

Group of Governmental Experts on Lethal Autonomous Weapons Systems (GGE LAWS)

Joint Submission on possible consensus recommendations in relation to the clarification, consideration and development of aspects of the normative and operational framework on emerging technologies in the area of lethal autonomous weapons systems

submitted by Austria, Brazil, Chile, Ireland, Luxembourg, Mexico, and New Zealand

Introduction

The following joint submission is made in response to the request from the Chair of the GGE LAWS, Ambassador Marc Pecsteen, to submit 'written contributions on possible consensus recommendations in relation to the clarification, consideration and development of aspects of the normative and operational framework on emerging technologies in the area of lethal autonomous weapons systems'.

This submission presents the relevant elements of the September 2020 joint commentary on the guiding principles available in Annex of working paper CCW/GGE.1/2020/WP.7. The submission aims to contribute to the work of the GGE LAWS and build substance towards a normative and operational framework. It is issued without prejudice to each contributing State's national position.

The recommendations are divided into four sections: (I) International Humanitarian Law; (II) Human Control and Human-Machine Interaction; (III) Human Responsibility and Accountability and (IV) Weapons Reviews.

The list is not intended to be exhaustive and further elements may be added as the work on fulfilling the mandate of the of the GGE progresses in 2021.

Recommendations

(I) International Humanitarian Law

- International Law, particularly International Humanitarian Law, International Human Rights Law, and International Criminal Law, including the rules of attribution and responsibility applicable in a given case, apply fully to any weapons system;
- All weapons systems must be developed, deployed, and used, in conformity with International Humanitarian Law;
- The application of and compliance with IHL requires context-specific, value-based judgment by human beings and this requirement cannot be substituted by autonomous machines or systems;

- In order for weapons systems based on emerging technologies in the area of LAWS to be operated in conformity with IHL, the following three challenges need to be considered when designing, deploying and using such weapons systems:
 - Cognitive limitations of the system (lack of common sense and human judgement);
 - Epistemological limitations (i.e. the system making judgments based on data that are biased, incomplete, or not fully appropriate to the situation);
 - Algorithmic bias.

(II) Human Control and Human-Machine Interaction

- Human Control must be retained over weapons systems based on emerging technologies in the area of LAWS in order to allow for compliance with IHL;
- Human control over the critical functions of LAWS requires control throughout the life-cycle of the weapon. The nature and degree of human control may vary during the life cycle of a weapons system.
- The necessity of retaining human control over the weapons systems is a critical element in ensuring that there is no accountability gap in the design, development, deployment and use of weapons systems based on emerging technologies in the area of LAWS.
- Human-machine interaction may take various forms and be implemented at various stages of the life cycle of a weapon. A range of contextual (operational context) and technical considerations (characteristics and capabilities of the weapon) should be considered in determining the extent and quality of that interaction. The process-oriented normative and operational framework should therefore be based on the following criteria:
 - **Contextual considerations:**
 - Whether the weapons system is capable of reading the operational context correctly and whether it demonstrates a sufficient level of situational awareness (i.e. its ability to adequately perceive and react to changing circumstances). These elements should be made sufficiently transparent to the human agent
 - **Technical considerations:**
 - Whether adequate limits on tasks and types of targets are in place to allow the weapons system to be operated with sufficient degrees of reliability and predictability in the identification, selection and engagement of targets;
 - Whether adequate environmental limits, including spatial and temporal limits, are in place to ensure that the decisions, made at the planning stage, including legal assessments, are respected throughout the execution stage;
 - **Forms of human control:**
 - Whether meaningful human control is exerted and retained over the critical functions of a weapons system - i.e. in the identification, selection and

- engagement of targets – to ensure the necessary context- specific value judgment required in the application of IHL rules and principles;
- Whether the degree of human control allows for human supervision and intervention, where adequate, in order to prevent redefinition of the weapons system’s mission without human validation and to interrupt or deactivate the carrying out of autonomous functions if needed.
- It may be necessary to take precautions to ensure that a weapons system is not capable of changing certain mission parameters without human validation. It must also be ensured that commanders and operators are informed about any new characteristics, functions and parameters of weapons systems and are trained accordingly before the deployment or use of such systems in the field.
 - Ensuring the weapons system’s adaptability to a change in circumstances, including the possibility to cancel or suspend an attack including if it becomes apparent that the objective is not a military one or is subject to special protection or that the attack may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated;

(III) Human Responsibility and Accountability

- Human responsibility and accountability cannot, under any circumstances, be transferred to machines. Human responsibility and accountability must be maintained throughout the entire life-cycle of any weapons system based on emerging technologies in the area of LAWS.
- States and individuals are responsible and accountable for applying the law and are the ones that must be held accountable for violations.
- Weapons systems based on emerging technologies in the area of LAWS must not be designed, deployed or used without a clear line of responsibility and full accountability. A human chain of command and control must always be ensured during the deployment and use stages of the life cycle of such weapons systems. Commanders and operators must be informed about any new characteristics, functions and parameters of weapons systems and trained accordingly before the deployment or use of such systems in the field.
- Ambiguities or inconsistencies in the attribution of responsibility and accountability that may arise from the design, deployment or use of such systems must be prevented since any ambiguity would increase the risk of impunity and undermine confidence in the efficacy of the framework. It is essential that responsibility for the use and for the consequences of the use of a weapons system can be clearly assigned;
- Requirements for human responsibility and accountability apply to developers and manufacturers as well, as they bear responsibility in the design and programming stages of the weapon. This is particularly relevant for issues related to data bias, which can impact targeting, and malicious or careless programming.

(IV) Weapons Reviews

- Weapons reviews, including art. 36 reviews, will continue to play an important role in weapons development. In the evaluation of weapons systems based on emerging technologies in the area of LAWS, key challenges in the regulation and the nature of the systems should be considered, through a regular evaluation process, which should take into account the criteria detailed under human- machine interaction and be applied across the life cycle of a weapons system.
- Weapons reviews must be conducted with a full understanding of the weapons' capabilities and limitations, and sufficient confidence about its effects in the expected circumstances of use.

Concluding Remarks

Including the elements set out above in a normative and operational framework will be essential in order to ensure that human control is exerted and retained over critical functions of any weapons system based on emerging technologies in the area of LAWS. These elements, inter alia, are also critical in ensuring that there is no accountability gap in the design, development, deployment and use of such weapons systems.

We also emphasise that the recommendations are linked to important ethical and moral considerations that should form part of a normative and operational framework on LAWS.