CCW REPORT

Civil society perspectives on the Convention on Certain Conventional Weapons (CCW)'s Group Governmental Experts on Lethal Autonomous Weapon Systems
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Reaching Critical Will
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EDITORIAL: CONVERGENCE AGAINST KILLER ROBOTS

Ray Acheson | Women's International League for Peace and Freedom

Since the Convention on Certain Conventional Weapons (CCW) began its work on autonomous weapons in 2014, a lot has changed. Technological developments have proliferated rapidly—in terms of autonomy in weapon systems, but also in terms of related technologies like facial and voice recognition, algorithm-based predictive tools, and surveillance, all of which have been shown to produce gendered and racialised harms. At the same time, government positions on these weapons have developed. While a handful of countries remain committed to developing and deploying weapons with increasingly autonomous functions, most governments are very clearly coalescing around the need for prohibitions and regulations over this technology.

Consensus vs. convergence

It can be difficult to evaluate the degree of convergence on these issues, as CCW meetings are often dominated by the most militarily active states in the world. Yet despite the excessive volume of interventions by the few states that want autonomous weapons, the concerned majority have been able to articulate their demands for restrictions. Ultimately, it has become clear that the majority of the world is converging on the belief that these weapons should be regulated.

The only thing constraining progress is the problematic interpretation of "consensus" as requiring unanimity. A plague across multiple UN forums, consensus has become the enemy of convergence and coalescence. Rather than treating consensus as a process—as a tool that is useful to consolidate perspectives and achieve outcomes that suit the interests of the majority—these processes instead treat consensus as a veto, only ever resulting in the lowest common denominator outcome, or no outcome at all.

As the first week of the group of governmental experts (GGE) wore on, it became commonplace to hear Israel, Russia, or the United States expound upon the essential nature of the consensus outcomes reached in previous GGE sessions. These agreements, such as the 11 guiding principles, are useful insofar as they represent the very minimum of what can be considered international standards on autonomy in weapon systems. They are the product of deliberate efforts to water down or reduce commitments to the barest possible bones to garner acceptance by the countries that want to build autonomous weapons. These principles are not what most participants of this process feel is the best possible outcome; they are markers of what a handful of governments, guided by the profit-seeking of their military-industrial complexes and the power-seeking of their political leaders, have been willing to accept so far.

The past work of the GGE, including the adoption of these principles, has been useful to help shape understandings of the technologies under discussion. But this is by no means the best we can do and must not limit or preclude further action that most countries, international organisations, scientists and tech workers, and civil society groups believe is urgently necessary to prevent human suffering, violations of human rights, and erosion of existing international law. This is why, during last week's meeting, The Non-Aligned Movement, Algeria, Argentina, Austria, Brazil, Chile, China, Costa Rica, Ecuador, El Salvador, Iraq, Ireland, Malta, Mexico, New Zealand, Pakistan, Palestine, Panama, Peru, Philippines, Sierra Leone, South Africa, Switzerland, Uruguay, International Committee of the Red Cross (ICRC), and Campaign to Stop Killer Robots (CSKR) called for the negotiation of a legally binding instrument on autonomous weapon systems. Additional delegations have called for negotiations of such an instrument at previous sessions of the GGE.

Brazil, Chile, and Mexico have tabled a proposal outlining a possible instrument, as have Argentina, Costa Rica, El Salvador, Palestine, Panama, Philippines, Sierra Leone, and Uruguay. Austria, Brazil, Chile, Ireland, Luxembourg, Mexico, and New Zealand have also put forward elements for an operational and normative framework, as have

France and Germany. It is clear that most states want to take further action against autonomous weapons and are ready to do the work for it. (See the "possible options" report in this edition for more details.)

"Automatic prohibition" vs. automatic violence

The consensus versus convergence dynamic sets up several other dichotomies at play in the GGE. Russia's concern with an "automatic prohibition" of weapons operating with autonomy, for example, contrasts with the concern of the vast majority of participants about creating weapons that can exercise automatic violence, in particular against human beings.

Israel and the United States argued that autonomy in weapon systems isn't about delegating life and death decisions to machines. But almost every other delegation expressed concern with the automation of violence. The ICRC articulately explained that death by algorithm entails an ethically problematic change in the exercise of human agency and the use of force—a change that is dehumanising and runs contrary to the principle of humanity. This is why the ICRC, the CSKR, and a growing number of states—including Argentina, Costa Rica, El Salvador, Palestine, Panama, Peru, Philippines, Sierra Leone, and Uruguay—have called for the prohibition of any weapon system that uses target profiles for human beings.

The fact that certain states are more concerned with having restrictions on their ability to develop weapons than they are with preventing harm to human beings is the core of the problem confronting disarmament and arms control efforts, as well as efforts to protect civilians and safeguard humanity. As the CSKR asked this past week, are we really comfortable with delegating more and more of our human functions to machines? Where do we draw the line, if we're not willing to draw it in relation to decisions about who lives and who dies, or more broadly, over how violence is carried out? Chile flagged that we're facing a scenario where a human being is just a spectator of the violence carried out in their name. How can we accept this, rather than accepting limitations on weapons development?

Fetishising technology vs. protecting human life

We've already gone down this path of distancing humans from the violence they undertake, of course, with the use of armed drones and other remote warfare technologies. Yet despite the harms caused by these technologies—including to civilians and civilian objects, and the ways these weapons have undermined international law and lowered the threshold for the use of force, and the ways in which they have disproportionately been used and tested against populations in the global south—a handful of states still fetishise this technology and the creation of even more autonomous violence.

Australia, Japan, India, Israel, Russia, and the United States in particular spoke at length about how wonderful autonomous weapons will be, how they'll save lives and minimise accidents. Yet, as we pointed out during the informal consultations last month, this is not why these countries want to develop autonomous weapons. Autonomous weapons aren't about saving lives; they are about projecting power and deploying increasingly unlimited methods of violence.

The states in favour of autonomous weapons argued that technological progress is a good thing and warned that prohibiting autonomy in weapon systems will hamper this development. India and a few others warned against "demonising" technologies and said we "shouldn't be afraid of evolution". France and Russia likewise cautioned against categorising technology as either good or bad, with France asserting that the trick is just to figure out how we can use autonomy in weapon systems in the "right way," to reduce or eliminate harm to civilians.

But as those who study armed conflict and the failure of parties to conflict to protect civilians have said time and again, we can't reduce human suffering by engaging in war or deploying weapons. "The idea that wars can be fought in a more humane and less violent manner has the paradoxical effect of hiding much of the pain and suffering caused," note scholars Alex Edney-Browne and Thomas Gregory. The only way to reduce harm is to stop developing new means and methods of warfare—and to stop engaging

in war. To redirect resources from weapons to the well-being of people and planet. To build up relationships of collaboration instead of competition.

Radical vs. rational

Unfortunately, the militarily active states seeking autonomous weapons do not support this approach. Their ability to exercise violence is of vital importance to their projection of power in the world, and anything that might limit that power is perceived as "radical". Reminiscent of Russia's comments a few years ago that support for banning nuclear weapons was the stuff of "radical dreamers" who have "shot off to some other planet or outer space," Israel argued that supporting a mandate to negotiate a legally binding instrument on autonomous weapons is a "radical path".

However, one of the core definitions of radical is "going to the root or the source". In this context, banning autonomous weapons can be seen as going to source of the problem—the problem being the increasing abstraction, mechanisation, and automation of violence and oppression in our world, as it is exercised by multiple structures of power to impose and maintain inequality.

Radical also means a departure from the usual or customary. This, too, is exactly what we need. Where have decades of investment in weapons and war gotten us? The world is literally on fire, or flooding, depending on where you live. Billions of dollars are spent on weapons while people in most countries are struggling to stay housed and fed during a global pandemic. We need a radical departure from business as usual, or we are not going to survive.

But also, as Palestine noted, prohibiting autonomous weapons is not a radical path in the sense that Israel means it—as a slur suggesting that it is extreme or ill-conceived. Preventing the development of these weapons is not radical, it's rational. Palestine pointed out that after all these years of deliberations and exchanges with experts in the CCW, we can't say that we need to extend discussions indefinitely. We know the risks. We can see what's coming, based on the lessons of history and the current use of relevant technologies by police, militaries, and other violent institutions. We know what we need to do to safeguard human life and dignity and all the norms and principles we've collectively built.

Reactive vs. proactive

Which brings us to our final dichotomy. Our current situation with autonomous weapons is that we have a unique opportunity to be proactive, instead of reactive. As Palestine, Portugal, and Ireland noted, disarmament and arms control efforts almost always have to react to what happens, but we have the chance to prevent harm rather than simply respond to it.

This weekend marked 76 years since the United States dropped nuclear bombs on Hiroshima and Nagasaki. Since then, the world has experienced extraordinary suffering from nuclear violence, from uranium mining to bomb production and weapon testing to radioactive waste storage, as well as the waste of financial resources and loss of human lives on the maintenance and modernisation of nuclear weapons and on the conflicts waged and tensions built in the name of preventing proliferation.

One wonders what would have happened if we had the chance to prevent all of this. What if, before the atomic bomb was developed and used, the international community had the foresight and the opportunity to prohibit it? The harm that would have been spared by a preemptive prohibition is incalculable—especially the harm to Indigenous communities, to the land and water of our planet and many populations, to workers and soldiers and civilians exposed to radiation from various points in the nuclear chain.

We cannot undo this harm. We can only work now to prevent future harm by universalising the Treaty on the Prohibition of Nuclear Weapons and achieving the elimination of nuclear weapon programmes. But we do have a chance to prevent harm from new technologies of violence. We do not have to build autonomous weapons. We do not have to build any new weapons. Weapons development is a choice, not a necessity. And to those who think this is a radical proposition, don't forget: we did ban nuclear weapons.

COMMON VISIONS CALL FOR ACTION

Bonnie Docherty | Human Rights Watch and Harvard Law School's International Human Rights Clinic

A convergence of views on how to address the dangers posed by autonomous weapons systems is increasingly evident among high contracting parties to the Convention on Conventional Weapons (CCW).

A new report, released last Monday by Human Rights Watch and Harvard Law School's International Human Rights Clinic (IHRC), documented this trend in its analysis of the last official meeting of the Group of Governmental Experts (GGE) held in September 2020. The report, *Areas of Alignment: Common Visions of a Killer Robots Treaty*, showed that the majority of states parties support a new legally binding instrument consisting of a combination of prohibitions and regulations. Statements made in the first week of this GGE and recent submissions to the GGE chair show that convergence continues to grow.

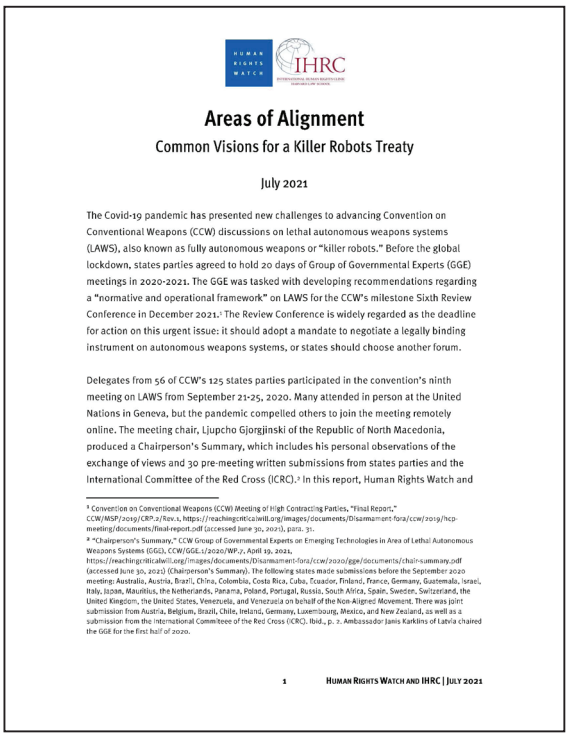
The majority of states parties that have spoken on the topic have urged the CCW Review Conference to adopt a mandate to negotiate a new legal instrument that addresses the moral, legal, and security risks presented by autonomous weapons systems. They argue that non-binding best practices, weapons reviews, and the CCW's existing Guiding Principles are insufficient responses to a threat of such magnitude.

They have also come to agree on the shape of such an instrument. Most propose an instrument that consists of prohibitions and regulations. They have recommended prohibiting autonomous weapons systems that operate without meaningful human control. For example, some have cited systems that are unpredictable or those that rely on machine learning. Many of them have also expressed outrage at the prospect of delegating life-and-death decisions to machines and thus have proposed banning autonomous weapons systems that target people.

States parties have frequently recommended complementing these prohibitions with regulations, or positive obligations, to ensure systems that are not banned are used only with meaningful human control. Their statements and working papers highlight many of the same components of meaningful human control. For example, operators should have an understanding of the operational context and the workings of the weapon system. The system should be predictable and reliable. Spatial and temporal constraints should be imposed.

The positions of these states parties largely align with those of the Campaign to Stop Killer Robots as well as the International Committee of the Red Cross.

The new Human Rights Watch and IHRC report and the discussions of the past week both illustrate that sufficient convergence exists to warrant negotiations of a new instrument. While states parties have not reached consensus, differences can be ironed out during negotiations. They should not be used as an excuse to block progress on an issue of utmost humanitarian import that has already been discussed under the CCW's auspices for eight years. Enough states parties are demanding action that action should be taken.



HUMAN RIGHTS WATCH IHRC

Areas of Alignment

Common Visions for a Killer Robots Treaty

July 2021

The Covid-19 pandemic has presented new challenges to advancing Convention on Conventional Weapons (CCW) discussions on lethal autonomous weapons systems (LAWS), also known as fully autonomous weapons or "killer robots." Before the global lockdown, states parties agreed to hold 20 days of Group of Governmental Experts (GGE) meetings in 2020-2021. The GGE was tasked with developing recommendations regarding a "normative and operational framework" on LAWS for the CCW's milestone Sixth Review Conference in December 2021.[1] The Review Conference is widely regarded as the deadline for action on this urgent issue: it should adopt a mandate to negotiate a legally binding instrument on autonomous weapons systems, or states should choose another forum.

Delegates from 56 of CCW's 125 states parties participated in the convention's ninth meeting on LAWS from September 21-25, 2020. Many attended in person at the United Nations in Geneva, but the pandemic compelled others to join the meeting remotely online. The meeting chair, Ljupcho Gjorgjinski of the Republic of North Macedonia, produced a Chairperson's Summary, which includes his personal observations of the exchange of views and 30 pre-meeting written submissions from states parties and the International Committee of the Red Cross (ICRC).[2] In this report, Human Rights Watch and

[1] Convention on Conventional Weapons (CCW) Meeting of High Contracting Parties, "Final Report," CCW/MSP/2019/CRP.2/Rev.1, https://reachingcriticalwill.org/images/documents/Disarmament-fora/ccw/2019/hcp-meeting/documents/final-report.pdf (accessed June 30, 2021), para. 31.

[2] "Chairperson's Summary," CCW Group of Governmental Experts on Emerging Technologies in Area of Lethal Autonomous Weapons Systems (GGE), CCW/GGE.1/2020/WP.7, April 19, 2021, https://reachingcriticalwill.org/images/documents/Disarmament-fora/ccw/2020/gge/documents/chair-summary.pdf (accessed June 30, 2021) (Chairperson's Summary). The following states made submissions before the September 2020 meeting: Australia, Austria, Brazil, China, Colombia, Costa Rica, Cuba, Ecuador, Finland, France, Germany, Guatemala, Israel, Italy, Japan, Mauritius, the Netherlands, Panama, Poland, Portugal, Russia, South Africa, Spain, Sweden, Switzerland, the United Kingdom, the United States, Venezuela, and Venezuela on behalf of the Non-Aligned Movement. There was joint submission from Austria, Belgium, Brazil, Chile, Ireland, Germany, Luxembourg, Mexico, and New Zealand, as well as a submission from the International Committeee of the Red Cross (ICRC). Ibid., p. 7. Ambassador Janis Karklins of Latvia chaired the GGE for the first half of 2020.

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ORGANISATION OF WORK

Katrin Geyer | Women's International League for Peace and Freedom

The first in-person meeting of the GGE on LAWS in 2021 did not encounter procedural concerns, as were raised by some delegations in past meetings. The agenda, organisation of work, and rules of procedure were adopted without any delegation taking the floor.

The Chair, Ambassador Marc Pecsteen of Belgium, explained that the meeting is broadcast live via UN WebTV, and can be followed in all six UN languages. As well, all official sessions are digitally recorded and made available in all UN languages at the UN Office of Geneva's archive.

In the first week, the meeting followed the following agenda items: 5 (a) An exploration of the potential challenges posed by emerging technologies in the area of LAWS to international humanitarian law (IHL); (b) Characterisation of the systems under consideration in order to promote a common understanding on concepts and characteristics relevant to the objectives and purposes of the Convention; (c) Further consideration of the human element in the use of lethal force; aspects of human-machine interaction in the development, deployment and use of emerging technologies in the area of lethal autonomous weapons systems; (d) Review of potential military applications of related technologies in the context of the Group's work; and (e) Possible options for addressing the humanitarian and international security challenges posed by emerging technologies in the area of lethal autonomous weapons systems in the context of the objectives and purposes of the Convention without prejudging policy outcomes and taking into account past, present and future proposals; and 6: Preparation of the report for consideration at the Sixth Review Conference of the CCW in accordance with the decision of the High Contracting Parties in 2019.

On Friday, the Chair distributed a Chair's paper titled *Draft elements on possible consensus recommendations in relation to the clarification, consideration and development of aspects of the normative and operational framework on emerging technologies in the area of lethal autonomous weapons systems*. This will likely be the basis for discussions in the GGE's second week, to facilitate discussions on agenda item 6.

Many delegations welcomed the efforts by the Chair and the International Support Unit (ISU) to make this in-person meeting happen, despite ongoing challenges due to COVID-19, while others positively referenced the informal consultation that took place end of June/early July this year.

Sweden noted that many travel restrictions are still in place and regretted that virtual participation was not made possible. It underscored that the GGE's discussion would have benefitted from virtual participation of colleagues not able to be present in the room. Algeria also said that for the future work of the GGE, it's important to ensure proper participation of experts from diverse states.

Austria informed that it will will organise a virtual conference, open to everyone, on human control and autonomous weapon systems (AWS) from 15–16 September 2021 to highlight the political importance of the GGE as well as the importance of achieving agreements.

CHALLENGES POSED BY AUTONOMOUS WEAPONS

Katrin Geyer | Women's International League for Peace and Freedom

Virtually all delegates reaffirmed that international law and international humanitarian law (IHL), including its principles of distinction, proportionality, and precaution, continue to apply to all weapon systems, including autonomous weapon systems (AWS).

IHL principles

Participants mentioned a wide range of challenges that AWS would pose to ensuring compliance with IHL. Many delegations, including Argentina, Brazil, Chile, China, Costa Rica, El Salvador, the Holy See, Ireland, Mexico, Palestine, Pakistan, Panama, Philippines, Palestine, Peru, Sri Lanka, Sierra Leone, and Uruguay, amongst others, underscored that AWS could not comply with the IHL principles of distinction, proportionality, and precaution.

The Holy See argued that IHL expressions and principles are informed and based on the evolving context of operations, for which human beings are crucial. It also asserted that IHL principles require timely interpretation and adequate understanding and assessment of evolving situations that are hardly programmable. This was echoed by many delegations. In a similar vein, China expressed doubt that international law and its principles could be translated into accurate algorithms.

Regarding the principle of *proportionality*:

- The International Committee of the Red Cross (ICRC) stressed that an AWS would have difficulty to anticipate and limit its effects, which poses risks to civilians and combatants, and increases risks of conflict escalation.

- Chile stressed that implementing the principle of proportionality requires evaluating complex circumstances, based on common sense and other subjective value judgments. China and New Zealand made similar comments.

- The ICRC said that it's widely agreed that assessing proportionality should not be reduced to quantitative indicators alone, and that this must be made in light of the circumstances of a particular attack, which need to be made by humans, not machines. It stressed that the use of an AWS presents greater challenges in predicting who and what may be struck, who and what may be nearby and who may be incidentally harmed.

- Pakistan also said that the use of AWS would risk the lives of civilians and non-combatants, and could lead to reprisals of civilians. The Holy See warned that AWS with self-learning capabilities could, for example, deviate into actions that target non-combatants, to fulfil the principle of efficiency. The Holy See also mentioned swarms of mini drones as examples where their use could lead to excessive injuries, in stark contradiction to IHL.

Regarding the principle of *distinction*:

- Argentina, China, Costa Rica, El Salvador Peru, Panama, Philippines, Palestine, and Sierra Leone, and Uruguay said that it can't be expected that systems can distinguish between combatants and civilians.

- Similarly, the Campaign to Stop Killer Robots (CSKR) argued that people's targetability depends on context and is to be evaluated on a case by case basis which an AWS is not able to do.

- The ICRC, Brazil, and New Zealand made similar observations, with the ICRC asserting that humans cannot be generalised into a target profile, as civilians may take part in hostilities, or people may surrender or react to being wounded, all of which can take many forms.

- Chile made similar arguments, stressing that the practical application of rules found in Article 41(1) and 51 of Additional Protocol 1 of the Geneva Conventions regarding persons

outside of combat is very complex and requires the application of reason-based evaluations which cannot be carried out by an AWS.

Regarding the principle of *precaution*:

- Chile said that to comply with this principle, context is important, which means that equations constantly vary and have to take into account moral and ethical assessments.

- Relatedly, many participants, including CSKR, Palestine, the Philippines, and others, warned that the IHL principle of protection of civilians would be eroded if AWS were targeting people.

Morality, ethics, and human dignity

The ICRC said that it is unacceptable, from an ethical perspective, to substitute decisions over life and death with sensors, software and machine learning, especially when targeting human beings. Brazil, Chile, Iraq, the Holy See, Malta, Mexico, Palestine, the Philippines, and Sri Lanka and made similar observations. CSKR explained that AWS should never target human beings as this would dehumanise people and convert them into data, sensed and sorted by machines.

Sri Lanka also argued that challenges by AWS should be understood and approached with the human dignity principle. Austria, CSKR, and the Philippines made similar remarks, with the Holy See, Brazil, along with Mexico and Austria, asserting that the Marten's Clause, as legal obligation, and the dictates of public conscience and the principle of humanity, offer a crucial regulating compass. Similarly, the UK stressed that the Marten's clause is a core requirement of IHL.

In contrast, Russia said that the Marten's Clause can only be used to evaluate human conduct during armed conflict, and that it doesn't apply to weapons themselves. It said that requiring machines to comply with principles of humanity would be "absurd". Russia said that there was "no reason to believe" that conscience and potential human rights violations are the absolute and only possible basis for restrictions and prohibitions of certain types of weapons.

Accountability

Argentina, Brazil, Chile, China, Costa Rica, El Salvador, Mexico, New Zealand, Panama, Peru, Philippines, Palestine, Sierra Leone, and Uruguay expressed concerns that weapon systems that operate without meaningful human control create a void in accountability.

China said that since AWS are developed throughout many different and complicated stages and elements, and because AWS could face interference at different stages, it could make it difficult to decide who would be responsible for the outcome of AWS' use. Palestine worried that AWS could be deliberately and cynically used to avoid accountability. The Philippines said that AWS could complicate implementing international criminal law, since only humans can be held accountable under international law. Chile also expressed concern that AWS' use would lead to impunity. Argentina, Costa Rica, El Salvador, Peru, Panama, Philippines, as well as Palestine, Uruguay, and Sierra Leone, said that the international community should draw lessons from experiences of the use of armed drones where accountability is "non-existent" as there is no appropriate framework regulating uncrewed aerial vehicles.

Brazil and Palestine said that lack of accountability would undermine victims' right to remedy and access to justice. Tech Inquiry stated that the use of AWS would also lead to difficulties in creating transparency of harm caused to non-combatants, and that identities and status of those killed may not be known. It opposed the argument that AWS could gather such data, since it is lack of political will, not current lack of capabilities, that prevents collection of accurate statistics of non-combatant casualties.

See the report on the "human element" for reporting on positions about who is responsible for and how to maintain accountability and responsibility.

Arms race and escalation of conflict

China, Egypt, the Holy See, Pakistan, the Philippines, South Africa, amongst others, expressed concern at the potential impacts of AWS on international and regional security.

Various states warned against an arms race, including Argentina, Brazil, Chile, Costa Rica, El Salvador, the Holy See, Mexico, Pakistan, the Philippines, Peru, Panama, Philippines, Palestine, Sierra Leone, Uruguay, and the International Panel on the Regulation of Autonomous Weapons.

Pakistan discussed the potential that an arms race in AWS would lead to the further development of and reliance on algorithms and machine learning, which could in turn serve to only increase unpredictability and lead to unintended and uncontrolled escalation of armed conflict. Argentina, Costa Rica, El Salvador, Palestine, Panama, Philippines, Peru, Sierra Leone, and Uruguay echoed these concerns. On a related note, these latter countries also argued that the introduction of autonomy into WS would invite further autonomy; in this way, AWS could change the strategic landscape and lead to an arms race that would erode international peace and security.

Pakistan stressed the risk that non-state actors (NSAs) may access and produce these weapons with unimaginable consequences. Argentina, Costa Rica, El Salvador, Iraq, Peru, Panama, Philippines, Palestine, Sierra Leone, and Uruguay, and made similar remarks. In addition, Palestine and iPRAW emphasised that there is a risk that AWS could quickly become mass produced.

Argentina, Brazil, Chile, China, Costa Rica, El Salvador, Mexico, Pakistan, Panama, Peru, Philippines, Palestine, Sierra Leone, and Uruguay and said the use of AWS would lower the threshold for war. Pakistan explained that states will be more inclined to use AWS given the lack of loss of states' own citizens and soldiers. China noted its concern that the use of AWS might in fact increase incentives to use force. Argentina, Costa Rica, El Salvador, Panama, Peru, Philippines, Palestine, Sierra Leone, and Uruguay echoed this concern.

Many participants expressed worry about escalation of conflict if AWS were used. Pakistan warned against unintended and uncontrolled escalation, a spiral of reprisals that would perpetuate conflict in crisis settings. The International Committee for Robot Arms Control (ICRAC) expressed concerns about scenarios where enemy AWS encountered each other, with complex algorithms interacting on high speed, creating significant levels of unpredictability. Similarly, iPRAW warned that technical errors, coupled with unpredictable situations and automation bias could lead to situations where humans lose the ability to control conflict dynamics. Pakistan stressed that, in light of growing sophistication of weapon systems, including missiles, cyber weapons and weapons in outer space, the human cost and destabilisation effects are too significant to be dismissed. The Philippines also said that the risks of AWS could be exacerbated by cyber attacks.

Russia said it does not see how AWS would impact international and regional security and has not heard any specific examples.

"Technological diffusion"

The Philippines raised the issue of "technological diffusion," which will normalise overreliance on automation, which in turn can lead to automation bias and removal of human judgement in the use of weapon systems. It argued that when there's an overreliance on automation, human judgement and discernment is disincentivised, which could lead to significant challenges of IHL compliance.

Similarly, the International Panel on the Regulation of Autonomous Weapons (iPRAW) also said that human overreliance or trust in machines has already caused accidents in the civilian domain and could be particularly acute if human operators were not aware of the limits of AI and autonomy.

Public opinion

The Holy See reminded that there's emerging awareness and rejection of automisation in weapon systems among scientists, engineers, ethicists, the military, civil society organisations, employees and entrepreneurs, as they are aware of the urgency and far-reaching implications of AWS. It noted that this growing awareness changes public perception, which is a driving force in the development and implementation of IHL. Costa Rica, Mexico, the Philippines, Panama, Peru, Sierra Leone, Uruguay, El Salvador, and Palestine made similar observations. The CSKR confirmed that there's strong public opinion that a moral line would be crossed if machines were allowed to kill people.

Other concerns

A few states expressed concern about the asymmetry in warfare that would arise if militarily advanced weapons were to use AWS. Pakistan and the Philippines noted that introducing autonomy into WS could widen existing disparities between technologically advanced nations and their less technologically advanced counterparts, leading to destabilizing inequalities—and undermining the international community's overarching priority of total and general disarmament.

Relatedly, Palestine and Red de Seguridad Humana para América Latina y el Caribe (SEHLAC) reminded that these weapons would first be tested in the global south.

Some delegations also expressed concerns with AWS being used for anonymous and clandestine killings as well as targeted killings in other states; the risk of committing genocide if racist or fascist regimes were to acquire AWS; and the long-term damage to the environment after AWS' use. As well, many mentioned unpredictability of AWS as key challenge of compliance with IHL. This is further described in detail in the "characteristics" report.

Sri Lanka stressed that time is of the essence, and that the technological developments are fast outpacing discussions in Geneva. Algeria, Argentina, Costa Rica, El Salvador, New Zealand, the Philippines, Panama, Peru, Palestine, Sierra Leone, and Uruguay made similar remarks. Costa Rica on behalf of the group said that humanity as a whole grows more vulnerable as time goes by. The Philippines warned that it will be difficult to reverse developments at a later stage which could complicate efforts to comply with IHL. The Holy See made similar remarks. Palestine also urged the GGE to learn from history, and to adopt a pre-emptive approach, as decisions made in the GGE will affect generations to come.

CHARACTERISTICS OF AUTONOMOUS WEAPONS

Jillian Rafferty | Women's International League for Peace and Freedom

Central to the week's conversations were discussions around how to characterise the weapons systems under consideration. Those discussions addressed the following key questions: (1) To what extent should high contracting parties work to develop clear definitions or characterisations of autonomous weapon systems (AWS)? (2) How can states best characterise AWS? and (3) Are AWS best conceived of as a class of weapons, or as a technology capability that can be applied to weapons?

To define or not to define?

China, India, Portugal, Russia, and Turkey said the GGE should focus on agreeing to a definition of AWS.

- Portugal suggested states suggest a preliminary or working definition.
- India said states should focus on a common definition of AWS, which can then pave the way for a framework agreement. Turkey made a similar comment.
- China believes that only by agreeing on the definitions of AWS can specific measures be considered. Otherwise, China argued, even if we have arms control measures in place, we cannot implement them effectively.
- Russia agreed the lack of definition of AWS is problematic, arguing that any agreements reached would be conditional, where each state understands AWS in its own way. It argued that any restrictions of AWS without a definition can lead to legal uncertainty, cover a broad range of weapons, and have negative impacts on scientific progress. The definition must consider future developments. Russia also argued that defining LAWS has been hampered

by attempts to introduce concepts such as MHC and categories that create polarisation and politicisation. India agreed with Russia's comments.

- India conceded that not all instruments have formal definitions but argued that others do and should. It argued that states are being politically selective about when they think definitions are necessary or not.

The United Kingdom (UK) cautioned that while some treaties define the WS they cover, there is a difference with AWS. France agreed a definition is important but that a precise definition isn't necessary at this point.

Malta said a definition is necessary so that it is clear which WS should be outlawed and urged bringing in experts to facilitate a common understanding. The United States (US) supports identifying general characteristics to facilitate the GGE's understanding but argued a working definition shouldn't be drafted to prescribe weapons to be banned.

Republic of Korea (ROK) said it's unlikely the GGE can agree on a definition of LAWS, since scope of autonomy takes on different forms in WS. However, it cautioned that discussions on characteristics of LAWS without a clear definition risk circular deliberations.

Austria, Chile, Costa Rica, Ecuador, Egypt, El Salvador, Ireland, Mexico, Netherlands, Palestine, Panama, Peru, Philippines, Sierra Leone, South Africa, Spain, Switzerland, Uruguay, and the International Committee for Robot Arms Control (ICRAC) spoke against spending time trying to agree on definitions.

- Ecuador said too detailed a definition could be both difficult to develop and quickly obsolete.

- Austria noted we are not dealing with a defined weapon, but with the application of technology. This is not static, so our process shouldn't be either.

- Switzerland is skeptical of definitions, warning that not only is it technically and politically difficult, but it might exclude certain relevant systems.

- Chile argued that a lack of exact and precise definition for AWS is not an insurmountable obstacle to making progress in this group, noting there is agreement on general characteristics of these systems and weapons.

- Spain agreed definitions are very complicated and difficult to define and forge. It argued against working to develop consensus on a definition.

- Mexico expressed concern about striking a false dichotomy between definition and non-definition and warned that a technological definition could not survive the test of time, noting that as compared with other systems, we are talking about functionality here—not a type of weapon with defined technical characteristics.

- Costa Rica, El Salvador, Palestine, Panama, Peru, Philippines, Sierra Leone, and Uruguay argued definitions aren't central to prevent indiscriminate and unpredictable use causing harm and noted definitions could be too limited to adapt to future realities. They pointed out that the CCW protocol on blinding laser weapons doesn't include a precise definition.

- Ireland said it is having "definition déjà vu," noting the GGE has struggled to define AWS since its beginning. Definitions are unlikely to stand test of time but this shouldn't hamper progress. There is no agreed definition of terrorism or nuclear weapons yet are governed by international law.

- Netherlands said formal definitions don't need to be agreed before making substantive progress and argued that the characteristics debate has been one of the least productive. Emerging nature of the tech and wide operational context makes definitions too complicated. It said states should focus on how control can be maintained over autonomy instead of clinging to semantic discussion of definitions.

- Egypt said a working definitions and characteristics would help guide the GGE's work and determine scope of the prohibitions and restrictions in a legally binding instrument, but efforts to achieve a formal definition are futile. The focus must be on human element and impact of use of LAWS.

Proposed definitions

A large number of states and other participants advanced partial or complete proposed definitions of autonomous weapons systems. There are a variety of opinions on how to best classify autonomy and autonomous weapons. That said, there appears to be a growing convergence among participants that autonomy must be conceived of—and regulated as—a capability category. In other words, the term "autonomous weapons system (AWS)" would refer not to a finite list of weapons with autonomy, but rather would refer to any weapons to which autonomous capabilities were applied. Several states, including Pakistan, noted the legal precedent for regulating weapons based on their capabilities, often by reference, for example, to the international community's regulation of blinding laser technologies under the CCW framework.

Many participants spoke to this point, including Pakistan, Brazil, Austria, Switzerland, Chile, Spain, Mexico, Ireland, Portugal, the Philippines, the United States, the International Committee for the Red Cross (ICRC), the Campaign to Stop Killer Robots (CSKR), and ICRAC.

- ICRC suggested that AWS are weapons that, after their initial activation by humans, select and apply force to targets without human intervention, triggered by sensors that perceive aspects of their environment that are based on a target profile which serves as a general approximation of desired targets. Under the ICRC's conception, the user of the AWS does not choose a specific target, nor a precise time or place in which force is applied.

- CSKR articulated a similar functional definition, characterising AWS as systems that have autonomy in critical functions—especially target identification, target selection, and the decision to apply force to targets—based on sensor information.

- ICRAC supported a functional definition of AWS, noting that autonomy is a capability and not a category of weapons. It said a functional definition provides sufficient clarity to proceed to negotiation of legally binding instrument to drive operational approaches to allow to retain meaningful human control and protect shared humanity.

- The UK said it agrees with ICRAC that autonomy is about capability or function rather than a category of weapon. It suggested instead setting out characteristics of systems that would or would not be compatible with IHL. Spain and Ireland agreed with looking at the functions of systems and their impact on IHL. Mexico suggested a technological or functional approach in terms of the interrelationship between human being and machine.

- Australia supports an approach that focuses on the way tech will be used in armed conflict or the effects it will have, rather than focusing on tech itself.

- Pakistan argued that AWS are weapons that can autonomously select and engage targets, and that can choose and change the temporal and spatial scope of their missions. According to Pakistan's definition, the only logical way to define AWS versus their non-autonomous counterparts is based on the presence of absence of human control; any weapon system that lacks human control over its critical functions is therefore defined as an autonomous weapons system. Pakistan also noted the importance of recognizing that AWS represent a set of non-hypothetical technological advances, which together can best be characterized as a capability category, rather than as a single weapon or finite class of weapons. Instead, Pakistan argued that conceiving of autonomy as a capability in the critical, temporal, and spatial functions of a weapons system would better allow states to work together to appropriately regulate autonomy in WS. Austria and Switzerland clearly echoed Pakistan's point, arguing

that AWS are not a defined weapon or set of weapons, but rather with the application of a particular technology to weapons.

- Switzerland suggested considering AWS as being a generic term that may not have to be defined in detail, but that would cover all WS with autonomy when it comes to critical functions of selecting and attacking targets. There could be a classification of levels of autonomy based on the role of the human user—for example, if human user chooses/ does not choose given target.

- The Philippines suggested that an AWS is a weapons system that can select, engage, and apply force to targets on the basis of machine analysis of sensor inputs, without human control. The Philippines noted that autonomy in non-critical functions (such as navigation), as well as in defensive capabilities (such as targeting specific, offensive military objects like torpedoes), should be outside the definition of autonomous weapons systems that the GGE may hope to regulate.

France proposed a definition of AWS that divides fully AWS from their partially autonomous counterparts.

- France suggested that fully autonomous lethal weapons systems are ones programmed to act outside of fixed use cases or above and beyond the original scope of their application. Such fully AWS operate outside the chain of command, without human supervision, carrying out tasks in a complex environment.

- On the other hand, France suggested that partially AWS are ones: that include elements of autonomy but are still subject to human command and control; whose decisions depend on humans; that cannot take lethal initiative outside the normal scope of their functioning; and that have built-in characteristics preventing their failure and abuse. Under this definition, partially autonomous WS can activate and execute tasks with some decisional autonomy, including in the weapons' critical functions.

- Germany echoed the French position and noted that there is not yet a clear and agreed-upon definition of "fully autonomous weapons systems," though such further clarification would likely prove useful.

Others, including Pakistan, the ICRC, and China, also echoed elements of the French proposal, drawing a distinction between fully AWS and weapons that incorporate some degree of (but less than "full") autonomy. China suggested that fully AWS: (1) are lethal; (2) operate absent human control; (3) cannot be terminated once activated; (4) cannot discriminate in carrying out their missions once activated; and (5) can evolve beyond its starting environment and conditions.

THE HUMAN ELEMENT

Ray Acheson | Women's International League for Peace and Freedom

Over the past years of CCW deliberation on autonomous weapon systems (AWS), states have broadly coalesced around the need for the retention of human control (HC) over the use of force and over weapon systems (WS). The vast majority of governments, civil society groups, and international organisations participating in these dialogues have asserted that WS operating without meaningful human control (MHC) are unacceptable and unlawful under international humanitarian law (IHL). Most participants agree this means they should be prohibited through a legally binding instrument (LBI), while other applications of autonomy within WS will need to be regulated or restricted in order to ensure that HC is always maintained of a weapon's critical functions. A few states remain outliers to this emerging consensus.

The following report tracks participants' comments to this GGE session on requirements for HC, potential parameters for human-machine interaction (HMI), positions regarding

human accountability and responsibility, and the relationship between human control and human dignity.

Human control (HC) over the use of force

The High Representative for Disarmament Affairs highlighted the need to ensure that humans always remain in control over use of force, in line with UN Secretary-General's agenda for disarmament. Brazil, Bulgaria, Chile, Pakistan and Sweden agreed humans must always be responsible for decisions on the use of force.

The International Committee of the Red Cross (ICRC) noted there is broad agreement to ensure HC and judgement in use of force and said this requires effective limits of design and use of AWS. Similarly, Austria said humans must always retain MHC over use of force, and that keeping humans in control over weapons is key to keeping humans in control over use of force. Australia said states should ensure a system of control to govern and direct any use of military force, which should cover all AWS from conception, development, and use in armed conflict.

Human control over weapon systems (WS)

Non-Aligned Movement (NAM), Argentina, Austria, Brazil, Bulgaria, Chile, Costa Rica, Ecuador, El Salvador, France, Germany, Holy See, Iraq, Ireland, Luxembourg, Mexico, Netherlands, New Zealand, Pakistan, Palestine, Panama, Philippines, Sierra Leone, South Africa, Sri Lanka, Sweden, Switzerland, Uruguay, ICRC, and the Campaign to Stop Killer Robots (CSKR) said HC must be maintained over all WS.

To this end, Argentina, Austria, Brazil, Chile, Costa Rica, El Salvador, Ireland, Luxembourg, Mexico, New Zealand, Pakistan, Palestine, Panama, Peru, Philippines, Sierra Leone, Uruguay, ICRC, and CSKR said meaningful HC should be applied to the lifecycle of WS and all critical functions. Sri Lanka said critical functions of WS should be under human control to ensure selection of target and application of force are not solely decided by a machine. If a machine uses force solely by own "judgement," it should be prohibited.

Bulgaria, Netherlands, and South Africa said HC must be maintained across the lifecycle of a WS, while France and Germany said human responsibility, accountability, and "sufficient" human control must be maintained at all times, in all circumstances, across the entire lifecycle of a WS.

Palestine said MHC is a fundamental and necessary condition that must govern any and all AWS, while Iraq argued that delegating a life and death decision to machines is a serious violation of IHL. Similarly, Ecuador said there is no legal, ethical, or moral justification for the use of AWS without MHC and the Holy See said it's an ethical imperative that MHC be maintained over WS, as only humans can appreciate the results of their actions.

New Zealand said there seems to be almost universal agreement that fully AWS outside of HC are illegal and unacceptable. Turkey said WS without MHC are undesirable and contrary to IHL.

The NAM said the while concept of MHC does not provide all the answers to questions posed by AWS, it does provide an approach to discuss weaponisation of increasingly autonomous tech and a common understanding of what it entails in practice is important.

On the other hand, Israel, Russia, and the United States (USA) rejected the concept of HC. USA prefers the term human-machine interaction (HMI), which it said needs to be examined across the WS lifecycle. Israel, meanwhile, said human judgment is an integral part of LAWS across their lifecycles.

The Republic of Korea (ROK) said MHC and HMI should be implemented at different stages of a WS lifecycle and argued against excluding the possibility that HMI may evolve in accordance with technological development in the area of LAWS.

The United Kingdom (UK) said HC requires further discussion, regarding how it manifests, what makes it meaningful, and the forms by which humans interact with WS. It argued that HC is complex, situation dependent, dynamic, and not bound to single moment in time; thus activities in different stages of a WS' lifecyle can contribute or detract from level of HC. Having control over

one element is not enough; operators need to understand how interactions across lifecyle impact HC as a whole.

China said states must decide how and to what extent humans should be involved in the development and use of WS to prevent them from being indiscriminate. It lamented the lack clear and rigorous definitions for HC and suggested states should provide specific technical features, parameters, or operational schemes to facilitate deeper understanding.

Russia argued that MHC is a problematic concept without clear definition, parameters, or agreed criteria. It said form and method of HC should be left to states to decide, but also argued that determining the degree of HC would be fully subjective in nature and be biased toward narrow national interests.

India argued that the complete absence of human intervention or control is a defining characteristic of LAWS. The moment we inject the human element into LAWS, they cease to remain LAWS.

Regulating human control

Austria, Brazil, Chile, Luxembourg, Ireland, Mexico, and New Zealand concluded that a normative and operational framework will be essential in order to ensure that HC is retained over AWS.

Costa Rica, El Salvador, Palestine, Panama, Peru, Philippines, Sierra Leone, and Uruguay said prohibiting fully AWS and regulating other weapons along the autonomous spectrum is the only way to guarantee HC.

Switzerland said systems that can select and attack targets without HC, at a location not known to or chosen by a human user, should be prohibited.

Austria said that AWS that are not under MHC must not kill humans. Limits on applications of tech must ensure that humans are not killed by highly sophisticated WS without MHC or involvement.

The International Panel on the Regulation of Autonomous Weapons (iPRAW) suggested autonomy should aid, not replace, judgement of humans over the use of force, which requires international regulation with obligations to maintain HC in the design and use of WS. The adequate type and level of HC depends on context of military operations, so regulation might require rules requiring HC in abstract terms, with additional documents elucidating the concept of HC and to operationalise it.

Parameters of human control

Many participants outlined proposals or considerations for ensuring HC over WS.

ICRC set out four areas where design and use of non-prohibited AWS should be regulated through limits and requirements, including limits on the types of targets, e.g. constraining to military objectives; limits on the duration, geographical scope, and scale of use, including to enable human judgement and control in relation to a specific attack; limits on situations of use, e.g. where civilians and civilian objects aren't present; and requirements for HMI to ensure effective human supervision, intervention, and deactivation.

Austria, Brazil, Chile, Ireland, Luxembourg, Mexico, and New Zealand said MHC requires a range of contextual and tech considerations, including situation awareness, transparency to human agents, adequate limits on tasks and types of target so WS can be operated with reliability and predictability, capacity for human supervision and intervention, etc.

Costa Rica, El Salvador, Palestine, Panama, Peru, Philippines, Sierra Leone, and Uruguay argued that sufficient levels of predictability, reliability, oversight, and spatial and temporal constraints are needed to ensure MHC. They also argued that HC goes beyond targeting and includes mission types, environment, and circumstances.

France and Germany said AWS must only be developed and used if they cannot override human deactivation command or substantially modify mission without human approval. Human decision-makers and operators must have sufficient knowledge about operations and actions, operating environment, and interaction among these factors.

Argentina, Bulgaria, Malta, Philippines, USA, and others also highlighted the importance of operators understanding the WS and IHL; Bulgaria, Japan, Netherlands, UK, USA, and others emphasised the importance of proper training in this regard. However, Pakistan warned that training on WS is not sufficient. Switzerland highlighted the role of legal advisors.

Philippines said human operators need to be able to explain a WS's potential errors to ensure compliance with IHL. Operators must retain supervision and ability to intervene. South Africa said any choice made by WS must be traceable and comprehensible to human operators.

USA said user interfaces should be clear for operators to make informed and appropriate decisions in engaging targets—they should be readily understandable, provide traceable feedback on system status, and provide clear procedures for operators to activate or inactivate systems.

France said autonomy must be based on algorithms programmed by humans, noting that humans must define military needs and technical functioning, define use, concept, and doctrine, and set rules of engagement. France said HC should be determined on a case by case basis, depending on technical and procedural issues, but that WS should always be under the control of a human operator across its lifecycle. France argued machine-learning doesn't present difficulties but if new data changes the operational environment, this may require additional human intervention.

Netherlands said that to guarantee MHC, states should confirm that, as a minimum: humans make informed, conscious decisions about use of weapons; humans have sufficient info to ensure force is used in line with IHL, given target, weapons, and context; and the weapon is designed and tested in realistic operational environment and humans are properly trained to ensure the weapon is applied judiciously. Netherlands also said MHC plays a role in legal reviews, training of personnel, targeting process, at command levels, and throughout a variety of tasks, procedures, and decisions. It argued that AWS don't necessarily negate human engagement but modify the way humans work together to exercise MHC over WS.

Argentina said HC must not allow automatic repeated self-deployment, and machine-learning must never reduce the capacity for HC or dilute human responsibility. It highlighted the ability of machines to communicate with other systems in languages not created or controlled by humans as a challenge for HC. It also said that hardware and software of AWS must include the ability of a human operator to intervene to assume control, abort, or change mission; ensure communication lines between command chain and WS; and be able to be audited in post-mission reviews to identify errors or arbitrariness regarding identification of targets by WS.

Bulgaria said HMI is important in research, validation, deployment, and use, especially in targeting cycle. It noted that situational awareness and sufficient level of intelligence about military targets enhances predictability and reliability.

UK said HC could include a degree of freedom as a human has to choose the path forward, change a system's operation, and degree of predictability. It argued HC is context driven and might change with environment and operation of the AWS. There is no "one size fits all" option for what constitutes MHC, nor is it centralised. The Netherlands agreed with these comments.

Sweden agreed that the nature of that control must be evaluated on a case-by-case basis, based on factors such as the characteristics of the particular weapon at hand, the environment in which the weapon is deployed, and temporal and spatial limits.

China agreed HC can vary in different scenarios and suggested it should consider weapons, personnel, operation, and complex interactions. Bulgaria made similar comments.

Switzerland agreed HC can be exercised in different ways throughout the lifecycle of AWS, especially during deployment. It said it's important to retain HC over how and where AWS can be used and to define parameters of use. This might include limitations related to targets and scope of use, temporal/spatial limits, capacity of human supervision, capacity of human intervention/ integration of security mechanisms and should

take into account the type of task, complexity of environment within which WS is deployed; capacity of AWS; and work burden of human supervisor. HC may need to evolve with tech.

Russia suggested efficient HC could be ensured not just through direct control but also through restrictions on tasks, duration, and area of application of LAWS. It said management of LAWS requires possibility of intervention by personnel or high command for modification of the functioning of system, including partial or full deactivation. It also emphasised that specific forms and methods of human control must remain within the purview of states.

"Effectuating intent"

USA proposed a new conclusion for the GGE's consideration, that WS based on emerging tech in the area of LAWS should "effectuate the intent" of commanders to comply with IHL by avoiding unintended engagement and minimising harm to civilians and civilian objects. Germany and Israel agreed with this proposal, while Bulgaria and South Africa said intentions of the user are essential.

Pakistan, however, pointed out that IHL rules are not subject to intent of the developer or user of a WS but to its effects during actual use. It also noted that problems and complexities arising from biases, malfunctions software failures, cyber attacks, jamming and spoofing, and environmental conditions point to the need for MHC that extends post-deployment and can't be limited to intention.

Human control and international humanitarian law (IHL)

Mexico said compliance with IHL requires human decisions based on values and commonly shared norms, which cannot be replaced by machines. It argued the key question is not if IHL is applicable, but if it is sufficient to ensure MHC. Limitations imposed by IHL require that humans apply the norms of behaviour in armed conflict.

Ireland similarly said application of and compliance with IHL requires context-specific, value-based judgment by human beings, which cannot be substituted by machines, while Austria noted that HC is an indispensable requirement for compliance with IL, IHL, and IHRL. China noted that autonomy and algorithm-driven decision-making are inherently limited, both in their potential to accurately distinguish between legitimate and illegitimate targets and in their capacity to evaluate proportionality, which requires human judgment.

Brazil said there is no way to bound development and use of AWS through IHL except through HC, preserving HC over critical functions of AWS can prevent violations of IHL. It stressed that IHL principles can't be converted into a programming language and that the use of force without HC is a blatant violation of ethical considerations underpinning IHL.

ICRC said application of IHL requires evaluative decisions by humans to be made based on understanding of context, including circumstances of a particular attack. Assessments of proportionality, for example, cannot and should not be reduced to quantitative indicators alone. It is humans, not weapons, who are responsible for making qualitative, context-dependent legal judgments. This poses challenges for AWS, as the user of such systems might not choose a specific target or precise time. It is critical that limits are placed on development and use of AWS so that users may be reasonably certain that attacks carried out by use of AWS will comply with IHL.

Pakistan said any WS that engages critical functions without human intervention would not be compliant with IHL. Rules of IHL are designed to apply to states and their functionaries. Compliance with IHL by humans governs, regulates, and limits their choices in the conduct and tools of warfare. People, methods, and tools must remain compliant with IHL at all times. This cannot be delegated or transferred to a weapon or a machine system.

France said states must ensure that their human command systems can assess compliance of partially AWS with IHL rules and principles, which means maintaining human control at a sufficient level and ensuring that human command chains make critical decisions on use of lethal force, and be responsible for launching an attack and validating missions.

Japan said during development, deployment, and use of WS, commanders and operators must be aware of and trained in relevant technologies, the WS, and IHL to ensure that sufficient human control is retained over WS to comply with IHL. It affirmed that obligations of IHL are imposed on humans, not machines.

USA argued autonomy in WS doesn't replace humans making judgement of IHL. It suggested the GGE elaborate on good practices in HMI that can strengthen compliance with IHL and argued AWS must not be used if it is of a nature to violate IHL.

Pakistan noted that insistence that compliance with IHL can be effectuated sufficiently before a weapon is deployed for use doesn't fully respond to legal, ethical, and security concerns of such use. It argued that autonomy in critical functions at any stage creates incompatibilities with IHL.

Accountability and responsibility

Many participants expressed concerns with the challenges posed by AWS for accountability (see the "challenges" report for details). This section tracks positions related to assertions of who is responsible and how to ensure accountability.

The Chair noted that IHL imposes obligations on states, parties to armed conflict, and individuals, including operators and commanders—not machines. Bulgaria made similar remarks, noting that machine and algorithms are not legal agents. Almost all participants expressed similar positions—the Netherlands noted that most CCW high contracting parties agree that accountability in AWS must be retained by humans and cannot be transferred to machines. HMI and MHC are vital to ensuring human accountability, though the type and degree of human control may vary.

Argentina, Austria, Brazil, Bulgaria, Chile, France, Germany, Holy See, Ireland, Luxembourg, Malta, Mexico, Netherlands, New Zealand, Pakistan, Panama, Philippines, Sierra Leone, Switzerland, Russia, USA, and ICRC said human operators and commanders are accountable and responsible for the effects of WS. Argentina and Russia said designers, developers, and manufacturers of AWS are also accountable and responsible.

The UK said responsibility of states and individuals comes from the point when WS is developed and in weapon reviews, while the commander's responsibility applies in military decisions. Malta said the GGE should underline that it is states' responsibility to always observe IHL.

France and Germany said AWS must only be developed and used if they always preserve human responsibility and accountability, in all circumstances, across the entire lifecycle of a WS. Similarly, Austria, Brazil, Chile, Ireland, Luxembourg, Mexico, and New Zealand said responsibility and accountability cannot under any circumstances be transferred to machines and must be retained throughout the WS lifecycle. States and individuals are responsible for applying law and must be held accountable for any violation, for which a human chain of command must always be ensured.

Chile called for a legal framework on assigning responsibility. If the nature of a weapon makes it impossible to assign responsibility, its use should be considered illegal and immoral. Military commanders should shoulder responsibility if they have information that shows that they would act contrary to IHL. To ensure accountability, one must assess whether a superior officer can understand the situation. In the case of AWS, it's important and necessary to set out the various decisions that must be taken on use of force, to the point of assigning responsibility and accountability.

Brazil noted that commanders are always responsible for IHL, but the causal relationship between decisions and actions of the commander and effects on the battlefield must remain credible. A commander cannot just be mere scapegoat but must be a consequential agent that makes real decisions. It further argued that it cannot go against the principle of no liability without fault in international criminal law. Mexico likewise said ensuring sufficient HC should be properly supervised and allow for attribution of responsibility, while Argentina said states must ensure effective investigations and assign responsibility. It highlighted the capacity of AWS to redefine the objective of a mission as a major challenge to assigning responsibility.

ICRC is concerned with interrelated loss of human agency, responsibility, and dignity in life and death decisions arising from AWS. Humans have moral agency that guides decisions and actions, for which they are morally responsible. The Holy See said legal systems recognise humans as responsible subjects, thus the notion of responsibility originates from the idea of the human as a free and rational being. Machines can't think, feel, decide, or be accountable to actions.

Pakistan also said introducing capabilities in WS delegating power to make life and death decisions to machines and algorithms, which lack compassion and intuition, would be unlawful and unethical. The NAM agreed delegating life and death decisions to weapons is unethical and poses challenges to IHL compliance and the Philippines agreed only humans and states can be held ethically, morally, and legally accountable.

UK and USA agreed accountability rests with states and individuals and cannot be delegated to a machine. UK also said individuals would be accountable for actions of LAWS, because the individual made a conscious decision to deploy and use that system and would be responsible for its actions, even if it can't predict or foresee the effects.

Japan agreed that states parties to conflicts and individuals bear responsibility of compliance with IHL, not machines, but argued that the judgment that using AWS can unduly reduce human liability is premature. Similarly, USA supports norms about application of legal principles to human conduct and decisions but rejected the idea that new tech can create an accountability gap. It proposed "good practices" to promote accountability, including conducting operations under a clear chain of command and training and testing of WS so that commanders understand their likely effects. It also outlined eight items in a working paper that set out how legal principles apply to states and individuals that use AWS.

Russia said the risk of abuse that arises in that connection for any WS, regardless of level of autonomy, can and must be reduced using procedures that involve individual responsibility for actions.

France argued that self-learning capabilities of AWS do not imply lack of human responsibility, but humans must maintain the ability to approve each stage of learning and development of the system.

Human control and human dignity

Costa Rica, El Salvador, Palestine, Panama, Peru, Philippines, Sierra Leone, and Uruguay argued that weapon systems that target, engage, and apply force in "deciding life and death" of humans, including through use of target profiles, present ethical and moral challenges that transcend the legal framework under IHL. Allowing AI to acquire such control and subjecting human lives to it would undermine human dignity.

Philippines argued that subjecting human life to software goes beyond the legal to ethical considerations of whether it is appropriate for us to subjugate human dignity and human life to algorithms.

Austria said that securing MHC upholds IHRL and human dignity.

Holy See is concerned that inherent dignity of humans is disregarded and reduced to data with the use of AWS.

Sri Lanka also noted the centrality of human dignity and morality to all such decisions, as well as its skepticism that machines could or should be entrusted with such decisions at all.

ICRC argued that the use of target profile impedes human consideration. Death by algorithm entails an ethically problematic change in exercise of human agency and use of force, which is a change that is dehumanising and runs contrary to principle of humanity.

In contrast, Israel and USA said they do not see AWS as delegating life and death to machines.

POTENTIAL MILITARY APPLICATIONS

Jillian Rafferty | Women's International League for Peace and Freedom

Over the course of the week, participants in the Group of Governmental Experts discussed a variety of topics and concerns regarding the potential military applications of autonomous capabilities. While most participants expressed concern with clear and urgent risks—to civilians, and in terms of human suffering—with the development and use of autonomous weapon systems (AWS), other participants argued that AWS would bring "benefits" to militaries and that, at worst, the risks are outweighed by the potential "benefits".

Military applications

A few states discussed the general military applications of autonomous capabilities in weapons systems (WS). India noted that, though AWS are still under development, autonomous capabilities could foreseeably be added to a variety of WS used in various operational settings. In addition, India noted the potential for autonomy to be featured in multiple separate WS operating in tandem, as a network that carries out a coordinated attack. On this general topic, several states, including India, mentioned that militaries might adopt autonomous capabilities in non-lethal applications, as well.

Russia asked fellow participants to recognize that AWS could be used for a variety of applications: destroying military objects, protecting strategic objects (e.g., energy stations, dams, bridges), eliminating terrorist groups, and protecting the civilian population.

The United Nations Institute for Disarmament Research (UNIDIR) reported back on its recent tabletop exercise, in which it gathered 200 legal and military experts to discuss the relationship between humans and AWS. UNIDIR noted the following findings, from the perspective of military experts, from that exercise:

- Autonomy can improve speed, accuracy, and resource management, and can enable operation in a communication-denied operational environment. That said, a communication-denied environment could also raise concerns around the ability of operators to maintain situational awareness and to intervene if necessary.

- The value of AWS depends on context, mission parameters, target, special and temporal limitations, the risk to civilians and to own forces, the rules of engagement, and more.

- Militaries do not have an incentive to deploy WS they do not understand or whose actions and effects they cannot predict. Doctrine, training, education, testing, and evaluating can all mitigate challenges around understanding and predictability.

Perceived benefits of military applications of AWS

The United States (USA), Japan, India, the Republic of Korea (ROK), Switzerland, the Netherlands, and Russia argued that new technologies around autonomy in WS could prove beneficial in military and even humanitarian terms.

- USA argued that AWS could reduce the risk to civilians of military operations, including by improving commanders' ability to assess the risks of collateral damage, by including remote disabling capabilities for munitions that miss their targets, etc. It also discussed at some length the potential for autonomous functions in weapons systems to provide commanders with additional valuable information when operating in complex and fast-paced conflict environments. France echoed these points.

- Japan agreed with the US argument, suggesting that machine learning might reduce civilian damage by improving the accuracy of attacks, thereby preventing incidental loss of civilian life and incidental damage to civilian objects and ultimately enhancing compliance with IHL. It asserted that autonomy in WS could assist commanders in their efforts to

distinguish between legitimate and illegitimate targets by analysing and processing data, improving cognitive abilities, and assessing precautionary measures.

- India advanced related arguments, noting that autonomy could impart greater precision and accuracy and avoid human errors, thus helping to avoid humanitarian harm.

- ROK echoed these points, noting the potential for autonomous technology to beneficially complement human judgment and decision-making. These benefits are particularly clear, according to the ROK, when considering monitoring functions, surveillance, and clearance of explosives—but may also be found to minimise human error and increase reliability and accuracy in targeting.

- Switzerland noted the potential that autonomy in WS could help limit the impact of human emotions, such as fear, stress, and hatred, on wartime decisions, which could in turn boost compliance with IHL.

- Russia likewise argued that AWS could reduce the negative consequences of armed conflict, including by reducing the possibility of unintentional strikes against civilians and/or civilian objects and by carrying out similar goals to non-autonomous WS with fewer human errors. In particular, Russia noted that the advantages of technology include accuracy, speed, effectiveness, and the reduction of human error associated with psychological, religious, moral, or other concerns.

- The Netherlands noted that AWS—when operating under meaningful human control—may bring key military advantages, including by responding faster and more accurately than humans, by processing large amounts of data, and by operating in environments that would be dangerous to humans.

- Other participants, including Switzerland, noted the potential benefits for military personnel of the greater incorporation of autonomy into weapons systems. In particular, Switzerland noted that autonomous functions might reduce the exposure of soldiers on the battlefield by reducing armed forces' reliance on soldiers' physical presence. This might, in turn, help to protect soldiers from less attractive tasks—including particularly dangerous tasks and/or ones that require a high degree of attention and focus. France echoed some of these points.

- The International Committee for the Red Cross (ICRC) noted that, despite the humanitarian concerns of AWS, it is possible that AWS may offer military benefits, particularly regarding increasing speed in targeting, accelerating the process of target detection, and enabling continued operations in communication-denied environments. Still, the ICRC cautioned that military utility does not always align with humanitarian considerations.

Concerns about military applications

Other participants raised a host of specific concerns around military applications of autonomy.

Pakistan noted with concern that numerous problems can arise from the introduction of autonomy into weapons systems, including: bias, software malfunctions and/or failures, cyberattacks, jamming, spoofing, unanticipated environmental conditions, and more.

The International Panel on the Regulation of Autonomous Weapons (iPRAW) raised numerous concerns in this regard, as well. In particular, iPRAW noted that though autonomy can complement and boost human decision-making, the fast tempo of warfare and of artificial intelligence, combined with the reality that AI technology is often relatively incomprehensible for humans, could lead to a high degree of human overreliance on the machines. Likewise, iPRAW noted that technological errors, coupled with unpredictable and dynamic conflict situations and exacerbated by algorithmic bias, could foster situations in which humans lose the practical ability to control the escalation of conflict.

Numerous participants, including Pakistan, the Holy See, Sri Lanka, Chile, the Campaign to Stop Killer Robots (CSKR), raised concerns regarding the inherent unpredictability of AWS.

- Pakistan noted with particular concern that the unpredictability of AWS could further destabilise already tenuous conflict situations.

- The Holy See expressed concerns around the predictability of AWS during armed conflict, noting in particular the risk such unpredictability could pose for non-combatants.

- Sri Lanka, too, noted the imperative that weapons be predictable in their use and effects on the battlefield, arguing that the only way to ensure predictability is to retain human control, particularly in selection of the targets and the application of force.

- Chile suggested that the rapid development in AWS would lead to a lack of predictability in the weapons and their effects, creating a scenario in which a human being is cancelled out of the decision-making process around the use of force and serves instead as a passive spectator of the violence carried out in their name.

- CSKR discussed in some detail how algorithm-driven activity can lead to unpredictability, focusing in particular on how algorithms respond to circumstances unanticipated by their human programmers.

A few participants, including Pakistan and France, also called into question the desirability of WS outside of the control of military decisionmakers. (France focused here only on fully AWS.) In particular, Pakistan noted the poor logic involved in a military developing a weapon they could not themselves guarantee their control over. UNIDIR's findings from its tabletop exercise reflected this same sentiment.

Other states, including Russia, balked at conversations around the predictability of AWS, arguing that such discussions are superfluous. According to Russia, any WS that cannot behave predictably would not pass its country's weapons review process; meanwhile, any weapon that can operate predictably relies, for that predictability, on the training of and decision-making by officials and operators involved in the weapon's use. Russia also noted that, in its view, predictability could be ensured by ensuring, in turn, efficient control of humans over machines. Such control can be protected through various means: direct control over the machine by humans is one option, but another option is establishing restrictions concerning the tasks, duration, and area of application of AWS.

Many participants, including Pakistan, the Holy See, Sri Lanka, Algeria, China, the ICRC, and the CSKR noted their concerns over the human costs of further sophistication in autonomous weapons technologies.

Pakistan noted the undismissably high potential human costs of increasingly sophisticated weapons with autonomous capabilities. The Holy See raised concerns in particular regarding the risk that unpredictable AWS driven by self-learning capabilities could pose for non-combatants. The Holy See also noted the immense potential for human cost should swarms of autonomous drones be deployed in populated areas.

Sri Lanka said that it is not convinced by arguments that autonomy in weapons systems would necessarily lead to better compliance with IHL and its protections for civilians for human dignity, as AWS cannot make complex battlefield decisions. Algeria agreed that the rapid development and use of autonomy in weapons systems poses unique concerns and risks.

The ICRC, in calling for a ban on AWS that target human beings as noted in the "possible options" report, explained that such systems have the enormous potential to cause grave harm. The ICRC elaborated that generalised target profiles are simply impractical when the targets at hand are human beings, given the ways that the legal protections for human beings under IHL shift as conditions change.

The CSKR noted the high degree of difficulty in ensuring transparency for harms caused by AWS, particularly given that the identities and status of those killed or otherwise harmed may not be known. CSKR argued that, due to a lack of political will around counting casualties, it is unrealistic to expect to have accurate and unbiased data on the humanitarian effects of AWS.

Argentina, Costa Rica, El Salvador, Palestine, Panama, Peru, Philippines, Sierra Leone, and Uruguay argued that AWS will make warfare more inhuman and explained their skepticism that AWS could adequately distinguish, in particular, between civilians participating in hostilities and civilians, as well as between combatants and civilians. The group also noted its concern for the potentially widespread and long-term environmental damage that AWS could effectuate.

New Zealand also raised concerns regarding the ability of AWS to sufficiently distinguish between combatants and civilians, to determine appropriate reactions to changed conditions (such as surrender of combatants), and to assess the proportionality of harm.

Palestine noted with great concern the potential to program machines to carry out atrocities such as genocide should AWS fall into the wrong hands, noting that principled humans might deny such immoral orders, while machines cannot.

POSSIBLE OPTIONS

Ray Acheson | Women's International League for Peace and Freedom

At this point in the GGE's work, there is clearly overwhelming support for the development of a normative and operative framework (NOF) on autonomous weapon systems (AWS). Most states support the start of negotiations for a legally binding instrument (LBI); some others would seem to prefer a political declaration or another form of political commitments. A handful of states oppose the development of any rules, regulations, or restrictions, whether or legally binding or not.

This report tracks positions in the GGE on proposals for new instruments, as well as positions on other initiatives or elements of the GGE's work such as the guiding principles, weapon reviews, definitions, exchanges of best practice, establishment of new committees or working groups, and more.

In favour of prohibitions and restrictions

Palestine argued that preemptively prohibiting AWS is necessary, noting that usually humanity waits until after technology is invited and in use before it understands how to curtail its risks, such as with cars and seatbelts.

To this end, The Non-Aligned Movement (NAM), Algeria, Argentina, Austria, Brazil, Chile, China, Costa Rica, Ecuador, El Salvador, Iraq, Ireland, Malta, Mexico, New Zealand, Pakistan, Palestine, Panama, Peru, Philippines, Sierra Leone, South Africa, Switzerland, Uruguay, International Committee of the Red Cross (ICRC), and Campaign to Stop Killer Robots (CSKR) called for the negotiation of a legally binding instrument (LBI) on autonomous weapon systems.

Of these, the NAM, Austria, Brazil, Chile, Costa Rica, El Salvador, Iraq, Ireland, Malta, Mexico, New Zealand, Pakistan, Palestine, Panama, Peru, Philippines, Sierra Leone, South Africa, Switzerland, Uruguay, the ICRC, and the CSKR voiced support for an LBI that contains both prohibitions and restrictions.

Algeria, Argentina, Brazil, China, Costa Rica, Ecuador, Egypt, El Salvador, Iraq, Palestine, Pakistan, Panama, Peru, Philippines, Sierra Leone, and Uruguay called for the negotiation of an LBI as a protocol within the CCW. Brazil said the next CCW Review Conference is an opportunity to launch negotiations. China suggested following the example of the protocol on blinding laser weapons.

Many delegations made specific suggestions for an LBI:

- Brazil, Chile, and Mexico outlined their proposal for an LBI that includes prohibitions over AWS and positive obligations to ensure human control (HC) over all weapon systems (WS).

Austria said it is ready to start negotiations on the basis of this proposal.

- Costa Rica, El Salvador, Palestine, Panama, Peru, Philippines, Sierra Leone, and Uruguay said prohibitions and positive obligations are needed to guarantee HC and IHL, arguing that prohibition deals with the moral unacceptability of using machines to take human life. They specifically noted that target profile systems to identify and use force against humans should be prohibited, as should unpredictable WS.

- The ICRC and CSKR also said WS designed to target or use force against human beings should be prohibited.

- In addition to systems targeting humans, the ICRC called for prohibition of unpredictable AWS, including those designed in a manner that can't be sufficiently understood, predicted, or explained, or that by design precludes users from reasonably foreseeing effects of an attack. Non-prohibited use of AWS should be regulated, with limits of type of target, duration, geographical scope, scale of use, and situations of use, and should impose a requirement for human-machine interaction to ensure human supervision and timely intervention and deactivation.

- CSKR agreed with an approach of prohibition of weapons used without meaningful human control (MHC) or that use sensors to target humans, and restrictions for other WS that include autonomous functions.

- Switzerland also indicated support for a framework that includes prohibitions and restrictions, noting that all WS should be illegal if the results of their use can't be predicted or limited or if they can't be used in accordance with international humanitarian law (IHL). Systems that can select and attack targets without human control, at a location not known to or chosen by a human user, should also be prohibited. Other AWS should be regulated, with a focus on ensuring HC over WS and human responsibility within a military command chain. Such legal obligations need not be very detailed, it suggested, but set out clear principles such as the obligation to maintain HC. Other positive obligations, such as practical measures, best practices, and precautionary measures, might need more precision.

- Malta agreed unpredictable AWS should be prohibited and others should be regulated.

- Palestine said fully AWS and unpredictable AWS must be fully prohibited, and some AWS with MHC are still wholly unacceptable legally and morally and must be prohibited, including all AWS designed or used to target human beings.

- Brazil supported establishing negative and positive obligations and agreed that the idea that particular vehicles, structures, or persons can be targeted based on general parameters is highly problematic. IHL is context based and requires value judgments, predicated on protection of human life.

- Argentina said the LBI should prohibit fully AWS, which are incompatible with IHL, international human rights law, and international criminal law, as well as AWS that cannot provide clarity on specific autonomous functions, that cause superfluous damage or unnecessary suffering; can cause long-lasting damage to the natural environment; cannot be directed against military objectives; weapons without distinction; and unpredictable weapons. It should also prohibit manufacturing and use of anti-personnel AWS and regulate AWS designed to attack targets other than human beings, as well as any use of algorithms for choosing targets.

- Ireland said emerging technology in AWS that cannot comply with IHL are unacceptable and should not be developed, deployed, or used, while other systems that incorporate autonomy in critical functions must be regulated to ensure compliance with IHL.

- Austria similarly said AWS that operate without MHC, uncontrollable and unpredictable systems, and WS that can't be integrated into a responsible chain of command (given

control over use of force, accountability) should be prohibited. For systems not inherently unacceptable, further regulations (e.g., on time and space) would be at the fore of deliberations.

- Philippines said elements of a NFO should include provisions on characterisation and differentiation of AWS, control and accountability, transparency, and safeguards.

- Philippines said prohibitions should apply to all belligerents whether states or NSAs.

Pakistan said binding rules are necessary to ensure that humans always remain in control of weapons, particularly in critical functions. In the meantime, Pakistan called on states developing AWS to place a moratorium on production pending an LBI.

Other conceptions of a normative and operational framework (NOF)

While not specifying if such a restriction should be legally binding, France urged states to refrain from developing fully AWS, which cannot be ensured to respect IHL and would be contrary to the GPs and "military ethics". In addition, France said states should commit to national measures to support the development and use of partially AWS to guarantee full compliance with IHL.

To this end, France and Germany reiterated their proposal for states to commit to not developing or using fully AWS, and to commit to guarantee "proper use" throughout the entire lifecycle of partially AWS, through rigorous procedures for evaluation, certification, validation to ensure reliability; adequate training and operation preparation to ensure understanding of operators and command; protection measures to prevent abuse and misuse of WS and protect them against cyber attack; and establishing responsible control and command chains within which humans remain responsible for design, development, definition, validation of systems and of missions and decisions to deploy to launch attacks.

Netherlands said this proposal is a good basis for further discussion. Sweden supported the examination and clarification of a normative and regulatory framework to address emerging technology in relation to AWS.

The European Union (EU) highlighted its written submission, which sets six areas of work for an NOF: the application of IHL; human responsibility and accountability; consideration of the human element, including aspects of HMI; WRs; characterisation of systems under consideration; and the review of potential military applications of related technology.

While not indicating if this would specifically be for a NOF, Australia, Brazil, Bulgaria, Chile, Japan, Mexico, Netherlands, the United Kingdom (UK), and the United States (USA) supported pursuing in the GGE through four areas: IHL applicability; human accountability; human-machine interaction; weapons reviews. Mexico noted that each should have ethical principles as their fundamental bases and argued the four categories are not endogenous or closed but deeply intertwined.

Against prohibitions and restrictions

Russia does not support the negotiation of an LBI on AWS. It asserted that prohibition risks fragmentation of international law and arbitrary division of weapons into "good" and "bad". It also asserted that the key prerequisite for establishing new treaty restrictions on some types of weapons is clear evidence that the use of such weapons would be so destructive that under no circumstances could they comply with IHL principles, and asserted that there is currently a lack of convincing justification to impose any new restrictions and prohibitions on LAWS or for modernisation and adaptation for IHL for emerging technology.

Australia, India, Israel, and USA agreed there is no need for an LBI. USA said the fact that a WS or related emerging technology poses risks doesn't mean it should be prohibited and argued that IHL provides a robust and coherent framework for AWS. Australia and Israel agreed IHL is sufficient.

ROK said it is not fully convinced that LAWS with some characteristics should be prohibited and regulated.

Russia also said it opposed to the introduction of a moratorium on the development or use of AWS, or of technology used for their creation. It also argued that discussions to develop standards, principles, or rules of responsible use of AWS are premature.

Guiding principles (GPs)

Several states voiced support for the existing 11 guiding principles adopted by the GGE in 2018 and 2019. France said the GPs show what is an "acceptable framework" for further work. Canada agreed the GPs are the appropriate basis to ensure implementation of IHL to LAWS.

Bulgaria said the GPs are important for guiding the GGE's future work. Algeria supports basing continued GGE work on the GPs, which could be refined and deepened. Egypt agreed the GPs can be the common denominator to achieve consensus. Australia said the GPs constitute a reasonable framework to guide future work to develop an NOF.

Netherlands said the GGE should discuss how to operationalise the GPs. Russia called on states to implement the GPs in a "responsible manner". Japan urged states to implement the GPs and welcomed the voluntary national commentaries on the GPs. Portugal said to implement GPs in a coherent way, states need further substantiation of the principles especially in relation to those mentioning that IL is applicable to LAWS. India said endorsement of GPs at high political levels is necessary to provide support for their implementation.

China suggested that states draft implementation guidelines for the GPs to further stipulate industry laws, ethical requirements, and operational guidelines. China also supports the development of additional GPs, which can serve as basis for law and regulation building in the future. In particular, it suggested adding three new GPs related to: 1) how to strengthen assessments of new technology and communication with international organisations, civilian institutions, academic think tanks, and industry associations to explore appropriate regulatory measures to avoid misuse and abuse of relevant technology and prevent the development of new tools to commit crimes; 2) how countries should carry out responsible innovation and prevent use of new technology in the field of LAWS from harming civilians/undermining IHL; and 3) how to ensure international cooperation, such as through exchanges to promote peaceful uses of new technology and bridge technology divide between states and refrain from setting up obstacles to technology exchange under pretext of non-proliferation.

Mexico said the GPs are a useful point of departure, but states must move beyond them. South Africa noted the GPs were developed to guide work of GGE and are not exhaustive.

Weapon reviews (WRs)

Several states voiced support for WRs though most articulated that such reviews are not sufficient to address the risks posed by AWS.

Australia encouraged all states to conduct WRs. Republic of Koera (ROK) said WRs are useful for assessing potential WS, though states may also need to discuss and identify what additional criteria are required for development, production, and use of LAWS. Japan suggested that in conducting WRs, each state should ensure the weapon complies with IHL, doesn't cause unnecessary suffering and injury, and doesn't lead to indiscriminate attacks.

Netherlands said under WRs, states are obliged to determine if a weapon would be prohibited by international law in some or all circumstances. It suggested exchanging views more completely on how legal reviews can be carried out in the area of LAWS, as new technology has raised challenges in these reviews. France said states should carry out WRs aimed at ensuring conformity with IHL, for design, development, acquisition.

A number of states were critical of WRs. Chile agreed states must carry out WRs but argued they have insufficiencies and flaws and cannot meet the challenges of AWS. The deficiencies have to do with national interpretations of IHL and non-transparency of the results. AWS requires comprehensive knowledge of capacities, limitations, and effects. Brazil said WRs are important to ensure compliance with IHL but are insufficient to answer all the questions raised by AWS. Pakistan made similar remarks.

Ecuador said WRs must be supplemented because currently these processes are non-homogenous and non-transparent. Austria said WRs are helpful to establish whether a WS could be used in accordance with IL, but are subject to interpretation by states and lack legal clarity, common criteria, and transparency.

Sweden said the GGE should explore how WRs can be enhanced and universalised. New Zealand said it is interested in strengthening WRs.

Austria, Bulgaria, Canada, and USA supported exchange of best practices on WRs. Argentina said exchange of information for a compendium of good national practice would be welcome but not in replacement of negotiation of an LBI.

Russia said an exchange of best practices on WRs is fine but the GGE must not set standards for WRs because that is a national prerogative and subject to state security and commercial interests.

Russia also argued that WRs do not involve automatic prohibition of any type of weapon, because of the impossibility to predict all cases of improper use.

Turkey said that while it is not party to Additional Protocol I it fulfills its responsibilities of review before deployment of new weapons and restricts use of weapons with humanitarian consequences.

Other suggested options or initiatives

Participants suggested a range of other possible options for the CCW to pursue in relation to AWS.

Turkey said priority should be given to developing a code of conduct or confidence-building measures that are politically binding. Ecuador supported development of transparency and confidence-building measures (TCBMs). Pakistan argued a non-legally binding declaration and TCBMs can't replace a legally binding instrument. NAM and South Africa said that a code of conduct, TCBMs, a political declaration, and national measures such as WRs could be entertained if they are conducive to an LBI. New Zealand said its usual preference is a LBI rather than a PD or CoC, but it's open to all efforts to achieve effective control over AWS.

Portugal suggested the GGE consider experiences from other initiatives and fora, such as the Montreux Document. A document compiling obligations and practices about AWS would not itself be a binding instrument, but would identify obligations that already exist. Deliverables could include compilation of good practices, including relating to human-machine interaction at various stages of lifecycle.

ROK suggested an exchange of best practices can help to deepen common understandings of how challenges related to LAWS can be tackled. Canada, China, Bulgaria, Ecuador, Portugal, Switzerland, and USA supported exchanges of best practices. Russia said it doesn't object to voluntary exchange of best practices for ensuring HC.

Brazil called for discussions to focus on state and individual responsibility for the use of new technology. ROK urged more discussion about human-machine interaction (HMI) and human responsibility in the entire cycle of the development of AWS, to identify additional criteria to ensure compliance with IHL. Portugal proposed the GGE undertake an interpretative exercise on existing IHL already applicable to AWS, which might inspire good practices. Portugal also suggested creating a compilation of applicable IL and good practices.

Japan suggested further discussions on relevant existing legal norms and how to ensure appropriate development and operation of new WS in compliance with existing legal obligations, especially IHL. Russia proposed focusing on analysing existing international law in relation to AWS and on provisions not to hamper technological progress and research in area of peaceful use of robotics and AI.

Austria noted several delegations have adopted ethical guidelines for the use of AI in military applications and suggested they elaborate these guidelines so other states can learn more.

France and Germany called for adoption and implementation of risk mitigation measures as well as safety and security safeguards.

Red de Seguridad Humana para América Latina y el Caribe (SEHLAC) suggested looking at other

forums that have led to relevant proposals, such as the proposal of European Commission on rules and actions regarding AI, the African Commission resolution on human rights referring MHC, and recommendations on AI by UNESCO.

The EU suggested the GGE undertake further work before the CCW Review Conference (RevCon) to facilitate information sharing on ensuring IHL compliance when using WS with autonomous features; determine the type and degree of HMI, human control, involvement, or judgement, any relevant operational constraints; share national best practices on legal and ethical guidelines for HMI; and discuss possible benefits of AWS and compile good practices in managing and mitigating associated risks.

Brazil, Chile, and Mexico suggested organising a joint special session of the GGE and the UN Special Rapporteur on extrajudicial executions concerning AWS in relation to their respective mandates on IHL and IHRL.

Brazil, Chile, and Mexico supported establishing a GGE on WRs and emerging technology to identify best practices and specific challenges.

Brazil, Chile, and Mexico supported establishing an advisory board to keep states informed of developments in emerging technology.

France and Germany proposed establishing within the CCW a GGE to look at issues related to emerging and relevant technologies. The UK and Switzerland supported this proposal. ROK suggested involving the tech industry in future discussions, given its role in R&D and design of AWS and related technology. Algeria said technology developments require immediate action based on a preventive approach in the GGE under the CCW framework.

Switzerland suggested the GGE should affirm that IL and IHL apply to AWS and commit to study measures taken to maintain compliance with IHL. States should discuss and establish legal and practical measures to guarantee compliance with IHL and examine situations in which AWS should be used and what the implications would be for a framework.

China supports setting up working groups in the GGE on legal, military, and technological dimensions. USA said it does not see the utility in setting up new groups of technical experts as relevant experts can participate in the GGE.

Process and next steps

There was some discussion on what's next for the GGE mandate, though this will likely be discussed in depth at future meetings.

- NAM, Argentina, Brazil, Chile, Costa Rica, El Salvador, Mexico, Palestine, Pakistan, Panama, Philippines, Sierra Leone, and Uruguay supported the establishment of a GGE mandate for a process to negotiate an LBI.

- NAM, Pakistan, New Zealand, and South Africa said the GGE should recommend a strengthened mandate.

- Bulgaria and Sweden supported extending the mandate of the GGE to continue work.

- India, Russia, and USA do not support a strengthened mandate for the GGE.

Russia and Sweden said the CCW is optimal forum for consideration of AWS. Russia said it would be counter-productive to transfer the topic to any other international fora. CSKR said if the CCW cannot take necessary steps, states will have to find another way to make the progress that is morally and legally necessary.

Technological development in relation to prohibitions on AWS

India, France, UK, and USA said AWS and related technology should not be "demonised" or stigmatised.

Palestine countered that concern with AWS isn't about "demonising technology," noting that pledges taken by tech companies, scientists, and tech workers against AWS are not "demonising" technology but giving informed warnings that should be given weight. Austria likewise said this not about demonising technology but making sure that technology serves humanity and not the other

way around. We're not talking about technology, Austria noted, but uses of technology. We're not talking about AI, for example, but about its application in WS.

SEHLAC noted that ethical concerns about AI should not hamper development but should encourage ethical and legal responsibility. An LBI on AWS doesn't mean we're stigmatising technology but responding to concerns of delegating critical functions of WS to sensors and algorithms.

China argued that new technology relevant to AWS has both civilian and military purposes and said the "peaceful uses" of such technology needs to be respected. Argentina, Bulgaria, Egypt, India, Malta, Russia, South Africa, and Turkey also raised the issue of dual-use technologies in this context. India and Russia argued that views of technology may evolve over time and we should not hamper technological development through restrictions on WS.

Pakistan said we need to continue the progressive development of rules of international law in armed conflict and noted that prohibiting and restricting certain conventional weapons will facilitate disarmament.

GENDER, RACE, AND BIAS

Ray Acheson | Women's International League for Peace and Freedom

Based on research by scientists, tech workers, and activists, as well as real-world experiences with emerging technologies including artificial intelligence, machine-learning, algorithms, data sets, and surveillance, it's clear that the deployment of this technology in autonomous weapon systems (AWS) will lead to human suffering and discrimination, and undermine compliance with international human rights law (IHRL) and international humanitarian law (IHL). Several delegations raised some of these issues during the first week of the GGE, and further discussion on these topics is encouraged.

Costa Rica, El Salvador, Palestine, Panama, Peru, Philippines, Sierra Leone, and Uruguay noted that weapons are not neutral and that algorithms can amplify biases, including racial and gender bias, which has implications for IHL. Argentina said any use of algorithms for choosing targets must be regulated, since this can give rise to the perpetuation and heightening of social prejudices, especially racial and gender, and have implications for IHRL. Ireland highlighted algorithmic biases as relevant for consideration in relation to IHL principles.

Austria, Brazil, Chile, Ireland, Luxembourg, Mexico, and New Zealand said data bias can impact targeting and lead to malicious programming. Brazil said the risk of unacceptable discriminatory bias in data sets is too real to be considered a minor glitch to be corrected by trial and error.

New Zealand is concerned about the dehumanisating effect of AWS and introduction of biases perpetuating discrimination and persecution of minorities. Pakistan highlighted problems and complexities arising from biases. Canada said it is vital to consider potential biases in emerging technologies and explore good examples to help mitigate these risks.

The Holy See cautioned that the use of swarms of weapon systems in urban areas can lead to high risks for civilians, including from mistakes in identification of targets due to bias.

Palestine noted that learning from history, we can anticipate harms, including that these weapons will be tested and used in the global south. Red de Seguridad Humana para América Latina y el Caribe (SEHLAC) echoed this comment.

The Campaign to Stop Killer Robots (CSKR) highlighted serious problems with AWS relating to prejudice and bias based on race, gender, and age and argued that historically marginalised people would face higher risks of error.

SEHLAC said the issue of AWS is a social and humanitarian issue, requiring an intersectional and multidisciplinary approach and inclusive of a gender perspective.

Sweden called for integration of gender perspectives, promotion of equal participation by women and men, and examination of how to mitigate gender differentiated impacts resulting by use of AWS. Canada said it is vital to use a gender mainstreaming approach in LAWS discussions.

For more information on this subject, see the Women's International League for Peace Freedom (WILPF)'s papers providing feminist perspectives on autonomous weapon systems, including on gender, racial, and other biases and resulting dehumanisation, and on gender-based violence; and the Campaign to Stop Killer Robots' Campaigners Kit chapter on gender and bias and its webpages on race and gender.

DISCUSSION ON THE CHAIR'S DRAFT PAPER

Jillian Rafferty | Women's International League for Peace and Freedom

On Friday morning, the Chair of the Group of Governmental Experts (GGE) circulated a draft paper in an effort to stimulate discussion on textual proposals for potential recommendations to include in the GGE's report to the Convention on Certain Conventional Weapons (CCW) Review Conference, scheduled to take place in December 2021.

On Friday afternoon, participants participated in an engaging discussion on that draft. Every participant that took the floor in the afternoon, praised the Chair for his hard work to reconcile and accurately portray the GGE's discussions to date. Views diverge over both the form and substance of the draft, however, and the GGE will spend all of this upcoming week deliberating further on the content of the draft report.

General comments on the draft paper

Many participants, including France, Palestine, Switzerland, China, Uruguay, Austria, Ireland, South Africa, Costa Rica, Argentina, Mexico, Germany, Algeria, and the International Committee for the Red Cross (ICRC) praised the paper as a good (or great) starting point for discussions on what to include in the GGE's report following these formal sessions.

- France and Germany praised the Chair for capturing the substantive nature of the GGE's work, despite the complex and nuanced conversations and debates. Switzerland echoed this.

- Argentina, Costa Rica, El Salvador, Palestine, Panama, Peru, Philippines, Sierra Leone, and Uruguay praised the paper as a "good" basis for further discussion, but noted that it should be seen as a "minimum starting point" for high contracting parties as they work to negotiate the normative and operational framework.

- Uruguay, Mexico, and Austria suggested that the draft paper is an "excellent starting point" toward fulfilling the GGE's mandate.

- Ireland praised the Chair for distributing the draft paper, noting that the paper is exactly what the GGE needs: written elements that the group can discuss and reach consensus on by close textual work. Ireland and Japan each praised the draft paper for its efforts to encompass a weaving together of a wide variety of views from the GGE's discussions to date.

Numerous participants, including France, Russia, the United States (US), Israel, the United Kingdom (UK), Germany, Austria, China, and Palestine discussed the role of prior GGE documents in relation to this current paper.

- France, for example, noted that the GGE's 11 Guiding Principles (GPs) from 2019 serve as

a starting point for much of the GGE's current discussions and thus might merit explicit reference in the Chair's draft paper.

- Russia, US, Israel, and UK made similar points, noting that the consensus understandings developed over the course of the previous several years (as demonstrated in both the GPs and in previous GGE reports) should be more directly reflected and referenced in the text of the draft paper.

- Other participants, including Germany and Austria, noted that the draft paper already constitutes a clear reflection of past areas of consensus as achieved in the GPs and in previous GGE reports.

- China echoed Germany's and France's comments on this topic but noted the importance that the report both reflect past areas of consensus and take a forward-looking perspective. Palestine bolstered this argument, suggesting that past documents already reflect that past consensus and calling on states to use this document as an opportunity to forge and reflect new areas of consensus.

Comments on the form of the draft paper

Several participants commented on the form of the Chair's draft paper as a means to discuss their preferences for the ultimate form of the recommended normative and operational framework (NOF). South Africa and Costa Rica, for example, each noted that the paper might serve as a jumping-off point for the future negotiation of a legally binding instrument (LBI) on autonomous weapon systems (AWS).

Other participants criticized the format of the Chair's draft paper on its own terms.

- Russia and Israel commented that the format of the paper does not correspond to the usual format of GGE reports, and reads instead more like a decision, resolution, or treaty. India echoed these comments, suggesting that the draft paper reads like a draft treaty text. Russia argued that, in both form and substance, the draft paper went beyond the GGE's mandate.

- Russia suggested reformatting the paper, so that it is framed as recommendations to clarify and further develop the NOF for AWS, rather than as an already agreed upon framework or as obligations or commitments.

- UK likewise spoke to the importance of the paper's form, suggesting it be reframed as recommendations for areas of consensus (rather than commitments to take particular actions).

- Pakistan also suggested reframing the paper to ensure that it clearly delivers recommendations from the GGE to the CCW's Sixth Review Conference.

- US raised concerns regarding the forum of the draft paper and argued that, in previous years, draft papers have allowed form to follow function, rather than the reverse.

- France encouraged other participants to look past the form of the draft paper and focus instead on the substance, arguing that the form is easily changeable once the substance is agreed.

Comments on the substance of the draft paper

Participants made substantive comments on the text of the draft paper, though most noted that they would return following the weekend with further substantive comments.

Many participants commented on the paper's effort to weave together common threads on particular issues, including the definition and characterisation of AWS.

- Argentina, Costa Rica, El Salvador, Palestine, Panama, Peru, Philippines, Sierra Leone, and Uruguay notedthe paper's working definition of AWS demonstrates that the GGE enjoys sufficient basis to characterise AWS without debates over the characterisation serving as an impediment moving forward.

- Russia recognised the Chair's efforts to consolidate characterisations of AWS, but noted that such a consolidated characterisation is

premature, arguing that the GGE has only just begun approaching consensus ideas for such a definition. Israel echoed these comments.

- China critiqued the paper's suggested definition of AWS—not on the substance of the definition itself, but rather because, in China's view, the question of defining AWS remains unsettled within the GGE.

- US took notice of the paper's discussion of partially versus fully AWS, arguing that this is premature as the GGE has not yet had sufficient opportunity to discuss this distinction.

References to fields of law

- Russia noted its wariness for the paper to include references to international human rights law (IHRL) or international criminal law (ICL), which are currently mentioned in the paper's introduction, insisting that the paper instead focus only on IHL and on standards of international law as a whole. Israel likewise argued that IHRL should not be mentioned in the draft paper, as it is outside the scope of the GGE's mandate.

- Palestine, in contrast, argued that IHRL is insufficiently discussed in the draft paper.

References to risks, challenges, and/or bias

- Mexico argued that the draft paper does not sufficiently explore and detail the risks posed by AWS, given the inherent nature of AWS and the unpredictability of their effects.

- Russia argued that, because AWS do not yet exist, it is premature for the document to discuss the hypothetical risks or challenges those weapons systems might pose in the future.

- Russia also argued that, because AWS do not yet exist, it is premature to discuss "social factors" relating to gender or racial biases, or other social biases, as they relate to AWS.

- US echoed this point, arguing that algorithmic bias has yet to be discussed in sufficient depth to merit inclusion, other than as an area of future work.

- In contrast, Uruguay argued for the importance of the report's mentions of algorithmic bias in targeting.

- US also suggested that discussing the potential risks of AWS without discussing the potential humanitarian benefits of AWS would be imbalanced.

References to human control

- Russia critiqued the document's mentions of meaningful human control, noting Russia's long held position that this is an unhelpful term or category when considering AWS.

- US made a similar point, arguing that there is no consensus on the meaning or application of the term "human control." Israel echoed this comment.

- In contrast, Austria noted the central importance of meaningful human control to the GGE's discussions and efforts and suggested elaborating on this portion of the draft paper.

CCW REPORT

Reaching Critical Will (RCW) is the disarmament programme of the Women's International League for Peace and Freedom (WILPF), the oldest feminist peace organisation in the world. RCW works for disarmament and the prohibition of many different weapon systems; confronting militarism and military spending; and exposing gendered aspects of the impact of weapons and disarmament processes with a feminist lens. RCW also monitors and analyses international disarmament processes, providing primary resources, reporting, and civil society coordination at various UN-related forums.

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Editor: Ray Acheson

Contact: disarm@wilpf.org