“Requests the Secretary-General to seek the views of Member States and observer States on lethal autonomous weapons systems, inter alia, on ways to address the related challenges and concerns they raise from humanitarian, legal, security, technological and ethical perspectives and on the role of humans in the use of force, and to submit a substantive report reflecting the full range of views received with an annex containing these views, to the General Assembly at its seventy-ninth session for further discussion by Member States”.

- Resolution 78/241

Following the request from the Secretary General of the United Nations, Luxembourg is pleased to present its views on Lethal Autonomous Weapons Systems (LAWS) and on the challenges and concerns they raise.

As technology continues to advance at a rapid pace in an ever-changing security landscape, Luxembourg remains deeply concerned about the challenges and risks associated with the use of autonomous weapon systems. It is the responsibility of the international community to ensure that these technologies do not have the devastating humanitarian impact they could have in the absence of adequate and internationally recognized regulations and prohibitions.

In the past years, Luxembourg has been actively involved in various international initiatives regarding the complex topic of LAWS. Luxembourg has supported several working papers and declarations, including the adoption by consensus of the 11 guiding principles in the framework of the Group of Governmental Experts on Lethal Autonomous Weapons (GGE LAWS). Luxembourg also hosted the “Luxembourg Autonomous Weapons Conference” on 25 and 26 April 2023, aiming to raise public awareness on the topic and offer all stakeholders a platform to discuss the risks and challenges associated with these emerging weapons systems.

In July 2022, the Luxembourg Government set up an Interministerial Working Group on Lethal Autonomous Weapons Systems (IWG-LAWS). The IWG-LAWS was tasked with establishing a proposal on Luxembourg’s position regarding LAWS as well as follow-up actions aimed at defining principles, rules, and control mechanisms at the national level, pending the regulation at international level.
The IWG-LAWS proposed, based on an analysis of existing definitions, the following definition for "Autonomous Weapons Systems":

“Weapon systems capable of identifying, selecting and deploying force against a target without human intervention.”

Considering that autonomous weapon systems may be used to lethal and non-lethal ends, and that the use of force does not need to have lethal consequences to be contrary to international humanitarian law (IHL), it is Luxembourg’s position to refer to the weapons systems in question as “Autonomous Weapons Systems” instead of “Lethal Autonomous Weapons Systems”. In line with the terminology used in Resolution 78/241, Luxembourg will however continue to refer to “Lethal Autonomous Weapons Systems”.

A key factor in the characterization of LAWS, is the adaptability of these weapons systems. It is precisely this capacity of adaptation, made possible by artificial intelligence, that is an inherent part of the capabilities of LAWS and the corresponding ethical and legal debates. However, as this is a technology that is still being developed, autonomy is a characteristic that is not sufficient to provide a precise definition. For this reason, Luxembourg believes that it is more effective to define the degree of human intervention, rather than attempting to quantify the degree of autonomy.

Furthermore, it is Luxemburg’s position that while a consensus on an international definition or characterization of LAWS is still pending, a definition is not necessary to start to process of negotiation of a legally binding instrument on LAWS, that can be based on capabilities.

I. Addressing the challenges and concerns raised by LAWS

Luxembourg considers the “two-tier approach”, which distinguishes between prohibitions and regulations of LAWS, to be the appropriate way to address the challenges and concerns raised by LAWS.

- Tier 1: prohibition of development and use of LAWS that cannot be deployed in compliance with international law, and notably international humanitarian law. LAWS that are inherently indiscriminate, whose effects cannot be limited, anticipated, and controlled; of a nature to cause superfluous injury or unnecessary suffering; that operate completely outside of human control, should be prohibited under Tier 1.

- Tier 2: regulation of all other LAWS to ensure the system’s compliance with international law, especially international humanitarian law. To ensure this compliance, a series of positive obligations should apply to states to take appropriate measures throughout the life cycle of the system to mitigate potential legal, ethical, technical and security challenges. Such obligations could include, first and foremost,
the preservation of meaningful human control over the use of LAWS (see below) and, 
*inter alia*, legal reviews of weapons according to Article 36 of Additional Protocol I of 
the 1949 Geneva Conventions to ensure the system can be used in compliance with 
inernational law, adequate training, mitigations measures and other safeguards.

The two-tier approach ensures that international law, especially IHL, will continue to apply 
fully to LAWS from the development to the use of these weapons systems. The role of humans 
in the use of force is a key factor of the two-tier approach to ensure this compliance. Thus, a 
LAWS that operates outside of human control and without a precise and limited mission 
framework (geographical scope, targets, etc.), set by a responsible chain of command, would 
be prohibited under Tier 1, as it cannot ensure any sustainable assurance as to compliance 
with international law and international humanitarian law.

Lastly, the aim of prohibiting and regulating LAWS should not be seen as an attempt to hinder 
technological innovation but is imperative to ensure that IHL governs both the development 
and deployment of LAWS.

**II. Role of humans in the use of LAWS**

The concept of human control is an imperative to ensure that LAWS are used in compliance 
with international law and international humanitarian law.

To ensure compliance, two key principles must be taken into consideration: appropriate 
human control and human responsibility.

Appropriate **human control** could be preserved by the following measures:

- Once activated, the LAWS should act predictably in accordance with international law 
and international humanitarian law and the intentions of the commander and 
operator.

- Sufficient understanding of the system's mode of operation (prospective and 
retrospective). Operators should be able to adequately anticipate the system's 
functioning and effects in different operational environments, to avoid engagements 
non-compliant with international law and international humanitarian law. At the same 
time, they should be able to understand *ex-post* the actions carried out by the system.

- During deployment: capacity to set precise mission frameworks (type of targets, 
objectives), to set spatial and temporal limits. By setting precise deployment 
frameworks, operators can curb unwanted interactions with the system's 
environment, and prevent the emergence of critical situations that the system would 
not be able to resolve in compliance with international law and international 
humanitarian law.
• Development phase: development of IHL-compliant legal reviews to assess reliability and predictability and introduce certification procedures. Strict measures and provisions could be put in place to ensure that systems being developed can comply with international law and international humanitarian law, as well as a certification system validating the reliability of the systems.

• Retain human judgment regarding compliance with international law and international humanitarian law during deployment and in the phase of critical decision-making regarding the use of force. The use of properly tested and certified LAWS, and operators who are aware of how the systems work, can ensure that the systems are used in compliance with international law and international humanitarian law. The operator should, as far as possible, be familiar with all environmental and technical factors concerning the system, to determine whether the use of the LAWS could potentially violate the principles of IHL.

• Human approval of any substantial modification to mission parameters. The LAWS should not be able to make autonomous decisions concerning mission parameters, nor the spatial or temporal framework of the mission.

• Ability to disable the system, if and when necessary, should be provided. If the measures listed above fail, and the LAWS acts fully autonomously, contrary to the will of the operator or commander, the latter should be able to deactivate the system ("kill switch") to prevent international law and international humanitarian law violations.

**Human responsibility** should be preserved at all times and in all circumstances. It should never be transferred to machines. Various measures can be taken to preserve human responsibility:

• Elaborate precise doctrines and procedures for the use of LAWS, from the moment it is considered integrating such systems into the military arsenal. These doctrines/procedures should be adapted to the technological specificities of the systems in question.

• Adequate training of decision-makers and human operators to fully understand the effects of the system and its interaction with the environment.

• Human responsibility for deployment decisions and for defining and validating rules for system operation, use and operational engagement.

• Implementation of a post-deployment review to assess compliance with international humanitarian law.
• Procedures for reporting violations of international law and international humanitarian law.

• Disciplinary proceedings and prosecutions of alleged perpetrators of serious breaches of international humanitarian law

Lastly, in the stage of development, a significant under-representation of women, as well as other individuals from historically marginalized communities or victims of discrimination, in the fields of science, technology, engineering and mathematics, could create a significant bias in AI systems. Such biases could potentially be amplified by the application of generative AI and machine learning functions. It is therefore essential to adopt a gender sensitive an intersectional approach to all facets of emerging technologies in the area of LAWS.

III. Operationalization and recommendations

Luxembourg considers that the challenges posed by LAWS are best addressed in the context of the Convention on Certain Conventional Weapons (CCW). Discussions should develop elements for an instrument, potentially as an additional Protocol to the CCW, to ensure that LAWS comply with International Humanitarian Law (IHL) and that sufficient human control and accountability are maintained.

The GGE LAWS should fulfill its current mandate of developing a set of elements of a possible instrument and present its conclusions at the next Review Conference of the CCW in 2026 and move towards a negotiation mandate for an additional Protocol regarding LAWS under the Convention. The CCW brings together States developing military AI applications and, with its ability to negotiate new additional protocols, offers the necessary flexibility to address the issue of LAWS in an adequate framework. The GGE LAWS pools experts from governments, international organizations, civil society, and academia, combining technical, military, and legal expertise, necessary to examine the various aspects of emerging technologies in the area of LAWS.

The joint Working Paper submitted, by Bulgaria, Denmark, France, Germany, Italy, Norway and Luxembourg, during the first session of the GGE LAWS 2024, introduces further elements of an instrument to address the issue of LAWS within the framework of the CCW (see annex).

***
Annex:

Working paper Submitted by Bulgaria, Denmark, France, Germany, Italy, Luxembourg and Norway:

Elements of an instrument and other possible measures to address emerging technologies in the area of LAWS

I. Preambular part

The future instrument should:

1. *Reaffirm* the objectives and purposes of 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, which seeks to strike a balance between military necessity and humanitarian considerations;

2. *Recall* the Eleven guiding principles agreed by the High Contracting Parties as contained in document CCW/MSP/2019/9;

3. *Recall* that International Humanitarian Law continues to apply fully to all weapons systems independently of the military technology used, including autonomous weapons systems;

4. *Underlines* that weapons systems that cannot comply with IHL are *de facto* prohibited and that systems incapable of being used in accordance with IHL should not be developed or used;

5. *Reaffirm* that the rules and principles of IHL, including *inter alia* distinction, proportionality and precautions in attack, must be adhered to in the development, deployment and use of weapons systems based on emerging technologies in the area of lethal autonomous weapon systems.

II. Scope of application

The future instrument should:

6. *Apply* to lethal autonomous weapons systems i.e. systems that, once activated, are able to identify, select, track, and apply force to targets, without further human intervention;

7. *Establish* a clear distinction between:
   - Lethal autonomous weapons systems operating completely outside human control and a responsible chain of command (i.e. systems capable of setting their own objectives or modifying, without any human validation, their initial programme or their mission framework);
   - Lethal autonomous weapons systems featuring decision-making autonomy in critical functions (i.e. lethal weapons systems featuring decision-making autonomy in critical functions such as identification, classification, interception and engagement to which, after assessing the situation and under their responsibility, the military command can assign the computation and execution of tasks related to critical functions within a specific framework of action);

8. *Exclude* remotely piloted and tele-operated systems, automated systems and systems featuring autonomy in "non-critical"/"low-level" functions (such as altitude hold, observation, camouflage).

III. Prohibitions

9. The future instrument should prohibit the following weapons systems:
   - Lethal autonomous weapons systems that are inherently indiscriminate and/or incapable of distinguishing between civilians, enemy combatants and combatants hors de combat;
   - Lethal autonomous weapons systems the effects of which cannot be limited, anticipated and controlled, as required by international humanitarian law in the circumstances of their use;
• Lethal autonomous weapons systems operating completely outside human control and a responsible chain of command;
• Lethal autonomous weapons systems of a nature to cause superfluous injury or unnecessary suffering.

10. Reaffirm that States are responsible at all times for adhering to their obligations under applicable international law, including International Humanitarian Law. As such, States can be held responsible for internationally wrongful acts or violations of IHL resulting from the development or the use of the above-mentioned weapons.

IV. Regulations

The future instrument should:

11. Call on High Contracting Parties to take the necessary measures aiming at ensuring that lethal autonomous weapons systems covered by the future instrument and not prohibited under the future instrument (lethal autonomous weapons systems featuring decision-making autonomy in critical functions) are developed and used in full compliance with International Humanitarian Law. To that end, High Contracting Parties should put in place measures to:

• Assess - taking into account inter alia the technical performance, anticipated use, and intended tasks and types of targets - whether these systems are capable of being used in conformity with applicable international law, including international humanitarian law taking into account existing capacities and capabilities;

• Evaluate the reliability, understandability and predictability of such weapons systems inter alia by applying appropriate testing and certification procedure as well as appropriate training of human operators. In particular, High Contracting Parties should assess how such systems are expected to perform in the anticipated circumstances of its use as well as review the planned use of such systems;

• Control, limit or otherwise affect the types of targets that such weapon systems can engage as well as the duration, geographical scope, and scale of the operation of such weapon systems;

• Preserve and retain human control at all times, in all circumstances and across the entire life cycle of the machine with a view to ensure that humans:
  - Have a sufficient understanding, depending on their role and level of responsibilities, of such weapons systems' way of operating, effect and likely interaction with their environment and are able to predict and explain the behaviour of such weapons systems;
  - Will always define and validate rules of use, rules of engagement as well as a precise framework for the mission assigned to the system limited in time, space and by determined objectives according to the situation and context;
  - Are able to monitor the reliability and usability of the systems during its deployment and to approve any substantial modification of the mission's parameters;
  - Are in a position to exercise their judgement with regard to compliance with rules and principles of IHL, in particular distinction, proportionality and precautions in attack, and thus take critical decisions over the use of force.

12. Call on High Contracting Parties to put in place tailored risk mitigation measures, including technical safeguards, during the design, development, testing, and deployment of such weapons systems. Such measures and safeguards should aim at preventing and mitigating risks regarding the safety and security of such weapons systems, including but not limited to the following risks: risk of unintended bias, such as on gender aspects, risk of unintended engagements, risk of loss of control of the system and risk of diversion to unauthorized users including terrorists groups.

13. Reaffirm that High Contracting Parties remain responsible for, inter alia, all internationally wrongful acts committed by their organs such as their armed forces as well as all other actions or omissions attributable to the State, including any internationally wrongful act involving the use of
13. Partially autonomous lethal weapons systems, in accordance with applicable international law.

14. **Reaffirm** that individual responsibility for violations of international law, specifically IHL, can never be transferred to machines.

15. **Call** on High Contracting Parties to put in place into national law the relevant legal mechanisms to ensure accountability, including to investigate allegations of war crimes potentially perpetrated by their armed forces and nationals, or on their territory, or by any person under their authority, through such weapons systems.

**V. Consultation and cooperation**

The future instrument should:

16. **Put** in place a mechanism with a view to facilitate the consultation and cooperation of High Contracting Parties with each other on all issues related to the operation of the future instrument.

17. **Encourage** High Contracting Parties to exchange, on a voluntary basis, best practices with regard to national measures that they have put in place with a view to implement the requirements contained in the future instrument, including on the conduct of legal reviews.