



CCW REPORT

Civil society perspectives on the CCW Group of Governmental
Experts on lethal autonomous weapon systems
27–31 August 2018



Reaching Critical Will

28 August 2018
Vol. 6, No. 7

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The CCW Report is produced by the Reaching Critical Will programme of the Women's International League for Peace and Freedom (WILPF). WILPF is a steering group member of the Campaign to Stop Killer Robots.

The views expressed in this publication are not necessarily those of WILPF or the Campaign.

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A SIMPLE PREMISE: PROGRAMMES SHOULD NOT END LIVES

Ray Acheson | *Reaching Critical Will, Women's International League for Peace and Freedom*

The UN group of governmental experts on "lethal" autonomous weapon systems (AWS) resumed its work yesterday, opening with a panel discussion on potential military applications of related technologies. It's arguably a bit late in the game for more expert panels, which have been a feature of the past several years of work on this issue in the context of the Convention on Certain Conventional Weapons (CCW). The objective of this week's meeting is to recommend to the CCW high contracting parties what action to take on AWS next year. The majority of states participating in this process have indicated a preference of the negotiation of new international law, with at least 26 countries calling for a ban. That said, Monday's opening panel at least served to amplify the need for an urgent legal response to AWS, by illuminating once again the challenges and unacceptable risks posed by these potential weapons.

As a key point of discussion, for example, the conversation demonstrated the risks posed by the inherent unpredictability and uncertainty of AWS. Knut Dörmann, chief legal officer of the International Committee of the Red Cross (ICRC), argued that if machines can self-initiate an attack, this introduces uncertainty in terms of the location, timing, and nature of this attack. This implies significant risk that the machine will not be able to comply with international humanitarian law (IHL), e.g. in terms of distinction, proportionality, or precaution. A lieutenant colonel from West Point Military Academy tried to argue that the whole point of AWS is to help militaries adapt to uncertain environments. He suggested that such systems would make more accurate "decisions" than humans in less time. But as was clear from the ensuing discussion, this is not a widely held view.

Furthermore, as other panelists and government delegations raised, AWS pose significant challenges when it comes to

preventing system errors; dealing with unpredictability of machines and the environments in which they may operate; and ensuring the security of AWS against cyber attacks. National-level weapon review processes have been previously suggested as a possible solution to address these concerns, but critics have continued to demonstrate that such reviews are not sufficient. Reviews must work to ensure human control over weapon systems, said Dörmann, but do not constitute human control.

At the end of the day, most states, international organisations, and civil society groups participating in these discussions have already agreed that the priority in our work must be preserving human life and dignity. International humanitarian law and human rights law have been at the forefront of the efforts to initiate discussions on AWS, and for most delegations have provided the essential backbone of their perspectives and positions. In addition, ethics and morality arguably provide the most compelling arguments against the development and use of AWS. "Decisions that end lives should not be made by a program," tweeted Amr Gaber, an engineer and a volunteer with Tech Workers Coalition. "There is no design or ethics cleverness that will change this fact."

The need for meaningful human control over the use of force, over decisions about life and death, or over the "critical functions" of selecting and engaging targets, has emerged as a broad consensus amongst the overwhelming majority of GGE participants. As the Austrian delegation argued, this is what states involved in this process should focus on now, rather than the technicalities of autonomy or the technology. "Human control is not an alternative," said Ambassador Thomas Hajnoczi. "It is a must if we want to stay within established legal and ethical frameworks." It is a requirement for conforming to IHL, he argued, and there are legal and

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Editorial, continued

moral prohibitions on delegating the authority to kill to machines.

Other state delegations clearly agreed that the concept of meaningful human control is where efforts must be focused. During yesterday's discussion of characteristics of AWS, several states outlined their interest in ensuring the involvement of human judgment in attack decisions, the ability to cancel attacks, and accountability of operators. Such elements are essential to ensure that the use of force remains with humans rather than machines—an objective that this clearly reflected in the majority

of government positions elaborated through the past few years of CCW discussions, as well as in the UN Secretary-General's new disarmament agenda released earlier this year. This should provide the focus for moving forward with deliberations this week, and should inform a recommendation for the development of new international law next year. After five years of discussions about definitions, characteristics, and possible approaches, it's time for the CCW to start negotiating a treaty banning autonomous weapons. •



Convention on Conventional Weapons meeting on lethal autonomous weapons systems

SIDE EVENT BRIEFING**Ethical Concerns Over Fully Autonomous Weapons**

Conference Room XXIII
United Nations Geneva

Tuesday, 28 August 2018
13:00-14:30

Sandwiches & refreshments will be provided.

Introductory Remarks

- Nobel Peace Laureate Ms. Jody Williams, [Nobel Women's Initiative](#)

Speakers

- Ms. Bonnie Docherty, [Human Rights Watch](#)
- Mr. Amr Gaber, [Tech Workers Coalition](#)
- Dr. Peter Asaro, [International Committee for Robot Arms Control](#)
- Ms. Ariel Conn, [Future of Life Institute](#)

Moderator

- Ms. Maria-Pia Devoto, [APP/SEHLAC](#)

The [Campaign to Stop Killer Robots](#) works to preemptively ban weapons systems that would select targets and use force without meaningful human control. At this briefing, campaign members and guests will discuss ethical concerns raised by these weapons systems, the relevance of the Martens Clause in determining the appropriate regulatory response, and recent private sector expressions of support for retaining meaningful human control over weapons systems and the use of force.

For more information see www.stopkillerrobots.org or contact: Mary Wareham, Tel. +1-646-203-8292 (mobile), wareham@hrw.org



NEWS IN BRIEF

Katrin Geyer and Allison Pytlak | *Reaching Critical Will, Women's International League for Peace and Freedom*

Session 1: interactive expert panel discussion on the review of potential military applications of related technologies in the context of the Group's work

The Chair of the Group of Governmental Experts (GGE) on "lethal" autonomous weapon systems (LAWS), Ambassador Amandeep Singh Gill, offered an introduction to the first day of this meeting and announced that the General Debate will take place on Friday. A message was then delivered on behalf of High Representative for Disarmament Affairs Ms. Izumi Nakamitsu. The statement highlighted the UN Secretary General's Disarmament Agenda's warning that developments in science and technology could enable new weapon technologies with unclear or potential dangerous implications. Ms. Nakamitsu pointed out that there exist real doubts whether autonomous weapons systems (AWS) could be used in accordance with international humanitarian law (IHL). She cited challenges of lowering the threshold of war because of a perceived "causality-light warfare" and proliferation challenges among states and non-state actors.

The opening panel of experts consisted of Dr. Lydia Kostopoulos, senior researcher at the Digital Society Institute in Berlin; Tony Gillespie, visiting professor at the University College London (UCL); Lieutenant Colonel Christopher Korpela of Military Academy-West Point; Gautam Schoff of Tata Consultancy Services, India; and Knut Dörmann of the International Committee of the Red Cross (ICRC).

Ms. Kostopoulos discussed a set of characteristics relating to the functions and types of autonomy delegated to machines. She introduced a table indicating human involvement with system security considerations in each step of the life cycle of AWS. She outlined the various stages of AWS' development, selection, monitoring, and force application and said that human involvement is present in many processes with different degrees requiring great responsibilities in different components.

Mr. Gillespie talked about human-machine interaction and how much authority can be delegated to machines. He raised the issue of accountability and recommended the introduction of "success criteria" before using AWS. He highlighted the need for a clear distinction between the decisions and actions taken by humans and AWS, respectively, since without such distinction, there will be no accountability.

Mr. Dörmann spoke about the testing and validation of AWS under development. He reminded states that weapon reviews under Article 36 of the Additional Protocol to the Geneva Conventions should be supplemental to other assessments of autonomous weapons. He stated that when there is a possibility

of human presence, human intervention is required for any use of weapons. He expressed concern with AWS that can self-initiate attacks, which he argued would lead to unpredictability and possible violations of IHL. He maintained that states should share their standards of assessment when it comes to autonomous application in selection and targeting, as it would help other states to determine their assessment. Dörmann also pointed at four key challenges in weapons review for AWS and provided guidance on each: 1. All new and modified AWS are to be reviewed; 2. General rules of IHL apply; 3. Reviews should include external expertise; and 4. Reviews should apply criteria assessing the use of lethal and non-lethal force. He added that the Martens Clause and relevant ethical considerations have to be included.

Mr. Korpela advocated for the development and deployment of AWS, arguing that their use could reduce civilian casualties, improve accuracy, and lead to greater compliance with IHL. He asserted that commanders are always held accountable regardless of the weapon system.

Mr. Schoff cautioned against the indiscriminate and unpredictable use of force that could be heightened with the use of AWS if the system makes an error, leading to unpredictable applications of force. He therefore said that it is pivotal to have human judgement at the time of applying force along with multi-input requirements for the AWS that should be verified by human judgement.

After the experts' presentations, the floor was opened for questions and comments by states parties. The following is a non-comprehensive summary.

- Austria highlighted that legal norms and rules of engagement are addressed to human beings, and human control over AWS is therefore essential.
- Canada asked if a focus on human-machine pairing could help to move the discussion along, to which Mr. Schoff argued this is not an optimal solution and emphasised unintended consequences of states using AWS the "wrong way".
- Chile was pleased to see that discussions are now more nuanced. It asked if current weapon review processes meet the high standards required for the application of AWS, and what challenges arise when AWS are fed rules of engagement if there is a sudden change of circumstances? Mr. Gillespie said that autonomy should be considered as decision-aid that helps humans to have better quality judgement.
- Russia maintained that AWS can compensate for vagueness of the external environment, to which

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News in brief, continued

Mr. Gillespie replied that artificial intelligence (AI) can make terrible mistakes, as shown in the field of medicine, where mistakes can kill instead of cure. He further stated that simulation of the application of AWS can never be a validation. To Russia's question how human intervention is possible in space or in deep water, Mr. Schoff stated that at least decision-making auditing should be undertaken. Mr. Korpela highlighted here applications of AWS in extreme weather conditions and recovery types operations. Russia further asked how Ms. Kostopoulos' matrix could be applied in practical terms to which she offered a step-by-step application framework assessing aspects for human intervention with the example of underwater autonomous vessels.

- Russia further wondered if the legal liability should be with the individuals that programmed an AWS. Mr. Schoff said it doesn't make sense to delegate the liability to the programmer as he or she enters algorithms without knowing how an AWS would react in an unpredictable environment and reiterated that human intervention before the actual application of force is essential. Russia further asked by which standards weapon reviews should take place, and how this should be monitored, to which Mr. Dörmann replied that those states that have weapon reviews should share their experience and guides, as well as apply the applicable international legal framework. Monitoring is done by states themselves and sharing approaches can help other states parties to raise the necessary standards.
- Estonia asked how technological advances could be harnessed to achieve humanitarian compliance with the CCW.
- The European Union (EU) highlighted that given the dual use of AI, progress in the peaceful uses of AI application should not be hampered and reiterated that emerging technologies are applied according to "responsible innovation" and ethical principles like accountability, as well as to comply with IHL. The EU further suggested awareness raising and training activities to ensure that such developments remain in the normative framework.
- Spain wondered if AWS could distinguish between a conflict and non-conflict situation. It expressed its commitment to never developing AWS.
- Cuba raised that there are two paths to ensure respect and compliance with international law: to develop further legal standards and to strengthen compliance with IHL. Mr. Dörmann agreed

with Cuba on the two-path approach and said that weapon reviews are key to strengthening IHL. Cuba disagreed with Mr. Korpela's assessment that AWS are more ethical. Cuba thanked the Campaign to Stop Killer Robots for exposing information about states' development of AWS. It hoped that the CCW process will create transparency around existing research in AWS. It concluded that a prohibition on AWS would lead to greater security and stability for all states.

- Sweden maintained that the capacity to target individuals should not be left to machines. It suggested focusing on the targeting of weapon platforms instead of individuals, to focus the area of concern. Mr. Dörmann said that there was conceptually no difference.
- Japan put forward that if properly addressed, AWS could reduce collateral damage and avoid human error. In response to Japan, Mr. Gillespie voiced concern that AI, used in the civilian sector, could be directly transferred to weaponry and war without separate consideration.

Working session 2: Characterisation of systems under consideration*Process for policy response*

- Pakistan stated that autonomous weapons must be pre-emptively banned through a legally binding protocol and until that time, a moratorium should be placed on their development.
- Canada, US, and France, among others, believe that the CCW is the most relevant forum to address AWS.
- Chile noted that through the CCW's protocols states have seen the benefits of establishing specific standards via legally binding instruments.
- Brazil said that the role of the CCW is to ensure compliance with IHL and IHRL.
- China supports having a full discussion on characteristics and reaching consensus on that.
- Finland is in favour of extending the CCW's current mandate for discussion on the issue into 2019.
- Japan believes that self-learning machines should be "strictly and appropriately" regulated.
- Slovenia supported continued deliberations on the issue in an open-ended GGE in the context of the CCW. It suggested that a complete moratorium is not feasible but that states could commit to certain restrictions and indicated support for a political declaration.

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News in brief, continued

- Austria hoped for a substantial report by end of the week that will be the basis of a next step that will enable the international community address the challenges of autonomous weapons by negotiating a legally binding instrument to ensure meaningful human control over critical functions.
- The International Committee of the Red Cross (ICRC) suggested focusing the GGE's work in 2019 on the necessary level of human control.
- Switzerland urged a focus on concrete outcomes, suggesting that the GGE report should set out a principled commitment by states to retain certain degree of human decision-making in weapons systems and summarise potential options for taking action.

Approach to definitions, including human control

- Pakistan urged working on a simple common definition, not a legal one.
- Determining key attributes of autonomous weapon systems should be a policy-neutral, technical process and not a political issue or a way to complicate the debate and procrastinate.
- China said that a definition is a prerequisite to discussing related issues, and that it is difficult for all parties to agree on a precise definition.
- Canada urged that establishing a level of autonomy, which can trigger a definition, is critical.
- Brazil urged a focus on the "human element" or "human-centric" approach for discussions going forward and to avoid spending too much time on a full-fledged definition. Canada also called for a "human-centric" approach to AWS.
- Finland urged a focus on defining the main elements of autonomy especially in the critical phases of a weapons cycle, noting that there may be a need to elaborate on different levels and degrees of autonomy as there is no technological reference point to determine "full autonomy", as an example.
- Estonia suggested states should focus on agreeing to a desirable level of human involvement rather than a technical definition.
- Austria said that human control is fundamental to our deliberations and urged a focus on this over technical specificities.
- Bulgaria suggested focusing on outlining characteristics and criteria through which a weapon system will be designated as an AWS. It said it feels this is necessary to avoid misunderstandings and progress discussion, but should not pre-judge outcomes.
- United States said it is not necessary or desirable to define AWS now but it is useful to have common understanding of concepts involved.
- France suggested a focus on human-machine interaction.
- European Union stated that a working definition would bring clarity but is difficult to agree, so instead states should maintain efforts to find common ground on characteristics.
- United Kingdom endorsed a greater focus on human control and associated models of governance instead of technical definitions that may become quickly outdated.
- Switzerland suggested said identifying characteristics should not pre-judge regulatory responses but contribute to circumscribing the types of systems to address.

Views on key characteristics, including human control

- Most statements affirmed the importance of meaningful human control.
- Pakistan said the most important factors in characterising AWS are the level of autonomy and that weapons with a manual override and self-deactivation can still be considered as autonomous.
- Brazil is tabling a new working paper, in which it notes that autonomy is a function of human control in which more of one results in less of the other; a dynamic affirmed by Austria and Bulgaria.
- China outlined five key characteristics for AWS: lethality; full autonomy; inability to stop an attack or operation once in progress; inability to discriminate between locations, conditions, or subjects; and an ability to evolve and upgrade capacity.
- China noted the distinction between "automated" and "autonomous" as not being clearcut, a point supported by the US and Estonia.
- Holy See suggested approaching characteristics by identifying the systems that are unacceptable on the basis of an ethical or legal framework.
- Spain and France view semi-autonomous or automated weapons to be distinct from AWS.
- Switzerland felt words like "fully" should not be used, stating that the level of autonomy exists long a spectrum. It gave the example that if something autonomous has a "manual button" it shouldn't be excluded from the discussion.
- India outlined level of autonomy, decision-making ability, and self-learning and adaptive capabilities as characteristics to consider.

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News in brief, continued

- Estonia said there is no principled basis to distinguish fully AWS from others, a point supported by the US.
- Netherlands welcomed the growing consensus that meaningful human control is key.
- Bulgaria said that the level of autonomy is the most important element to consider when defining characteristics.
- France stated that autonomy should be understood as able to configure new rules without human validation and able to modify terms independently.
- The ICRC stated that autonomy in critical functions, of selection and attack, are the distinguishing characteristics of an autonomous weapon system. Systems that can initiate attacks should be included as they introduce unpredictability about location, timing, and the nature of an attack.
- The UK noted that autonomy is used to describe systems with agency and independent decision-making powers. It does not envisage a scenario in which such machines will be able to make ethical judgments.

Accountability, international humanitarian law (IHL), and human rights law (IHRL)

- Most statements referenced the importance of compliance with IHL and IHRL.
- Brazil affirmed the accountability of humans, rather than machines, to the law. Japan asked for clarity about where legal responsibility for AWS lies, and urged consideration of the applicability of specific international law.
- Chile noted that there is no clarity about the processes relating to accountability, and legal responsibility within the chain of command.
- Spain believes that IHL and IHRL must be upheld. It views the attribution of legal responsibility as being with the operator or person giving orders.
- Holy See outlined that the legal system is founded on recognition of the human person, which originates from the understanding of a person as a free and rational being, qualities that an autonomous system does not possess. This is an important point for potential victims, such as in situations of reparations.
- The EU stated that further efforts should focus on compliance with IHL.
- Finland stated that the designers and manufacturers of autonomous weapons bear some responsibility.

- Republic of Korea stated that the responsibility for deployment remains with states, including for compliance with IHL.
- The US stated that context is important with respect to the legality of the use of weapons. Human commanders should be fully trained on that systems performance and understand the doctrine for its proper use.

Lethality

- Bulgaria stated that lethality is not an inherent attribute to the systems under consideration by the CCW, which could inflict non-fatal injuries.
- The ICRC and Switzerland believe that lethality is not a relevant factor to consider as the obligations of IHL and IHRL are triggered by use of force, whether it leads to death or other consequences.

Artificial intelligence (AI)

- Canada said that policy development on AI and lethal autonomous weapons are interconnected and referenced discussions at the 2018 G7 Summit in which states agreed on a common vision for the future of AI that is based on a human-centric approach.
- Slovenia argued that AI can improve efficiency, make targeting more effective, and lead to fewer casualties. It can improve military processes but is not a substitute for human judgment.

Gender

- Canada urged integrating human rights and gender dimensions and was encouraged to have heard many states include references to gender, or to the role of female leaders and operators in the military or government, in their statements.

Military “benefits”

- Republic of Korea said it is difficult to set boundaries between military and civilian use. It does not support the use of AWS and said that the military application of autonomous technologies should be confined to the areas of humanitarian rescue and explosives removal.
- France outlined benefits of endurance and reduced human cost.
- The US said that autonomy is a tool that militaries use to better achieve effects desired by the commander. In some functions autonomy is not inherently problematic and should not be stigmatised, as these technologies have potential humanitarian and safety benefits.
- France believes that systems without any human control have no military use. •



STATES MUST ACT NOW TO AVOID ETHICAL DANGERS OF KILLER ROBOTS

Paras Shah and Bonnie Docherty | Harvard Law School International Human Rights Clinic

New technology often requires policymakers to confront challenging ethical questions. One area where states should draw a clear ethical line is by banning fully autonomous weapons. The Martens Clause, a provision of international law, provides strong legal and ethical arguments for states to negotiate a ban on the development, production, and use of these weapons.

The Martens Clause mandates that when existing treaties do not specifically address a situation, civilians and combatants remain protected by custom, the principles of humanity, and the dictates of public conscience. In April 2018, the International Committee for the Red Cross described the clause as “a safety net for humanity,” which rebuts the idea that anything not explicitly addressed in a treaty is permissible. The Martens Clause thus sets an ethical baseline for assessing emerging technologies, including fully autonomous weapons, that existing law does not explicitly regulate.

Fully autonomous weapons, which would select and engage targets without meaningful human control, create an array of ethical problems under the Martens Clause.

The principles of humanity encompass humane treatment and respect for the value of human life and dignity. Compliance with the principles of humanity requires compassion and human judgment as well as an appreciation of the ethical consequences of taking an individual human life.

As machines, fully autonomous weapons could not empathize with civilians or combatants, a reaction that reduces suffering and can save lives on the battlefield. According to one retired US Army Ranger who has extensively studied killing during war, “there is within man an intense resistance to killing their fellow man. A resistance so strong that, in many circumstances, soldiers on the battlefield will die before they can overcome it.”

Similarly, fully autonomous weapons would lack the legal and ethical judgment required to comply with international humanitarian law, which requires commanders on the battlefield to weigh competing factors—such as harm to civilians and military advantage—on a case-by-case basis. Given the infinite number of contingencies that may arise, fully autonomous weapons could not be preprogrammed to make such determinations.

The dictates of public conscience consist of moral guidelines based on an understanding of what is right and wrong. The views of governments, experts, and the general public provide evidence of the public conscience. Each of these groups has widely condemned the loss of human control over the use of force, indicating that fully autonomous weapons raise concerns under this element of the Martens Clause.

To date, 26 states have expressed support for a ban on fully autonomous weapons, and the vast majority

of CCW states have stressed the need for humans to retain meaningful control over weapons systems and the use of force. For instance, during the CCW meeting in April 2018, the African Group declared that its members found “it inhumane, abhorrent, repugnant, and against public conscience for humans to give up control to machines, allowing machines to decide who lives or dies, how many lives and whose life is acceptable as collateral damage when force is used.” The Holy See agreed, stating that the “unique human capacity for moral judgment and ethical decision-making is more than a complex collection of algorithms and such a capacity cannot be replaced by, or programmed in, a machine.”

Requiring meaningful human control over the use of force is effectively the same as a ban on weapons that lack such control.

A growing list of experts, led by the Campaign to Stop Killer Robots, has likewise urged states to pass a ban on the development, production, and use of autonomous weapons. For example, in July 2018, over 2,800 AI researchers along with 223 technology companies, societies and organizations from at least 36 countries signed a pledge to “neither participate in nor support the development, manufacture, trade, or use of lethal autonomous weapons.”

In addition, Google issued ethical principles committing not to develop AI for use in weapons. The principles state that Google is “not developing AI for use in weapons” and “will not design or deploy AI” for technology that causes “overall harm” or “contravenes widely accepted principles of international law and human rights.”

Finally, faith leaders from different religions around the world consider these types of weapons an affront to human dignity. In 2014, more than 160 faith leaders signed an “interreligious declaration calling on states to work towards a global ban on fully autonomous weapons.”

During their discussions this week, countries should elaborate on how fully autonomous weapons challenge basic ethical norms embodied in the principles of humanity and dictates of public conscience. In so doing, they will clarify that maintaining meaningful human control over the use of lethal force is both a legal and ethical imperative.

Given these concerns, states should move beyond just talk by taking the next concrete step—negotiating a binding legal instrument to ban the development, production, and use of fully autonomous weapons in 2019. Without such a ban, the specter of autonomous weapons may soon become reality. •



CCW REPORT

For more information on the Martens Clause, please see the new report by Human Rights Watch and Harvard Law School International Human Rights Clinic, *Heed the Call: A Moral and Legal Imperative to Ban Killer Robots*, and attend the Campaign to Stop Killer Robots' side event on Tuesday, August 28, 2018 in Room XXIII.

Cover artwork: Russell Christian/Human Rights Watch



HEED THE CALL

A Moral and Legal Imperative to Ban Killer Robots

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