least to the most restrictive. This list is far from complete. Delegates at ODUMUNC, representing sovereign member States, have complete freedom to craft their own proposals, guided by the goals of their home governments:

1. Continue the dialogue. When an issue is too complex or the difference too great, sometimes all the Member States can agree on is to keep talking. The typical way the General Assembly does this is to authorize a study of this issue, to guide future decision-making. While often seen as a cop-out, this ensures the UN remains focused on the issue, and ensures the General Assembly will have to deal with it sooner or later.

Typically, an official study is requested from the UN Secretary-General, who is made responsible for assembling a panel and given schedule. Much depends on the *study mandate*, or *terms of reference*. Are study participants *independent experts* chosen by the UN Secretary-General (that produces the best results) or experts appointed by their *home governments* (much more popular with the member States)? Is the mandate just to discuss aspects of the issue, or will the final report offer suggestions for action? Not all Member States want recommendations. They want to stay in control.

⁹ Guterres, *A New Agenda for Peace*. Op.cit., p. 27

¹⁰ Ibid.



Controlling Lethal Autonomous Weapons



It is only during the present year that member states began to address LAWs. States have been contributing their definitions of what LAWs are and their acceptable terms of how LAWs should be used. It is too early for any resolution to be passed or treaty to be proposed. The work of defining the problem must continue before any substantive solution can be explored.

2. Ask member States not to develop or deploy particular kinds of LAWs. Since technological development and deployment seems to be an inevitability, states should work together to ensure one type of LAWs does not become more powerful than another. Secrecy in development will only foster another arms race as all sides strive to create more sophisticated weapons and AI. Definitions at this point will be meaningless since the technology will advance too rapidly. States should pledge not to develop this technology on their own but co-develop it with all states so that no one will have an advantage over another.

3. Prohibit deployment of all fully autonomous LAWs. The resolutions would need to specify if this includes already available fixed weapons, especially for air defense, or only refer to mobile LAWs, able to search for and attack particular targets?

While development and deployment of LAWs operating under human aegis might continue, the prospect of fully autonomous weapons operating outside of human input, oversight, or the ability to manually terminate the system should be banned. An international treaty should be proposed calling on member states to commit to stopping further development of AI controlled weapons. Not doing so risks future AI programs maneuvering itself outside of human control so that no person or state can stop the weapon from killing any target it chooses indiscriminately. It is better to stop development now while humans still have control over the technology.



Bibliography

“70 States Deliver Joint Statement on Autonomous Weapons Systems at UN General Assembly,” Stop Killer Robots, Last Modified October 21, 2022, <https://www.stopkillerrobots.org/news/70-states-deliver-joint-statement-on-autonomous-weapons-systems-at-un-general-assembly/>

Biological Weapons Convention, 10 April 1972, <https://www.britannica.com/event/Biological-Weapons-Convention>

Buchholz, Katharina. “More Countries are Using Drones,” Statista, last modified February 14, 2019, <https://www.statista.com/chart/17021/number-of-countries-using-drones/>

“Comprehensive Test Ban Treaty,” 24 September 1996, <https://www.ctbto.org/our-mission/the-treaty>

“Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction,” 13 January 1993, https://www.un.org/en/genocideprevention/documents/atrocitycrimes/Doc.42_Conv%20Chemical%20weapons.pdf

“Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction,” 18 September 1997 https://www.un.org/en/genocideprevention/documents/atrocitycrimes/Doc.44_convention%20antipersonnel%20mines.pdf

Guterres, António. *Our Common Agenda. Policy Brief 9: A New Agenda for Peace*. New York: United Nations, July 2023, <https://www.un.org/sites/un2.un.org/files/our-common-agenda-policy-brief-new-agenda-for-peace-en.pdf>

Heyns, Christof. *Report of the Special Rapporteur on extrajudicial, summary or arbitrary executions*. New York, NY: UN Headquarters, 2013. https://www.ohchr.org/sites/default/files/Documents/HRBodies/HRCouncil/RegularSession/Session23/A-HRC-23-47_en.pdf

Jones, Isabelle. ‘UN Secretary-General calls for new international law to regulate and prohibit killer robots by 2026’, *Stop Killer Robots*, 26 July 2023, <https://www.stopkillerrobots.org/news/un-secretary-general-calls-for-new-international-law-to-regulate-and-prohibit-killer-robots-by-2026/>

“Lethal Autonomous Weapons Systems (LAWS),” United Nations, Office for Disarmament Affairs, last modified 2023, <https://disarmament.unoda.org/the-convention-on-certain-conventional-weapons/background-on-laws-in-the-ccw/>.

“Lethal Autonomous Weapons & Info-Wars: A Scientist’s Warning,” Synced, SyncedReview, last modified July 6, 2017, <https://medium.com/syncedreview/lethal-autonomous-weapons-info-wars-a-scientists-warning-cc95798bc302>.

McCarthy, Niall. “The Countries Set to Dominate Drone Warfare,” Statista, last modified November 19, 2019, https://www.statista.com/chart/20005/total-forecast-purchases-of-weaponized-military-drones/?utm_source=Blog&utm_medium=RSS.



Controlling Lethal Autonomous Weapons



“Not the Right Time:’ US to Push Guidelines, not Bans, at UN Meeting on Autonomous Weapons,” Breaking Defense, last modified March 3, 2023, <https://breakingdefense.com/2023/03/not-the-right-time-us-to-push-guidelines-not-bans-at-un-meeting-on-autonomous-weapons/>

‘Phalanx CIWS’, *Wikipedia*, n.d., https://en.wikipedia.org/wiki/Phalanx_CIWS

Singer, Peter W. ‘Military robots and the laws of war’, *Brookings Institution*, 11 February 2009, <https://www.brookings.edu/articles/military-robots-and-the-laws-of-war/>

“Slaughterbots are Already Here,” Future of Life. <https://futureoflife.org/wp-content/uploads/2020/07/lethalAWSpositions2020.png?x72900>

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

“Stopping Killer Robots: Country Positions on Banning Fully Autonomous Weapons and Retaining Human Control,” Human Rights Watch, last modified August 10, 2020, <https://www.hrw.org/report/2020/08/10/stopping-killer-robots/country-positions-banning-fully-autonomous-weapons-and>

Treaty on the Prohibition of Nuclear Weapons, 7 July 2020, <https://disarmament.unoda.org/wmd/nuclear/tpnw/>

United Nations, Office for Disarmament Affairs. *Implementing International Humanitarian Law in the Use of Autonomy in Weapon Systems*. New York, NY: UN Headquarters, 2019. [https://docs-library.unoda.org/Convention_on_Certain_Conventional_Weapons_Group_of_Governmental_Experts_\(2019\)/CCW_GGE.1_2019_WP.5.pdf](https://docs-library.unoda.org/Convention_on_Certain_Conventional_Weapons_Group_of_Governmental_Experts_(2019)/CCW_GGE.1_2019_WP.5.pdf)

United Nations, Office for Disarmament Affairs. *Non-exhaustive Compilation of Definitions and Characterizations*. New York, NY: UN Headquarters, 2023. [https://docs-library.unoda.org/Convention_on_Certain_Conventional_Weapons_Group_of_Governmental_Experts_on_Lethal_Autonomous_Weapons_Systems_\(2023\)/CCW_GGE1_2023_CRP.1_0.pdf](https://docs-library.unoda.org/Convention_on_Certain_Conventional_Weapons_Group_of_Governmental_Experts_on_Lethal_Autonomous_Weapons_Systems_(2023)/CCW_GGE1_2023_CRP.1_0.pdf)