
I. Introduction

1. The Fifth Review Conference of the High Contracting Parties to the 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 (CCW) held in Geneva from 12 to 16 December 2016 decided, as contained in Decision I of its Final Document (CCW/CONF.V/10),

“...To establish an open-ended Group of Governmental Experts (GGE) related to emerging technologies in the area of lethal autonomous weapons systems (LAWS) in the context of the objectives and purposes of the Convention, which shall meet for a period of ten days in 2017, adhering to the agreed recommendations contained in document CCW/CONF.V/2, and to submit a report to the 2017 Meeting of the High Contracting Parties to the Convention consistent with those recommendations.

...The GGE will hold its first session from 24 to 28 April 2017 or from 21 to 25 August 2017 and its second session from 13 to 17 November 2017 in Geneva.

The GGE will be chaired by Ambassador Amandeep Singh Gill of India.”

2. The Group of Governmental Experts met from 13 to 17 November 2017 in Geneva. The first session of the Group could not take place owing to a lack of adequate funding to hold all meetings.

II. Organization and work of the Group of Governmental Experts

3. The following High Contracting Parties to the Convention participated in the work of the Group: Albania, Algeria, Argentina, Australia, Austria, Belarus, Belgium, Brazil, Bulgaria, Cambodia, Cameroon, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, Cuba, Czech Republic, Dominican Republic, El Salvador, Estonia, Finland, France, Gabon, Germany, Greece, Guatemala, Holy See, Honduras, Hungary, India, Iraq, Ireland, Israel, Italy, Japan, Jordan, Kazakhstan, Kuwait, Lao People’s Democratic Republic, Latvia, Lithuania, Luxembourg, Mexico, Montenegro, Morocco, Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Panama, Peru, Philippines, Poland, Qatar, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Saudi Arabia, Serbia, Sierra Leone, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, State of Palestine, Sweden, Switzerland, Togo, Turkey, Tunisia, Uganda, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United States of America, Venezuela (Bolivarian Republic of) and Zambia.

4. The following Signatory State to the Convention participated in the work of the Group: Egypt.

5. The following States not party to the Convention participated as observers: Myanmar, Oman and Zimbabwe.

6. The representatives of the United Nations Office for Disarmament Affairs (UNODA), United Nations Institute for Disarmament Research (UNIDIR), European Union, Geneva International Centre for Humanitarian Demining (GICHD) and the International Committee of the Red Cross (ICRC) participated in the work of the Group in accordance with the rules of procedure.

7. The representatives of the following non-governmental organizations participated in the work of the Group in accordance with the rules of procedure: Campaign to Stop Killer Robots [Amnesty International, Article 36, Association for Aid and Relief, Japan, Facing Finance, Human Rights Watch, International Committee for Robot Arms Control (ICRAC),
Military effects dimension: Brigadier (Armament corps) Patrick Nelissen, Management Assistant, Ms. Nadiya Dzyubynska, Staff Assistant and Ms. Isabelle Gomez, from Stop Killer Robots, Human Rights Watch, International Committee for Robot Arms Control (IPRAW), King's College London, Lancaster University Law School, London School of Economics and Political Science, National Defense University Washington DC, National University of Ireland Galway (NUIG), Stockholm International Peace Research Institute (SIPRI), University of Barcelona, University of Melbourne, University Paris II Panthéon-Assas, Paris Human Rights Center, University of Strasbourg and University of Tampere.

8. The representatives of the following entities also participated in the work of the Group in accordance with the rules of procedure: Birmingham City University, Geneva Centre for Security Policy, Harvard Law School, Hiroshima Peace Institute of Hiroshima City University, Idiap Research Institute, International Panel on the Regulation of Autonomous Weapons (IPRAW), King's College London, Lancaster University Law School, London School of Economics and Political Science, National Defense University Washington DC, National University of Ireland Galway (NUIG), Stockholm International Peace Research Institute (SIPRI), University of Barcelona, University of Melbourne, University Paris II Panthéon-Assas, Paris Human Rights Center, University of Strasbourg and University of Tampere.

9. On Monday, 13 November 2017, the session was opened by the Chairperson, Ambassador Amandeep Singh Gill of India. Ms Anja Kaspersen, Head of the Geneva Branch of the UN Office of Disarmament Affairs, addressed the session on behalf of Ms. Izumi Nakamitsu, the High Representative for Disarmament Affairs.

10. At its first plenary meeting, the Group adopted its Agenda (CCW/GGE.1/2017/Rev.1), confirmed the Rules of Procedure as adopted by the Fifth Review Conference (CCW/CONF.V/4), and adopted its Programme of Work (CCW/GGE.1/2017/2). Ms. Hine-Wai Loose, CCW Implementation Support Unit, served as the Secretary of the Group, and was assisted by Mr. Bantan Nugroho, Head of the CCW Implementation Support Unit. Ms. Amy Dowler, Political Affairs Officer, Mr. Reint Vogelaar, Junior Professional Officer, Ms. Melanie Gerber, Junior Professional Officer, Ms. Maria José Orellana Alfaro, Documents Management Assistant, Ms. Nadiya Dzyubynska, Staff Assistant and Ms. Isabelle Porcu-Cartier, Staff Assistant served in the Secretariat.

11. At the same plenary meeting, the following delegations participated in a general exchange of views: Algeria, Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Cambodia, Canada, Chile, China, Costa Rica, Croatia, Cuba, Egypt, Finland, France, Germany, Greece, Holy See, India, Iraq, Ireland, Israel, Italy, Japan, Kazakhstan, Mexico, Morocco, Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Panama, Peru, Republic of Korea, Russian Federation, Sierra Leone, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Turkey, United Kingdom of Great Britain and Northern Ireland, United States of America, Venezuela (Bolivarian Republic of), Zambia, Venezuela (Bolivarian Republic of) on behalf of the Non-Aligned Movement, European Union, UNIDIR, ICRC, Campaign to Stop Killer Robots, Human Rights Watch, International Committee for Robot Arms Control, Mines Action Canada, Nobel Women’s Initiative, PAX and CNAS.

12. In accordance with its programme of work (CCW/GGE.1/2017/2), the Group commenced with a general exchange and in examining the various dimensions of emerging technologies in the area of lethal autonomous weapons systems, in the context of the objectives and purposes of the Convention, held expert-led panel discussions on the following dimensions: technology, military effects, legal/ethical and cross-cutting issues. Interactive discussions among the High Contracting Parties were held on the Chairperson’s Food-for-thought paper (CCW/GGE.1/2017/WP.1) and other issues and the Way Ahead. National working papers presented by High Contracting Parties enriched the discussions.

13. The Group heard presentations from the following experts:

(a) Panel 1 — Technology dimension: Professor Margaret Boden, University of Sussex; Professor Gary Marcus, New York University; Mr. Gautam Shroff, Tata Consultancy Services, India; Mr. Harmony Mothibe, BotsZA, South Africa; Professor Stuart Russell, University of California, Berkeley; and Mr. Sean Legassick, Google DeepMind.

(b) Panel 2 — Military effects dimension: Brigadier (Armament corps) Patrick Bezombes, France; Professor Heigo Sato, Takushoku University, Tokyo; Lieutenant Colonel
Alan Brown, Ministry of Defence, United Kingdom of Great Britain and Northern Ireland; Dr. David Shin, KAIST Institute for Robotics, Republic of Korea; Lieutenant Colonel Christopher Korpela, Military Academy - West Point, United States of America; and Dr. Lydia Kostopoulos, National Defense University, Washington D.C.

(c) Panel 3 - Legal/ethical dimensions: Ms. Kathleen Lawand, ICRC; Ms. Marie-Helen Parizeau, World Commission on the Ethics of Scientific Knowledge and Technology (COMEST), UNESCO; Professor Xavier Oberson, University of Geneva; Professor Bakhtiyar Tuzmukhamedov, Diplomatic Academy, Russian Federation; Mr. Lucas Bento, Attorney, Quinn Emanuel Urquhart & Sullivan, and President of the Brazilian American Lawyers Association; and Professor Dominique Lambert, l'Université de Namur.

(d) Panel 4 - Cross-cutting issues: Dr. Ing. Konstantinos Karachalios, Managing Director, IEEE Standards Association; Dr. Reinhard Scholl, International Telecommunications Union; Mr. Neil Sahota, IBM Watson and University of California; Ms. Kerstin Vignard, UNIDIR; Dr. Vincent Boulanin, SIPRI; and Dr. Marcel Dickow, Stiftung Wissenschaft und Politik.

14. The Group considered documents CCW/GGE.1/2017/1/Rev.1 to [To be completed] as listed in Annex I. The Group noted with appreciation the contributions of those High Contracting Parties submitting Working Papers, presenting their national policies and positions, and the input of civil society, including industry.

15. A summary of the discussions held during the Group prepared under the Chairperson's responsibility is attached to this report as Annex II.

III. Conclusions and recommendations of the Group of Governmental Experts

16. The Group affirmed that,
   i. CCW offers the appropriate framework for dealing with the issue of emerging technologies in the area of lethal autonomous weapon systems without prejudice to work in other forums. The Convention's modular and evolutionary character, the balance it seeks to strike between humanitarian considerations and military necessity as well as the opportunity it offers to engage multiple stakeholders make it an ideal platform for reaching a common understanding on this complex subject.
   ii. International humanitarian law continues to apply fully to the potential development and use of lethal autonomous weapon systems in armed conflict.
   iii. Responsibility for the deployment of any weapon system in armed conflict remains with States. States must ensure accountability for lethal action by any weapon system used by the State's forces in armed conflict in accordance with applicable international law, in particular international humanitarian law. Appropriate human involvement with regard to the use of lethal force is an essential element in this regard.
   iv. Emerging technologies in the area of lethal autonomous weapon systems continue to develop rapidly. Such technologies have growing civilian applications; in fact their development is being driven by civilian industry. States continue to have the freedom to develop them for peaceful uses and enjoy their benefits in accordance with applicable international law.
   v. Given the pace of technology development and uncertainty regarding the pathways for the emergence of increased autonomy, there would be a need to keep potential military applications of related technologies under review in the context of the Group's work.
   vi. Keeping in mind the discussion on the various dimensions of emerging technologies in the area of lethal autonomous weapon systems - technological, military, legal and ethical, there would be merit in focusing the next stage of the Group's discussions on the characterization of the scope of the systems under consideration in order to promote a common understanding on concepts and characteristics relevant to the objectives and purposes of the CCW.
vii. The aspect of human-machine interaction is inherent in the deployment and use of emerging technologies in the area of lethal autonomous weapon systems whether seen from the technology dimension, the military effects dimension or the legal and ethical dimensions. It would be relevant to assess this aspect, as part of the focus in the next stage of the Group’s work, throughout the stages of research & development, weapon reviews, testing, deployment and use in armed conflict.

viii. Further, there is need to continue the discussion systematically and in a focused and participative manner on possible pathways for addressing the humanitarian and international security challenges posed by LAWS in the context of the objectives and purposes of the Convention without prejudging policy outcomes and taking into account past, present and future proposals.

17. The Group therefore recommends that,

The Group of Governmental Experts related to emerging technologies in the area of lethal autonomous weapon systems (LAWS) in the context of the objectives and purposes of the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons shall meet for a duration of ten days in 2018 in Geneva in accordance with Decision I of the Fifth Review Conference of the High Contracting Parties to the Convention (CCW/CONF.V/10), consistent with CCW/CONF.V/12.

The Rules of Procedure of the Review Conference shall apply mutatis mutandis to the Group. The Group shall conduct its work and adopt its report by consensus which shall be submitted to the 2018 Meeting of the High Contracting Parties to the Convention. The widest possible participation of all High Contracting Parties is to be promoted in accordance with the goals of the CCW Sponsorship Programme.

18. At the final plenary meeting, the Group adopted its report as contained in document [To be completed] as orally amended, which is being issued as document [To be completed].
Annex I

List of documents

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