



Rapporteur's Report

PANEL DISCUSSION ON

NEW TECHNOLOGIES IN WARFARE AND INTERNATIONAL HUMANITARIAN LAW

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ICRC

Concerns about the challenges posed to International Humanitarian Law (IHL) by the introduction of new technologies in modern weapon systems have catalysed a debate about whether the existing legal framework is sufficient to monitor these systems. The International Committee of the Red Cross (ICRC) and Institute for Defence Studies and Analyses (IDSA) jointly organised a panel discussion with the objective of discussing new technologies that are being used in warfare and the challenges they pose to International Humanitarian Law.

Panelists included experts from the ICRC and IDSA. It was attended by think tankers, members of Indian Armed Forces and the academia.

WELCOME ADDRESS



Jeremy England

Head of Regional Delegation, ICRC New Delhi

Mr England opened the panel discussion with a focus on autonomous weapon systems (AWS). He spoke about the ability to deploy these weapon systems with limited human intervention or control and the critical aspect of such weapons falling within the bounds of IHL.

ICRC's definition of AWS

It is any weapon system with autonomy in its critical functions. That is, a weapon system that can select (i.e. search for or detect, identify, track, select) and attack (i.e. use force against, neutralise, damage or destroy) targets without human intervention.

The ICRC had called on States to ensure that the use of these weapon systems are in compliance with IHL norms. However, in the absence of information on the acquisition and development of these weapon systems it was by no means an easy task to arrive at a consensus on how these new technologies could and should be applied.

The ICRC has called on States to determine the type and degree of human control required in the use of weapon systems to carry out attacks at a minimum, for compliance with IHL, and in addition, to satisfy ethical considerations. Considering the fact that AWS raise critical questions of policy and accountability, Mr England urged the audience to deliberate on the following issues

- How comfortable would States be deploying their own troops in front of AWS?
- What are the command and control systems/mechanisms that need to be put in place before deploying such weapons?
- What should the contours of a policy control framework look like?
- How would accountability and discipline be fixed in an automatised environment?

He noted that the development and advancement of these modern day weapon systems is not occurring in a legal vacuum. All States are obliged to ensure use of automated weapons in accordance with customary international law with full respect to relevant aspects of IHL. Discussions among government experts have indicated broad agreement on appropriate human control over weapon systems for legal, ethical and/or policy reasons. Most States are also in agreement that new weapons must adhere to the rules of engagement, particularly distinction and proportionality. Despite this general agreement, technology and the accompanying military doctrines are not moving ahead in a uniform and transparent manner.

From a legal perspective, the ICRC is of the opinion that adherence to rules of engagement cannot be left to machines. The obligation to apply the rules rests with humans and so does the accountability. Allowing machines the latitude to set their own objectives and determine their own targets can result in disastrous consequences and escalate a conflict beyond intention or necessity. In battlefields or conflict zones, militaries would want predictability (knowledge of how the machine will function in a given context). If it was not possible to reasonably predict the functioning of a weapon system, there could be no guarantees on its compliance with the IHL.

Expressing the neutral nature of this technology, he stated that humans must not wait to suffer catastrophes on the battlefield. As current war zones are fragmented and filled with non-state armed groups, a reconfirmation of the basic principles of IHL must take place.

INAUGURAL ADDRESS



Brigadier (Retd.) Rumel Dahiya SM

Former Deputy Director General, IDSA

Brig. Dahiya began his address by quoting from NATO's 2012 strategy concept paper, "most destructive periods of history are those in which the means of aggression have gained the upper hand in the art of waging war". To illustrate this point, he highlighted the use of technology such as machine guns, field artillery and poison gas during World War I, which increased destruction. Advances in science and technology carry the potential to revolutionise societies but the same technology when used for military purposes could be devastating.

Knowledge sharing in the present day has narrowed the knowledge gap between "strong" and "weak" economies. Drones which were once the monopoly of NATO countries are now being used by the ISIS. Nations with unfavourable demographics are keen to advance their weapon systems and rely on automated ones as casualties affect the morale of troops and captured troops reduces a State's ability to negotiate. Further, he stated that countries need to assess autonomous weapons in relation to their strategic goals. While risks cannot be completely eliminated, efforts must be made to minimise them and codifying weapon

systems can address some of these concerns. AWS, especially those with a high degree of artificial intelligence (AI), will need to be somebody's concern.

On the subject of the degree of autonomy, he observed that most weapon systems continue to depend heavily on human interface but that will change with the development of newer technologies. For example, while missiles can be redirected after launch, cyber attacks cannot. According to him, the only reason a 'cyber doomsday' has been avoided thus far is due to the prospect of mutual assured harm that it would entail.

The role and application of IHL needs to be expanded as modern AWS come into play. The issues at hand are not legal alone but also ethical. The use of AWS requires structures of accountability, not for specific attacks alone but for wider systems which produce and maintain the technology. Notwithstanding Additional Protocol I of 1977 clause 35 and 36, there are areas where accountability needs to be specified further by law and agreed upon by all parties concerned.

CHAIR



Colonel (Retd.) Vivek Chadha

Research Fellow, IDSA

Welcoming the participants, Col. Chadha stated that unfamiliar technologies such as AWS have a disconcerting effect on troops. Thus, the onus lies with States as they place their soldiers in harm's way. Col. Chadha further pointed out that the technology which is meant to bring about greater transparency and accountability is instead leading to greater diffusion of war. The problem is not so much in controlling the evolution of weapon systems but the failure in holding responsible the countries that employ them unfairly.

Panellists

Presentation I: New Challenges - Conforming with IHL



Neil Davison

Scientific Advisor, ICRC Geneva

Mr Davison provided an understanding of ICRC's approach to new technologies in warfare. He stated that new technologies were only a part of the story as most civilian harm was a direct result of efficient

use of old technology like deployment of high-volume explosives and bullets in urban landscapes. However, new technologies continue to proliferate rapidly and raise concerns about the humanitarian consequences. With the current lack of evidence, the challenge is to look ahead and predict the consequences of using new technology. In this regard, he raised three important points.

First, new technologies cannot be left ungoverned by law and must be developed within the limits and frameworks of existing laws. Though IHL was not drafted considering robotics, general guidelines could still be applied.

Second, a realistic assessment of new technologies is required. Their character must be tested in real-world scenarios in order to verify legal acceptability. Acknowledging the challenges of assessing compliance of imagined technologies, the experience with existing weapon systems can provide insights into where the limits on autonomy should be placed. It can also provide understanding into the kind and degree of human control that is necessary to ensure compliance and ethical acceptability.

Third, the obligation of implementation and respect for the law rests with humans. Accountability and responsibility cannot be transferred to a computer programme as it is incapable of making judgment on proportionality and adjusting response.

Mr Davison urged States to differentiate between civilian and military application of science and technology. Limiting the production of bioweapons would not place any restriction on the growth of biotechnology. In conclusion, he stated that technological advancements must fit within the existing legal framework and not the other way around.

Presentation II: Drones as Weapon Systems



Group Captain (Retd.) Ajey Lele

Senior Research Fellow, IDSA

Gp. Capt. Lele traced the evolution of robotics from a pulley based robot made by Leonardo da Vinci in 1495 to the present day AWS like Terminal High Altitude Area Defence (THAAD). The next milestone was the radio control by Nikola Tesla in 1898. This innovation revolutionised weapon systems and continues to be used till date. And today, we land ourselves in the age of lethal autonomous weapon systems (LAWS).

Quoting Isaac Asimov's zeroth Law of Robotics (1940s), Gp. Capt. Lele referred to the debate surrounding a robot's intelligence. He gave the example of the Aegis combat system. The icon for a fighter aircraft and a transport aircraft were similar in the Aegis system and that resulted in the death of 300 civilians on board Iran Air flight 655. In the debate that followed, three sides emerged, one believed that the tragedy was the result of a miscalculation and that machines should not be depended upon. The second argued for complete autonomy as limited autonomy burdens decision makers. The third aspect of this debate was rationality of human combatants against that of machines. Humans are capable

of being irrational when driven by emotions such as rage or sympathy but machines would prove to be more rational.

He stated that unintended consequences due to hacking is a drawback. Further, even though the autonomy of current robotic systems is restricted there are issues related to IHL, morals and ethics. Despite the existence of legal systems, militaries are capable of bending systems to suit their narrative. The dual use of technology presents a major challenge in arriving at a consensus on AWS and the commercial interests of States will prevent them from taking a stringent position in the matter.

Presentation III: Artificial Intelligence and its Implications for IHL



Dr Balachandran
Consulting Fellow, IDSA

Dr Balachandran began his presentation with the established assumptions that no law, humanitarian or otherwise, is universal, absolute or perfect. The virtue of a law can only be established if and when it is enforced. National or domestic laws are accompanied by enforceability mechanisms, whereas international legal instruments lack enforceability. Laws should adapt and evolve with time and changing human nature and laws that do not take into account technological advancements fail.

Dr Balachandran pointed out how any technology that starts with errors and imperfections is slowly refined, improvised and perfected. He used the example of the first-time combat use of Unmanned Aerial Vehicles (UAV) in Pakistan which were improved and the number of unwanted deaths declined with time. Every technology needs time to improve and evolve out of its initial phase and only then can it be regulated.

He spoke about Moravec's Paradox, according to which sensory information processing is extremely easy for humans compared to computers but symbolic information processing is easier for computers. However, robots can be made to self-learn things through neuromorphic engineering which can help generate self-learning and can thus let machines take human like decisions. He stated that laws should adapt to this new reality of the evolution of machines. Hence, instead of focussing on banning autonomous system, laws should concentrate on creating a mechanism which will identify human responsibility attached to an autonomous system.

QUESTION AND ANSWER SESSION

Referring to several recent incidents of violence, a participant asked about the possibility of the use of civilian technology for mass destruction. Gp. Capt. Lele stated that such attacks are a reality and preparations should come in the manner of identifying attack possibilities. Mr Davison agreed that drones present in civil life could be used to carry out attacks in unpredictable ways.

Another participant referred to the non-compliance of the Ottawa Treaty and the Landmine Treaty to talk about the responsibility of the big powers to limit the arms race. Gp. Capt. Lele stated that the success of IHL depends on the idea it conveys and the norms that it helps create. Mr Davison reiterated that the core value of humanitarian laws is to protect everyone and to create norms in the

international society. For weapons, only very few treaties are universal but if a country has not signed a particular treaty, societal, national and international pressure can bring significant change.

On the subject of enforceability of law, a participant stated that without enforceability, laws would just be norms. Mr Davison stated that although enforceability is important it is not always necessary. The Biological Weapons Convention has no enforcement mechanism, yet it is condemned universally. He further explained that remote-control drone weapons systems need to make judgements of proportionality and distinguish between military and civilian targets. Though a decision is made through a remote control the military commander's decision can be examined as per law. Dr Balachandran agreed that norms are created and accepted over time but changes in laws and their adaptability remain important issues.

A member of the audience asked whether a manufacturing liability can be placed on States. Mr Davison stated that it depends upon the relation between manufacturers and States. Certain States assume liability as soon as they acquire weapons from a manufacturer. On the other hand, if during production, a programming function with potentially dangerous consequences is added, then a criminal responsibility can be put on that particular individual.

A participant spoke of cyber warfare, though bloodless it has the potential to disrupt the economy, water supply, health care, infrastructure, electricity and many such critical services. The panel noted that the disruption of an economy cannot be considered as part of IHL.

FINAL COMMENTS FROM THE CHAIR

Colonel (Retd.) Vivek Chadha
Research Fellow, IDSA

With the distinction between war and peace becoming more fluid, lawmakers face increased difficulties in employing technologies. The contradictions posed by new technologies require great attention so that laws are not premature and therefore, ineffective. If laws are not drafted keeping in mind the finer nuances of the debate related to AWS it is only a matter of time before they are rendered outdated by rapidly advancing technology.

VOTE OF THANKS



Adebayo Olowo-Ake
Deputy Head of Regional Delegation, ICRC New Delhi

Mr Olowo-Ake expressed his gratitude to IDSA, the speakers and the audience for an enriching discussion. Every age will develop its own defence systems and apparatuses and in a knowledge-driven age, debates will continue. In agreement with all the speakers, he said that it is necessary to ensure that society is governed by applicable laws. Giving the example of a fighter pilot, Mr Olowo-Ake said that human combatants have the option of adapting to scenarios as and when they change but there is no certainty if autonomous weapons can react in a similar manner. States functions like a family and must be encouraged to implement the law.