

Group of governmental experts on emerging technologies in the area of lethal autonomous weapons systems

Commonalities in national commentaries on guiding principles

1. This paper is provided by the Chair of the 2020 group of governmental experts on emerging technologies in the area of lethal autonomous weapons systems (GGE LAWS), under his own authority. On 24 March 2020, on behalf of the Chair, High Contracting Parties were invited to submit commentaries on the operationalization of the guiding principles at the national level. This paper attempts to identify commonalities in the [submitted commentaries](#) in order to contribute to the furthering of the work of the GGE LAWS.
2. The views expressed in the commentaries can be grouped into two categories: (i) views on the status and role of the guiding principles and (ii) views about the operationalization of the guiding principles, including information on relevant national practice. Without prejudice to the position of any High Contracting Party, this paper summarizes elements from the commentaries, with a view to highlighting possible commonalities.

Status and role of the guiding principles

3. High Contracting Parties reaffirmed the value of the 11 guiding principles, which were adopted by consensus and articulate several fundamental concepts with respect to emerging technologies in the area of lethal autonomous weapons systems. There was however a variety of views on their status and role.
4. Many considered that the guiding principles should be seen as providing guidance for the work of the Group. In this connection, some emphasized that the guiding principles were not an end in themselves and were not sufficient to fulfil the mandate of the Group, which the 2016 CCW Review Conference tasked “to explore and agree on possible recommendations on options” relating to emerging technologies in the area of lethal autonomous weapons systems.¹ Several specified that the principles should guide the consideration and development of the normative and operational framework on emerging technologies in the area of lethal autonomous weapons systems. The view was also expressed that the work of the Group should not be based solely on the guiding principles.
5. Some considered that the guiding principles could be operationalized at the national level, including by being taken into account in the design and implementation of national law, regulations and policies. The view was also expressed that the further consideration of the definition of lethal autonomous weapons systems would be useful in the operationalization of the guiding principles.

¹ “Report of the 2016 Informal Meeting of Experts on Lethal Autonomous Weapons Systems (LAWS),” 10 June 2016, CCW/CONF.V/2. <https://undocs.org/CCW/CONF.V/2>

6. Several considered that the guiding principles may be further developed, elaborated and refined. Some cautioned that they should not be reopened for negotiation. Several argued that the work of the Group should not focus on the operationalization of the guiding principles, but rather recommended it look at the clarification, consideration and development of aspects of the normative and operational framework, such as a legally binding instrument, a political declaration or a compilation of best national practices.

Operationalization of the guiding principles at the national level

7. On guiding principle (a),² submissions recognized that international law, including international humanitarian law, regulates emerging technologies in the area of lethal autonomous weapon systems. Many commentaries stressed the importance of ensuring military documents and training for military personnel are updated to ensure compliance with international humanitarian law as new technologies enter into service. The value of legal advisers to militaries in this connection was noted. There was a call for the establishment of a network of legal experts on lethal autonomous weapons systems to, inter alia, identify applicable law and possible gaps in the normative framework.

8. Some expressed a view that lethal autonomous weapons systems would be incompatible with international humanitarian law and therefore with guiding principle (a). It was argued that autonomous weapon systems that cannot be used in compliance with the provisions of international law, notably international humanitarian law, should be specifically prohibited. Many considered that human control must be retained to ensure compliance with international law, including international humanitarian law, and to respond to ethical concerns. It was suggested that the GGE LAWS could further clarify international humanitarian law requirements applicable to the use of emerging technologies in the area of lethal autonomous weapon systems, including by clarifying if existing international humanitarian law is sufficiently specific.

9. Many commentaries addressed guiding principles (b)³ and (d)⁴ together, noting that while they do deal with distinct issues, they are inextricably linked. Several viewed that responsibility and accountability necessitate a degree of human control, which should be exercised throughout a weapon system's life cycle. A High Contracting Party noted that its existing national legislation already ensured a human was always accountable for decisions on the development and use of weapons. On guiding principle (d), a commentary noted that various measures could promote accountability, including rigorous testing and training, establishing procedures and doctrines, and using the weapon system in accordance with established training, doctrine and procedures.

² International humanitarian law continues to apply fully to all weapons systems, including the potential development and use of lethal autonomous weapons systems;

³ Human responsibility for decisions on the use of weapons systems must be retained since accountability cannot be transferred to machines. This should be considered across the entire life cycle of the weapons system

⁴ Accountability for developing, deploying and using any emerging weapons system in the framework of the CCW must be ensured in accordance with applicable international law, including through the operation of such systems within a responsible chain of human command and control

10. On guiding principle (b), one commentary noted a lack of clarity over whether it called for States to establish new forms of liability or confirmed the applicability of existing norms for intentionally wrongful acts with respect to lethal autonomous weapons systems. It was suggested that the GGE LAWS could elaborate principles (b) and (d) by articulating relevant good practices to ensure human responsibility and accountability. Several emphasized that it was also important to consider the implications of principles (b) and (d) for developers and manufacturers.

11. Most commentaries considered that guiding principle (c)⁵ was of primary importance to the work of the Group. Many stressed that international humanitarian law requires context-specific judgment by humans, and that human-machine interaction must ensure that humans retain control of the weapons they deploy and operate. A number found that this principle necessitated further work to determine the type and extent of human involvement required in the use of emerging technologies in the area of lethal autonomous weapons systems. There was also a call for an exchange of domestic policies and best practices relevant to this principle.

12. A number of submissions argued for further work to determine the nature of human control necessary across a weapon system's life cycle to ensure compliance with international law, including international humanitarian law. Some also noted that the practical implementation of these parameters for human-machine interaction is dependent on the operational context and the weapon's characteristics and may need to be determined on a case-by-case basis.

13. On guiding principle (e),⁶ several commentaries recalled information shared previously on the national implementation of legal weapon reviews. Many continued to stress the relevance and utility of weapon reviews for addressing concerns raised by emerging technologies in the area of lethal autonomous weapons systems. A few noted that weapon reviews are not by themselves sufficient to regulate autonomous weapons, including because of the lack of international uniformity in their implementation.

14. Some considered that the exchange of good practices on weapons reviews would be beneficial. One commentary promoted the joint definition of best practices. A few suggested that a mechanism for exchanging such information could be established within the CCW as a confidence-building measure. It was also noted that States are not obliged to make the results of their reviews public. A few commentaries identified some elements they viewed as good practices in the conduct of weapon reviews in general, including involvement of relevant expertise and independence from developers and users. Several viewed that emerging

⁵ Human-machine interaction, which may take various forms and be implemented at various stages of the life cycle of a weapon, should ensure that the potential use of weapons systems based on emerging technologies in the area of lethal autonomous weapons systems is in compliance with applicable international law, in particular IHL. In determining the quality and extent of human-machine interaction, a range of factors should be considered including the operational context, and the characteristics and capabilities of the weapons system as a whole

⁶ In accordance with States' obligations under international law, in the study, development, acquisition, or adoption of a new weapon, means or method of warfare, determination must be made whether its employment would, in some or all circumstances, be prohibited by international law

technologies in the area of lethal autonomous weapons systems present particular challenges to the weapon review process, including because of their possible unpredictability or self-learning capabilities, and that these difficulties should be discussed further.

15. On guiding principle (f),⁷ the need for High Contracting Parties to adopt measures to prevent the diversion of emerging technologies in the area of lethal autonomous weapons systems to unauthorized users was noted. It was suggested that dialogue on related technologies in appropriate export control bodies could be pursued. A call was made for an exchange of domestic policies and best practices relevant to this principle.

16. On guiding principle (g),⁸ High Contracting Parties were called upon to ensure that strict verification, assessment and validation procedures are in place in order to ensure a weapon system's reliability. The importance of training operators and commanders, as well as conducting of risk assessments informing doctrine were also underlined. It was suggested that the GGE LAWS should catalogue potential risks and mitigation measures that should be considered in the design, development, testing and deployment of weapon systems based on emerging technologies in the area of lethal autonomous weapons systems.

17. On guiding principle (h),⁹ several commentaries argued that emerging technologies in the area of lethal autonomous weapons systems can support the implementation of international humanitarian law due to, inter alia, the reduction of human-related errors and risks, improved precision and accuracy and the ability to incorporate self-destruct, self-deactivation or self-neutralization mechanisms. Others argued that this outcome was not assured and should not be assumed. One commentary viewed that this principle should be implemented during the legal review of new weapons, the formulation of military strategies and plans and the conduct of military operations. A call was made for further examination of the potential contribution of emerging technologies in the area of lethal autonomous weapons to verification of arms control instruments.

18. Several commentaries underscored that guiding principle (i)¹⁰ reaffirmed that weapons can only ever be tools lacking agency and legal personality. It was further noted that machines are not moral agents. As such, policy measures must always address humans.

⁷ When developing or acquiring new weapons systems based on emerging technologies in the area of lethal autonomous weapons systems, physical security, appropriate non-physical safeguards (including cyber-security against hacking or data spoofing), the risk of acquisition by terrorist groups and the risk of proliferation should be considered

⁸ Risk assessments and mitigation measures should be part of the design, development, testing and deployment cycle of emerging technologies in any weapons systems

⁹ Consideration should be given to the use of emerging technologies in the area of lethal autonomous weapons systems in upholding compliance with IHL and other applicable international legal obligations

¹⁰ In crafting potential policy measures, emerging technologies in the area of lethal autonomous weapons systems should not be anthropomorphized

19. Many commentaries expressed the view that regulating emerging technologies in the area of lethal autonomous weapons systems would not necessarily hinder peaceful civilian applications of relevant technologies, in line with guiding principle (j).¹¹ Some who held this view pointed to the experience of other disarmament treaties in this connection. Many also argued that legally binding restrictions addressing the security and humanitarian challenges posed by emerging technologies in the area of lethal autonomous weapons systems would avoid the imposition of trade restrictions and export controls that might otherwise hamper peaceful applications. The view was also expressed that a ban on these weapons would reduce research and development in related fields. It was recalled that the distinction between lethal autonomous weapons systems and emerging technologies in the area of lethal autonomous weapons systems was important; while the latter are integral elements of the former, they can be employed lawfully. The inclusion of the private and academic sectors in the work of the Group was considered useful for ensuring this principle is achieved.

20. Many commentaries affirmed that the CCW is an appropriate forum for discussing emerging technologies in the area of lethal autonomous weapons systems, as expressed in guiding principle (k).¹² Some also noted the relevance of other UN bodies, including the Human Rights Council. A few called for enhanced involvement of representatives from private industry.

Commonalities

21. Several particular commonalities emerge from this summary:

- a. Overall, international law, including international humanitarian law, regulates emerging technologies in the area of lethal autonomous weapon systems.
- b. The guiding principles are applicable for considerations of every stage of the life cycle of weapon systems employing emerging technologies in the area of lethal autonomous weapons systems.
- c. Further work is required to determine the type and extent of human involvement or control necessary to ensure compliance with applicable law, notably international humanitarian law, and respond to ethical concerns in the use of emerging technologies in the area of lethal autonomous weapons systems.
- d. National measures are needed to ensure compliance with applicable law, in particular international humanitarian law, including training of relevant military personnel to achieve clear understanding of the technical and operational

¹¹ Discussions and any potential policy measures taken within the context of the CCW should not hamper progress in or access to peaceful uses of intelligent autonomous technologies

¹² The CCW offers an appropriate framework for dealing with the issue of emerging technologies in the area of lethal autonomous weapons systems within the context of the objectives and purposes of the Convention, which seeks to strike a balance between military necessity and humanitarian considerations

characteristics of weapon systems, as well as applicable legal frameworks. The exchange of national good practices in a variety of areas of relevance to emerging technologies in the area of lethal autonomous weapons systems would be beneficial.

- e. In conducting legal weapons reviews, which are a legal obligation for parties to Additional Protocol I to the Geneva Conventions, governments must pay close attention to the particularities of emerging technologies in the area of lethal autonomous weapons systems.
- f. Continued and focused engagement on emerging technologies in the area of lethal autonomous weapons systems is necessary within the framework of the Convention on Certain Conventional Weapons, which is considered to be an appropriate existing framework to further work on the topic, including on aspects of the normative and operational framework on emerging technologies in the area of lethal autonomous weapons systems.