



CAMPAIGN TO **STOP** KILLER ROBOTS



Report on Activities

Convention on Conventional Weapons Group of Governmental Experts meeting
on lethal autonomous weapons systems

United Nations Geneva

25-29 March 2019

About this report

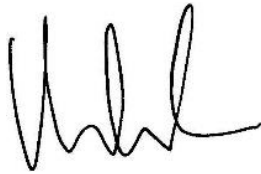
This report details activities by the Campaign to Stop Killer Robots at the Convention on Conventional Weapons (CCW) meeting of the Group of Governmental Experts on lethal autonomous weapons systems held at the United Nations (UN) in Geneva on 25-29 March 2019.

The report records the campaign's contributions, reviews the participation of governments in these meetings, and its annexes provide a summary of country views, the campaign's delegation list and a round-up of media coverage.

Campaign coordinator Mary Wareham of Human Rights Watch prepared this report, drawing from statements posted online by the CCW implementation support unit and WILPF's Reaching Critical Will Project. The report also draws on notes of the deliberations taken by Bonnie Docherty of Human Rights Watch and her Harvard Law School International Human Rights Clinic students Matthew Griechen and Daniel Moubayed.

The Campaign to Stop Killer Robots is grateful for the generous donor support that enabled us to have a strong presence at the CCW meetings and to conduct outreach in the lead-up and afterwards.

This report is available on the Campaign to Stop Killer Robots website at:
www.stopkillerrobots.org/publications.

A handwritten signature in black ink, appearing to read 'Mary Wareham', with a stylized, cursive script.

Mary Wareham
Washington DC
9 January 2020

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I. Lead-up to the CCW Meeting

At the CCW's annual meeting in November 2018, states agreed to continue the work of the Group of Governmental Experts (GGE) on lethal autonomous weapons systems (LAWS) established in 2016 and approved Mr. Ljupco Jivan Gjorgjinski of North Macedonia as GGE chair. Two GGE meetings were scheduled in 2019, on 25-29 March and 20-21 August, in addition to several days of "informal consultations." As it is in the CCW, the GGE is open to all interested states plus UN agencies, the ICRC, and registered NGOs.

There were several events and initiatives on killer robots in the period leading up to the March 2019 GGE meeting:

- The Campaign to Stop Killer Robots held a global meeting of its members in Berlin, Germany on 22-23 March and [public](#) and media events on 21 March. This followed its participation in a 15 March conference on the future of arms control convened by Germany's Foreign Minister, Heiko Maas, also in Berlin.
- A regional meeting of the Campaign to Stop Killer Robots in Tokyo, Japan on 19 February resulted in the adoption of a [Communique](#), which emphasized, among other goals, expanding the Campaign's membership throughout the Asia-Pacific region.
- On 22 January 2019, market research company Ipsos released a [second poll](#) on killer robots. Conducted in 26 countries, the poll showed that more than three in five people who responded oppose the development and use of fully autonomous weapons.¹
- At the Paris Peace Forum on 5 November 2018, United Nations Secretary-General António Guterres [called for a ban](#) on killer robots, stating, "For me there is a message that is very clear – machines that have the power and the discretion to take human lives and politically unacceptable, are morally repugnant, and should be banned by international law."

II. CCW meeting on killer robots, March 2019

This was the seventh CCW meeting on lethal autonomous weapons systems since 2014.² It was the fourth meeting of the CCW's Group of Governmental Experts, established in 2016. A total of [87 countries](#) participated in the March 2019 GGE meeting on lethal autonomous weapons systems in addition to UN agencies such as the UN Office for Disarmament Affairs, the International Committee of the Red Cross (ICRC), Campaign to Stop Killer Robots, and various academics.³ Unlike GGE meetings in other fora, the CCW GGE meetings are open to all interested states plus UN agencies, the ICRC, and registered NGOs.

¹ The 26 countries in which the poll was conducted were Argentina, Australia, Belgium, Brazil, Canada, China, Colombia, France, Germany, Hungary, India, Italy, Israel, Japan, Mexico, Netherlands, Peru, Poland, Russia, Spain, South Africa, South Korea, Sweden, Turkey, United States, and the United Kingdom.

² Previously, 90 states participated in the last CCW meeting on lethal autonomous weapons systems in August 2018, 84 attended in April 2018, 86 in November 2017, 94 in April 2016, 90 in April 2015, and 87 in May 2014.

³ According to the [list of participants](#) issued by the UN on 26 March 2019, the 87 states attending the March meeting were comprised of 84 high contracting parties (Albania, Algeria, Argentina, Australia, Austria, Bangladesh, Belarus, Belgium, Benin, Brazil, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cuba, Cyprus, Czech Republic, Denmark, Djibouti, Dominican Republic, Ecuador, El Salvador, Estonia, Finland, France, Germany,

GGE chair Ljupco Jivan Gjorgjinski invited states to prepare substantively for the GGE meetings by submitting questions under each agenda item and submitting working papers in advance. The [agenda](#) for the March 2019 GGE meeting built from the report of the 2018 meetings and covered five topics: a) Exploration of the potential challenges posed to international humanitarian law; b) Further consideration of the human element in the use of lethal force; c) Review of potential military applications; d) common understanding on concepts and characteristics; and possible options for addressing the humanitarian and international security challenges posed by lethal autonomous weapons systems.

Six working papers were submitted to the meeting, from the [United States](#) on international humanitarian law, [Russia](#) on opportunities and limitations of fully autonomous weapons, and [Australia](#) on its system of control for autonomous weapons. [Japan](#) suggested further work on legal reviews of weapons and [Argentina](#) suggested a compendium of best practices as a complementary mechanism to a legally binding instrument. A joint paper by [Belgium, Ireland, and Luxembourg](#) outlined possible steps that fall short of a legally-binding instrument, such as a standardized weapons review process and political declaration.

The Chair opted to forego a general exchange of views in favor of utilizing all time for substantive discussion and for the first time, no external experts were invited to address the meeting, making it truly a “group of governmental experts.” The series of three-hour sessions covered potential military applications of related technologies, characterization of the weapons, potential challenges related to international law, the human element and human-machine interaction, and potential security challenges.

During the meeting, states broadly agreed that states must maintain meaningful human control over the use of force. Most of the 28 states that had previously expressed support for a ban repeated that position during the meeting, including Algeria, Austria, Brazil, Chile, Costa Rica, Cuba, Ecuador, Iraq, Mexico, Pakistan, Panama, and Peru.⁴

However, Russia, Australia, Israel, the United States, and the United Kingdom of Great Britain and Northern Ireland explicitly rejected any move to negotiate new international law on fully autonomous weapons. Some states expressed particular interest in a political declaration as the primary outcome, including Belgium, Bulgaria, Estonia, Finland, France, Germany, Ireland,

Greece, Guatemala, Honduras, India, Iraq, Ireland, Israel, Italy, Japan, Jordan, Kazakhstan, Kuwait, Lao PDR, Latvia, Lebanon, Lithuania, Luxembourg, Mexico, Mongolia, Montenegro, Morocco, Netherlands, New Zealand, Nicaragua, North Macedonia, Norway, Pakistan, Panama, Peru, Philippines, Poland, Portugal, Qatar, Republic of Korea, Romania, Russia, Saudi Arabia, Senegal, Serbia, Sierra Leone, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, State of Palestine, Sweden, Switzerland, Turkey, Uganda, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United States, Uruguay, and Venezuela), signatory state Egypt, and two non-signatories (Mozambique and Myanmar).

⁴ A total of 26 states support the call to ban fully autonomous weapons: Algeria, Argentina, Austria, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Cuba, Djibouti, Ecuador, Egypt, Ghana, Guatemala, Holy See, Iraq, Mexico, Nicaragua, Pakistan, Panama, Peru, State of Palestine, Uganda, Venezuela, and Zimbabwe.

Italy, Luxembourg, New Zealand, Poland, Spain, Sweden, Switzerland, and the United Kingdom.

States participating in the March 2019 GGE meeting did not take any formal decisions and no draft report of the meeting was considered as the chair would provide a single report for 2019 covering both the March and August meetings.

III. Campaign Activities

The Campaign to Stop Killer Robots delegation to the March 2019 CCW meeting consisted of more than four dozen representatives from Australia, Belgium, Cameroon, Canada, Colombia, Egypt, Finland, Ireland, Japan, Kazakhstan, Netherlands, Norway, Pakistan, Spain, United Kingdom, and the United States (see Annex II).

During the March 2019 CCW meetings, campaign representatives met with delegates from dozens of countries. The campaign convened [a side event briefing on 26 March](#) entitled “Public Views on Fully Autonomous Weapons.” Moderated by Campaign Coordinator Mary Wareham, the side event featured remarks and presentations by Alena Popova of Ethics and Technology in Russia, Dr. Thompson Chengeta of the International Committee for Robot Arms Control, and technology worker Liz O’Sullivan.

The publication of [the Ipsos poll](#) attracted [media interest](#) in the leadup to the meeting. The Campaign to Stop Killer Robots published a [web post](#) at the end of the week.

For more information, please see:

- CCW [2019 GGE website](#)
- WILPF Reaching Critical Will [2019 CCW webpage](#)
- Campaign to Stop Killer Robots [website](#) and [Flickr site](#) (photos)
- Campaign to Stop Killer Robots [YouTube page](#)

Annex I

Country Views on Killer Robots

31 March 2019

The Campaign to Stop Killer Robots monitors the positions of countries on the call to ban fully autonomous weapons.

Who wants to ban killer robots?

Twenty-eight countries are calling for a prohibition on fully autonomous weapons:

Alphabetical order

1. Algeria
2. Argentina
3. Austria
4. Bolivia
5. Brazil
6. Chile
7. China*
8. Colombia
9. Costa Rica
10. Cuba
11. Djibouti
12. Ecuador
13. Egypt
14. El Salvador
15. Ghana
16. Guatemala
17. Holy See
18. Iraq
19. Mexico
20. Morocco
21. Nicaragua
22. Pakistan
23. Panama
24. Peru
25. State of Palestine
26. Uganda
27. Venezuela
28. Zimbabwe

Chronological order

1. Pakistan on [30 May 2013](#)
2. Ecuador on [13 May 2014](#)
3. Egypt on [13 May 2014](#)
4. Holy See on [13 May 2014](#)
5. Cuba on [16 May 2014](#)
6. Ghana on [16 April 2015](#)
7. Bolivia on 17 April 2015

8. State of Palestine on 13 November 2015
9. Zimbabwe on [12 November 2015](#)
10. Algeria on [11 April 2016](#)
11. Costa Rica on [11 April 2016](#)
12. Mexico on [13 April 2016](#)
13. Chile on [14 April 2016](#)
14. Nicaragua on 14 April 2016
15. Panama on 12 December 2016
16. Peru on 12 December 2016
17. Argentina on 12 December 2016
18. Venezuela on 13 December 2016
19. Guatemala on 13 December 2016
20. Brazil on 13 November 2017
21. Iraq on 13 November 2017
22. Uganda on 17 November 2017
23. Austria on 9 April 2018
24. China* on 13 April 2018
25. Djibouti on 13 April 2018
26. Colombia on 13 April 2018
27. El Salvador on 22 November 2018
28. Morocco on [22 November 2018](#)

* China [states that its call](#) is to ban the use of fully autonomous weapons, but not their development or production.

On 9 April 2018, [a group of African states](#) recommended concluding a legally binding instrument “at the earliest” and found that “fully autonomous weapons systems or LAWS that are not under human control should be banned.”

A March 2018 [working paper by the Non-Aligned Movement](#) calls for a “legally binding international instrument stipulating prohibitions and regulations on lethal autonomous weapons systems.” The campaign invites national statements affirming support for these objectives.

Annex II: Campaign Delegation List

Campaign Delegation

Convention on Conventional Weapons
Group of Governmental Experts on lethal autonomous weapons systems
United Nations, Geneva, 25-29 March 2019

Campaign to Stop Killer Robots, @bankillerrobots

Head of Delegation: Ms. Mary Wareham, @marywareham
Ms. Clare Conboy-Stephenson, @ClareConboy
Ms. Isabelle Jones, @issjones
Ms. Marta Kosmyna, @martakosmyna
Ms. Alena Popova, @alyonapopova
Ms. Folade Chamerernebti Nehanda Mutota, @folademutota
Ms. Liz O’Sullivan, @lizjosullivan

Amnesty International, @amnesty

Ms. Rasha Abdul Rahim, @rasha_abdul

Article 36, @article36

Mr. Richard Moyes, @rjmoyes
Ms. Maya Brehm, @schoggitaler

Association for Aid and Relief Japan, @aarjapan

Mr. Yuki Sakurai

Center for International Security and Policy (Kazakhstan), @cisp_astana

Mr. Alimzhan Akhmetov

Facing Finance, @FacingFinance

Mr. Thomas Küchenmeister
Ms. Vanessa Müller

Human Rights Watch, @hrw

Mr. Steve Goose
Ms. Bonnie Docherty
Mr. Matthew Griechen
Mr. Daniel Moubayed

International Committee for Robot Arms Control, @icracnet

Prof. Noel Sharkey, @NoelSharkey

Dr. Peter Asaro, @peterasaro
Dr. Thompson Chengeta, @DrThompsonLaw
Prof. Joaquín Rodríguez Álvarez, @JRodriguezAlv
Prof. Roser Martínez Quirante

Dr. Frank Sauer, @drfranksauer
Dr Juergen Altmann
Dr. Amanda Sharkey

Mines Action Canada, @MinesActionCan

Mr. Paul Hannon, @PCHannon
Ms. Erin Hunt, @erinlynnhunt

Nobel Women's Initiative, @NobelWomen

Ms. Jody Williams, @JodyWilliams97

Norwegian Peace Association, @Fredslaget

Ms. Lene Grimstad, @LeneGrimstad

PAX, @PAXforpeace

Mr. Daan Kayser, @DaanKayser
Ms. Susanne Maria "Maaike" Beenes, @maaikebns

Pax Christi Ireland

Mr. Tony D'Costa

Pax Christi International, @PaxChristi

Mr. Jonathan Frerichs

Pax Christi Vlaanderen, @paxchristiVL

Mr. Willem Staes, @willemstaes

Peace Union Finland, @Rauhanliitto

Ms. Tuuli Vouri, @tuulivuori

Protection

Mr. Ayman Sorour, @aymansorour

Project Ploughshares, @ploughshares_ca

Ms. Branka Marijan, @brankamarijan

Pugwash Conferences on Science and World Affairs, @PugwashConfs

Dr. Linda Johanna Friman

SafeGround, @SafeGroundInc

Ms. Matilda Byrne

SEHLAC, @SehlaOrg

Mr. Camilo Serna
Ms. Maria Pia Devoto, @piadevoto

Soka Gakkai International, @SGI_OUNA

Ms. Hayley Ramsay-Jones, @HayleyRJones
Ms. Anna Ikeda, @anna_ikeda

Sustainable Peace and Development Organisation (SPADO), @SPADOorg
Mr. Muhammad Raza Shah

Women's International League for Peace and Freedom, @WILPF @RCW_
Ms. Ray Acheson, @achesonray
Ms. Allison Pytlak, @a_pytlak
Ms. Katrin Geyer, @kat_geyer
Mr. Guy Blaise Feugap, @wilpfcameroon
Ms. Taniel Yusef

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Annex III: CCW Media Coverage

The Campaign to Stop Killer Robots activities at the CCW in Geneva in the second half of March 2019 received significant coverage in the English-language media, German media, and were also been covered by different media agencies in French, Arabic, Spanish, and Russian.

The diplomatic talks on killer robots at the UN in Geneva attracted coverage in *The Guardian*, *Digital Journal*, *Voice of America*, *Swiss Info* and other outlets. English-language media also covered the positions of Belgium, Holy See, Japan and the UK on prohibiting killer robots. French media attracted coverage in *Swiss info*, *Le Monde*, *Le Temps*, *Arc Info*, *Le Nouvelliste*, and *Tribune de Genève*. Arabic media coverage included *Khabars7*, *Yemeni news*, and the *Media Network Agency*, Russian media included coverage such as *Rossaprimavera*, *the Babel*, and *IProf*, and Spanish media entailed articles by *DW*, *Cooperativa*, and *Cripto Tendencia*.

An open letter from scientists, health care professionals and academics urging a ban of lethal autonomous weapons received coverage, while some media outlets noted that 2019 Turing Award recipients Geoffrey Hinton, Yoshua Bengio, Yann LeCun have all endorsed the call to ban killer robots.

CCW Coverage:

“Autonomous weapons that kill must be banned, insists UN chief,” *UN News*, 25 March 2019.

<https://news.un.org/en/story/2019/03/1035381>

UN Secretary-General António Guterres urged artificial intelligence (AI) experts meeting in Geneva on Monday to push ahead with their work to restrict the development of lethal autonomous weapons systems, or LAWS, as they are also known.

In a message to the Group of Governmental Experts, the UN chief said that “machines with the power and discretion to take lives without human involvement are politically unacceptable, morally repugnant and should be prohibited by international law”.

No country or armed force is in favour of such “fully autonomous” weapon systems that can take human life, Mr Guterres insisted, before welcoming the panel’s statement last year that “human responsibility for decisions on the use of weapons systems must be retained, since accountability cannot be transferred to machines”.

Although this 2018 announcement was an “important line in the sand” by the Group of Governmental Experts - which meets under the auspices of the Convention on Certain Conventional Weapons (CCW) – the UN chief noted in his statement that while some Member States believe new legislation is required, while others would prefer less stringent political measures and guidelines that could be agreed on. Nonetheless, it is time for the panel “to deliver” on LAWS, the UN chief said, adding that “it is your task now to narrow these differences and find the most effective way forward...The world is watching, the clock is ticking and others are less sanguine. I hope you prove them wrong.”

The LAWS meeting is one of two planned for this year, which follow earlier Governmental Expert meetings in 2017 and 2018 at the UN in Geneva.

The Group’s agenda covers technical issues related to the use of lethal autonomous weapons systems, including the challenges the technology poses to international humanitarian law, as well as human interaction in the development, deployment and use of emerging tech in LAWS.

In addition to the Governmental Experts, participation is expected from a wide array of international organizations, civil society, academia, and industry.

The CCW’s full name is the 1980 Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, entered into force on 2 December 1983.

The Convention currently has 125 States Parties. Its purpose is to prohibit or restrict the use of specific types of weapons that are considered to cause unnecessary or unjustifiable suffering to combatants or to affect civilians indiscriminately.

In previous comments on AI, the Secretary-General likened the technology to “a new frontier” with “advances moving at warp speed”.

“Artificial Intelligence has the potential to accelerate progress towards a dignified life, in peace and prosperity, for all people,” he said at the AI for Good Global Summit in 2017, adding that there are also serious challenges and ethical issues which must be taken into account – including cybersecurity, human rights and privacy.

“UK, US and Russia among those opposing killer robot ban,” *The Guardian*, 29 March 2019.

<https://www.theguardian.com/science/2019/mar/29/uk-us-russia-opposing-killer-robot-ban-un-ai>

The UK government is among a group of countries that are attempting to thwart plans to formulate and impose a pre-emptive ban on killer robots.

Delegates have been meeting at the UN in Geneva all week to discuss potential restrictions under international law to so-called lethal autonomous weapons systems, which use artificial intelligence to help decide when and who to kill.

Most states taking part – and particularly those from the global south – support either a total ban or strict legal regulation governing their development and deployment, a position backed by the UN secretary general, António Guterres, who has described machines empowered to kill as “morally repugnant”. But the UK is among a group of states – including Australia, Israel, Russia and the US – speaking forcefully against legal regulation. As discussions operate on a consensus basis, their objections are preventing any progress on regulation.

The talks come as the UK military is ploughing tens of millions of pounds into autonomous weapons, most recently announcing on Thursday a £2.5m project for “drone swarms” controlled with the help of next-generation autonomy, machine learning, and AI.

The talks in Geneva are taking place under the convention on certain conventional weapons. First enacted in 1983, the convention is intended to restrict the use of weapons “that are considered to cause unnecessary or unjustifiable suffering to combatants or to affect civilians indiscriminately”. It already covers landmines, booby traps, incendiary weapons, blinding laser weapons and clearance of explosive remnants of war.

“We urgently need a ban on killer robots,” said Ben Donaldson, head of campaigns at the United Nations Association – UK. “The majority of states get it. A rapidly growing proportion of the tech community get it. Civil society gets it. But a handful of countries including the UK are blocking progress at the UN. The UK needs to listen to this growing coalition and join calls for a preemptive ban.”

Responding to the criticism, a Ministry of Defence spokesperson said: “The United Kingdom does not possess fully autonomous weapon systems and has no intention of developing them. We believe a preemptive ban is premature as there is still no international agreement on the characteristics of lethal autonomous weapons systems.”

The issue of human control is at the heart of discussions about killer robots, according to the British military, and its negotiators have sought to focus debates at the UN on building consensus on what that means. Britain’s negotiating team says that no UK offensive weapons systems will be capable of attacking targets without human control and input.

They are arguing against a preemptive ban on the basis that it could jeopardise their ability to exploit any potential military advantages they could gain by imbuing weapons with AI.

“What’s being said is that current humanitarian law is enough,” said Taniel Yusef, international adviser for the Women’s International League for Peace and Freedom, who is in Geneva lobbying for a ban. “But robots can’t make ethical and legal decisions.”

Those backing legal controls say the UK’s position masks potential for the development and deployment of weapons with significant levels of autonomy. Military commanders already possess weapons that, once

launched, can identify their own targets within a limited area, they point out, and the potential with AI is expanding such uses over a wider area for longer.

“It then becomes more difficult to assert that it’s the commander that has really made the decision or whether the attack was made without much human involvement at all,” said Richard Moyes, managing director of Article 36, a UK-based non-profit organisation that campaigns for more control over new weapons technologies.

“The UK should be under some pressure on this issue. There are officials in the UK who are quite thoughtful on this stuff and I feel that the posture the government takes in the talks is quite unhelpful. They are being a brake on movement towards agreement rather than positively pushing forward.”

“Killer robots: ‘do something’ or ‘do nothing’?” *Swiss Info*, 29 March 2019.

<https://www.swissinfo.ch/eng/killer-robots---do-something--or--do-nothing--/44859654>

Countries are split over whether to agree strict rules on killer robots – lethal autonomous weapons (LAWs) – and campaigners have serious doubts that the United Nations in Geneva is the best place to deal with the issue.

Human Rights Watch's Mary Wareham is fuming after week-long talks at the UN in Geneva on what to do about killer robots.

“We’re pretty appalled,” says the coordinator of the Campaign to Stop Killer Robots. “Where is the diplomacy, responsibility and leadership from the big states?” she told swissinfo.ch on Friday.

The result, she says, is extremely frustrating.

“The UN Convention on Certain Conventional Weapons (CCW)external link was a way of placating NGOs into thinking that governments were taking meaningful action on LAWs. Now all they’re talking about is possible non-binding principles that I can foresee government delegates will negotiate for another year or two.”

Since 2014, diplomats, disarmament experts and campaigners have met six times in Geneva within the multilateral CCW framework to discuss the multiple ethical, legal, operational, security and technical challenges of killer robots.

Fully autonomous weapons do not yet exist, but campaigners say they could be deployed in battle in just a few years given rapid advances and spending on artificial intelligence and other technologies.

Over 380 partly autonomous weapon and military robotics systems – such as AI-powered tanks, planes and ships – have reportedly been deployed or are under development in 12 states, including China, France, Israel, Britain, Russia and the United States.

On the arms control front, several countries, like Japan this week, have committed to not acquiring or developing LAWs. And a majority of states have expressed support for some kind of new international law containing prohibitions and regulations of LAWs.

Twenty-eight countries – and the Campaign to Stop Killer Robots – want a pre-emptive global ban treaty on the development, possession and use of such future weapons. Others advocate strict regulation to affirm the principle of “meaningful human control” over critical functions.

Critics say LAWs raise huge ethical questions on delegating lethal decisions to machines and on accountability. They fear that the increasingly autonomous drones, missile defence systems and tanks could turn rogue in a cyber-attack or malfunction.

But there is strong opposition to a treaty from a handful of countries, including the US, Russia, Israel and South Korea. Supporters argue that LAWs will make war more humane. They will be more accurate in choosing and eliminating targets, not give way to human emotions such as fear or vengeance, and will limit civilian deaths, say those in favour.

“There’s a real divide here between the ‘do-something’ states and the ‘do-nothings’,” says Wareham. “I don’t think the public will be satisfied if the end result here at the CCW is to form a committee or to draft a weak declaration with no legal impact.”

A recent Ipsos public survey published in January found that 61% of respondents in 26 countries opposed the use of LAWs.

For campaigners, the endless talk and obstruction in the CCW by a small group of “militarily significant states” has gone on long enough. The coalition of 100 NGOs from 54 countries plans to take their fight to the UN General Assembly in New York in September, with support from UN Secretary-General Antonio Guterres.

The campaigners intend to push for countries to agree by November to a mandate for negotiations on a global ban treaty, rather than a non-binding declaration. If this fails, other paths could be explored, they say, such as an independent process outside the UN similar to the Ottawa Process on landmines or the Oslo Process on cluster munitions.

Swiss position on killer robots

Switzerland is sceptical about a preventive ban at this stage, but it backs practical, and if necessary, regulatory measures to prevent any use of LAWS that would violate international law. In 2017, it tabled a working paper entitled a “Compliance-based approach to Autonomous Weapons System” that reaffirms the importance of international law.

In 2017, the Swiss Federal Council (executive body) rejected calls for an international ban on LAWS. It said it had “reservations” and that clarification was first needed regarding “desirable”, “acceptable” and “unacceptable” autonomy of weapons systems.

Swiss ambassador to the Conference on Disarmament, Sabrina Dallafior, told the Le Temps newspaper on Thursday: “The strict prohibition of all autonomous lethal weapon systems can be an attractive prospect at first glance. But right now, we do not know exactly what should be prohibited. There is a danger that we could also ban systems that could be useful, which help prevent collateral damage, for example.”

“Chances of UN Banning Killer Robots Looking Increasingly Remote,” VOA, 25 March 2019.

<https://www.voanews.com/a/chances-of-un-banning-killer-robots-looking-increasingly-remote-/4847546.html>

GENEVA — The Campaign to Stop Killer Robots warns chances of achieving a U.N. treaty banning the development, production and use of fully autonomous lethal weapons, also known as killer robots, are looking increasingly remote. Experts from some 80 countries are attending a weeklong meeting to discuss the prospect of negotiating an international treaty.

Representatives from about 80 countries have been meeting on lethal autonomous weapons systems since 2014. They have to decide by November to begin negotiations on a new treaty to regulate killer robots. Nobel peace laureate Jody Williams says Russia has been in the forefront of a group of countries, including the United States and Australia, trying to block movement in this direction. At the opening session, she tells VOA that Russia argued for drastically limiting discussions on the need for meaningful human control over lethal autonomous weapons.

“It is very unlikely as they finish up this year that there will be a mandate to meaningfully deal with meaningful human control, which is fundamental in our view to how you deploy such systems,” Williams said. “There would be no utility in continuing to come here and hear the same blah, blah, blah over and over again.”

Williams said the Campaign to Stop Killer Robots may have to resort to civil activism to get an accord banning killer robots. She said such tactics successfully achieved international treaties banning land mines and cluster munitions outside the United Nations framework.

But for now, the activists are not giving up on persuading U.N. member countries to take the right course. They said delegating life-and death decisions to machines crosses what they call a moral red line and should not be allowed to happen.

They said they have strong support for their stance from U.N. Secretary-General Antonio Guterres. In a statement to delegates attending the meeting, he warned of the dangers of giving machines the power and discretion to take lives without human involvement.

He called this morally repugnant and politically unacceptable. He said these weapons should be prohibited by international law.

“POLITICO Pro Digitization Insights,” *Politico*, 18 March 2019.

<https://www.politico.eu/article/politico-pro-digitization-insights-belgian-ai-ambitions-why-data-matters-ai-powered-journalism/>

—**Killer robots:** On Friday in Berlin, the activists of the global Campaign to Stop Killer Robots have their first global gathering, bringing together campaigners from around the world. The activists chose the location carefully: They want to build pressure on the German government to endorse a binding ban on fully autonomous weapon systems. On Thursday, the campaign is holding a press conference in the heart of Berlin's government district. Don't be surprised if some photogenic robots show up in front of Berlin's iconic Brandenburg Gate on the same day, we hear from the campaign.

“Nobel peace prizewinning doctors warn killer autonomous robots must be banned,” *The Times*, 25 March 2019. <https://www.thetimes.co.uk/article/nobel-peace-prizewinning-doctors-warn-killer-autonomous-robots-must-be-banned-zt63np0t8>

A group of doctors who won a Nobel prize for highlighting the catastrophic effects of nuclear war has called for a ban on "morally abhorrent" killer robots. Before a crunch United Nations meeting on the issue, an open letter signed by scores of physicians, including a leader of International Physicians for the Prevention of Nuclear War, warned that "recent advances in artificial intelligence have brought us to the brink of a new arms race in lethal autonomous weapons".

The call comes as officials gather for a UN meeting on killer robots that began in Switzerland yesterday. Despite mounting pressure from human rights campaigners and concerned computer scientists, the prospect of progress towards an international ban seemed dim. A dozen states - including Britain, Russia and the US - have previously opposed opening negotiations on a treaty to control lethal autonomous weapons systems. International Physicians for the Prevention of Nuclear War was awarded the 1985 Nobel peace prize for work in explaining catastrophic consequences of nuclear war. Yesterday it urged the medical community to oppose the development of weapons that, once activated, could select and engage targets without further human involvement. The open letter added: "Fully autonomous weapons select and engage targets without human intervention, representing complete automation of lethal harm.

"This ability to selectively and anonymously target groups of people without human oversight would carry dire humanitarian consequences and be highly destabilising. By nature of being cheap and easy to mass produce, lethal autonomous weapons can fall into the hands of terrorists and despots, lower the barriers to armed conflict, and become weapons of mass destruction enabling very few to kill very many." The government experts attending the UN meeting in Geneva will be shown a video tomorrow. Featuring the Hollywood film-maker Joseph Leonard Gordon-Levitt and several experts in artificial intelligence, it will highlight how AI is becoming embedded in everyday life in products such as Amazon's virtual assistant, Alexa. It will then warn that "AI technologies can also be used to create weapons of mass destruction unlike anything the world has seen before".

Dr Emilia Javorsky of the campaign group Scientists Against Inhumane Weapons said: "The global community must agree that such weapons are fundamentally wrong, the same as was done with biological and chemical weapons. "Certainly there have been instances of cheating in bio and chemical weapons, but there hasn't been large-scale use. A key reason for that is stigma. Creating a global norm that certain weapons are unacceptable drastically increases the cost to any individual country of breaking that norm." She added: "Each nation must take a stand that autonomous weapons must never come into existence. And we have to do it now, before it's too late."

In November the UN secretary General, Antonio Guterres, called lethal autonomous weapons systems "politically unacceptable and morally repugnant" and urged states to prohibit them. A recent Ipsos poll of people in 26 countries showed that 61 per cent were opposed to "lethal autonomous weapons systems", while 22 per cent support were in support. A similar survey carried out in January 2017 showed that 56 per cent were opposed and 24 per cent not opposed.

The UN meeting will be the latest in a series that began in 2016 to debate whether killer robots pose too many dangers to be permitted in warfare. Experts fear that as the technology advances and governments invest greater sums into research, the window is closing for a ban to be effective.

As part of the same campaign an article was published yesterday in the BMJ, warning that the development of lethal autonomous weapons would represent "a third revolution in warfare, after the invention of gunpowder and nuclear weapons".

It adds: "Once developed, such weapons could be produced rapidly, cheaply, and at scale. Furthermore, lethality will only increase with use as the machine's learning algorithms gain access to more data." It concludes: "It is not too late to prevent autonomous weapons. Decades of advocacy efforts have shown, however, that once created and in military use, entire classes of weapons are extremely difficult to eliminate: the threat of nuclear war is growing despite the non-proliferation treaty. After they are developed for military use, autonomous weapons could easily spread beyond the battlefield to law enforcement agencies or criminals."

“US and Russia leading opponents of ban on killer robots,” *Digital Journal*, 30 March 2019.

<http://www.digitaljournal.com/tech-and-science/technology/us-and-russia-leading-opponents-of-ban-on-killer-robots/article/546521>

Some activists are warning that the development of armies of fully autonomous robotic weapons could be only 3 or 4 years away. As a result some countries are attempting to place a ban on the weapons before they are an established fact.’

EU and UN both support a ban on robotic weapons

Many peace activists also support the ban including Jody Williams, who won the Nobel Peace Prize in 1997 for leading efforts to ban land mines. Williams urged Germany to lead an international campaign to ban the so-called killer robots. She said that Germany should take steps to ensure that humans remain in control of all lethal weapons and they should not become autonomous.

A recent article notes that delegates have been meeting in Geneva at the UN in order to discuss potential restrictions under international law on the use of autonomous weapons systems that employ AI to decide when and where to kill. The article reports: "Most states taking part – and particularly those from the global south – support either a total ban or strict legal regulation governing their development and deployment, a position backed by the UN secretary general, António Guterres, who has described machines empowered to kill as “morally repugnant”"

As the appended image and video from 2015 show warnings about autonomous weapons have already been around for years.

US and Russia are leading opponents of the ban

oppose the ban or any limitations that would prevent them from building the robots. The UK, Israel and Australia also oppose the ban. Opponents claim the ban is premature. However, if there is no ban there is likely to be an AI arms race.

While the UK Defense Ministry said it had no plans to develop fully autonomous killer robots they have announced that they already are in the process of developing killer drone swarms that theoretically could have full autonomy. There are fears that the US, which already has a huge number of attack drones, could decide to eliminate the human button pusher and simply let the drones decide whether to fire on the basis of its observations and algorithms that are used to determine its actions. Already drone operators may in effect leave the firing decision up to what a drone suggests on the basis of its observations.

A recent article notes: "Critics fear that the increasingly autonomous drones, missile defence systems and tanks made possible by new artificial intelligence could turn rogue in a cyber-attack or as a result of programming errors."

“The Rise of Killer Robots: Why Military Machines are a War Crime,” *Edgy*, 26 March 2019.

<https://edgy.app/the-rise-of-killer-robots>

Humans have been waging wars on each other since the dawn of History.

In war, civilizations have always strived to create new weapons with increasing lethality: from clubs, spears, swords, and arrows, to guns and bombs, to nuclear warheads and other mass destruction weapons. Warfare is now on the cusp of ushering in a new age, that of autonomous robots.

Current military robotics systems, like drones, always have a human somewhere calling the shots. But as technology advances, we delegate more and more decisions to machines, including the ability to take out human lives.

Lethal autonomous robots, or “killer robots”, are AI-powered weapon systems that make their own decisions about who to find, target, and kill on the battlefield.

Preemptive Strike Against Killer Robots

In 2013 the coalition Campaign to Stop Killer Robots was launched by dozens of NGOs to work for retaining “meaningful human control over the use of force.”

The same year, Human Rights Watch (HRW) and the Harvard Law School Human Rights Clinic sent a memorandum to the Convention on Conventional Weapons calling for a new law to ban fully autonomous robotic weapons.

Six years have passed and the only thing that seems to be advancing is autonomous weapons technologies.

The Martens Clause was introduced to the 1899 Hague Convention II regarding the laws and customs of war on land.

The clause stipulates that in cases not covered by international treaties, belligerent parties should respect a minimum of humanitarian principles to protect people directly affected by armed conflicts.

Human Rights Watch considers the use of fully autonomous weapons as a breach to international humanitarian laws and reiterates its call for a preemptive ban on killer robots.

According to HRW:

“There is an urgent need for states, experts, and the general public to examine these weapons closely under the Martens Clause,”

Robots can’t feel compassion and empathy and lack any legal and ethical judgment to make them capable of making the right decisions in a theatre of war.

Last November, at a ceremony marking the 100th anniversary of the end of WWI, the UN Secretary-General called on “States to ban these weapons, which are politically unacceptable and morally repugnant.”

The global public opinion also seems aware of the potential risks of autonomous weapons. A recent study that surveyed people across 26 countries found that 61 percent oppose the use of such weapons.

Activists of the Campaign to Stop Killer Robots from 35 countries met in Berlin, Germany, to advocate for a treaty banning the development and use of killer robots.

A strong push to the resistance to rising killer robots can come from inside tech companies working on lethal autonomous weapons.

Last January, thousands of Google anonymous employees were collectively named the 2018 “Arms Control Person of the Year” because they pushed the company to end an AI-aided drone targeting system project for the Pentagon.

Google has then committed not to “design or deploy AI” for use in weapons or other applications that may cause overall harm.

“Killer robots: Friend or foe?” *Blueprint Newspapers (Nigeria)*, 7 March 2019.

<https://www.blueprint.ng/%EF%BB%BFkiller-robots-friend-or-foe/>

A non-governmental organisation is campaigning against the use of automated killer robots that are receiving global attention. ENE OSANG writes.

The world is becoming a global village with indications from various countries of the world where fully automated weapons are being developed.

Reports have shown that countries like the US, China, Israel, South Korea, Russia and the UK are

developing weapons with significant autonomy in the critical functions of selecting and attacking set targets.

Killer Robots are fully autonomous weapons that would be able to select and engage targets without human intervention.

They are also referred to as lethal autonomous weapons that can make lethal decisions without human involvement.

As a result of this, the IANSA women Network NIGERIA is calling on Nigerian government to join other countries of the world to negotiate a new ban treaty by 2020, saying no country will be safe from lethal autonomous weapons systems. According to its national coordinator, Mimidoo Achakpa, a global meeting is about to be convened to discuss if there would be a political declaration to ban its existence.

“This month of March, a global meeting would be held in Berlin, Germany precisely from 21 to 23 to discuss either if it would be a political declaration or treaty and the Nigerian government is expected to not only attend but endorse the declaration or support the treaty even as other states have called for the ban.

“Secondly when Nigeria as the big brother of Africa sneezes, most African countries follow suit so in other words, Nigeria is expected to take a lead by mobilising these countries to endorse whatever would be the outcome,” she said.

Why ban non existing weapons?

Achakpa said the call became necessary because they are fully autonomous weapons that decide who lives and dies without further human intervention, a development that crosses a moral threshold.

“As machines, they would lack the inherently human characteristics such as compassion that are necessary to make complex ethical choices of who lives and dies inclusive of women and children.” If left unchecked the world could enter a destabilising robotic arms race. Replacing troops with machines could make the decision to go to war easier and shift the burden of conflict even further on civilians, they would make tragic mistakes with unanticipated consequences that could inflame tension and when this happens, women and children would be at the receiving end. History shows their use would not be limited to certain circumstances.

“As it is now, it’s unclear who can be held responsible for unlawful acts caused by autonomous weapons: the programmer, manufacturer, commander and the machine itself. This accountability gap would make it difficult to ensure justice especially for victims. Therefore, the development, production and use of these fully autonomous weapons must be banned,” she stressed. She further said that the only way is to legislate the ban through national and international treaty; hence, the call for all countries to articulate their views on the concerns raised by fully autonomous weapons and commit to create a new ban treaty to establish the principle of meaningful human control over the use of the force.

“All technology companies and organisations as well as individuals working to develop artificial intelligence and robotics should pledge to never contribute to the development of fully autonomous weapons,” she said. On her part, the programme manager, Violet Ocheikwu, noted that Nigeria is signatory to treaties, stressing that citizens should also be aware that a treaty to ban killer robots is about to come up and urged Nigerians to key into it because of the danger involved.

“Though these weapons are in the process of being developed, the US, China, Korea, UK, Russia and some other countries are already developing this because there are automated weapons unmanned that are already in existence, so in a matter of time, the fully automated ones would be developed and released. This fully automated weapons are just meant to hit targets after being programmed,” she explained.

“The world is evolving and some of these things are emerging so the manned ones (in the air and monitored on the ground) is existing, sometimes in the future, there are going to be unmanned ones.

“The Tsaigumi UAV was produced by Nigerian Air Force Aerospace Engineers in collaboration with UAV Vision of Portugal. It is planned to be used for Intelligence Surveillance and Reconnaissance (ISR) operations in land and sea domains and also for policing operations, disaster management, convoy protection, maritime patrol, pipeline and power line monitoring as well as mapping and border patrol duties. Plans are already underway to mass produce the Tsaigumi UAV as well as develop the nation’s first indigenous Unmanned Combat Aerial Vehicle. For Nigeria to have that today what do we expect

tomorrow. These things are already evolving and that is why we are campaigning against it. It is crucial for Nigerians to be aware of them and call for a stop for its production,” she stressed.

Dangers of fully autonomous weapons It is argued that, globally, the expanded use of unmanned armed vehicles has dramatically changed warfare, bringing new humanitarian and legal challenges. Also, the rapid advances in technology are resulting in efforts to develop fully autonomous weapons which would be able to choose and fire on targets on their own, without any human intervention.

“The use of fully autonomous weapon is currently not an issue in Nigeria as it may seem. There are also no laws on the use of these weapons as most of its population are ignorant on the existence of fully autonomous weapons.

“The use of fully autonomous weapons would create an accountability gap as there is no clarity on who would be legally responsible for a robot’s action: the programmer, manufacturer, or robot itself? Without accountability, these parties would have less incentive to ensure robots do not endanger civilians and victims would be left unsatisfied that someone was punished for the harm they experienced,” she added. “This capability would pose a fundamental challenge to the protection of civilians and to compliance with international human rights and humanitarian law.

“Several nations with high-tech militaries, particularly the United States, China, Israel, South Korea, Russia, and the United Kingdom are moving toward systems that would give greater combat autonomy to machines. Allowing life or death decisions to be made by machines crosses a fundamental moral line. They would lack human judgment and the ability to understand context,” she stressed.

Tony Onoja, of the Community Action for Popular Participation, an Abuja based NGO said the campaign is timely, adding that there is a gradual transformation of robotics into killer weapons in other countries which can be abused and civilians will be at the receiving end.

“Nations are waking up to the reality of their environment and security issues are becoming more complex so nations are embracing robotics which is useful in terms of surveillance and analysis, however where robotics is being empowered fully, it is highly unacceptable because military can use this to unleash harm on civilians but the semi autonomous weapons can be controlled,” he said.

What the future holds

There have been no incidents on the use of fully autonomous weapons but the country is progressively on the path to using them. As globalisation becomes a full reality, Nigeria could eventually be drafted into the use of fully autonomous weapons if and when the need arises. The continuous insurgency characterised by the Boko Haram activities in the North-east Nigeria as well as the farmers and herders conflict across the country raises the fear of a possible outbreak of war if not tackled urgently.

To this end, the campaign urges all countries to consider and publicly elaborate their policy on fully autonomous weapons, particularly with respect to the ethical, legal, policy, technical, and other concerns that have been raised.

“Belgium is fighting the introduction of Lethal Autonomous Weapons Systems,” *The Brussels Times*, 29 March 2019. <http://www.brusselstimes.com/belgium/14636/belgium-is-fighting-the-introduction-of-lethal-autonomous-weapons-systems>

Foreign Affairs and Defence minister Didier Reynders highlighted Belgium’s commitment to preventing the introduction of Lethal Autonomous Weapons Systems (LAWS).

Mr Reynders issued a press release on Saturday. He said these systems create a “humanitarian and ethical problem”. Discussions on the issue will take place in Geneva on the 25th to the 29th of March.

Mr Reynders said the first challenge is defining what constitutes a lethal autonomous weapons system and what doesn’t, at an international level. He also added that Belgian authorities hope it will eventually be possible to settle on an effective international approach, which would have to gather enough and sufficiently diversified support to have a real impact.

The press release revealed that along with Luxemburg and Ireland, Belgium will offer concrete solutions to define and internationally regulate LAWS. This means deciding which autonomous weapons systems should be banned internationally. Autonomous weapons that can kill without human intervention will be

the main focus.

Belgium has already put in place internal measures to limit the use of weapons that break international human rights laws. It also applies article 36 of the first Additional protocol of the 1949 Geneva Convention, which makes it obligatory to evaluate the legality of all new weapons under international law.

“Japan Calls for Stricter Control on AI Killer Robots,” *Interesting Engineering*, 25 March 2019.

<https://interestingengineering.com/japan-calls-for-stricter-control-on-ai-killer-robots>

Japan will call for tougher regulations on ‘killer robots’ during a UN convention this week. Tokyo announced its intention to raise the issue of international rules on lethal weapons equipped with artificial intelligence (AI) earlier this month.

SEE ALSO: AIS CONTINUE TO ACT IN UNPREDICTABLE WAYS, SHOULD WE PANIC?

The island nation is concerned about the possibility that autonomous machines could start wars, cause fatal accidents and have the final decision on who gets to live or die, sources said. The UN Convention on Certain Conventional Weapons (CCW) is scheduled from March 25 to 29 in Geneva.

Japan to lead killer robots discussion

Japan wants to take a leadership position on the discussion around the introduction of international laws.

Weapons with built-in AI have the potential to harm or target autonomously without human control.

Some AI weapons have the ability to decide to kill based on their programming.

“Just as gunpowder and nuclear weapons changed the way wars were conducted in the past, artificial intelligence could fundamentally alter the course of future wars,” Foreign Minister Taro Kono said at a Diet session on Jan. 28.

Several countries including Russia, China and America are said to be currently developing “lethal autonomous weapons systems” (LAWS). Many international groups have called for the complete ban on such weapons. Opponents of LAWS say the decision of taking a human life should not be put into the hands of AI.

Unfair combat looms

The use of LAWS would give nations an advantage in combat as they could be deployed without any risk to human troops. Many worry that biased programming would lead to accidental deaths.

Japan has indicated that it wants participants at the convention to discuss how humans can maintain control over the use of LAWS and what practices can be put in place to limit the potential for armed conflict entirely.

A coalition of Latin American countries has sought to prohibit LAWS, but bigger countries like the United States and Russia say that such a ban is too early in the lifecycle of the technology. Japan itself has no plans to produce LAWS.

“We do not intend to develop any lethal weapon that is completely autonomous and functions without human control,” Prime Minister Shinzo Abe said.

Private tech leaders worried

The Japanese government has confirmed that they do have plans to research and develop AI or unmanned equipment to secure safety and reduce the burden of the Self-Defense Forces. It isn’t just the nation states that are concerned about the development of AI weapons.

SpaceX CEO, Elon Musk, has previously expressed his concern for the rapidly developing technology.

Musk was part of the group that sent an open letter to the UN last year pleading for them to act now on AI regulation before it was too late.

The open letter that was signed by other big tech and science figures such as Stephen Hawking. The group writes, “Once developed, lethal autonomous weapons will permit armed conflict to be fought at a scale greater than ever, and at timescales faster than humans can comprehend. These can be weapons of terror, weapons that despots and terrorists use against innocent populations, and weapons hacked to

behave in undesirable ways. We do not have long to act. Once this Pandora's box is opened, it will be hard to close."

"In 'Killer Robots' Debate, Japan Shuns Fully Automated Arms," AP, 26 March 2019.

<https://www.nytimes.com/aponline/2019/03/25/world/europe/ap-eu-united-nations-killer-robots.html>

GENEVA — Japan's ambassador to the United Nations-backed Conference on Disarmament says his country has not developed fully autonomous weapons systems and has no plans to do so.

Nobushige Takamizawa spoke at Monday's opening of the latest weeklong meeting of government experts in Geneva on the future of "Lethal Autonomous Weapons Systems," also known as "Killer Robots."

Takamizawa's comments have been widely anticipated in Japan, a country with highly sophisticated technological know-how and concerns about regional security threats — notably North Korea, which in recent years has tested missiles by firing them over Japanese territory.

He mentioned "positive effects" of autonomous weapons systems under human oversight, such as saving labor and reducing collateral damage. Opponents of fully automated systems fear that machines could one day conduct wars without human control.

"Should Autonomous Weapons Systems be Banned?," The Telegraph, 27 March 2019.

<https://www.telegraph.co.uk/business/advance-series-event/should-autonomous-weapons-systems-be-banned/>

The use of artificial intelligence in the defence sector is an emotive subject. The risk of "killer robots" running wild is a common Hollywood theme. The defence sector is now actively examining the role of AI in weapons systems. What sort of regulatory controls are needed for lethal autonomous weapons systems? More fundamentally, should they be banned

The MoD Avoids the Issue

The Ministry of Defence (MoD) has a definition of AI weapons systems that sets such a high standard that it is unlikely that any systems would be developed that could meet that standard for many years. This demanding definition allows the MoD to avoid the issue of whether or not it should be developing, and potentially deploying, AI weapons systems.

The MoD definition requires that "an autonomous system is capable of understanding higher level intent and direction. From this understanding and its perception of its environment, such a system is able to take appropriate action ... deciding a course of action, from a number of alternatives, without depending on human oversight and control.

The MoD claims on the basis of this very demanding definition that "the UK does not possess fully autonomous weapons systems and has no intention of developing them. Such systems are not yet in existence and are not likely to be for many years, if at all".

However, AI-based weapons systems are starting to be developed and deployed by the MoD in practice. In the view of Mike Stone (ex-MoD CIO) "the genie is out of the bottle". AI is becoming so widespread that it is inevitable that it will cross over into military usage.

Of course, the Directive raises as many questions as it answers. Key worries are the extent to which the policy can be avoided in certain circumstances. It may also erode the concept of "proper authority" for the use of violent force and thus raise questions over compliance with international humanitarian law.

UN Ban on Autonomous Weapons?

The United Nations is actively considering the imposition of a ban on AI weapons systems. A process has been set up to consider whether AI systems should be restricted under the Convention on Certain Conventional Weapons, a disarmament treaty that has regulated or banned several other types of weapons.

Meetings of the Group of Governmental Experts to review this issue have been held since 2014.

Currently, 26 countries support an outright ban on fully autonomous weapons. A few countries, including

Australia, Israel, Russia, South Korea, and the United States, oppose a new treaty or any other new measures dealing with the introduction of AI weapons systems.

The issues continue to be debated. The options currently on the table relate to:

A legally binding instrument stipulating prohibitions and regulations on lethal autonomous weapons systems, potentially including a requirement for human control over the critical functions in lethal autonomous weapons systems

A political declaration that would outline important principles such as the necessity of human control in the use of force and the importance of human accountability, and with elements of transparency and technology review

Further discussions on the human-machine interface and the application of existing international legal obligations, including legal weapons reviews required by the Geneva Conventions, and the identification of practical measures, best practices and information sharing

A view that as international humanitarian law is fully applicable to potential lethal autonomous weapons systems no further legal measures were needed

These options are not necessarily mutually exclusive. It is not clear which option or options may be chosen. Campaigning organisations (such as the Arms Control Association) make the point that “the time for discussion is over and that the dangers of deploying lethal autonomous weapons have been sufficiently demonstrated to warrant the initiation of formal negotiations on meaningful control mechanisms”.

Should Autonomous Weapons be Banned?

While the risks of AI weapons systems merit the need for a serious assessment of their use in armed conflict, the likelihood of a ban on AI weaponry preventing AI weaponry getting into the “wrong hands” is unlikely to be effective.

AI is becoming pervasive. AI weaponry will differ from other banned weaponry, in that chemical and most other weapons of mass destruction are complex and expensive to make and their manufacture can usually be observed. However, as AI becomes more easily accessible it is inevitable that non-military AI solutions will be linked to, and form the basis of, AI weapons systems.

Terrorists and rogue states may already be in the process of developing AI weaponry. An autonomous car with a bomb in the boot may well be an autonomous weapons system. Effective defensive capabilities are needed to counter AI weapons used by the “bad guys”.

There is a need to ensure that well-meaning constraints on the use of AI weapons systems do not result in exposure to AI weaponry used by terrorists and rogue states.

US Directive on AI Weapons

The US has a much more explicit approach than the UK when it comes to the deployment of autonomous weapons systems. It introduced a Directive for AI weapons systems in November 2012, establishing US policy for the “design, development, acquisition, testing, fielding, and... application of lethal or non-lethal, kinetic or non-kinetic, force by autonomous or semi-autonomous weapon systems”.

The explicit purpose of the Directive is to establish guidelines to “minimize the probability and consequences of failures in autonomous and semi-autonomous weapons systems that could lead to unintended engagements”.

“Autonomous weapons systems threaten peace, says Vatican official,” *Catholic News Service*, 28 March 2019. <https://www.catholicnews.com/services/englishnews/2019/autonomous-weapons-systems-threaten-peace-says-vatican-official.cfm>

VATICAN CITY (CNS) -- The growing use of autonomous weapons systems poses serious risks to global peace and stability, a Vatican representative told a U.N. meeting in Geneva.

"How would autonomous weapons systems be able to respond to the principles of humanity and the dictates of public conscience?" asked Archbishop Ivan Jurkovic, the Vatican observer to U.N. agencies in Geneva.

Speaking March 26 to a group of governmental experts on Lethal Autonomous Weapons Systems (LAWS), Archbishop Jurkovic criticized the use of weapons that can shoot and kill without any moral or ethical deliberation.

On several occasions, the Holy See has warned against the use and development of LAWS or, so-called killer robots, which include military drones, unmanned vehicles and tanks and artificially intelligent missiles. Even missile defense systems, such as Israel's Iron Dome, have autonomous targeting capabilities.

The Vatican's position is that the autonomous robots cannot be allowed to replace human beings who are able to make intentional, rational and deliberate decisions from a moral and ethical standpoint. LAWS function according to their programming and algorithms.

"Removing human agency as fundamental reference from the moral equation is problematic not only from the point of view of ethics, but also from the point of view of the foundation of law, including international humanitarian law," the archbishop said.

Precaution and prevention concerning LAWS are "of the utmost importance in our current endeavors," he said.

The technological advancement of LAWS, especially drones, has given them increasing levels of autonomy. While most unmanned drones currently in use are still operated by a human pilot through a computer, advances in technology have decreased the need for humans to physically operate the machines.

A report by the Associated Press in 2018 found that nearly a third of the deaths from U.S. drone strikes in Yemen were civilians. Assessing the death toll from drone strikes is extremely challenging given the difficulty of confirming identities. The AP based its report on interviews from eyewitness survivors, families and tribal leaders.

Drone warfare has been especially prevalent in countries like Yemen, Pakistan, Afghanistan and Somalia. The Bureau of Investigative Journalism estimated that the total number of people killed in the four countries by U.S. drone strikes since 2002 is between 8,459 and 12,105. They estimated between 769 and 1,725 civilian deaths, including between 253 and 397 children.

Analysts and human rights activists also have noted that LAWS not only take lives, but they destroy infrastructure and disrupt local economies, resulting in poverty, starvation and displacement.

“More bad press for killer robots,” *Irish Times*, 14 March 2019.

<https://www.irishtimes.com/business/technology/more-bad-press-for-killer-robots-1.3822921>

Killer robots are in the news again: following fears over AI-powered autonomous tanks, the US Department of Defense has issued a statement reassuring people that humans will always be the ones to make the final decision on whether a lethal robot fires at a target.

This clarification comes at time when employees at various technology companies – including Microsoft – have been expressing their concern over how their AI is used. One such individual is Liz O’Sullivan, former employee at Clarifai, an AI company specialising in machine vision tech including facial recognition. Ms O’Sullivan said she left her job after hearing that Clarifai chief executive Matt Zeiler said he was willing to work on autonomous weapons.

“The core issue is whether a robot should be able to select and acquire its own target from a list of potential ones and attack that target without a human approving each kill,” said Ms O’Sullivan.

She gave the example of the Israeli Harpy 2 drone or Harop, a fully autonomous weapon currently in use and sold to the governments of South Korea, Turkey, China and India. Dubbed the “suicide drone”, it is capable of seeking out enemy radar signals and blowing up its target without human intervention.

“When presented with the Harop, a lot of people look at it and say, ‘It’s scary, but it’s not genuinely freaking me out.’ But imagine a drone acquiring a target with a technology like face recognition,” Ms O’Sullivan added.

Scientists' Letter and Award:

“Scientists plead to stop creation of killer robots: We’re at ‘the brink of a new arms race,’” *Fox News*, 26 March 2019. <https://www.foxnews.com/tech/scientists-plead-to-stop-creation-of-killer-robots-were-at-the-brink-of-a-new-arms-race>

Dozens of scientists, health care professionals and academics have written a letter to the U.N. calling for an international ban of autonomous killer robots, saying recent advances in artificial intelligence "have brought us to the brink of a new arms race in lethal autonomous weapons."

The letter, which has been signed by more than 70 health care professionals and was put together by the Future of Life Institute, states that lethal autonomous weapons could fall into the hands of terrorists and despots, lower the barrier to armed conflict and "become weapons of mass destruction enabling very few to kill very many."

"Furthermore, autonomous weapons are morally abhorrent, as we should never cede the decision to take a human life to algorithms," the letter continues. "As healthcare professionals, we believe that breakthroughs in science have tremendous potential to benefit society and should not be used to automate harm. We therefore call for an international ban on lethal autonomous weapons."

USING 'KILLER ROBOTS' IN WAR WOULD BREACH INTERNATIONAL LAW, ADVOCATES SAY

In addition to the letter, a study written by Dr. Emilia Javorsky posits that recent advances by a number of countries working on lethal autonomous weapon systems "would represent a third revolution in warfare," following gunpowder and nuclear weapons.

The effort put forth by the Future of Life Institute follows a 2018 pledge from more than 2,400 individuals from companies and organizations around the world. Those from Google DeepMind, the European Association for AI and University College London and others said they would "neither participate in nor support the development, manufacture, trade, or use of lethal autonomous weapons." Past concerns

Others have raised concerns to the U.N. as well about the benefits and costs of killers robots. Experts from several countries met in August 2018 at the Geneva offices of the U.N. to focus on lethal autonomous weapons systems and explore ways of possibly regulating them, among other issues.

In theory, fully autonomous, computer-controlled weapons don't exist yet, UN officials said at the time. The debate is still in its infancy and the experts have at times grappled with basic definitions. The United States has argued that it's premature to establish a definition of such systems, much less regulate them. Some advocacy groups say governments and militaries should be prevented from developing such systems, which have sparked fears and led some critics to envisage harrowing scenarios about their use. In 2017, Tesla CEO Elon Musk and other leading artificial intelligence experts called on the United Nations to issue a global ban on the use of killer robots, which includes drones, tanks and machine guns. "Once this Pandora's box is opened, it will be hard to close," Musk and 115 other specialists from around the globe wrote in the letter.

IS SKYNET A REALITY? AS TRUMP SIGNS EXECUTIVE ORDER ON ARTIFICIAL INTELLIGENCE, TECH GIANTS WARN OF DANGER

'The biggest risk we face'

Musk has repeatedly worried about the rise of artificial intelligence, having previously stated it could be the "biggest risk we face as a civilization." The tech exec has even gone so far as to say it could cause World War III.

Research firm IDC expects that global spending on robotics and drones will reach \$201.3 billion by 2022, up from an estimated \$95.9 billion in 2018.

Over the years, several luminaries, including Musk, legendary theoretical physicist Stephen Hawking and a host of others have warned against the rise of artificial intelligence.

In September 2017, Musk tweeted that he thought AI could play a direct role in causing World War III. Musk's thoughts were in response to comments made by Russian President Vladimir Putin, who said that "who becomes the leader in this sphere [artificial intelligence] will be the ruler of the world." In November 2017, prior to his death, Hawking theorized that AI could eventually "destroy" humanity if we are not careful about it.

“Two of Canada’s AI gurus warn of war by algorithm as they win tech ‘Nobel Prize,’” *CityNews (Canada)*, 28 March 2019. <https://www.660citynews.com/2019/03/28/two-of-canadas-ai-gurus-warn-of-war-by-algorithm-as-they-win-tech-nobel-prize/>

MONTREAL — Two of Canada’s artificial intelligence pioneers are warning about the consequences of AI in robotic weapons and outsourcing lethal decisions to machines, calling for an international agreement on its deployment as Canada marches toward the binary battlefield.

Geoffrey Hinton and Yoshua Bengio, who along with computer scientist Yann LeCun won the Turing Award on Wednesday — known as the Nobel Prize of the technology industry — say so-called weaponized AI and killer robots could spell danger for civilians.

“I think we need to worry about lethal autonomous weapons,” said Hinton, a professor emeritus at the University of Toronto and a senior researcher at Google Brain.

“Those are things that aren’t a worry about the distant future; those are things that are coming now. The technology is already capable of producing these things and they’re desperately in need of regulation.” Hinton compared robotic weapons such as drones with land mines, which were banned in a 1997 international treaty. “They’re very stupid, but they’re lethal and they’re autonomous,” he said of the explosives.

Facial recognition technology and other forms of computer vision or surveillance could soon be deployed to identify individuals or locations for drone strikes, said Bengio, a professor at the Université de Montréal.

“You could basically select a particular list of people and have them killed.”

Bengio said that even if an international convention were not signed by key players — the United States, China and Russia declined to sign the Ottawa Treaty banning mines — the awareness it stirs up can deter proliferation.

“The American companies gradually stopped producing land mines because of the moral stigma that became attached to doing this. So those treaties play not just a legal role, but also set social norms in ways that end up influencing behaviour,” he said.

Last year, Google opted not to renew a contract with the Pentagon for Project Maven — the U.S. military’s “pathfinder” AI program — after more than 3,000 employees signed a protest letter.

The technology at work in Project Maven, which uses machine learning to scan drone video for targets, has already been deployed in the Middle East and Africa, with the eventual aim of loading the software onto drones to locate people and objects on the fly.

The Canadian Armed Forces are now exploring how to use AI, with the air force conducting experiments, according to army Maj. Geoffrey Priems.

“My personal view is we need to look at this and approach it very methodically and get it right, as opposed to rushing and screwing it up,” said Priems, who is tasked with sketching out a concept by June 2020 for AI deployment.

“Nobody wants to cause a death through some friggin’ computer, unless we chose for that to happen, intentionally.”

Retaining human agency — and accountability — in decisions of life and death is one issue. Another is digital defects or built-in biases, said Graham Taylor, who heads a new AI ethics centre at the University of Guelph.

“Military organizations may be trying to frame these systems such that they reduce the civilian casualties,” he said. “On the other hand, there is always the capability of these systems making mistakes

where a human is not directly in charge...and it becomes difficult to place responsibility on a particular individual.”

Privacy concerns also factor into the reams of data spawned by surveillance images.

“It’s an area that’s under development right now, but there’s no widespread regulation regarding the use of specifically AI technologies in the military,” he said.

The Department of National Defence says international law should form the basis for emerging weapons protocols, and that “more discussion around this complex and multi-faceted issue is needed at the international level and within Canada.”

An expert group established by the United Nations’ Convention on Certain Conventional Weapons held its inaugural meeting in November 2017, but progress toward a treaty has been slow, Bengio says.

“The way the UN works is not very functional. It’s enough that a few countries oppose to slow things considerably,” he said.

Bengio was among 400 participants at a November 2017 forum that produced the Montreal Declaration on the Responsible Development of Artificial Intelligence. It lays out a principle that “the decision to kill must always be made by human beings, and responsibility for this decision must not be transferred to an AI.”

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