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Lethal Autonomous Weapon Systems (LAWS)—A Boon or A Bane?



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Lethal Autonomous Weapon Systems (LAWS) can be explained as weapons which can independently search and engage targets, employing onboard sensor suites and algorithms without human control. LAWS can operate in the air, on land, on water, underwater or in space.

The concept of being autonomous varies hugely among different scholars, nations and organisations. Heather Roff describes autonomous weapon systems as “armed weapon systems, capable of learning and adapting their functioning in response to changing circumstances in the environment in which they are deployed as well as capable of making firing decisions on their own”. According to Mark Gubrud, a weapon system operating partially or wholly without human intervention is considered autonomous. He argues that a weapon system does not need to be able to make decisions completely by itself in order to be called autonomous, instead it should be treated as autonomous as long as it is actively involved in one or multiple parts of the preparation process – from finding the target to finally firing. The Ministry of Defence, UK defines LAWS as

Key Points

- Lethal Autonomous Weapon Systems (LAWS) are weapons which can independently search and engage targets, employ onboard sensor suites and algorithms without human control.
- However, many countries have called for a pre-emptive ban on development of LAWS, since these systems would be unable to adhere to the current laws of war.
- The legality over LAWS basically revolves around three fundamental issues: (a) International Humanitarian Law’s rules of legal review; (b) Distinction; (c) Proportionality.
- India has highlighted the undermentioned issues with respect to LAWS at various international fora: (a) Need for increased systematic controls on international armed conflicts in a manner that does not widen the technological gap amongst states. (b) Issue of international security in case of proliferation of such weapon systems to Non-State actors. (c) Need to resolve issues with respect to definition and mapping autonomy.
- In the Indian context, autonomous weapons could reduce the casualties and improve efficiency in defensive operations. These weapons could have a greater impact in inhospitable terrain like in Jammu and Kashmir, Ladakh and along the Northern borders.

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systems that are capable of understanding higher level intent and direction.

It is felt that the introduction of autonomous weapons will change the nature of warfare and will also affect the understanding of laws of war. However, there are number of countries which have called for a pre-emptive ban on development of LAWS, since these systems would be unable to adhere to the current laws of war and also the fact as to who would be liable in case of wrongful death of civilians, needs much thought. However, there are countries like the US who argues that autonomous weapons have enormous benefits including reduction in cruelties and improving defensive capabilities.

Since India faces threats from both State and Non-State actors and a substantial portion of its International Borders consists of difficult terrain, Autonomous Weapons may help India to undertake certain tasks more effectively with minimal casualties.

State of Technology and Current Weapon Systems

The oldest automatically-triggered lethal weapon is the land mine used since the 1600s and naval mines used since the 1700s. Some of the systems in use since the 1970s, like US' Phalanx CIWS, can autonomously identify and attack incoming missiles, rockets, artillery fire, aircraft and surface vessels based on criteria set by the human operator. Many missile systems such as 'Iron Dome' also have autonomous targeting capabilities. Automatic turrets installed on military vehicles are called remote weapon stations. The main reason for not having a 'human in the loop' in these systems is the requirement of rapid response.

Systems with higher degree of autonomy would include drones or unmanned combat aerial vehicles as 'Future Combat Air Systems' which can autonomously search, identify and locate the enemy, but target engagement takes place only when authorised by mission command. It can also defend against enemy aircraft. Israel minister Ayoob Kara in 2017 stated that, Israel was developing military robots, including ones as small as 'flies'. In October 2018, Mr. Zeng Yi, a senior executive at Chinese Defence Firm, Norinco – said that

in future battlegrounds, there will be no people fighting and that the use of LAWS in warfare is inevitable.

The near-autonomous defensive systems, adopted by several countries, are primarily used in defensive role to intercept incoming attacks and respond to predetermined threats. Offensive weapon systems, in combat, although do not defend an object or target but can be employed and used anywhere. However, the difference between offensive and defensive weapons is not much and there are significant overlaps between the two.

Dual-use technologies like Artificial Intelligence (AI), Machine Learning and Big Data Analytics are set to transform the world and therefore, the prospects of development of LAWS have increased manifold. Amongst the various dual-use technologies available, Artificial Intelligence is the most significant technology in the context of LAWS, but not so developed so as to make weapon systems fully autonomous and beyond human control. However, in medium to long term, AI can be expected to lend greater autonomy to machines.

Issues Concerning LAWS

Ongoing research and development in the field of autonomous weapons have reached a critical stage requiring in-depth reflection on further technical development of such weapon systems. The debate on LAWS raises the following fundamental, ethical and principle questions:

- Can the decision over life and death be left to a machine?
- Can autonomous weapons function ethically?
- Are machines capable of acting in accordance to International Humanitarian Law?
- Can these weapon systems differentiate between combatants and others?
- Can such systems evaluate the proportionality of attacks?
- Who will be held accountable for proliferation of such a weapon into the hands of Non-State actors?

Legality of Autonomous Weapon Systems

Questions have often been raised regarding the legality of fully autonomous offensive weapons, particularly those which can target and kill human beings. The question about the legality is important since the deployment of autonomous weapons will fundamentally change the manner in which the wars are fought.

The legality over LAWS basically revolves around three fundamental issues:

- International Humanitarian LAWS' rules of legal review
- Distinction
- Proportionality

While the legal review addresses the weapon development; distinction and proportionality determine the legality of weapon deployment.

Article 36 of the first additional protocol of Geneva Conventions, provides a framework for legal review of new weapons. Two imperatives determine the basic lawfulness of a weapon system—"the rule against inherently indiscriminate weapons" and "the rule against weapons that causes unnecessary pain or suffering."

Human Rights Watch and the UN Special Rapporteur on extra-judicial executions have argued and called the autonomous weapon systems as prima facie illegal since they will never be able to meet the requirement of laws of war, in any substantial manner. Although advances in AI might lead to weapon system, capable of such a subjective undertaking, making them truly independent in nature—but the development of such weapon would be illegal. However, there are others who have argued that autonomy alone does not render such weapons illegal. As per them, autonomous weapons might be better able to adhere to norms of international law, while some contend that it is too early to argue over the legal issues since the technology itself has not been completely developed yet.

Ethical Issues

Ethics and Law are intimately linked, especially when the purpose of law (such as international

humanitarian law and international human rights law) is to protect the people. The regulation for conduct of hostilities, including regulating the choice of weapons, starts with a societal decision of what is acceptable or unacceptable behaviour, what is right or wrong. Subsequent legal restrictions are, therefore, a social construct, shaped by societal and ethical perceptions. These determinations evolved over time—what was considered acceptable at one point in history is not necessarily the case today. However, some codes of behaviour in warfare have endured for centuries—for example, the unacceptability of killing women and children and of poisoning.

Ethical questions about LAWS has been viewed as secondary concerns. The states are more comfortable discussing whether new weapons could be developed in compliance with international humanitarian law and also with the assumption that primary factors limiting development and use of autonomous weapons, are legal and technical. Nevertheless, ethical arguments have been made both for and against LAWS. The primary argument for LAWS has been an assertion that, they might enable better respect for both international laws and human ethical values by enabling greater precision and reliability than weapon systems which are controlled directly by humans and therefore would result in less adverse humanitarian consequences for civilians. Another argument for LAWS is that they will help fulfil the armies to protect the soldier. Ethical arguments against autonomous weapons can be divided into two forms: Objections based on limits and technology to function within legal constraints and ethical norms; and ethical objections that are independent of technological capability. Since the technological trajectories are difficult to predict, it's the technological capability that may be of interest to the policymakers. Certain issues in this respect are:

- Removing humans from decisions to kill, injure and destroy.
- Undermining the human dignity of those combatants who are targeted and of civilians who are put at risk of death and injury as a consequence of attack on legitimate military targets.

- Further, increasing human distancing physically and psychologically from the battlefield thereby, enhancing the existing asymmetries.

Should Autonomous Weapons be Banned

Many countries including entities such as Human Rights Watch and the UN Special Rapporteur on extra-judicial execution, have called for a pre-emptive ban on the development and use of autonomous weapons. The US and the UK, though they have not supported the outright ban, have agreed that such regulations are required. Moreover, any ban in order to be fully effective, must be supported and upheld by all major powers, which seems highly unlikely, since several countries have already started developing autonomous weapons. Since, the major powers including India, China, Russia and US, are non-parties to the Ottawa Treaty, which is often cited as precedent of a pre-emptive ban, therefore, the call for a pre-emptive ban on the usage of autonomous weapons is still uncertain.

Another issue with respect to pre-emptive ban is that, the full scope of automation and the manner in which automation could proceed, is not yet apparent. Thus, a pre-emptive ban could put all the research, related to any form of automation in the defence sphere, to hold. Therefore, since the technology for autonomous weapons is still under development, it would be reasonable to argue that banning LAWS would be premature.

India's Position on LAWS

Amidst the call for a ban on LAWS, India is planning to strengthen its AI-based weapon systems. The same was recommended by the 17-member AI Task Force led by Mr. N Chandrasekaran, Chairman, Tata Sons.

India has highlighted the undermentioned issues with respect to LAWS at various international fora:

- Need for increased systematic controls on international armed conflict in a manner that does not widen the technological gap amongst states.
- Issue of international security in case of proliferation of such weapon systems to Non-State actors.
- Need to resolve issues with respect to definition and mapping autonomy.

It is felt that, the robots and AI arms race has caused geopolitical tension and fear across the globe. Leadership in AI can give nations a military edge which can lead to devastating consequences and therefore, India does not want to lag behind—the recent developments in AI, blockchain and emergent technologies are testimony to that.

Way Forward for India

India's approach to the international regulation of weapon systems has been disarmament rather than arms control. India has opposed discrimination in the structuring of Arms Control treaties by refusing to sign the Nuclear Non-Proliferation Treaty (NPT) and the Comprehensive Nuclear Test Ban Treaty (CTBT).

India's usage or induction of LAWS would depend upon the threat that India would face from time to time.

In the Indian context, autonomous weapons could reduce the casualties and improve the efficiency in defensive operations. These weapons could have a greater impact in inhospitable terrain like in Jammu and Kashmir, Ladakh and along the Northern borders. Protection of space assets by autonomous systems would be another field which is likely to tilt the balance in favour of the development of autonomous weapons. Moreover, with China developing its own autonomous weapons, India is left with no choice but to develop its own systems. Though Pakistan has called for a ban on autonomous weapons, it cannot be trusted, as has been the case where Pakistan had called for nuclear-free South Asia and simultaneously developed its nuclear capability. From India's perspective, a ban would be highly impractical, given its security considerations and the fact that it has already started developing such systems.

However, LAWS does have its own share of drawbacks when it comes to technicality – implementation, usage and maintenance. Legality and ethicality of the same must also be thoroughly assessed before taking up any action.

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Conclusion

The legal and ethical questions surrounding LAWS would continue to exist. But, notwithstanding this, India should continue with the development of LAWS, as has been acknowledged by its defence establishments,

keeping its security situation in mind. At the same time, India should contribute, at various international fora, in promoting a pragmatic international regulatory mechanism on the development, use and trade of autonomous weapons.

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