

**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**

25 June 2020

English only

**Group of Governmental Experts on Emerging Technologies  
in the Area of Lethal Autonomous Weapons Systems  
Geneva, 10-14 August 2020**

**Berlin Forum for Supporting the 2020 Group of  
Governmental Experts on Lethal Autonomous Weapons  
Systems (1-2 April 2020)**

**Submitted by Germany**

**I. Overview**

1. The Forum was convened by the German Federal Foreign Office with the intention to support the 2020 GGE process on LAWS and to keep up the momentum reached during the previous session of the GGE. The panel contributions and online-discussions were designed to provide food for thought for the next GGE sessions.
2. Originally scheduled to take place at the German Federal Foreign Office on 18-19 March, the Forum was reconfigured as a virtual webcast meeting to allow the international dialogue on an effective multilateral response to the challenges raised by Lethal Autonomous Weapons Systems (LAWS) to continue at a time when the Covid19-crisis placed limits on options for multilateral meetings.
3. The Forum was opened by Federal Foreign Minister Heiko Maas and Izumi Nakamitsu, Under-Secretary-General and High Representative for Disarmament Affairs of the United Nations. As part of the opening window, Ambassador Janis Karklins, Permanent Representative of Latvia to the United Nations in Geneva and Chair of the 2020 GGE on LAWS, delivered a statement outlining his suggested program of work for the GGE.
4. The following three working sessions of the Forum were structured around the agenda items “Defining the human role in the use of lethal force”, “Developing and Elaborating the Guiding Principles” and “Possible elements of the normative and operational framework” (see Agenda in Annex I). Presentations delivered during the Forum can be accessed via [www.rethinkingarmscontrol.de/conference-material](http://www.rethinkingarmscontrol.de/conference-material).
5. The Forum had 320 registered participants representing 63 High Contracting Parties of the Convention on Certain Conventional Weapons (CCW) as well as scientific institutions and civil-society groups which are part of the GGE-process (see Annex II for a full list of registered participants).
6. In his opening address, Foreign Minister Maas underlined the existing commitment of partners working together in the framework of the “Alliance for Multilateralism” to support the multilateral dialogue on LAWS.
7. Below is a summary of points raised during the Forum’s discussions which may merit further consideration in advancing the work of the GGE.



## II. Summary

### 1. Defining the Human Role in the Use of Lethal Force

8. With regards to defining the human element in the use of force, a number of different perspectives and approaches were highlighted in the course of the Forum's discussions.

(a) The military perspective brought to the Forum underlined that the military use of autonomous functions results in more complex weapons systems, which may require more complex handling and guidance for use. This may include more complex risk assessment, methods, handling procedures, training programs and review processes.

9. It was pointed out that that human control should be considered as a process, not as a singular event. A military perspective outlined that human control is exercised in technical design, organizational design, procedures and methods but not necessarily by physically controlling the weapon. In this understanding human control would be exercised via a set of methods reflecting the intent of the military commander in charge.

10. It was also highlighted that that the use of autonomous functions in the area of data analysis may assist military commanders in taking decisions with greater accuracy resulting in a higher accuracy of military strikes.

11. With regards of the future normative and operational framework it was suggested to consider the human role across the whole planning and decision-making process in view of identifying

- critical decisions that should always remain under human control
- fields that could potentially benefit from the use of superior technology
- conditions/circumstances where and how autonomous functions can be used

12. It was pointed out that human control may take the form of "indirect control" as it may be implemented through a strict set of rules, conditions, parameters.

13. Going forward, the GGE may develop a set of joint operational standards that reflect good-practices and may feed into the recommendations for the Normative and Operational Framework. This may cover, inter alia, the following aspects:

- Testing and review of new weapons systems
- Risk-assessments
- Training
- Handling procedures

(b) From an industry perspective it was outlined that the human role in the operation of future weapons systems may be determined by defining and implementing control points during the whole cycle of a mission or operation ensuring human control at any time of the system's operation.

14. In developing major future weapons systems the formation of a multi-stakeholder working group accompanying the design and implementation of the system may assist in addressing the relevant ethical and legal questions for implementation in the actual design phase of a future system and for consideration in the guidelines for the system's use.

15. International industry standards (ISO) such as those applicable to the development and use of robots in the civilian domain may offer guidance for answering relevant questions with regards to the safety of systems.

(c) From a legal perspective it was underlined that existing International Humanitarian Law (IHL) already places limits on the use of autonomy in weapons systems as it requires human operators to make complex, context-based value judgements to ensure the principles of distinction, proportionality and precautions in attack are upheld. It was pointed out that affirming a joint understanding of what these legal limits entail for the

development and use of future weapons systems should remain at the core of the GGE's agenda.

16. It was stressed that while IHL applies to LAWS, it does however not provide all the answers as to what limits should be put on autonomy in weapon systems. This underscores the need for internationally-agreed limits.

17. To ensure the compatibility of future weapons systems featuring autonomous functions with IHL, one approach could be to consider placing the following constraints on a system:

- Constraints on targets and tasks could help commanders limit a system's direct attacks to military objects.
- Constraints on the operation including spatial and temporal limits may enable the human commander to thoroughly assess the effects and scope of the systems' operation to ensure the identification of lawful targets as well as to ensure that the planning assumptions remain valid throughout the whole operation.
- Providing the human operator with the ability to supervise and intervene in the operation during the attack taking into account that most military environments are inherently dynamic resulting in the need to ensure human supervision and providing human operators with the capacity to abort a system's operation at all steps.

18. It was underlined that a minimum common understanding about the limits and constraints placed by existing law on weapons systems is necessary in order to enable human subjects to fulfil their obligations under IHL. In building that understanding guiding principles (c) and (d) may merit particular attention for the GGE going forward.

19. In addition to the legal aspects, the Forum was invited to reflect upon ethical considerations, which may require upholding moral agency over the use of future weapons systems to protect the universal value of human dignity.

## 2. Guiding Principles

20. The importance of the guiding principles as a consensual common denominator reached after years of GGE consultation as well as their role as reference points for the work of the GGE and for national policy was affirmed. It was also underlined that while presenting an important achievement as a first visible product of the group, the guiding principles in their existing form are not an end point. They require further clarification and interpretation in view of their finalization as part of the envisaged normative and operational framework.

21. It was pointed out that going forward the focus should lie on

- operationalizing the existing set of guiding principles for the work of the group,
- submitting national commentaries on the interpretation and/or implementation of the guiding principles ahead of the GGE's working session scheduled for June, as requested by the Chair of the GGE,
- analyzing the guiding principles covering the human role in the use of lethal force, namely principles (b), (c) and (d) as well as the application of IHL (a).

22. A number of delegations emphasized the central importance of guiding principle (c) outlining "human-machine-interaction". It was felt that this guiding principle may be the corner stone of the GGE's work going forward and that the technical, military and legal content of this particular guiding principle should be further worked out in view of determining the various forms of human-machine interaction.

23. With regards to the operationalization of the guiding principles it was highlighted by some that this may be done by exchanging best practices and national experiences. It was felt that adopting this "bottom-up" approach could capitalise on national regulations and practices to inform the debate about multilateral standards. Others considered that there should be a clear understanding of the multilateral standards before working on the national level of regulations and practices.

24. None of the speakers mentioned the expansion of the existing set of guiding principles as a priority. Though a limited number of additional aspects such as algorithm bias and ethical considerations may merit the elaboration of a new principle, preserving and refining the existing eleven guiding principles was seen as the most fruitful way forward.

### **3. Normative and Operational Framework**

25. In its session on the way forward in the GGE the Forum discussed pathways leading to the elaboration of a normative and operational framework since the GGE is requested to develop recommendations for such a framework for consideration by the 2021 CCW Review Conference.

26. One approach towards building substance for these recommendations was explained by the Chair of the GGE by elaborating on his request for national commentaries on the operationalization of the guiding principles. Via this exercise, focus areas of national interpretation and/or implementation as well as convergences between CCW High Contracting Parties in defining these areas may emerge and may provide substantive elements in preparation of recommendations for an operational framework.

27. In designing the structure of the future framework one approach could be to think of the framework of bringing together a normative part consisting of the finalized set of guiding principles and an operational part containing recommendations for good-practices covering technological, military and legal aspects.

28. With regards to the status of a framework on LAWS a wide range of possible options were mentioned including adopting a legally binding instrument, formulating politically binding document or compiling a set of operationally relevant joint good-practices covering technological, military and legal aspects.

29. A number of High Contracting Parties underlined that “form should follow substance” and that ultimately the decision on the exact status of the envisaged framework will depend on the character of its content elements.

30. In view of the dynamic development of military technology as well as conflict scenarios it was suggested that these elements would need to be formulated in a way that allows the future framework to capture this dynamic picture and remain valid as technology progresses further.

31. The “sunrise-diagram” as previously presented in the GGE was felt to offer helpful guidance for determining areas of regulation placed under national discretion and those that may benefit from the formulation of joint multilateral standards.

32. It was suggested, that as part of a globally networked approach, formulating a multilateral response to the challenges raised by emerging technologies in the area of LAWS could be placed on the agenda of relevant regional political and security organisations for consideration and further action.

33. The advocates of a treaty solution explained that such a treaty may be structured in two parts, one, placing a ban on fully autonomous weapons systems operating completely outside human control and, two, establishing the principle of meaningful human control over all remaining weapons systems as a positive treaty obligation.

34. It was felt that as the GGE progresses in building a joint understanding of the military and technological complexities this would inevitably facilitate the definition of concrete substance elements for inclusion in the consensus recommendations for a normative and operational framework.

35. In view of the rapid pace of technological development it was underlined that in formulating multilateral standards for emerging technologies in the area of LAWS, time was of the essence.

## Annex I

### Agenda

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*Wednesday, 1 April*

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- 14.00 CET    Opening Session
- Setting the frame for supporting the 2020 GGE on LAWS
- Introductory Remarks
- Rüdiger Bohn*, Deputy Federal Government Commissioner for Disarmament and Arms Control, German Federal Foreign Office
- Opening Statements
- Heiko Maas*, Federal Foreign Minister
- Izumi Nakamitsu*, Under-Secretary-General and High Representative for Disarmament Affairs, United Nations
- 14.15        Remarks on the way forward in the GGE
- Janis Karklins*, Permanent Representative of Latvia to the United Nations, Geneva, Chair of the 2020 GGE on LAWS
- Followed by Q & A with the Chair of the GGE.
- 14.45        Working Session I
- Defining the human role in the use of lethal force – Part I
- The GGE has approached the human role in the development and use of weapon systems based on emerging technologies in the area of LAWS under various framings and terminologies. Working session I allows for an exchange of views on “human-machine interaction”. Different perspectives will be offered by military practitioners, industry representatives and scientific experts. Following their input, delegations are invited to share their views on key questions such as:*
- How should the human role in the use of lethal force be addressed by the future normative and operational framework?*
- How to qualify the concept of “human control / supervision” and their relevance to the GGE’s work?*
- Which forms and degrees of human judgment, supervision, interaction or intervention will help ensure responsible use and development in compliance with international law?*
- How do other factors, such as system design, testing and the operational context, affect the requisite or appropriate form and degree of human involvement in the operation of future weapon systems?*
- Speakers:
- Karl Chang*, US-Department of Defense, Associate General Counsel for International Affairs
- Martin Hagström*, Deputy Research Director, Swedish Defence Research Agency
- Prof. Dr. Wolfgang Koch*, Fraunhofer FKIE / University of Bonn, Chief Scientist FKIE and Head Sensor Data and Information Fusion FKIE-SDF
- Followed by Q & A with the panelists

16.00	Break
16.30	<p>Working Session I continued</p> <p>Defining the human role in the use of lethal force</p> <p>Speakers:</p> <p><i>Florian Keisinger</i>, Campaign Manager Future Combat Air Systems (FCAS) Airbus Defence and Space GmbH</p> <p><i>Col. Jun Yamada</i>, Military Advisor to the Delegation of Japan to the Conference on Disarmament, Geneva</p> <p><i>Kathleen Lawand</i>, Head, Arms Unit, Legal Division, International Committee of the Red Cross (ICRC)</p> <p><i>Giacomo Persi Paoli</i>, Programme Lead, Security and Technology UN Institute for Disarmament Research (UNIDIR), Geneva</p> <p>Followed by Q &amp; A with the panelists</p>

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**Thursday, 2 April**


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14.00	Working Session II
CET	<p>Developing and Elaborating the Guiding Principles</p> <p><i>During the 2019 GGE a range of additional items emerged as possible further Guiding Principles. This session would offer room for delegations to deliberate on their approach towards the work ahead on the Guiding Principles. Do any of the current principles merit substantiation or clarification? Should the current list be expanded? Do important additional elements need to be considered?</i></p> <p>Opening Statement:</p> <p><i>Rüdiger Bohn</i>, Deputy Federal Government Commissioner for Disarmament and Arms Control</p> <p>Speakers:</p> <p><i>Murielle Marchand</i>, Permanent Mission of the Kingdom of Belgium to the UN, Geneva</p> <p><i>Pamela Moraga</i>, First Secretary Disarmament, Permanent Mission of Chile to the UN, Geneva</p> <p><i>Mikaël Griffon</i>, Head of Department for Arms Control and OSCE, Ministry of Foreign Affairs, Paris</p> <p><i>Alessandro Candeas</i>, Ambassador, Director of the Defence Department, Ministry of Foreign Affairs, Brasilia</p> <p>Followed by Q &amp; A with the panelists</p>
15.30	Break
16.00	<p>Working Session III</p> <p>Possible elements of the normative and operational framework</p> <p><i>Based on the discussions in the preceding sessions, this conclusive session will be dedicated to an exchange of views on possible elements of the normative and operational framework. It will offer delegations the opportunity to share their vision on how the recommendations resting on the Guiding Principles and the consensus elements from the GGE's work on legal, technological and military aspects could be used to serve as building blocks for the framework. How can prior experiences from other fora serve</i></p>

*as examples? What status should the future framework possess and what are the implications for the GGE-recommendations?*

Speakers:

*Amanda Wall*, Attorney Adviser, Political Military Affairs, U.S. Department of State

*Anja Dahlmann*, Researcher and Coordinator, International Panel on the Regulation of Autonomous Weapons (iPRAW)

*Lt. Col David Walker*, Ministry of Defence of the United Kingdom, Conventional Weapons Policy in the Counter Proliferation and Arms Control Centre

*Bonnie Docherty*, Associate Director of Armed Conflict and Civilian Protection, Harvard Law School, Harvard University

Followed by Q & A with the panelists

18.00 Meeting closes

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## Annex II

### List of registered participants

1. The following CCW High Contracting Parties registered for participating in the Berlin Forum for Supporting the 2020 GGE on LAWS: Australia, Austria, Belgium, Bosnia and Herzegovina, Brazil, Bulgaria, Canada, Chile, Colombia, Costa Rica, Croatia, Czech Republic, Denmark, Ecuador, Egypt, El Salvador, Estonia, Finland, France, Germany, Greece, Holy See, Honduras, Hungary, India, Ireland, Israel, Italy, Japan, Kazakhstan, Korea, Latvia, Lebanon, Lithuania, Luxembourg, Malta, Mexico, Netherlands, New Zealand, Nicaragua, North Macedonia, Norway, Pakistan, Panama, Peru, Philippines, Poland, Portugal, Romania, Saudi-Arabia, Serbia, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom, Ukraine, Uruguay, United States.

2. Representatives of the following multilateral organisations were among the registered participants: European Union, North Atlantic Treaty Organisation, Organisation for Security and Cooperation in Europe (OSCE), United Nations.

3. The following private sector, civil society and scientific institutions registered were among the registered participants: Airbus, Antalya Diplomacy Forum, Arms Control Association, Article 36, Campaign to Stop Killer Robots, Center for International Security and Policy, Centre for Feminist Foreign Policy (CFFP), Facing Finance e.V., Fraunhofer Institut, Friedensgesellschaft – Vereinigte KriegsdienstgegnerInnen (DFG-VK), Future of Life Institute, Geneva Center for Security Policy (GCSP), Harvard Law School, Hertie School of Governance, Hessische Stiftung für Friedens- und Konfliktforschung (HSFK), Human Rights Watch, Institute for Peace Research and Security Policy at the University of Hamburg (IFSH), International Committee for Robot Arms Control, International Committee of the Red Cross, International Panel on the Regulation of Autonomous Weapons (iPRAW), Kent State University, King's College London, Mines Action Canada, Northeastern University Boston, Pax Christi Flanders, Pax Christi International, Project Ploughshares, Scientists Against Inhumane Weapons, Stiftung Wissenschaft und Politik Berlin (SWP), Stockholm International Peace Research Institute (SIPRI), Swedish Institute of International Affairs, Takushoku University Tokyo, The Alan Turing Institute, The Norwegian Peace Association, UK Killer Robots Campaign, Universität der Bundeswehr München, Universität Freiburg, University of Oxford, University of Rio Grande do Sul, Women's International League for Peace and Freedom, World Council of Churches.

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