



# Autonomous Weapon Systems and Their Compliance with International Humanitarian Law

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## Abstract

*Autonomous weapon system, a system which is truly capable of operating itself, independent from human interpose and of course more like a science fiction than science fact. Autonomous weapon systems (AWS) are in their nascent stages, and various aspects of them are still terra incognita. Despite various discussions, there have been no specific legal developments with regards to AWS. AWS can be seen through various prisms, for instance, international laws such as - International Human Rights Law, the morality of such weapons, or in the context of the principles of International Humanitarian Law (IHL). However, in this paper, the author has only tried to see its legality in the context of IHL principles. Some scholars have supported it, and some have not. In the opinion of the author, in some contexts, autonomous weapon systems do comply with certain aspects of these principles, but in certain contexts, it is difficult to say that they comply with certain aspects of these principles, but with the rapid growth of technology, it may be that after a certain number of years they will be able to comply with these principles in a better manner. Other than that, the author discussed the state practice regarding the autonomous weapon system and challenges in regulating AWS under International humanitarian law and human rights law and further proposed legal and policy reforms.*

***Definition:** According to the International Committee of the Red Cross (ICRC), “the autonomous weapon systems are any weapon system with autonomy in its critical functions. That is, a weapon system that can select (i.e., search for, detect, identify, track) and attack (i.e., use force against, neutralise, damage, or destroy) targets without human intervention. After initial activation or launch by a person, an autonomous weapon system self-initiates or triggers a strike in response to information from the environment received through sensors and based on a generalised ‘target profile’. This means that the user does not choose or even know, the specific targets and the precise timing and/or location of the resulting applications of force.”<sup>1</sup>*

*Some examples of autonomous weapon systems can be unmanned aerial vehicles (UAVs), Killer robots, autonomous tanks, missiles, guided munitions, autonomous naval vessels, sentry guns, unmanned ground vehicles (UGVs), autonomous combat robots, autonomous submarines, automated turbines, swarm drones, and many more.*

*It is not that there is no human intervention; human intervention is there, for instance, at the stage of weapon development, when it is being deployed in an armed conflict, but after it has been deployed, there is no or minimal human intervention.*

**Key words-** Autonomous weapon system, principle of distinction, proportionality, military necessity, humanity, precaution, state practice, Article 36.

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## Introduction

Autonomous Weapon Systems (AWS) and their compliance issues under international humanitarian law (IHL) have been tested in recent high-intensity conflicts around the world, including the Israel-Palestine conflict, the Russia-Ukraine war, and ongoing border tensions between India and Pakistan. The use of AI-powered drones and loitering munitions in Ukraine is an unprecedented shift in the character of conflict. Ukraine's December 2024 fully unmanned operation near Kharkiv, which used FVP drones and ground vehicles, has been hailed as a turning point in the evolution of the conflict, according to military analysts. It demonstrated a "coordinated multidomain assault that advanced the theatre toward truly AI-enabled combat while maintaining direct human remote control."<sup>2</sup> Prof. Stuart Russell notes this and cautions that "Russia's war in Ukraine demonstrates why the world must enact a ban on AI weapons, emphasising that the risk extends far beyond the frontline"<sup>3</sup>

The Israel-Palestine conflict is another example of how widespread use of AI and autonomous technologies can both increase operational effectiveness and exacerbate moral dilemmas. Known as the first AI war in history, "Israel's 2021 'Operation Guardian of the Walls' showcased the widespread use of AI-enhanced drones for precision strikes, target acquisition, and surveillance".<sup>4</sup> Despite creating 'new concerns about civilian protection and the automation of life-and-death decisions,' the Israeli military claimed

that "AI was a significant force multiplier, allowing for real-time target identification and engagement with little human intervention."<sup>5</sup> "The iron Dome's use of AI for automated threat prioritization and interception, which improves defensive capabilities but also makes it harder who is responsible for mistakes and failure"<sup>6</sup> The new reality of algorithmic warfare is also reflected in the hostile border conflict between India and Pakistan. "As evidenced by dramatic events of Operation Sindoor, the first direct drone-led military conflict in South Asia, and India's deployment of domestic anti drone system in response to Pakistan's drone incursions, lingering munitions, electronic decoys, and unmanned aerial systems are essential element of contemporary military strategy."<sup>7</sup> These episodes demonstrate that, "in the words of General Anil Chauhan, India's Chief of Defence Staff, "the transformative impact of unmanned aerial systems in modern warfare is characterized by speed, robotic advancements, and AI-driven intelligence."<sup>8</sup>

In line with these advancements, "Professor Paul Scharre contends in the Harvard International Law Journal that autonomous weapons change not just who fights and how, but also who is responsible when civilian harm occurs."<sup>9</sup> Similarly, Jody Lee highlights that "the traditional frameworks of accountability and protection under IHL are fundamentally challenged as life-and-death decisions are delegated to algorithms."<sup>10</sup> Together with the realities of the battlefield, these stirring remarks highlight the pressing need for strong oversight, revised legal standards, and

a renewed dedication to the moral principles of war.

International humanitarian rules have been developed keeping in mind humans, so applying them as they are on AWS, becomes tricky. Though there is no specific law, there is Article 36, which says that “In the study, development, acquisition or adoption of a new weapon, means or method of warfare, a High Contracting Party is under an obligation to determine whether its employment would, in some or all circumstances, be prohibited by this Protocol or by any other rule of international law applicable to the High Contracting Party.”<sup>11</sup> Moreover, there are principles of IHL, and the compatibility of AWS can be checked in accordance with them.

There has been extensive discussion held within the walls of the United Nations under the auspices of the Convention on Conventional Weapons (CCW). At the 2016 meeting “The Convention on Conventional Weapons (CCW) decided to form a Group of Governmental Experts (GGE) to explore recommendations on emerging technologies in autonomous weapons, but progress has been limited, focusing on existing International Humanitarian Law (IHL) rather than heavy regulation.”<sup>12</sup> At the 2019 meeting, The GGE session emphasized “making autonomous weapons compliant with existing legal frameworks, introducing a principle for human-machine interaction to ensure compliance with IHL. The session saw discussions on how autonomous weapons could enhance IHL implementation, with no decision reached on future regulation.”<sup>13</sup>

In 2020, the GGE session postponed further discussions until 2021 due to extraordinary circumstances. In 2021, the session extended the mandate to consider the issue, but no substantive progress was made, leading to criticism from activist groups for the lack of action by key states.<sup>14</sup> The 2022 session of

the Group of Governmental Experts (GGE) discussed proposals and measures related to the normative and operational framework of emerging technologies in the context of international humanitarian law. The GGE recommended continued work on this topic, emphasising the need for consensus-building and adherence to international legal principles.<sup>15</sup> The 2023 session of the Group of Governmental Experts centred on intensifying consideration of proposals to strengthen the Convention, emphasising adherence to international humanitarian law and the need for accountability over the use of emerging technologies in lethal autonomous weapons systems. Recommendations included continuing the group’s work, developing consensus-based measures, and promoting wider participation in future meetings.<sup>16</sup> So far, the progress has been limited, and it is far away from any ban or heavy regulation rather, it has more of a permissive tone regulated under the framework of the existing IHL.

After AWS has been deployed, there is no human intervention or minimal intervention. At this stage, the author of this paper has analysed whether it complies with the principles of IHL. There have been two major views in this regard. One is that, it is illegal because it is not compatible with IHL, and the other view is that, because of advanced technological development, it can comply with IHL better than humans, so prohibiting AWS is not the right approach.

### **Critics of Autonomous Weapon Systems**

There are multiple scholars who consider AWS illegal. For instance, “Human Rights Watch (HRW) has vociferously abhorred the development of autonomous weapons and has taken the view that they should be banned and that governments should urgently pursue

that end. It cites multiple reasons in favour of its argument, such as that “it won’t be able to distinguish between soldiers and civilians because it would not possess the human qualities necessary to assess the intentions.” They can’t abide by the principle of proportionality, as a robot cannot be programmed to duplicate the psychological processes in human judgment that are necessary to assess proportionality, as proportionality requires very subjective judgments in weighing military advantages against potential civilian harm. The critics also argue that AWS cannot accurately interpret human behaviour, cultural context, or surrender gestures. Another organisation states that it can’t comply with Article 36, “which talks about not causing unnecessary harm, as there is no human reasoning involved”<sup>17</sup>. The late United Nations Special Rapporteur on Extrajudicial Killings, Christ of Heyns, expressed concern about the accountability of AWS. With that, they have raised the issue of accountability in the situation where AWS has done any unlawful killing and causes unintended civilian deaths, so in that situation, it is very ambiguous who should be held legally responsible- the commander, the programmer, the states or the manufacturer. So, this lack of clarity creates a loop in legal responsibility and undermines justice for the victim. Legal scholars warned that this accountability gap could weaken the international legal order by making enforcement almost impossible.

Amoroso and Giordano, like Heyns, are concerned with the attributability factor and believe that international criminal law is not robust enough to attribute individual criminal responsibility where the use of autonomous weapons leads to violations of international law. Ulgén says that “In armed conflict, deploying a machine that has no humanity in it will lack the moral agency, empathy, and contextual understanding that humans bring

to such situations.”<sup>18</sup> Many believe that the machines should never be allowed to take life and death decisions of anyone without human intervention, as these decisions need human insights, judgement, empathy, and most importantly moral reasoning and delegating this much authority to machines undermines human dignity and moral responsibility, which comes with the use of lethal force. For McFarland “AWS will make broader policy choices a priority rather than on-the-spot human-made decisions made for a specific situation. For Sharkey to use a machine means it won’t be able to make distinctions as it doesn’t have conceptual human understanding.”<sup>19</sup>

Other than all this, there are also some ethical arguments that are central to the criticism. AWS, is often seen as violating humanitarian laws and values, reducing the human intervention from the decision-making process or loop, dehumanising the warfare and eventually reducing the emotional and psychological barriers that are typically used to prevent excessive violence. Some critics also argue that reliance on machines during warfare normalises conflict situations and reduces the threshold of using force.

From a strategic and security perspective, some critics fear an autonomous arm race. Countries, without any international regulations, may rush to develop autonomous weapon system in order to avoid lagging. Due to this, the system could be hacked, malfunction, or be used by non-state actors which leads to unintended repercussions on a global scale.

So, for these reasons, organisations such as “Campaign to stop killer robots and Human Rights Watch advocate for a preemptive ban on fully AWS. They urge the international community to adopt a treaty that ensures all use of force remains under meaningful human control and within the boundaries of existing

humanitarian and human rights laws.”<sup>20</sup>

## Supporter of Autonomous Weapon Systems

AWS has received a notable number of criticism through different legal scholars, but meanwhile, it gained a lot of support from a number of scholars, military personnel, strategists, and government officials. Not only does it get support, but they also show their agreement in its development and deployment. Their position is based on both legal and strategic rationales grounded in technological optimism and involving military doctrines.

The scholars argue that AWS do have the potential to improve their obedience with the international humanitarian law, Warfield efficiency, lessen the harm of civilians and combatants and most importantly, prevent future conflicts.

According to Ron Arkin, who is a leading roboticist, “autonomous weapons can be designed with ethical governors that limit action to what is legally and morally permissible.”<sup>21</sup> According to many commentators, AWS, in many situations, better adhere to the principles of IHL- particularly distinction, proportionality, and precaution than human combatants. “Gary merchant and other argues that, unlike humans, robot will not be necessarily be driven by a need to protect themselves, meaning that they have more scope to act conservatively and in a self- sacrificial manner in cases where target identification is uncertain or were acting in self- defense would result in excessive civilian harm.”<sup>22</sup> While in the theory this is a very logical argument, “it is questionable how realistic it is in the light of the cost of such system and the fact that one of the major drivers for increased autonomy is the perceived need for robots to defend themselves when they lose contact with a human operator.”<sup>23</sup> Another perceived

advantage of robot is the lack of emotion. “Unlike, humans, robots can be design without emotions to cloud their judgements, such as fear, anger, hysteria, or frustration. There would supposedly be no atrocities like the My Lai massacre in an autonomous robot war.”<sup>24</sup>

However, “the kind of analysis which is generally required by the principle of international humanitarian law, especially from the principle of distinction and proportionality, is highly complex and highly contextual, over which the human minds are usually or generally adapted at. It is debatable whether robots will ever have the same level of ability to distinguish civilian objects from legitimate military targets.”<sup>25</sup>

Some supporters also contended that AWS could perform better than a human being in a decision-making. Censors and algorithms may enable AWS to process or calculate data faster and react more precisely than soldiers thus reducing the collateral damages and unintended civilian ‘casualties. “According to Hadji-janev AWS can apply rules of engagement more consistently, based on pre-programmed parameters aligned with IHL.”<sup>26</sup> So this logic presumed that future AI developments will allow AWS to differentiate between civilians and combatants more precisely or accurately.

“The US department of the defense and the NATO have emphasised that AWS can reduce human exposure to hostile environments while maintaining operational effectiveness.”<sup>27</sup> So, the compelling argument is that AWS can help to protect soldiers by removing them from direct combat, which is usually relevant in scenarios involving dangerous reconnaissance missions, explosive ordinance disposal or urban, warfare. “According to the US Army’s modernisation plan, integrating AI

into the weapon system is intended to shorten the “sensor-to-shooter” timeline, minimising delay in engagement and increasing mission success.”<sup>28</sup>

“Other than all this, some of the autonomous weapon systems are already being used with success in controlled environments. The South Korean SGR-A1 sentry system, which uses automated surveillance and targeting, is cited as an example of AWS improving border security while minimising troops presence.”<sup>29</sup>

Despite the known inhibitions, governments of various countries are heavily invested in AWS, such as China, Japan, India, Israel, Russia, South Korea, the UK, and the USA. Despite Human Rights Watch’s urge against the prohibition of AWS, the above countries have not paid heed to it.<sup>30</sup> One of the reasons why most of the states do not ban AWS per se is that they can be programmed to abide by the law. Unlike human warriors, who tend to disobey or misread orders, AWS can be programmed to abide by legal standards. “As cited in one NATO discussion paper: AWS can enhance legal compliance through systematic application of targeting protocols embedded in software.”<sup>31</sup> This argument supposes that the standards of law can be encoded and such code will behave as desired. Supporters say this enable predictable and auditable behaviour, which enhances legal control and accountability when systems are properly used.

“Authors like Robert Sparrow and George Reddy recognize the difficulties but feel that the ethical deployment of AWS is not inherently impossible, it just requires robust oversight.”<sup>32</sup> They advocate for technologies to be judged on a case-by-case basis rather than banned out of consideration of future uncertainty.

“Anderson and Waxman Existing consider that AWS can prove to be less harmful than existing methods of warfare.”<sup>33</sup> Schmitt argues that

“the current IHL law, is suitable to govern the AWS. For example, He thinks that advanced sensory mechanisms can help comply with the principle of distinction.”<sup>34</sup>

## **Imperatives of Meaningful Human Control: Ensuring The Compliance of AWS**

The idea of meaningful human control is essential in discussions about autonomous weapons systems (AWS) and their adherence to international humanitarian law (IHL). According to Richard Moyes, ‘Meaningful human control over individual attacks is a phrase created by the NGO Article 36 to express the main issue raised by the shift towards greater autonomy in weapons systems.’ He also mentions that “only human beings are subject to international humanitarian law”<sup>35</sup>. This policy acknowledges the risks involved in letting machines make critical decisions, like identifying legitimate military targets and using force. Machines do not have the same ability to reason about legal and moral issues as humans do. The legal framework of IHL, especially Article 36 of Additional Protocol I to the Geneva Conventions, mandates that those who ‘plan or decide upon an attack’ must make legal judgments in context. They need to differentiate between military objectives and civilian entities and ensure that attacks are proportional and cautious. Moyes highlights that AWS “cannot identify and attack a military objective without human legal judgment and control being applied in relation to an attack on that specific military objective at that time; control is necessary in some form to act on the legal judgment that is required.”<sup>36</sup>

The organisational and technical aspects of ‘meaningful human control’ are clearly outlined in these references. The technology itself must be predictable, reliable, and transparent. “Users need accurate information

about the desired outcome, the technology, and the context of use.”<sup>37</sup> Additionally, Moyes stresses the importance of timely human judgment and intervention. He states that “we need humans to make decisions as suggested by the legal analysis and to choose when to activate the technology”<sup>38</sup>. This involvement of humans connects the information systems that inform judgments and establishes a key point of reference for accountability in these actions. Without meaningful human oversight, the idea of an ‘attack’ legally defined military action could evolve into a broad operational concept detached from legal responsibility and ethical examination. “Therefore, meaningful human control serves not only as protection against technical failures but also as a safeguard for the legal framework, preventing its gradual weakening. This ensures the specific legal assessments necessary for effective civilian protection.”<sup>39</sup>

Within the United States context, integrating meaningful human control into Article 36 legal reviews is gaining support. “Lieutenant Colonel Adam Cook states that ‘meaningful human control’ is best defined by criteria such as being easily understandable to human operators, providing traceable feedback on the system’s status, and offering clear procedures for trained operators to activate and deactivate system functions.”<sup>40</sup> These standards seek to make the operation of AWS transparent and manageable, ensuring that battlefield commanders keep both ethical and legal responsibility for their use. Major Michael Guetlein from the U.S. Naval War College argues that “when the trigger puller is a machine, the ethical accountability for an action’s outcome is much more difficult to determine than in the case of conventional weapons.”<sup>41</sup> Therefore, proposals to reform U.S. Department of Defense Instruction 5500.15 suggest that “the battlefield

commander bears sole responsibility for LAWs actions in combat, ensuring that moral and legal responsibility does not disappear due to technological advancements.”<sup>42</sup> so, meaningful human control is essential for the legal and ethical use of autonomous weapons systems. It maintains human agency and responsibility, makes sure legal rules are applied in context and consistently, and serves as a barrier against weakening legal protections for civilians. Moyes points out that “without a requirement for human control, the legal framework can be interpreted in various ways that might make human legal application insignificant.”<sup>43</sup> Similarly, “Cook’s metrics, included in policy reform proposals, aim to offer the clarity needed to ensure that autonomous weapons testing meets the basic needs of international humanitarian law.”<sup>44</sup>

### **Autonomous Weapon Systems in the Context of IHL Principles**

The principles of International Humanitarian Law (IHL) are not contained in any definitive list, so they need to be identified. In Nuclear Weapons, the International Court of Justice (ICJ) enumerated its four ‘cardinal principles’ of IHL as distinction, military necessity, the prohibition on unnecessary suffering and proportionality.<sup>45</sup> As per ICRC, “the principle of IHL are principle of humanity (the elementary considerations of humanity being reflected and expressed in the Martens clause), the principle of distinction between civilians and combatants, and between civilian objects and military objectives, the principle of proportionality, the principle of military necessity (from which flows the prohibition of superfluous injury and unnecessary suffering)”<sup>46</sup> So, it can be said that there are basically five principles of IHL (i) humanity (ii) military necessity (iii) distinction (iv) proportionality and (v) precaution. “The

compatibility of AWS with IHL principles has been very well described by Elliot Winter and the author takes inspiration from it for coming to a conclusion.”<sup>47</sup>

### The Principle of distinction

The principle of distinction obliges parties to an armed conflict to distinguish between the civilian population and combatants, between militarily active combatants and those hors de combat (e.g., those expressing an intention to surrender or who are wounded or sick), and between civilian objects and military objectives, and accordingly to direct attacks only against military objectives. The principle of distinction prohibits making a civilian population, as well as individual civilians, the object of attack. The provisions that deal with them are AP I, Arts 41, 48, 51(2), 51(4), and 51(5); CIHL, Rules 1, 6, 7, 13, and 47. Until now, humans have been making this distinction in armed conflict. Humans make judgments on the basis of their attire, weaponry, and hors de combat status of combatants. “Autonomous weapons would need advanced capabilities in **observation, recognition, and judgment** to effectively implement the principle of distinction.”<sup>48</sup> Then only AWS would be able to effectively implement the principle of distinction. For observation, there is an example where Raytheon, in collaboration with Exyn Technologies, has created drones capable of autonomously mapping their surroundings. These drones act like automated surveyors, able to navigate challenging environments like mines or abandoned buildings and generate detailed 3D models of these areas in real-time. “The company explains that the system collects 300,000 data points per second in order to map its environment and that it is sensitive enough to detect even dangling wires.”<sup>49</sup> So, undoubtedly, these AWS can observe more than humans. In terms of recognition, AWS can definitely recognize more than humans.

For instance, Patriot One’s Patscan system can ‘recognize’ the inputs, it receives and flag them as dangerous if appropriate. The system is essentially a collection of cameras, magnetic sensors, particle detectors, and other scanning apparatuses that form a unit built into a doorframe, turnstile, or other entryway to determine if anyone passing through poses a threat. According to Patriot One, “the system can identify when a weapon is present, whether overt or concealed.”<sup>50</sup> This technology is currently used in a commercial context, but in the future, surely it can be used in armed conflict. But when it comes to judgment, AWS’s ability to make judgments is still not as advanced as that of humans, as it works on a program. For instance, in the movie *Robocop*, the robot has a program to attack when it figures out that there is a threat. During an operation, a child comes in front of the robot, and this child possesses a knife. So, the robot attacks even the child, identifying him as a threat. This can even happen when the combatant is in uniform, carrying a weapon, but is no longer a combatant and now has the status of hors de combat. So, understanding these contextual understandings becomes difficult for AWS as it lacks human judgment and whether it will possess this contextual understanding in the future is quite uncertain for now.

### The Principle of Proportionality

The principle of proportionality prohibits the conduct of an attack that may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof that is excessive in relation to the concrete and direct military advantage anticipated. AP I, Art. 51(5) (b); CIHL, Rule 14. The issue at hand is whether an autonomous weapon might be able to implement proportionality by measuring military gain and collateral damage

against each other. For AWS to comply with proportionality, it needs to be able to figure out if the harm they cause is worth the good it achieves. Human Rights Watch is of the view that implementation of this principle demands more than a mere balancing of quantitative data and that “a robot could not be programmed to duplicate the psychological processes in human judgment that are necessary to assess proportionality”<sup>51</sup> This assertion is valid as proportionality in warfare involves not only quantitative calculations but also nuanced ethical judgments and contextual understanding, which may pose significant challenges for AWS. Therefore, simply relying on quantitative data may not be sufficient to ensure compliance with the principle of proportionality, but there are some scholars who believe that it can be done by calculating collateral damage in terms of lives that will be lost or injuries that will be caused using the CDEM method. CDEMs are complex analytical frameworks used to assess collateral damage based on various factors such as weapon types, demographics, and timing. These methodologies translate abstract concepts like the extent and intensity of harm into quantifiable values, making them manageable for calculation, and then calculate military gain in terms of the lives that will be saved or the injuries that will be prevented using an equivalent of the CDEM to assess military gain systematically.<sup>52</sup> In this scholarship, there is a problem that AWS may not capture all aspects of harm comprehensively. For instance, they may struggle to account for the psychological effects of an attack on civilian populations or the long-term environmental damage caused by certain weapons. All this is a complex process, but with the advancement of technology, it can be achieved in the future.

## Principle of Precaution

The requirement to take precautions in attack requires taking constant care in military operations to spare the civilian population, civilians and civilian objects. Those who plan or decide on an attack must:

- (a) do everything feasible to verify that the objectives to be attacked are neither civilians nor civilian objects and are not subject to special protection but are military objectives,
- (b) take all feasible precautions in the choice of means and methods of attack with a view to avoiding, or at least minimising, incidental loss of civilian life, injury to civilians and damage to civilian objects, and
- (c) refrain from deciding to launch any attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.

Moreover, an attack must be cancelled or suspended if it becomes apparent that the objective is not a military one or is subject to special protection, or that the attack may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated. AP I, Art. 57; CIHL, Rules 15-19

So, basically, three things need to be done for complying with the principle of precaution, **Verification:** ensure that the target is legitimate and meets the criteria for lawful military objectives.<sup>53</sup> **Proportionality:** ensuring that the expected harm to civilians or civilian objects is not excessive in relation to the military advantage anticipated from the

attack.<sup>54</sup> **Mitigation of Means and Methods:** Selecting weapons and tactics that minimise harm to civilians and civilian objects.<sup>55</sup> **Duty to Provide Warnings:** Provide advance warning of attacks that may affect civilians, unless circumstances do not permit them.<sup>56</sup>

Verification and proportionality are reiterations of the principles of distinction and proportionality. Mitigation of means and methods is a new element. Choice of means... with a view to avoiding, and in any event, minimising, incidental loss of civilian life.<sup>57</sup> This can be done by AWS better than humans because they can be equipped with multiple weapons because of their physical strength. So, the greater the number of choices, the better the decision of which weapon to choose can be made.<sup>58</sup> Moreover, the new weapons are quite complex, and humans require extensive training for them, so they still struggle with them. On the other hand, AWS can retain all this information, so chances are that it will perform better than humans.<sup>59</sup> Mitigation of methods of attack is largely about timing and angles. AWS, because of its high level of technology and the amount of information it possesses, can perform better than humans.<sup>60</sup> And to deliver the warning, nations could design autonomous systems with broadcast or loudspeaker-type capabilities or other types of systems. Moreover, when humans give a warning, there is a risk that it will expose them to enemies, so they will definitely prioritise their lives. But in the case of AWS, no such threat to life exists.<sup>61</sup>

### **The Principle of Humanity and Military Necessity**

“The principle of humanity imposes certain limits on the means and methods of warfare, and requires that those who have fallen into enemy hands be treated humanely at all times. It seeks to limit suffering, injury, and

destruction during armed conflict; its purpose is to protect life and health and to ensure respect for the human being. This principle precludes the assumption that anything that is not explicitly prohibited by specific IHL rules is therefore permitted.”<sup>62</sup>

“The principle of military necessity requires that a party to an armed conflict may only resort to those means and methods that are necessary to achieve the legitimate purpose of a conflict, i.e. ‘to weaken the military forces of the enemy’. It does not, however, permit the taking of measures that would otherwise be prohibited under IHL, and a rule of IHL cannot be derogated from by invoking military necessity unless this possibility is expressly provided for by the rule in question.”<sup>63</sup>

The principles of humanity and military necessity are already embedded within other key principles of international humanitarian law (IHL), such as the principle of distinction, proportionality and precaution. This means that by adhering to these broader principles, autonomous weapons could indirectly uphold humanity and military necessity without needing explicit programming for each concept.

### **Autonomous Weapon System in The Context of Human Rights**

The deployment of autonomous weapon system raises a severe and pressing issue for international human rights law (IHRL). These issues concern mainly the right to life, right to remedy, gaps in accountability and lack of transparency within AWS decision-making. These concerns are most severe when AWS are employed outside of conventional battlefields- in law enforcement, border patrols or counterterrorism missions, where human rights regimes fully apply.

## The Right to Life

The most significant human right at risk with AWS is the right to life, which is guaranteed under article 6 of the International Covenant on Civil and Political Rights (ICCPR). The right to life is a non-derogable right, which implies that it cannot be suspended even in the times of crisis and armed conflict. The major issue is whether a machine can legally and accurately determine when the use of force leading to death is justified under IHRL criteria – like whether the threat is immediate, real, and lethal force is absolutely necessary. AWS lacks the subjective judgement, contextual interpretation and, ethical reasoning. Through their use, therefore, there is a risk of arbitrary deprivation of life, which would be a violation of ICCPR. AWS are unable, unlike human beings, to balance factors such as intent, frame subtle moral judgements, or react to shifting contexts in real time. If the AWS make a mistake, the result could be a violation of the most basic human right.

On the other hand, “the challenge of autonomous weapon systems to the right to life can be considered in terms of accountability, and of course, the same applies to related rights.”<sup>64</sup> As stipulated in the Universal Declaration of Human Rights, “All human beings are born free and equal in dignity and rights.”<sup>65</sup> Although the Universal Declaration of Human Rights is not binding under international law, it is a programmatic document of global human rights norms. The International Covenant on Civil and Political Rights provides that: “Every human being has the inherent right to life. This right shall be protected by law. No one shall be arbitrarily deprived of his life.”<sup>66</sup> This is also the obligation that the state must undertake to respect and guarantee the right to life. “The right to life has two components: prevention of arbitrary harm to life and accountability when that happens.”<sup>67</sup>

## The Right to Effective Remedy

Article 2(3) of the ICCPR ensures the right to an effective remedy for a violation of rights but AWS on the other side pose some specific

challenges in order to obtain such remedies. If a violation occurs – like the killing of a civilian using an autonomous drone, then the victim and their family might find it difficult to establish responsibility or claim compensation. Who is liable: the commander, the manufacturer, or the state? This gap in accountability risks leaving the victim without redress, compromising the rule of law and undermining confidence in international legal institutions. One of the most pressing challenges arising from AWS to human rights law is the lack of legal certainty regarding fault or negligence.

## Transparency and Public scrutiny

For effective human right protection, the use of lethal force must be transparent and independent oversight. AWS thought have complex machine learning algorithm and classified military code.

Without transparency, it is not possible for courts, civil society, and international organisations to determine whether human rights standards were followed. This secrecy not only hinders accountability but also it facilitates abuse either through AWS misuse or breakdown, without adequate scrutiny.

## Use in non-armed conflict context

IHL may allow AWS in certain war context, but human rights applying all circumstances irrespective of any situation, whether it is peacetime and in domestic law enforcement. AWS can be used differently, like some states are exploring it for the use of its border surveillance, riot control and anti-terrorism operation and these settings demands strict adherence of human rights law, in particular requirement of necessity, proportionality and accountability when using force.

In this context of use of AWS, it may be more problematic, as machine may respond to protest, political unrest, or perceived threat, and kill people using lethal or disproportionate force. Thus, stifling others democratic rights such as freedom of assembly and expression.

## Risk of abuse and authoritarianism

There is a possibility that AWS may enable oppressive authoritarian abuse. If states adopt the use of autonomous weapon system to enforce the use of domestic controls and suppress social movements, the state could drastically reduce government accountability. Given that AWS do not possess ethical accountability, they will likely become an instrument of repression as they will execute orders given by the state without the moral constraints human soldiers could be expected to resist.

Also, regarding international human right instruments such as the UDHR, ICCPR, ICESCR, there is a complete ban on torture, putative arrest, and extrajudicial executions. If these abuses happen through unaccountable machines, then the wreckage of enforcement will mean difficulty achieving any accountability.

## State practice and national positions on AWS

There is a substantial variation and rapid change in state practices regarding autonomous weapon system (AWS). Some states are fully supportive, and there are others that support severe regulations or complete bans. The international community, in particular, within the united nation convention on certain conventional weapon (CCW) discussions, remains divided over the legal and ethical implications of autonomous weapon system (AWS).

### United States

The United States is known around the world as a leader in the development of AWS. It has consistently expressed the need to retain human judgement and control while allowing for continued researched and development of autonomous capabilities.

In the U.S. department of defense directive

3000.09, first published in 2012 and updated in 2012 and then updated in 2023, it is stated that the U.S. will allow the development and use of AWS “provided that they use appropriate level of human judgement”<sup>68</sup>The U.S. has consistently opposed a legally binding treaty banning AWS at the CCW meetings, and instead has supported the development of non-binding guidelines and best practice, so as to ensure accountability and ethical use of AWS.<sup>69</sup>

### Russia

Russia has made enormous investments in military automation and AI and has been supportive of AWS continuing technological development. Russia opposes any efforts designed to create international legal instrument that will restrict AWS deployment. While discussing AWS in CCW, Russia defended the claim that existing IHL has the tools to address the use of such new technologies, such as AWS.<sup>70</sup>

The Russia-Ukraine war has opened a devastating chapter in human conflict and highlighted the increasing reliance on autonomous and semi-autonomous weapon systems in contemporary warfare. Although no commercially available, fully autonomous lethal system have been conclusively reported, Russia and Ukraine have both clearly deployed AI-enabled and automated drone to perform reconnaissance, target identification, and target-attack missions.

“Russia has deployed loitering munitions and unmanned ground vehicles like ‘Uran-9’, although it has not been successful in the battlefield due to technological failure”<sup>71</sup>Russian officials assert that autonomy is the future, in weapon, and stress against any international prohibition, insisting that further development AWS should be undertaken at the discretion of nation-state.<sup>72</sup>

“Ukraine, while technologically less advanced, but has responded rapidly to exploit

commercially available drone technology, with semi-autonomous targeting capabilities.<sup>73</sup> It has benefitted from contributions from its western allies in developing AI enhanced reconnaissance system. In effect, the war has been used as a 'test bed' for greater machine enabled targeting and development of loitering munitions, which raises legal and ethical concerns about the rapid advent of AWS without international standards. The war between Russia and Ukraine has demonstrated how AWS can expose the hazy boundaries between traditional warfare and new generational warfare, whilst demonstrating the operational promise of AWS and the importance of placing legal certainty in the development and use of AWS.

## China

China's stance on autonomous weapon system (AWS) is strategic and nuanced. It has advocated for AWS regulation in international fora but has refrained from advocating for a complete ban. Notably, "China opposes the development and use of fully autonomous weapon but supports their prohibition."<sup>74</sup> This illustrates a two-pronged approach: "promoting humanitarian standard while aiming for military and technological superiority. China suggested that state starts negotiating a protocol to forbid the use fully autonomous weapon system, without liming development, during the 2018 convention on certain conventional weapons (CCW) meeting."<sup>75</sup> By taking this stance, China is able to maintain its autonomy in developing AI and robotics for military applications while simultaneously presenting itself as an accountable participant in global disarmament negotiations.

Scholars interpret China's stance as driven by both strategic competition and diplomatic image building. While expressing support for "human control" and ethical use of AI, "china continues to invest in AI-enabled surveillance and semi-autonomous weapons for both

domestic and external security purposes."<sup>76</sup>

## India

India takes a measured and cautious approach regarding AWS. It has underlined the need for global agreement and responsible innovation, but it has not explicitly called for a ban or the creation of a new legally binding document. India is open to create common standards that strike a balance between humanitarian and national security issues and support more talks within multilateral forums such as the Convention on Certain Conventional Weapons. India has a strategic interest in creating AWS because it wants to update its defence capabilities and address security threats from nearby states. "The Indian armed force has started investigating AI-based battlefield systems, autonomous surveillance platforms, and unmanned combat aerial vehicle (UCAVs)"<sup>77</sup>. However, "India also highlights concerns over accountability, ethical use, and the potential of misuse of AWS by non-state actors or irresponsible regimes"<sup>78</sup>

## Proposed Legal and Policy Reforms for Autonomous Weapon System

As AWS technologies advance rapidly, scholars, states, and civil society have proposed a range of legal and policy reforms to address their implications for accountability, human right, and international humanitarian law. Closing regulating gaps, ensuring ethical deployment and human oversight over life-and-death decision are the goals of these reforms.

- **Codifying meaningful human control**

A central proposal is to enshrine the requirement of "meaningful human control" in international law. According to this theory, in order to maintain accountability and ethical responsibility, human must continue to play a significant role in crucial tasks, especially target selection and engagement.<sup>79</sup> "This principle is widely endorsed by NGOs and academic

experts and it is already reflected in the stances of several states, such as Germany and UK.”<sup>80</sup>

- **Strengthening weapons review process (Article 36)**

“Article 36 of Additional Protocol to the Geneva Convention requires states to review all new weapons to determine if their use would be prohibited under international law. Experts suggest improving this procedure by:

- Mandating public disclosure of review outcomes.
- Incorporating independent oversight bodies.
- Requiring evaluations of ethical and technical risk, not just legal ones.”<sup>81</sup>

- **Establishing an international monitoring body**

Some proposals recommend creating an independent international body to:

- Observe adherence to AWS guidelines.
- Examine incidents pertaining to AWS.
- Encourage the creation of norms and openness.

This body might provide technical know-how and international supervision, much like the International atomic energy agency (IAEA)<sup>82</sup>

## **Conclusion**

A revolutionary development in contemporary warfare, autonomous weapon systems (AWS) present significant moral, legal and humanitarian challenges. As technologies evolves quickly, existing rules under international humanitarian law (IHL) and international human right law (IHRL) struggle to keep up. Some countries believe that current legal principles like distinction, proportionality, are enough to manage AWS. Others call for a new international agreement

to regulate or ban their use. Supporters of AWS point out their operational benefits, such as precision, protection for troops, and the potential to comply with IHL. Currently, there is no specific regulation governing autonomous weapons under International Humanitarian Law (IHL). So, seeing AWS through the lens of IHL principles offers great insight into this study. Although AWS is not completely advanced enough to comply with the principles of IHL but with technological advancements and high-level intelligence, AWS can potentially comply with IHL principles in the future.

Critics, however, highlight the risks of malfunction, the absence of moral judgement, and gaps in accountability. The uncertainty of whether AWS can make lawful and ethical decisions in complex combat situations calls for caution. The international community is divided, with different states practice reflecting their own interest, security issues, technological ability. This difference highlights the urgent need for building consensus, ensuring transparency, and provide clear regulations. Proposed legal and policy reforms, such as establishing “meaningful human control” and “improving weapon review”, are important steps towards responsible innovation.

In the end, maintaining human dignity, accountability, and legal certainty must stay central as AWS continue to develop and change the nature of armed conflict.

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