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**Israel Considerations on the Operationalization of the Eleven Guiding Principles
Adopted by the Group of Governmental Experts**

Responding to the call of the Chairman of the Group of Governmental Experts (GGE) for submission of commentaries on the operationalization at the national level of the eleven Guiding Principles adopted by the GGE on emerging technologies in the area of lethal autonomous weapons systems (LAWS) and endorsed by High Contracting Parties to the Convention on Certain Conventional Weapons (CCW), Israel would like to present below its considerations.

This paper does not attempt to present a comprehensive framework regarding the potential development and use of emerging technologies in the area of LAWS, but rather some general considerations relevant to the eleven Guiding Principles.

Israel's general view is that the law of armed conflict, or international humanitarian law (IHL), applies to the potential development and use of emerging technologies in the area of LAWS; that human judgment will always be an integral part of any process regarding emerging technologies in the area of LAWS, and will be applied during their life-cycle; and that humans will always be responsible for the use of LAWS.

Moreover, in Israel's view, it is important to be aware that besides the potential risks that may be associated with LAWS, there are also operational advantages to the use of LAWS as well as clear advantages from the humanitarian perspective.

(a) International humanitarian law continues to apply fully to all weapons systems, including the potential development and use of lethal autonomous weapons systems.

Existing IHL provides the applicable framework for regulating the use of weapons systems based on emerging technologies in the area of LAWS, as with any other weapon system. In this regard, the rules relating to distinction, proportionality and precaution in attack fully apply to the use of emerging technologies in the area of LAWS.

Therefore, Israel believes that the measures aimed at operationalizing the eleven Guiding Principles should be based on the general principle of applying existing IHL to the potential development and use of weapon systems based on emerging technologies in the area of LAWS.

(b) 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.

This principle affirms that human responsibility and associated human accountability continue to apply to the decision on the use of weapons systems, including weapons systems based on emerging technologies in the area of LAWS.

Thus, Individuals continue to be responsible for their decisions to use such weapons systems and are to be held accountable for IHL violations in this context, in accordance with the applicable rules of international law. It is also clarified that human responsibility is considered in relation to the entire life cycle of the weapon system in a holistic manner.

(c) 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.

This guiding principle recognizes the need for human-machine interaction to help ensure compliance with IHL. This principle also recognizes the need to consider human-machine interaction during the life cycle of the weapon system in a holistic manner, rather than focusing only on a particular stage while not providing adequate attention to human judgment and input that have already been, or will be, injected to the process in other phases.

In a practical sense, human-machine interaction should aim to provide sufficient assurance that the weapons system, once activated, acts in a foreseeable manner, so as

to ensure that its actions are in conformity with applicable law, rules of engagement, and the intentions of its users

In this regard, weapon systems based on emerging technologies in the area of LAWS should be examined on a case by case basis. The appropriate type and level of human-machine interaction will be determined by the characteristics and capabilities of the particular system in question, vis-a-vis the operational circumstances and the mission's requirements. In other words, there is no "one-fits-all" set of requirements that every weapon system needs to meet, but rather, these requirements may be adapted appropriately. Accordingly, for example, temporal and spatial restrictions may be applied to the operation of the system – during its development, deployment or before specific uses (depending on the case) – as necessary in order to ensure lawful use in the intended circumstances of use.

In this context, Israel believes that human judgment will always be an integral part of any process regarding LAWS, and will be applied during their life-cycle. Weapons systems based on emerging technologies in the area of LAWS will operate as designed and programmed by humans.

(d) 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.

This Guiding Principle has to be read together with Guiding Principle (b). Whereas Guiding Principle (b) notes in general terms the issue of accountability and its link to human responsibility, Guiding Principle (d) focuses and elaborates on the issue of accountability. It affirms that the applicable rules of existing international law regarding accountability will continue to apply to the development, deployment and use of any weapons systems based on emerging technologies in the area of LAWS, as they apply with regard to any other weapon system. It also reflects that commanders may bear command responsibility, as this term is understood in the applicable rules of international law, for decisions of their subordinates regarding the use such systems.

(e) 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.

During the GGE meeting of 11-15 April 2016, Israel presented its own domestic process for legal review of new weapons. Notwithstanding that Israel is not party to the First Additional Protocol to the Geneva Conventions and as such is not bound by Article 36 of that Protocol, Israel is of the view that applying legal reviews to new weapons is a useful instrument for a State to ensure that it uses only lawful means of warfare during armed conflicts. The understanding regarding the usefulness of this tool was shared by a consensus of member States in the GGE meeting of 21-20 August 2019 (CCW/GGE.1/2019/3).

- (f) 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.**

This principle stresses the importance of ensuring that weapons systems based on emerging technologies in the area of LAWS will not fall into the hands of terrorist groups.

- (g) Risk assessments and mitigation measures should be part of the design, development, testing and deployment cycle of emerging technologies in any weapons systems.**

In our view, risk assessments and mitigation measures constitute relevant tools for addressing uncertainty associated with emerging technologies. In particular, improving reliability and predictability relevant to autonomous functions of weapons systems will assist with ensuring that the potential use of LAWS will be in compliance with applicable international law.

- (h) 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. This principle reaffirms that the use of emerging technologies in the area of lethal autonomous weapons systems should serve to improve the respect for international law by increasing, inter alia, precision and by mitigating the risk of human error during attack.**

This principle considers that weapons systems based on emerging technologies in the area of LAWS may serve to advance adherence to existing IHL, as technology may allow improving compliance with IHL. These may include better precision of targeting which would minimize collateral damage and reduce risk to combatants and non-combatants.

- (i) In crafting potential policy measures, emerging technologies in the area of lethal autonomous weapons systems should not be anthropomorphized.**

This principle expresses the idea that technologies in the area of LAWS are merely tools in the hands of humans, designed and used by the latter to effectuate human intent. This is consonant with the notion that humans are responsible for the use of such technologies. Accordingly, these technologies or weapon systems must not be addressed, factually nor legally, as equivalent to humans, for example by referring to their "decision-making" or as having their own independent judgment. Considering technologies and weapons as tools in the hands of humans serves as a premise for the whole discussion in relation to LAWS, and to any potential policy measure.

(j) 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.

The CCW process on weapons systems based on emerging technologies in the area of LAWS concerns the development and use of LAWS in the IHL-context to which the CCW applies. This principle recalls that the issue under discussion revolves on a certain type of technology, and that this technology has numerous uses that most of which do not relate to the CCW. It clearly expressed that any discussions and outcomes in the CCW should not prevent progress or access to peaceful uses of this technology. This principle reaffirms the need to show modesty and prudence in dealing with such an issue – a technological subject of a dominant futuristic nature and far-reaching implications – and refrain from uninformed and unripe decisions.

(k) 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.

Israel believes that the CCW continues to be the appropriate forum for international dialogue on the issue of emerging technologies in the areas of LAWS, as a professional, and non-politicized framework for relevant IHL issues in this field, which balances between military necessity and humanitarian considerations. In this regard, it is important to remain within the agreed mandate for discussion and stick to the objectives and purposes of the CCW.