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# International Discussions Concerning Lethal Autonomous Weapon Systems

As technology, particularly artificial intelligence (AI), advances, lethal autonomous weapon systems (LAWS)—weapons designed to make decisions about using lethal force without manual human control—may soon make their appearance, raising a number of potential ethical, diplomatic, legal, and strategic concerns for Congress. By providing a brief overview of ongoing international discussions concerning LAWS, this In Focus seeks to assist Congress as it conducts oversight hearings on AI within the military (as the House and Senate Committees on Armed Services have done in recent years), guides U.S. foreign policy, and makes funding and authorization decisions related to LAWS.

## International Fora for LAWS Discussions

The international community has begun to examine the implications of LAWS in discussions held primarily under the Convention on Certain Conventional Weapons (CCW), a multilateral arms control agreement to which the United States became a party in 1982, intended to protect noncombatants from particularly inhumane weapons of war. The CCW’s five protocols ban or regulate specific conventional weapons, notably blinding lasers. The CCW’s decisions are made by consensus among the treaty’s States Parties, and it has served in the past as a platform for discussing new weapon technologies.

Since 2014, the CCW has convened annual meetings of its States Parties to discuss the legal, ethical, technological, and military facets of LAWS. These meetings were upgraded in 2017 from informal “Meetings of Experts” to a formal Group of Government Experts (GGE). The GGE invites experts from civil society to partake in the deliberations alongside members of national delegations.

Despite six years of debate, the GGE has not produced any specific policy recommendations for the CCW’s States Parties. Although the meetings have led to a consensus that appropriate levels of human judgement must be maintained over any LAWS and that LAWS are subject to International Humanitarian Law (IHL), the mechanics of applying both terms remain contentious (e.g., does IHL categorically ban LAWS?), and the limited scope of agreement provides no basis for further action.

## What Are LAWS?

**Definitions.** One reason for the lack of progress within the CCW GGE is that no single definition for LAWS is universally accepted, especially within diplomatic and international fora, where some countries argue that an internationally accepted definition is unnecessary. Most parties to the LAWS discussions do agree that the defining features of LAWS are full autonomy (no need for manual human control) and lethality (antipersonnel as opposed to

antimateriel), although there is much debate over the specifics of these terms, in addition to other details.

**Status.** Over the past several decades, governments around the world have been successfully incorporating autonomous functions into their weapons. However, as of now, no lethal antipersonnel weapons are recognized as having fully autonomous target selection and engagement capabilities or demonstrating enough human-level cognition to be trusted to apply lethal force in compliance with the Laws of Armed Conflict (LOAC). Nonetheless, the potential of LAWS is so great that Stuart Russell, computer science professor at the University of California, describes them as “the third revolution in warfare, after gunpowder and nuclear arms.”

Table 1. Nation Stances on Preemptive LAWS Ban

Support		Other <sup>a</sup>	Oppose
Algeria	Ghana	China <sup>b</sup>	Australia
Argentina	Guatemala		Belgium
Austria	Holy See		France <sup>b</sup>
Bolivia	Iraq		Germany
Brazil	Mexico		Israel <sup>b</sup>
Chile	Morocco		South Korea <sup>b</sup>
Colombia	Nicaragua		Russia <sup>b</sup>
Costa Rica	Pakistan		Spain
Cuba	Panama		Sweden
Djibouti	Peru		Turkey
Ecuador	Uganda		United States <sup>b</sup>
Egypt	Venezuela		United Kingdom <sup>b</sup>
El Salvador	Zimbabwe		

Source: CRS consolidation of November 2018 and April 2019 data from multiple sources.

a. See section on China below.

b. Countries most capable of developing LAWS soon.

## LAWS Regulation Debate

**Arguments Supporting LAWS Ban.** Moral arguments in favor of a ban contend that LAWS distance human judgement too much from immediate decisions about taking human life to be morally acceptable under any circumstances and so must be banned.

Legal arguments contend that LAWS could violate the spirit, if not the letter, of both IHL and LOAC and should therefore be preemptively banned. In this view, LAWS could, due to poor design, engage in the prohibited practice of attacking and killing noncombatants without being held accountable. Legal arguments sometimes cite the CCW protocol on blinding lasers as a comparative case.

Strategic arguments against LAWS make the case that the development of LAWS could hurt more than help a country’s national security, because, once developed, LAWS can be relatively easy to proliferate to potential adversaries, particularly since AI technology is easily disseminated due to its digital nature.

**Arguments Opposing Restrictions on LAWS.** Countries are interested in LAWS because LAWS could provide significant military advantages over potential adversaries. Many believe that LAWS could be used in swarming attacks or to penetrate anti-access/area-denial (A2/AD) zones without human casualties. As such, strategic concerns are often behind opposition to restrictions on LAWS.

Moral arguments opposing LAWS regulation often contend that banning LAWS or restricting their development would stymie research into technologies that may have civilian or dual-use benefits. Others also claim that LAWS can help governments uphold their moral duty of protecting their citizens by improving a country's national security.

Legal arguments contend that LAWS uphold IHL by potentially reducing disproportionate collateral damage during warfare and providing commanders with more information so they can better distinguish military targets from civilians. Others argue that the spirit of IHL focuses not on the weapons themselves but on the manner of their use; as such, human commanders are to remain responsible for any decisions made regarding the use of LAWS.

**Arguments Supporting LAWS Regulation.** Arguments in favor of regulation instead of a ban tend to recognize the potential benefits that LAWS and related technologies may bring, while also acknowledging concerns that may arise from their use. Such arguments may suggest banning the use of LAWS in warfare but not their development, prohibiting certain types or features of LAWS, or establishing a framework for nonproliferation. However, some have suggested that no regulatory action should be taken until LAWS are actually developed, as preemptive restrictions on such weapons may be inherently flawed.

### Positions of the United States, Russia, and China

The United States, Russia, and China are likely to be the most influential actors in determining whether LAWS will be regulated, especially since the United States and China are widely viewed as the world's two leading nations in AI technology, and all three are currently engaged in an ongoing security competition.

**United States.** At CCW GGE meetings, the U.S. delegation has consistently opposed any preemptive international regulation or interpretation of existing IHL that would preemptively ban autonomous weapons. The United States has pointed to the unpredictable pace of technological development, the anthropocentric (not machine-centric) spirit of IHL, the potential ability of LAWS to uphold IHL and save human life, and the dual-use benefits of LAWS-enabling technologies as the main reasons for its current stance. Although the U.S. military is not currently developing LAWS, the Department of Defense has invested heavily in increasing autonomy in some weapons, in addition to studying the potential uses of LAWS.

**Russia.** Russia's delegation to the CCW GGE has also opposed any international regulation of LAWS. Russia has continually emphasized the national security benefits that LAWS may provide and pointed out the dual-use benefits of LAWS enabling technologies. It also argues that there is no proper legal precedent for a preemptive international ban on an entire class of weapons and declares that any

international regulation of LAWS is likely to be politicized. Russia's military is increasing its work on AI technology, but it continues to lag behind the United States and China.

**China.** At the 2018 CCW GGE meeting, the Chinese delegation stated that China supported a ban on the use—but not development—of LAWS, which it defines to be indiscriminate, lethal systems that do not have any human oversight and cannot be terminated, thereby rendering them inherently in violation of LOAC. However, China also acknowledges the dual-use benefits of the enabling technologies behind LAWS. Within the Chinese government, many have expressed fears of an AI arms race, although the Chinese military has invested heavily in developing autonomous weapons, which, according to some analysts, it views as the future of warfare. Some believe that China is maintaining “strategic ambiguity” about the international legality of LAWS to pursue its military goals.

### Nonstate and Nontraditional Actors

Given the predominantly security based concerns of governmental actors and the current nonexistence of LAWS, numerous nonstate actors, such as nongovernmental organizations (NGOs), have provided technical and ethical expertise to the discussions on LAWS. One such actor is the Campaign to Stop Killer Robots, a global coalition of NGOs founded in 2012 that lobbies for a complete ban of LAWS. Another is the Future of Life Institute, which, in 2015, offered an open letter strongly condemning LAWS that has now been signed by over 30,000 people, including well-known individuals such as Elon Musk and the late Stephen Hawking. On the other hand, the World Economic Forum and Chatham House have opposed any ban on LAWS. The International Committee of the Red Cross, Center for a New American Security, Bulletin of the Atomic Scientists, and other groups have also all participated actively in the debate.

### Potential Questions for Congress

- Should the United States maintain or change its current position on a preemptive ban of LAWS? Should it consider regulating these systems or issuing a political declaration regarding their development or use?
- Is the executive branch keeping Congress adequately informed about developments, both international and domestic, concerning LAWS and their regulation?
- What does the United States know about the efforts of China, Russia, and other nations to develop LAWS?
- What are the implications of the CCW's lack of agreement of specific policy recommendations?

### CRS Products

CRS Report R44466, *Lethal Autonomous Weapon Systems: Issues for Congress*, by Nathan J. Lucas

CRS In Focus IF11150, *Defense Primer: U.S. Policy on Lethal Autonomous Weapon Systems*, by Kelley M. Saylor

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