# Nations debate autonomous weapons systems

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From 13 to 17 November 2017, the UN's Convention of Certain Conventional Weapons (CCW) Group of Governmental Experts (GGE) met at United Nations Offices at Geneva to discuss Lethal Autonomous Weapons Systems (LAWS) [aka 'killer robots']. After three years of informal meetings (CCW Meetings of Experts on LAWS, 2014 – 2016) this represented the transition to a formal process.

Eighty-six countries and a plethora of non-governmental organisations, including ICT4Peace, and other entities participated in the meetings. At least in public, the most visible and outspoken group was the Campaign to Stop Killer Robots, represented by a sizable delegation in Geneva. The Campaign, a coalition of civil society groups coordinated by Human Rights Watch, has been driving the process with its call for a pre-emptive ban on the development, production and use of LAWS.

A chilling and dystopian seven-minute video titled 'Slaughterbots,'[1] was released on the eve of the conference and also screened at a Campaign to Stop Killer Robots side-event in Geneva. It shows swarms of small drones using facial recognition technology and on-board explosives, selecting and firing on human targets without human guidance. The short was prepared by University of California, Berkeley professor Stuart Russell and funded by the Future of Life Institute. The Institute has notably called for a ban of autonomous weapons systems[2] and asked the UN to "protect us from all theses dangers" [3] in two open letters signed by AI researchers and tech leaders, such as Stephen Hawking and Elon Musk. The film, featured by media all across the globe (e.g. CNN[4] and the Swiss NZZ am Sonntag[5]), garnered a lot of attention and set the tone for the public debate.

Inside the carpeted halls of the UN, however, delegations were debating the basics of LAWS:

- One of the key contentions in last month's debate was the definition of what a (fully) autonomous weapons system actually is and, by extension, if such systems already exist or not. Some states have grown tired of the definitional issue, which has plagued the CCW process on LAWS from the outset, and see the insistence on a definition as a sort of filibuster from those that seek to put off meaningful debate. For this reason, broad

[1] https://youtu.be/9CO6M2HsoIA
[2] https://futureoflife.org/open-letter-autonomous-weapons/
[3] https://futureoflife.org/autonomous-weapons-open-letter-2017/
[4] http://money.cnn.com/2017/11/14/technology/autonomous-weapons-ban-ai/index.html
[5] https://nzzas.nzz.ch/hintergrund/wie-roboter-uns-toeten-werden-autonome-waffen-slaughterbots-ld.1335123?reduced=true (paywall)

working definitions[6] and identifying characteristics[7] of LAWS were debated as a baseline for discussion and many agreed to define autonomous systems at a later stage. The Netherlands proposed the following working definition: "a weapon that, without human intervention, selects and engages targets matching certain predefined criteria, following a human decision to deploy the weapon on the understanding that an attack, once launched, cannot be stopped by human intervention."[8]

- There is unanimous agreement that LAWS must respect international humanitarian law (IHL) and, in a broader sense international human rights law (IHRL). Opinions diverge, however, on the question if it is at all possible for autonomous systems to comply with IHL and respect its cornerstones, such as the distinction between civilians and combatants, and proportionality. Some see a potential for autonomy in weapons systems to improve the implementation of law of war principles in military operations. Others argue that autonomous weapons would be against *jus cogens*, the principles of international law that cannot be set aside.

- Article 36 of the Additional Protocol I to the Geneva Conventions imposes an obligation on states to monitor the development of weapons with reference to their duties under IHL. To enhance this essential national weapons review mechanism some governments suggested to share best practices and the development of an interpretative guide that helps navigate the difficulties in interpretation and application of IHL to these new technologies.

- The concept of meaningful human control, also referred to as effective human control or "appropriate levels of human judgement" (U.S. DoD Directive 3000.09[9]), is also important in the context of LAWS. There seems to be an understanding that a certain level of human involvement in autonomous weapons systems is desirable, not least to satisfy ethical concerns[10]. Nevertheless, it is unclear what degree and in which stages of the targeting cycle the human element must be retained. Furthermore, the notion of human control appears to contradict the principle of autonomy.

- Accountability – are humans liable for the harm caused by a weapon operating autonomously? – becomes a challenge should LAWS commit unlawful acts. While some fear a so-called accountability gap, other believe that the existing frameworks of state and individual criminal responsibility are sufficient. After all, it is still humans that develop, acquire and ultimately decide to deploy autonomous weapons systems and as a result can incur liability.

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[6] https://www.unog.ch/80256EDD006B8954/(httpAssets)/6B80F9385F6B505FC12581D4006633F8/$file/2017_GGEonLAWS_WP9_Switzerland.pdf

[7] https://www.unog.ch/80256EDD006B8954/(httpAssets)/A4466587B0DABE6CC12581D400660157/$file/2017_GGEonLAWS_WP7_USA.pdf

[8] http://undocs.org/ccw/gge.1/2017/WP.2

[9] http://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodd/300009p.pdf

[10] http://unesdoc.unesco.org/images/0025/002539/253952E.pdf

- Apart from ethical reasons that in some eyes put the development and deployment of LAWS into question, proliferation and the security of LAWS were concerns highlighted by many participants. Some expressed concern that the development of autonomous weapons could lead to a potential arms race. Precursor materials for LAWS will not be traceable, consequently rendering traditional arms control measures ineffective, a few warned. Moreover, the technologies could fall into the hands of nefarious non-state actors.

The debate focused on lethal autonomous weapon systems that exist in a physical realm. In doing so, the Group wholly left aside autonomous weapons systems that only exist in cyberspace. These weapons systems could potentially wreak as much havoc as those in the form of a robot and could at the same time also be easier to proliferate and be more susceptible to use by non-state actors.

Almost all participants expressed concern with legal, ethical, and technical challenges posed by LAWS and agreed that future systems must comply with IHL. Nonetheless, only 22 states[11] have so far come out in favour of a pre-emptive prohibition of development and deployment of these systems. A critical mass of states saw the time ripe to issue a political declaration, some even called for a legally binding instrument to prohibit or restrict LAWS. In the end, the believe, *inter alia* espoused by the United States and Russia, that it is too early to negotiate on such a declaration shattered theses ambitions in the consensus-based forum. The Group has run in circles and has yet to answer key questions that have been under consideration since 2014[12]. Still, there is a desire to move forward, maybe without resolving conceptual issues at first.

The GGE will convene again in 2018, this time for the duration of ten days.[13] You can find the report of the 2017 GGE on LAWS here.[14]

[11] http://www.stopkillerrobots.org/wp-content/uploads/2013/03/KRC_CountryViews_16Nov2017.pdf
[12] https://www.unog.ch/80256EDD006B8954/(httpAssets)/F0F0D06F0AE6F214C12581640046B51C/$file/Article_LAWS_Vilmer.pdf
[13] https://www.unog.ch/80256EDD006B8954/(httpAssets)/8A3BE602D1E4142CC12581E70054D0F4/$file/CCW_MHCP+2017_FinalReport_Advance+Version+(003)_ES.pdf
[14] https://www.unog.ch/80256EDD006B8954/(httpAssets)/B5B99A4D2F8BADF4C12581DF0048E7D0/$file/2017_CCW_GGE.1_2017_CRP.1_Advanced_+corrected.pdf

## Further reading

A number of interesting reports and studies on LAWS were discussed, distributed and presented at the meeting in Geneva:

1. *Artificial Intelligence and National Security.* Belfer Center for Science and International Affairs, Harvard Kennedy School (2017). Available at: https://www.belfercenter.org/sites/default/files/files/publication/AI%20NatSec%20-%20final.pdf
2. *Autonomous Weapon Systems: Implications of Increasing Autonomy in the Critical Functions of Weapons.* International Committee of the Red Cross, ICRC (2016). Available at: https://www.icrc.org/en/publication/4283-autonomous-weapons-systems
3. *Defending the Boundary: Constraints and Requirements on the Use of Autonomous Weapon Systems Under International Humanitarian and Human Rights Law.* Geneva Academy Briefing (2017). Available at: https://www.geneva-academy.ch/joomlatools-files/docman-files/Briefing9_interactif.pdf
4. *Keeping Control: European Positions on Lethal Autonomous Weapon Systems.* PAX (2017). Available at: https://www.paxforpeace.nl/media/files/pax-report-keeping-control.pdf
5. *Making the Case: The Dangers of Killer Robots and the Need for a Preemptive Ban.* Human Rights Watch (2016). Available at: https://www.hrw.org/report/2016/12/09/making-case/dangers-killer-robots-and-need-preemptive-ban
6. *Mapping the Development of Autonomy in Weapon Systems.* SIPRI (2017). Available at: https://www.sipri.org/publications/2017/other-publications/mapping-development-autonomy-weapon-systems
7. *Perspectives on Lethal Autonomous Weapon Systems.* United Nations Office for Disarmament Affairs, UNODA (2017), Available at: https://www.un.org/disarmament/publications/occasionalpapers/unoda-occasional-papers-no-30-november-2017/
8. *Report of COMEST on Robotics Ethics.* World Commission on the Ethics of Scientific Knowledge and Technology, COMEST (2017). Available at: http://unesdoc.unesco.org/images/0025/002539/253952E.pdf
9. *The Weaponization of Increasingly Autonomous Technologies: Autonomous Weapon Systems and Cyber Operations.* United Nations Institute for Disarmament Research, UNIDIR (2017). Available at: http://www.unidir.org/files/publications/pdfs/autonomous-weapon-systems-and-cyber-operations-en-690.pdf
10. *The Weaponization of Increasingly Autonomous Technologies: Concerns, Characteristics and Definitional Approaches.* United Nations Institute for Disarmament Research, UNIDIR (2017). Available at: http://www.unidir.org/files/publications/pdfs/the-weaponization-of-increasingly-autonomous-technologies-concerns-characteristics-and-definitional-approaches-en-689.pdf
11. *War-Algorithm Accountability.* Harvard Law School Program on International Law and Armed Conflict, HLS PILAC (2016). Available at: https://pilac.law.harvard.edu/waa
12. *Where to Draw the Line: Increasing Autonomy in Weapon Systems – Technology and Trends.* PAX (2017). Available at: https://www.paxforpeace.nl/media/files/pax-report-where-to-draw-the-line.pdf

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