

**Lethal Autonomous Weapons Systems
Informal Meeting of Experts
Geneva, 11-15 April 2016**

Food-for-thought

Introduction

The upcoming third Informal Meeting of Experts on Lethal Autonomous Weapons Systems (LAWS) is an opportunity, building on the previous meetings, to deepen the understanding and discussions on these weapons systems further. This working paper sets out lists of questions for each session of the 2016 Informal Meeting of Experts (see annex: annotated programme of work). The questions are not exhaustive, but aim at assisting States in their preparations for and facilitate discussions at the meeting.

General debate

- a) What national policies and legal frameworks, if any, have been developed on LAWS?
- b) What are the expectations of delegations for this meeting of experts and further work on LAWS within the Convention on Certain Conventional Weapons (CCW)?

Mapping autonomy

- a) How are autonomous technologies being developed and used within the civilian sphere? What have been the major developments since 2015? What is hindering progress in this area?
- b) How is autonomy being developed and utilized in weapon systems for the maritime, aerial, terrestrial spheres? In these different environments, what are the implications for a military's standard operating procedures and what is the impact on human-machine interaction?

- c) How are autonomous technologies being developed and used by militaries? Are there weapons systems in which autonomous technology has been incorporated? And if so, in which functions? What have been the significant developments since 2015?
- d) How can the development and use of autonomous technologies in the civilian or military sectors be monitored?

Towards a working definition of LAWS

What are the key characteristics of LAWS? What differentiates these weapons systems from other weapons? What could be the definition of LAWS?

- a) Can autonomy in LAWS be best understood or defined in relation to the critical functions of a weapon (i.e. the selection, engagement and tracking of a target)? In how far could such an approach be operationalized for the purposes of developing regulations and policies on LAWS?
- b) Can autonomy be defined objectively? Can autonomy be measured?
- c) Is “predictability” a useful indicator to measure the level of autonomy of a system? In how far can the notion of predictability be operationalized in a definition?
- d) Can the level of a weapon system’s autonomy be assessed by a set of indicators? For example, physical characteristics, etc. alongside the level of human control? What are the advantages and disadvantages of such an approach?
- e) Does the level of human control of a weapon system assist in identifying what is a LAW? How could the required level of human control be defined?
- f) What is “meaningful human control” of a weapon system?
- g) What is the role of human judgment in the targeting process? How is 'human judgment' put into effect over a weapons system? Does the level of human judgment in the targeting process of a weapon system assist with identifying what is a LAW?
- h) Are there other approaches to defining LAWS?

Challenges to International Humanitarian Law (IHL)

- a) How many states are currently implementing legal weapons reviews? Who is involved in legal weapons reviews, what is being reviewed (new and modified systems?), where are the reviews conducted and how often are they carried out? Would it be possible to identify best practices or benchmarks for legal weapons reviews?
- b) What are the challenges to testing a weapon system which utilizes increasingly autonomous technologies? What are the particular challenges for the rules on targeting (distinction, proportionality and precautions)? Do states have the personnel and resources to test such systems? What can be done to promote the implementation of such processes within regional and multilateral fora?
- c) How does human-machine interaction impact on ensuring compliance with IHL?
- d) What is the liability of the producer, programmer, government and commander in the field for malfunction or unintentional act of a LAWS? Would LAWS create gaps in terms of liability and accountability under IHL and international law in general? If so, how could such gaps be addressed? If a LAWS malfunctioned or acted unintentionally, how could it be verified whether this was due to programming errors, self-learning errors, or unauthorized interference?
- e) Are there other practical measures that states can take to ensure compliance with IHL when utilising new technologies and in particular, autonomous technologies?
- f) In practice, how are autonomous systems tested in the civilian sphere in order to ensure compliance with the relevant rules? For example, how does one assess whether autonomous cars comply with the law?

Human rights and ethical issues

In what type of functions is increasing autonomy currently considered as risky or otherwise ethically problematic? What would be the human rights and ethical concerns if LAWS would respect all the existing norms under international law and IHL? Are there scenarios in which the use of LAWS might have no human rights and ethical implications? For example, if used

in relatively uncluttered environments, such as outer space, deserts, or the marine environment? If autonomy is deemed desirable for “friendly” acts, for example when carrying out rescue operations, in how far might this affect the acceptability of the weaponization of such systems?

Security issues

- a) Are there tactical and strategic advantages to be expected from the use of LAWS? If so, is there a risk that LAWS affect existing “power balances”? And, might the development and acquisition of such systems be perceived by regional neighbours as threatening?
- b) How would we know that users were to apply the highest degree of caution in the development and use of LAWS? Will it be more difficult to prevent unauthorized users from accessing those systems or unauthorized use once they become part of conventional armed forces? Do the unique characteristics of LAWS make proliferation in their application and use more or less likely? In light of the increasing sophistication of military technologies, will there be scenarios where national defence might rely on such systems?