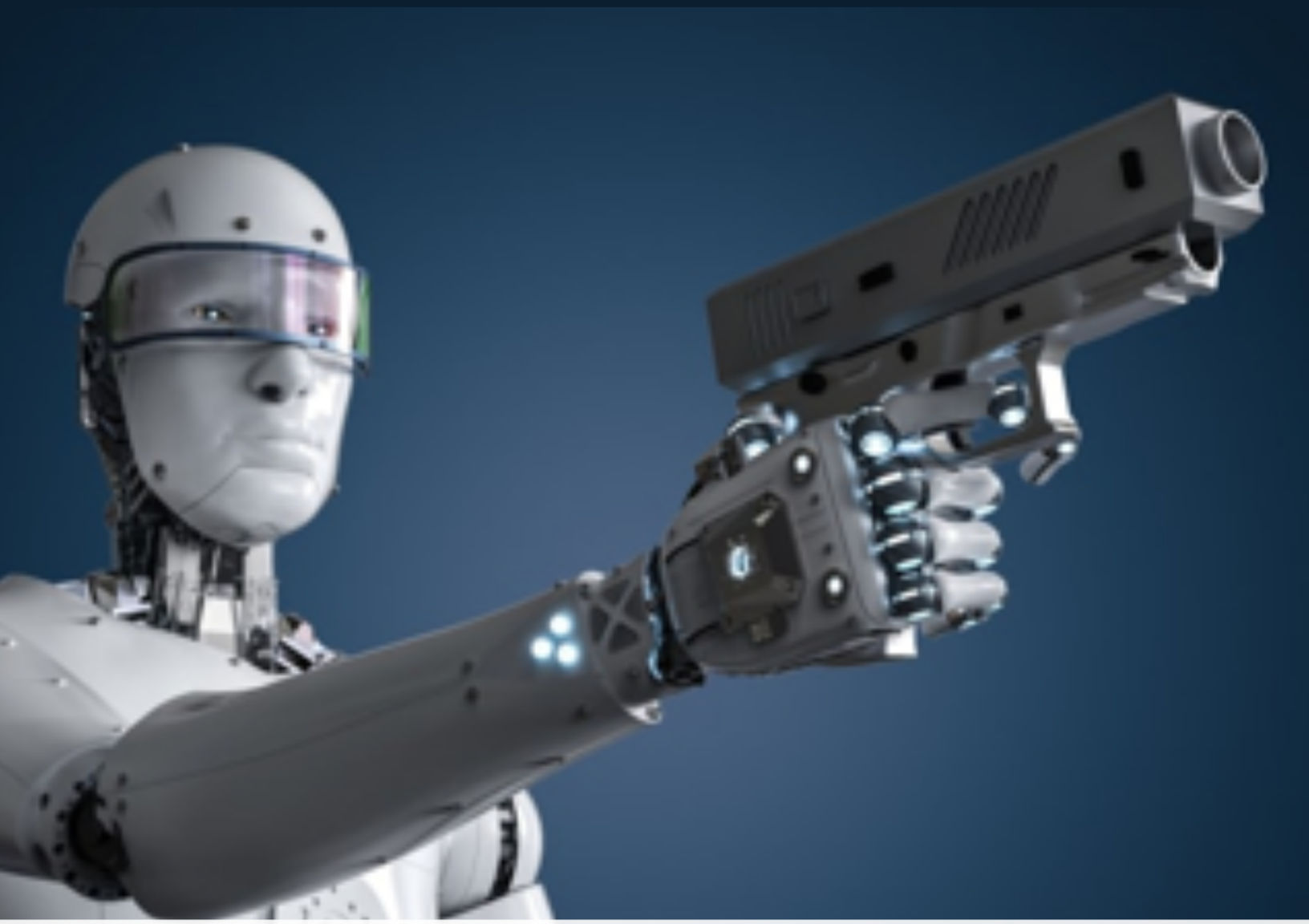

General Assembly 1 (GA1)

Responsible Development & Regulation of Autonomous Weapons

Rudra Sinha

Forum: General Assembly 1 (GA1)

Issue: Responsible Development & Regulation of Autonomous Weapons

Name: Rudra Sinha

Position: President of the General Assembly

Introduction:

Autonomous weapon systems or AWS are some of the most pressing technological advancements in modern warfare. These systems can select and engage targets by itself, which raises a lot of ethical legal and security concerns. As AI and robotics become more advanced as well, the world faces an important problem: how to balance technological advancements in the military with international humanitarian law. This report explores the origins, evolution of these weapons, some key definitions, examine the role of some of the stakeholders, and also offer potential solutions (*International Committee of the Red Cross*).

Definition of key terms:

Autonomous Weapons Systems (AWS):
These are weapons that, when used, can select and attack targets without any human intervention. There are different levels in the autonomy from semi-autonomous to fully autonomous.

Artificial Intelligence (AI):
A sector of computer science to build machines that can perform tasks that require human intelligence, such as decision making, perception and language comprehension.

Command Responsibility:
A belief or doctrine in international law that holds the superiors accountable for crimes committed by lower-ranking individuals under their control, especially when they knew or should have known about the acts.

International Humanitarian Law (IHL):
A set of laws that rules the conduct of armed conflict with the aim to protect civilians and those who aren't participating in the conflict.

Lethal Autonomous Weapons Systems (LAWS):
A type of AWS capable of independently using deadly force without human intervention.

Meaningful Human Control (MHC):

This is a concept that advocates that humans must have control over the important functions of weapon systems, specifically the target selection and attacking decisions.

The Martens Clause:
This is a concept of international humanitarian law that states in cases not covered by treaties, civilians and soldiers remain protected by the idea of humanity and public conscience.

General Overview:

Origins and Evolution of AWS:

The idea of autonomous weapons goes back to early automated defence systems like radar-guided anti-aircraft guns during the Cold War. However, modern AWS with advances in AI and robotics started becoming prevalent in the 21st century. Nations with strong militaries began experimenting with increased autonomous platforms that are capable of identifying, tracking and engaging targets with no human input. Some common examples of these systems are Israel's Harpy drone and South Korea's SGR A1 Sentry gun, which are hinted to have full autonomy. These machines have progressed to today's AWS, which uses complex algorithms to make real-time decisions *(CARUSO)*.

Technological Landscape:

Modern-day AWS have a lot of variety. They often use sensor fusion, computer vision and machine learning to understand data, track targets and carry out missions. There are 3 main types or levels of autonomy:

- Semi-Autonomous Systems: Require human input for important decisions but can perform support tasks by themselves.
- Supervised Autonomous Systems: Operate by themselves with the ability for human override.
- Fully Autonomous Systems: Can independently select and eliminate targets based on a pre-set of instructions.

As AI becomes better and stronger, so does the potential for AWS to function in more unique environments. This raises a lot of concern for accountability especially in the case where a machine makes an error and violates humanitarian law (*Future of Life Institute*).

Ethical and Legal Concerns:

A key ethical concern with AWS is the undermining of human accountability in warfare. If we give life and death decisions to machines, it may violate principles of human responsibility. Furthermore, experts argue that algorithms can't apply legal ideas like distinction, which are key for IHL or international humanitarian law. Legal scholars also question how treaties like the Geneva Conventions apply to AWS. For example, if an

AWS system accidentally targets civilians, it's still debatable who is legally responsible: the commander, programmer or manufacturer.

Challenges in Regulation

There have been some efforts to regulate AWS at an international level but there are some significant issues. The main obstacles include:

1. Disagreement over definitions: Different states have different definitions of what is an autonomous weapon.
2. Dual use technology: Many parts of AWS like the AI algorithms or drones have also civilian and other uses, which complicates the regulation.
3. Different national interests: While some countries advocate for pre-emptive bans like Brazil and Austria, others like the US and Russia prefer the continued development with soft law governance.
4. Lack of enforcement mechanisms: Even if some agreements are made, enforcing these agreements is a challenge. Especially in conflict zones and non-state parties.

Case Studies and Current Use

- Israel: Harpu and Harop Drones. These suicide drones are designed to automatically seek and destroy radar targets. While there is human involvement in deployment, it works by itself once airborne.
- Russia: Uran 9 Combat Robot: Used in Syria, this semi-autonomous ground vehicle has several flaws, like delayed command responses and targeting errors
- United States: Loyal Wingman Program: An initiative to develop AI-powered drone wingmen for piloted aircraft, which shows the shift toward manned and machine teaming in strategy.
- Turkey: Kargu-2 Drone: Reports from the Libyan conflict show that this drone might attack a target without human intervention. It might be the first AWS in combat history.

These examples clearly show the rapid growth of AWS and the need for a strong and clear international framework to manage its deployment and development. (*The Guardia*)

Key Events Timeline

Date	Event Description
November 2012	Human Rights Watch starts "Campaign to Stop Killer Robots" which advocates for the pre-emptive ban of fully autonomous weapons.
May 2013	UN Special Rapporteur on extrajudicial executions places a global moratorium on the development of lethal autonomous robotics.

May 2014	First Meeting of Experts on Lethal Autonomous Weapons Systems (LAWS) under the Convention on Certain Conventional Weapons (CCW) holds its session in Geneva.
April 2015	In an unprecedented move, over one thousand AI specialists and researchers come together to voice their concerns, signing a singular letter that speaks out against aims to militarize AI technologies.
August 2017	Elon Musk, founder of DeepMind, and 100+ tech heads petition the UN to put a ban on autonomous weapons.
November 2017	At the CCW Meeting in Geneva, 26 nations favour a resolution prohibiting fully autonomous weapons.
March 2021	UN gets reports telling of Turkey's Kargu-2 drone purportedly autonomously engaging a human target in Libya – reportedly the first of such an incident. (UN)
December 2021	CCW Meeting fails to find an agreement on new rules concerning AWS, showcasing the level of division between states.
October 2023	In an effort towards refining global governance on fast-evolving military technologies, Austria convenes the Vienna Conference on Autonomous Weapons and emphasizes the urgency of a regulation that is legally binding.
March 2024	UN Secretary-General António Guterres On reiterated request for a treaty that bans the autonomous weapons. (UN)

Principal Stakeholders

Austria:

Austria has taken the lead advocating for a proactive LAWS ban. It has held multiple conferences across the globe on AWS' humanitarian and ethical concerns and continually strives for a legal document on fully autonomous systems AWS restrict international legislation (*Autonomous Weapons Systems*).

China:

China actively participates in discussions focused on AWS. However, they have been vaguer on their positions stating concern for the fully autonomous weapons system, claiming it should not be used "without human control," while also spending large sums of money on the AI arms race and military robotics research *(Ethan).*

EU:

The EU has adopted a more reserved approach focusing the need to have human oversight on weapons systems. Although the Union has not pushed for a total ban, they remain in favor aligned with the international humanitarian law. Some Germany and France sustain a more difficult position than others.

Israel:

Israel is known for being one of the largest producers and marketers of the semi-autonomous Harop and Harpy drones. It has not endorsed any bans on AWS claiming current international structures governing their use are adequate. Israel's defense policies prioritize operational efficiency and national security (Serhan).

Russia:

Russia strongly defends the absence of a prior treaty prohibiting autonomous weapon systems, stating that they should be viewed through the lens of current legal practices and not new agreements. Autonomous weapons are regarded as a means of strategic advantage, and Russia is heavily financing the development of AI-warfare technologies, combat drones, and robotic ground vehicles *(Russel).*

Turkey:

Turkey Kargu-2 drone development and reported usage in Libya garnered international attention issues. No position has been publicly declared by Turkey on the issue of regulation; however, the military application of such systems indicates lack of support towards adoption of constraining policies *(Mishra).*

United States:

The U.S is at the forefront in the development of autonomous weapons systems and has funded them in programs such as the Loyal Wingman drone and fully autonomous naval vessels. AWS prohibition is also not supported, methyl arguing the use of warfare machines is legal and are capable of IHL compliance if employed correctly. Non-binding frameworks are advocated by the US which prohibits setting strict regulations and supports "meaningful human control" of the systems while invoking free creativity.

Potential Avenues for Resolution

Developing a comprehensive solution for addressing the concern of Autonomous Weapons Systems (AWS) involves balancing technological progression, security dilemmas, and international humanitarian law *(Adam).* Below are some directions that can facilitate global dialogue and guide policy drafting for consideration:

1. Establishing a Binding International Treaty

An international multi-lateral agreement treaty that internationally sanctions the regulation or even banning of fully autonomous weapons systems would be one viable option. A UN lead initiative could be done toward such a treaty, under the Convention on Certain Conventional Weapons (CCW) framework, alongside what the Ottawa Treaty achieved with the banning of landmines. Important aspects of such a treaty could include but not be limited to:

- Specific definition of the autonomy levels: Distinction between semi-autonomous systems and fully autonomous systems would need to be made to specify what technologies are defacto permitted and defacto prohibited.
- Degrees of human control: A treaty could require to personnel capability to intervene at critical actions for each weapon system regardless of autonomy level, especially those employing lethal force.
- Sanctions and Monitoring Mechanism: The treaty could establish an independent body charged with monitoring the development, utilization, and transfer of AWS within the framework of international law.

2. Strengthening Existing Legal Frameworks

Instead of coming up with new treaties altogether, one other option would be to further strengthen and specify in the context of AWS the existing international humanitarian law (IHL), Geneva Conventions and their Additional Protocols. This might contain:

- Amend criteria: Ensure that the principles of distinction (identification of combatants and civilians) and proportionality (balance of force used) apply directly to autonomous systems.
- Clearly defined violators accountability frameworks: Whoever operates AWS and exerts authority over them should be clearly held accountable if IHL violations are committed
- Training for military personnel**:** Ensuring that all armed forces using AWS receive adequate training on the ethical and legal implications of using autonomous systems in conflict.

3. Promoting Transparency and Confidence-Building Measures

Bearing in mind the global worries about the possible misuse of AWS, confidence-building measures could decrease the stress areas while fostering transparency concerning the creation and usage of autonomous weapons. This could be in the form of:

- Sponsored International Control of AWS Creation: Urging countries to voluntarily admit the existence of their secret AWS programs and disclose information detailing the constitutions of their automated systems as well as their operational capabilities. Such disclosure could limit the danger of arms races, as well as the overall destabilization of global security.

- Sponsored International Standards on the Use of Military AI: Countries allied with technology firms could set up international benchmarks on the moral and responsible production and application of AI technology in military-grade machines, so that autonomous devices do not violate human rights, and align with the spirit of unhumanitarian law.

- Global Citizen Participation: Participation of the world and civilian society in deliberations regarding the future of AWS-ability can raise wider consciousness and obtain ethical responsibility towards technology development. This should be part of the agenda of from cyberspace forums, think tanks, or construction of general education programs proposed by NGO's and the UN.

4. Developing Non-Lethal Autonomous Technologies

Instead of fully autonomous lethal systems, these countries and defense contractors could focus on creating autonomous non-lethal devises meant for use in peacekeeping, surveillance, and crowd control.

- AWS designed specifically for the purpose of de-escalation where de-escalating means relieving and lowering aggression towards non-life-threatening action.

- Development of AWS for humanitarian purposes: AWS deployed for mine-clearing activities or AWS deployed during relief missions that are intended to preserve life, not end it.

5. Ethical AI and Autonomous Systems Research

In relation to warfare, AI research ethics, and applying the principles of ethics in practice, developing policies presents a long-term challenge. Achievable actions from countries and international organisations could include:

- For autonomous weapons subjects, ethical principles AI frameworks: Developing and employing AI automation systems to ensure compliance with relevant legislation and international ethics during weaponisation.

- Creation of AI verification standards to ensure AI autonomy as reliable: Autonomous systems must perform expected functions without causing harm.

Suggested Resources

References

Adam, David. “Lethal AI Weapons Are Here: How Can We Control Them?” *Nature News*, Nature Publishing Group, 23 Apr. 2024, www.nature.com/articles/d41586-024-01029-0.

“Ai’s ‘Oppenheimer Moment’: Autonomous Weapons Enter the Battlefield.” *The Guardian*, Guardian News and Media, 14 July 2024, www.theguardian.com/technology/article/2024/jul/14/ais-oppenheimer-moment-autonomous-weapons-enter-the-battlefield.

Ethan, Lee. The Autonomous Arsenal in Defense of Taiwan: Technology, et al. “What Are Autonomous Weapon Systems?” *The Belfer Center for Science and International Affairs*, 3 Feb. 2025, www.belfercenter.org/what-are-autonomous-weapon-systems.

CARUSO, CATHERINE. “The Risks of Artificial Intelligence in Weapons Design | Harvard Medical School.” *Harvard Medical School* , 7 Aug. 2024, hms.harvard.edu/news/risks-artificial-intelligence-weapons-design.

“Educating about Autonomous Weapons.” *Future of Life Institute*, 26 Mar. 2025, futureoflife.org/project/autonomous-weapons-systems/.

“Homepage.” *Autonomous Weapons Systems*, 17 Apr. 2025, autonomousweapons.org/.

Mishra, Himanshu. “Turkish Kamikaze Drone from Pak, Targeting Civilians in J&K, Shot Down.” *India Today*, India Today, 10 May 2025, www.indiatoday.in/india/story/turkey-made-kamikaze-drone-kargu-2-used-by-pak-against-india-2722751-2025-05-10.

Nations, United. “Un Addresses AI and the Dangers of Lethal Autonomous Weapons Systems.” *United Nations Western Europe*, 24 Jan. 2025, unric.org/en/un-addresses-ai-and-the-dangers-of-lethal-autonomous-weapons-systems/.

Russell, Stuart. “AI Weapons: Russia’s War in Ukraine Shows Why the World Must Enact a Ban.” *Nature News*, Nature Publishing Group, 21 Feb. 2023, www.nature.com/articles/d41586-023-00511-5.

Serhan, Yasmeen. “Israel’s Use of AI in Gaza May Be Setting a New Warfare Norm.” *Time*, Time, 18 Dec. 2024, time.com/7202584/gaza-ukraine-ai-warfare/.

"What You Need to Know about Autonomous Weapons." *International Committee of the Red Cross*, 18 Oct. 2023, www.icrc.org/en/document/what-you-need-know-about-autonomous-weapons.