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INDIA AND THE CHALLENGE OF AUTONOMOUS WEAPONS

R. Shashank Reddy

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About the Author

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Summary

The introduction of autonomous weapons will profoundly change the nature of war and will also affect the understanding of laws of war. A small but fierce international debate has started over the legality and use of such weapons. India is uniquely placed to take a lead in the global discussion about this issue. India should view development and deployment of autonomous weapons through the prism of its security needs and national interests.

The Emerging Debate

- A number of parties, such as the UN special rapporteur on extrajudicial executions and Pakistan, have called for a preemptive ban on the development of autonomous weapon systems. They argue that these systems would be unable to adhere to the current laws of war and that it is unclear who would be liable in the case of wrongful death of civilians, for example.
- Other parties, such as the U.S. Air Force, have argued that autonomous weapons have benefits, including reducing casualties and improving efficiency in defensive capabilities.
- Autonomous weapons may help India undertake certain tasks with minimal human loss and in a more effective manner. The country faces threats from both states and nonstate actors, and a substantial portion of its international borders consist of rugged terrain. Unmanned systems could be more effective in such areas.
- Indigenous development of autonomous weapons could boost India's domestic arms industry and export potential.

Next Steps for India

Develop autonomous weapons. Given India's security needs, the potential benefits of autonomous weapons cannot be overlooked. Autonomous weapons could prove to be beneficial in a range of areas, from border patrols to protecting space assets.

Advocate for comprehensive international regulations. A preemptive ban on the development of autonomous weapon systems would be premature. India must instead advocate for international regulations that cover the development, use, and trade of these systems because this approach will be more effective in addressing the myriad issues associated with such weapons and will also be

more likely to ensure compliance by the major powers. As a potential weapons-exporting state, India must ensure that the regulations not only are fair and balanced but also address its concerns about proliferation to nonstate actors.

Take the lead with domestic regulations. With the international debate still nascent, autonomous weapons may be developed and deployed before an international regime is established. India can use this opportunity to influence global standards by adopting domestic regulations that comprehensively address the development and use of autonomous weapons.

Introduction

Autonomous weapons function with minimal to no human intervention, selecting and engaging targets by themselves. Fully autonomous weapons do not yet exist, but an increasing number of countries are developing or deploying near-autonomous systems.

While no country has acknowledged deploying autonomous offensive weapon systems, even defensive systems will profoundly change the way nations think about wars and will directly affect a variety of areas, including trade and the balance of power. Issues related to the morality of these weapons and their status under international humanitarian law have generated a small but fierce global debate. A consensus has not yet emerged, but parties such as the United Nations (UN) special repporteur on extrajudicial executions and the state of Pakistan have already put forward arguments calling for a preemptive ban on development of such weapons.

For India, this debate should be viewed through the prism of its security needs. Autonomous weapons will augment the country's defenses and may in fact be better able than human soldiers to achieve some strategic objectives, including checking cross-border infiltration. India should both develop autonomous weapons and engage forcefully in the process to create an international regulatory system.

This paper aims to outline the current status of autonomous weapons and provide a position that may best serve India's interest in the international debates on the issue.

Autonomous weapons will augment India's defenses and may in fact be better able than human soldiers to achieve some strategic objectives, including checking cross-border infiltration.

State of Technology and Current Weapon Systems

A 2012 U.S. Department of Defense directive defined an autonomous weapon system as "a weapon system that, once activated, can select and engage targets without further intervention by a human operator. This includes human-supervised autonomous weapon systems that are designed to allow human operators to override operation of the weapon system, but can select and engage targets without further human input after activation."[1] Autonomous weapon systems are, in effect, independent agents in any theater of war.

The near-autonomous defensive systems adopted by several countries are primarily used in a protective role to intercept incoming attacks. They defend a

specific object or area; they do not actively seek out targets but instead respond to predetermined threats. Offensive weapon systems, in contrast, do not defend an object or target and can be deployed and used anywhere. The difference between offensive and defensive weapons is not watertight and significant overlaps can exist.

Autonomous weapon systems are, in effect, independent agents in any theater of war.

The most well-known autonomous defensive weaponry are missile defense systems, such as the Iron Dome of Israel,[2] though they also include last line of defense weaponry such as the Phalanx Close-In Weapon System used by the U.S. Navy. Fire-and-forget systems, such as the Brimstone missile system of the United Kingdom and the Harpy Air Defense Suppression System of Israel, are also near-autonomous,[3] given that human intervention is restricted to the initial stage of firing. South Korea uses the SGR-1—a sentry robot with an automatic mode—in the Demilitarized Zone.[4] While this system counts as defensive because it is stationary, it would not require a major technological leap to introduce offensive capabilities by making it mobile. This added dimension would allow the SGR-1 to hunt for targets.

Apart from these examples, a number of potentially autonomous systems will be deployed in the near future. The most conspicuous is Norway's Joint Strike Missile, a sea- and ground-strike weapon, which can "hunt, recognize and detect a target [ship or land-based object] without human intervention," the *New York Times* reported.[5] This could be the first near-autonomous offensive weapon to be deployed.

The U.S. Air Force holds that greater levels of autonomy are desirable. It has stated, "The vision is for a [U.S. Air Force] positioned to harness *increasingly automated*, modular, and sustainable [*unmanned aircraft systems*] resulting in leaner, more adaptable and tailorable forces that maximize the effectiveness of 21st Century airpower."[6] (Emphasis added.) The march toward greater autonomy therefore seems to be irreversible.

The Legal Debate

The possibility of fully autonomous offensive weapons raises contentious questions about the legality of these systems, particularly those that can target and kill humans. (Near-autonomous weapons that target objects, such as missiles or ships, are less controversial.) The question of legality is especially important given that the deployment of autonomous weapons will fundamentally affect the way wars are fought. At the heart of this debate is concern about whether these weapons as independent actors can adhere to the laws that govern modern conflicts.

The legal debate over lethal autonomous weapons revolves around three fundamental points: international humanitarian law's rules of legal review, distinction, and proportionality. Whereas legal review addresses weapon development,

distinction and proportionality determine the legality of weapon deployment. The legality of deployment is questioned only after a weapon system is developed and its effects and uses tested.

The most oft-quoted provision of international law in this context is Article 36 of the first additional protocol to the Geneva Conventions,[7] which provides a framework for the legal review of new weapons. Two imperatives determine the basic lawfulness of a weapon system: the rule against inherently indiscriminate weapons—that is, weapons whose effects cannot be limited—and the rule against weapons that cause unnecessary pain or suffering.[8]

The laws of war related to distinction and proportionality determine the legality of using a weapon system. The principle of distinction requires parties to an armed conflict to distinguish civilian populations and assets from military assets, and to target only the latter.[9] The law of proportionality requires parties to a conflict to determine the civilian cost of achieving a particular military target and prohibits an attack if the civilian harm exceeds the military advantage of the attack.[10] It has also been argued that a clause in the first protocol, known as the Martens Clause,[11] that requires weapon systems and their usage to meet the "dictates of public conscience" would control the development and deployment of autonomous weapon systems.[12]

The possibility of fully autonomous offensive weapons raises contentious questions about the legality of these systems, particularly those that can target and kill humans.

Human Rights Watch and the UN special rapporteur on extrajudicial executions have argued that autonomous weapon systems would be prima facieillegal as they would never be able to meet the requirements of the laws of war in any substantial manner, given that adherence to these laws requires a subjective undertaking of which machines are inherently incapable.[13] Preprogrammed autonomous systems, the ICRC and others have argued, would never be able to assess each individual combat situation on its own merits and decide on a course of action accordingly. They would, the argument goes, engage in warfare using only objective standards for any given situation as opposed to the subjective responses that are necessary to make war humane. Although advances in artificial intelligence might lead to weapon systems capable of such a subjective undertaking, making them truly independent in nature, these parties have argued that the development of such weapons should be illegal.

Some commentators, however, have argued that autonomy alone does not render such weapons illegal.[14] They have insisted that in some circumstances, autonomous weapons might be better able to adhere to norms of international law.[15] Other scholars have correctly pointed out that autonomous weapons, in any capacity, would have a wide range of uses in scenarios where civilian loss would be minimal to nonexistent, such as naval warfare.[16] Further, because such weapon systems would not be driven by human fears, they might be able to better differentiate between combatants and civilians by waiting until

physically fired upon to respond. These commentators have argued that the question of legality depends on how these weapons are used, not their development or existence.

Other analysts have contended that it is too early to argue over the legal issues surrounding autonomous weapons because the technology itself has not been completely developed yet.[17] The debate is nascent and ongoing, primarily under the framework of the Convention on Certain Conventional Weapons (CCW).

Should Autonomous Weapons Be Banned?

Related to the question of autonomous weapons' legality is the question of how, if at all, they should be regulated.

Entities such as Human Rights Watch[18] and the UN special rapporteur on extrajudicial executions,[19] as well as countries like Pakistan,[20] have called for a preemptive ban on the development and use of autonomous weapons, citing the Ottawa Treaty as a precedent.[21] Leading academics and artificial intelligence researchers such as Stephen Hawking and Elon Musk have called for a moratorium on the development of autonomous weapons, stating that these weapons "will become the Kalashnikovs of tomorrow."[22] These critics have argued that because it is impossible to accurately predict how an autonomous weapon may respond in a given scenario and because the easy availability of autonomous weapons may increase the likelihood of armed conflict, it is safer to ban development from the outset.

Some organizations and countries have called for a preemptive ban on the development and use of autonomous weapons.

Other countries, such as the United Kingdom and the United States, have agreed that regulation may be needed but do not support an outright ban,[23] given the benefits in reducing casualties and increasing efficiency highlighted by some commentators.[24]

Some scholars have noted that a ban may be pointless considering that much of the automation may be incremental and targeted at outcomes such as efficiency rather than advancing lethality.[25] Any ban, in order to be truly effective, would need to be supported and upheld by all the major powers. This seems highly unlikely as of 2016, given that several countries have already started developing some form of autonomous weapon systems. The precedent often cited by advocates of a preemptive ban, the Ottawa Treaty, also shows the limitations of such a ban. Several major powers, including China, India, Russia, and the United States, are nonparties to the treaty, diminishing its effect.

Another issue with a preemptive ban is that the full scope of weapon automation is not yet apparent. Without knowing in what way automation could proceed, a preemptive ban would need to be so broadly worded as to put on hold all research related to any form of automation in the defense sphere. This would be akin to halting vital technological progress for militaries, an act that

would be not only illogical but also highly ineffective because few militaries would subscribe to such an all-encompassing prohibition.

A significant issue regarding the regulation of such weapons is the accountability gap in case of a wrongful death of a civilian or the commission of war crimes. Ordinarily, human soldiers or their commanding officers are held directly responsible. But how would liability be assigned to a machine? And if not the machine, who ultimately is to be held responsible?

These questions do not have easy answers, and some have used this accountability gap to advocate for a preemptive ban.[26] Others have argued for holding the developers of such systems liable.[27] A few commentators have even stated that the current laws of war and principles of international humanitarian law are enough to bridge this gap.[28] The debates on this issue have just started, but what is certain is that any proposed regulation would need to provide some answer to the question of liability if it is to be truly effective.

Because autonomous weapon technologies are still in an early stage of development, it is reasonable to argue that banning them is premature. Reviewing their legality from the outset under Article 36 and regulating their use would be more practical. Such regulation could be comprehensive and lay down international principles that would apply at each stage of development, testing, and deployment of autonomous weapons. In order to be truly effective, it would also need to address liability standards and proliferation.

Because autonomous weapon technologies are still in an early stage of development, it is reasonable to argue that banning them is premature.

An all-encompassing regulation or set of regulations would be far more effective than an outright ban in controlling the development and use of autonomous weapons. This is because it would have the support of a greater number of countries. Autonomous weapons do offer a number of military advantages that countries would be reluctant to let go of altogether, and as the example of the Ottawa Treaty shows, an outright ban might not have the support of the major powers, rendering it ineffective.

India's Position on Autonomous Weapons in the Global Context

While the global debate on autonomous weapons has only just begun, a number of countries have already put forward their respective positions on such systems. These positions, however, differ widely. Comparing India's stance to these countries is necessary to understand how the global debate may be shaped going forward and where India stands vis-à-vis other major powers. This review of countries' positions is restricted to the five permanent members of the UN Security Council plus India and Pakistan. Only the United States and the United Kingdom have released official documents that clearly

lay down their respective positions on autonomous weapons. The other countries expressed their positions at the three gatherings of the CCW's Meeting of Experts on Lethal Autonomous Weapons Systems (LAWS) held in Geneva. The latest meeting took place from April 11 to 15, 2016, and the primary issues debated were whether a preemptive ban is justified and what should be the way forward for autonomous weapons in the international arena.

India has said that there is a need for "increased systemic controls on international armed conflict in a manner that does not widen the technology gap amongst states or encourage the increased resort to military force in the expectation of lesser casualties or that use of force can be shielded from the dictates of public conscience."[29] It has also highlighted the issue of international security in case of proliferation of such weapon systems, arguably to nonstate actors. India has noted that there continue to be "wide divergences" on the key issues of definition and "mapping autonomy" and that there is a need to resolve these issues for any substantial framework to evolve.[30] It has emphasized the fact that such technology has both peaceful and military uses, and that the CCW remains the "relevant and acceptable framework" for addressing any issues of concern.[31]

A number of countries have already put forward their respective positions on such systems. These positions, however, differ widely.

China has no explicit policy or stance on autonomous weapons. In CCW meetings in 2013 and 2014, it called for further studies and discussions to understand the various issues related to autonomous weapons and to forge a consensus on them.[32]

France categorically stated in 2013 that it "does not possess and does not intend to acquire robotized weapons systems able to open fire … independently" and that the "role of human beings in the decision to open fire must be preserved."[33] In the 2016 Meeting of Experts, the country reiterated its position: "France would not envisage developing or employing lethal autonomous weapons systems (LAWS) unless these systems demonstrated their full compliance with international law."[34] However, France also issued the following statement: "The fact … that a machine … carries out an attack does not necessarily entail a violation of international humanitarian law."[35] At the annual meeting on the CCW in November 2014, France stated that the priority should be to develop a common basis before deciding the direction in which any CCW role in the regulation of autonomous weapons should be taken.[36]

Pakistan has categorically called for a preemptive ban on autonomous weapons, stating that "LAWS are by nature unethical," and irrespective of the degree of sophistication, they "cannot be programmed to comply with International Humanitarian Law."[37] It has stated that autonomous weapons will "lower the threshold of going to war" and create an accountability vacuum.[38] Such weapon systems, in Pakistan's opinion, would deprive combatants of the protection of international law and would also greatly risk the lives of civilians and

noncombatants. Pakistan has argued for a legally binding CCW protocol that preemptively bans the development and use of such weapons.[39]

Russia has no explicit stance on autonomous weapons but has stated that serious attention must be paid to the implications that the use of such weapons could have for societies.[40]

The United Kingdom's Ministry of Defense issued a Joint Doctrine Note in 2011, stating that the ministry has "no intention to develop systems that operate without human intervention … but it is looking to increase levels of automation where this will make systems more effective."[41] The UK stated in 2016 that it believes "LAWS do not, and may never, exist."[42] It further noted that the debate over autonomous weapons is essentially a debate on the "means and methods of warfare" and that, therefore, current international humanitarian law is enough to regulate the use of any new weapon systems.[43] The UK categorically believes that existing weapon systems do not fall under the term "lethal autonomous weapon systems."

Only the United States and the United Kingdom have released official documents that clearly lay down their respective positions on autonomous weapons.

The U.S. Department of Defense issued a directive in 2012 on the use of autonomous weapons, which called for "appropriate levels of human judgment over the use of force."[44] The United States stated in 2014 that the current scenario is too "premature" to decide where any discussions on autonomous weapons will lead.[45] It clarified two years later that any discussion on autonomous weapons will necessarily need to examine emerging technologies and would not cover existing weapon systems.[46] While the United States has agreed that "lethal autonomous weapons may present important legal, policy and ethical issues,"[47] it has not advocated an outright ban on such weapon systems. Instead, it has described "a non-legally binding outcome document that describes a comprehensive weapons review process" that would "help ensure consistency and quality in the weapons review process by all States."[48]

A Way Forward for India

Disarmament rather than arms control has been the primary framework for India's approach to the international regulation of weapon systems. The country has also opposed inequity and discrimination in the structuring of arms control treaties. Its refusal to sign the Nuclear Non-Proliferation Treaty and the Comprehensive Nuclear-Test-Ban Treaty reflects these considerations.[49] Since the 1990s, though, India has moved toward an emphasis on national security considerations and has been willing to support pragmatic arms control measures as part of its new self-perception as a responsible power.

The issue of autonomous weapons in India is likely to be driven by the country's unique security situation, which features two hostile neighbors and the ever-present threat of insurgency. This position gives Indian military

preparedness a very defensive tint wherein the singular objective is to defend Indian borders and assets with minimal loss of lives.

Autonomous weapons could provide the twin benefits of reducing military casualties and improving efficiency in defensive capabilities. Their single-biggest benefit could be that they are not governed by human emotions, making it possible to deploy them 24-7, three hundred sixty-five days a year in any weather or geographical condition. They could carry out several functions with minimal to no military casualties. This would have a tangible impact in areas such as the Siachen Glacier in the high Himalayas, on the border with Pakistan, where India has lost 883 soldiers since 1984, all to the harsh weather.[50]

The issue of autonomous weapons in India is likely to be driven by the country's unique security situation, which features two hostile neighbors and the ever-present threat of insurgency.

In 2014, India recorded more than 175 infiltration attempts across the Line of Control,[51] the effective military boundary between India and Pakistan, and it is quite possible that a number of attempts went unnoticed. The perpetrators of the January 2016 attack on the Pathankot Air Force Station in all probability slipped across the international border from Pakistan.[52]

Given the harsh geography of the Line of Control and the international border, autonomous weapon systems such as the SGR-1 or a similar system would likely be better able to check infiltration attempts than routine manned patrols. Additionally, an autonomous system would probably be better able to guard and defend the Line of Actual Control with China, much of which passes through sparse, uninhabited mountainous regions, where manned patrols have been ineffective.

Another factor that could tilt the balance in favor of India's development of autonomous weapons is the country's need to protect its considerable and growing space assets; autonomous systems could meet this need in a far more efficient manner than any manned system. P. W. Singer, a senior fellow at New America, has pointed out that the use of autonomous weapon systems could play a pivotal role in the protection of space assets and in any potential space conflicts.[53] This could become important especially in light of the much-publicized Chinese capability to destroy satellites in orbit.[54] A defense system that could automatically detect incoming threats to satellites and launch missiles to intercept them in seconds would be necessary to counter such a capability.

Further, given that China is possibly developing autonomous weapons of its own, it may become necessary for India to develop such systems. And while Pakistan has categorically called for a ban on developing autonomous weapons,[55] this should not be taken at face value. In the past, for example, Pakistan has called for a nuclear-free South Asia while simultaneously developing nuclear capabilities.

Any significant deployment of autonomous weapons along international borders, however, would raise a number of issues, most importantly, liability in

the case of civilian death. It would be highly unethical to deploy such weapon systems before filling the liability gap, either by domestic means or with international regulations. Another issue could be the political fallout of deploying such systems along disputed borders. The SGR-1, for example, is stationary, and deploying it is tantamount to building permanent border infrastructure—an act that is already controversial along disputed borders, such as the one between India and China. Deploying this sort of weapon along the India-China border or the Line of Control could ratchet up long-simmering tensions. And if India were to deploy autonomous weapons in these areas, it must be ready to accept that similar actions could be taken by China, Pakistan, or both.

A factor that could tilt the balance in favor of India's development of autonomous weapons is the country's need to protect its considerable and growing space assets.

There is also the specific issue of India's indigenous development. A vast technological gap exists between arms-exporting and arms-importing countries, and India is currently dependent on arms imports. This negatively affects both national security and the trade balance. Because of this, India has woken up to the need to develop such weapon systems indigenously. This development would have a twofold effect. First, it would decrease India's dependence on importing critical weapon technologies, which is necessary to shore up its defense security. Second, it would augment high-tech research and development as well as manufacturing in India. The latter development will benefit the country in the long run by turning the tables of trade and possibly making it an arms exporter.

Development, however, need not automatically lead to deployment; India could refrain from using autonomous weapon systems while simultaneously exporting them. Deployment and export would be governed by different rules, and one is not necessarily tied to the other.

India's defense establishment seems to have recognized these issues. The Defense Research and Development Organization (DRDO) confirmed in 2013 that the country is developing "robotic soldiers" with a "very high level of intelligence to enable them to differentiate between a threat and a friend," to be deployed in areas such as the Line of Control. It asserted that "a number of labs are already working in a big way" on such systems.[56] The descriptions of these systems nearly match that of a fully autonomous weapon system, and may be the clearest indication from any country that such weaponry is under development. The then chairman of the DRDO stated that same year that these autonomous systems would be ready for deployment around 2023.[57] However, because the DRDO has historically overshot its delivery dates and is prone to exaggeration, these statements must be taken with a grain of salt and considered an expression of intent rather than as the final word on delivery timelines.

While it remains to be seen if India will deploy autonomous weapon systems by 2023, it has already started acquiring and deploying near-autonomous weapon systems such as the Harpy Air Defense Suppression System and the

Phalanx Close-In Weapon System.[58] It is also possible that India will gradually move toward greater automation of missile defense shields including the Prithvi Air Defense and the Advanced Air Defense. These systems target objects and not humans per se, and the acquisition of one need not necessarily mean the development or deployment of the other. However, this highlights the fact that India is readily adopting weapon systems with ever-greater levels of autonomy and may not, therefore, shy away from developing or adopting an autonomous weapon system that targets humans.

As India steps up the effort to develop autonomous weapons and considers their deployment, New Delhi is bound to confront the question of their legality. India is not party to either the Ottawa Treaty or the first additional protocol to the Geneva Conventions. It is therefore highly unlikely that it will sign on to an international treaty that seeks to ban the development of autonomous weapon systems. Further, few states follow the requirements of Article 36 of the first additional protocol,[59] parties to the convention or otherwise. It would therefore be difficult to argue that this provision has become part of customary international law binding India. At any rate, it remains to be seen how individual reviews as envisioned in Article 36 will work in practice.

While it remains to be seen if India will deploy autonomous weapon systems by 2023, it has already started acquiring and deploying near-autonomous weapon systems.

India could develop a domestic legal regime that fixes liability for the actions of these weapons and lays down rules of engagement and conditions for export. While the international debate is still raging, there is no reason why India cannot move forward with establishing a domestic regime, especially given the DRDO's express intentions to develop such weapons. Such a move would help India take a leadership position in the international debates surrounding autonomous weapons.

From India's perspective, a ban would be highly impractical, given the country's security considerations and the fact that it has already started developing such systems. India would argue that autonomous weapon systems are not illegal by the mere fact of their being autonomous. Further, given the issue of a possible technology gap emerging between nations, which India has highlighted at CCW discussions,[60] it is in India's interest to argue for regulation of autonomous weapons, within the CCW framework, as opposed to a preemptive ban.

International regulation becomes especially necessary with the possibility that such weapon systems will spread to nonstate actors. The numerous insurgencies that India faces make it especially vulnerable in such a situation. The benefits that autonomous weapon systems bring to conventional forces would extend to any party in possession of such systems. Further, given that such weaponry, though high-tech, can easily be duplicated makes its proliferation more probable.

The proliferation of weapon systems has remained a major concern for India, evidenced by the country's statement at the United Nations General Assembly

session on the Arms Trade Treaty.[61] While explaining its decision to abstain from voting on the treaty, India stated that "such a treaty should make a real impact on illicit trafficking in conventional arms and their illicit use especially by terrorists and other unauthorized and unlawful non-state actors." The decision to abstain was based on the fact that terrorism and nonstate actors were not mentioned in the specific list of prohibitions in the draft text of the treaty.

Appropriate regulation of not only the development of such systems but also their trade would certainly address India's concerns on this score. Regulations would also need to focus on the conditions of use, export, and sale restrictions, as well as on liability in case of proliferation, illegal use, and accidents caused by malfunction of the systems. At the same time, New Delhi would want to make sure that India is not on the receiving end of any restrictions on trade in autonomous weapons and the transfer of advanced technologies. Its entry into the various export control groups would diminish such a prospect and reinforce its claim to a seat at the table for the global management of new weapon systems.

Conclusion

The legal and ethical questions that surround autonomous weapons are still a long way from answered. But politically and militarily, India must recognize the various benefits that autonomous weapon systems can bring, especially given the country's unique security situation. India should not shy away from developing systems, as its defense establishment has acknowledged. And around the world, while there is no doubt that the development and deployment of autonomous weapons have raised and will continue to raise important legal and ethical questions, the march toward some form of automation is likely to continue. A ban at this stage, where the full scope of such weapon systems is still unknown, would be jumping the gun.

At the same time, as an emerging power, India must actively join and contribute to the international debate on autonomous weapons. It must focus on promoting a pragmatic international regulatory mechanism on the development, use, and trade of autonomous weapon systems. As one of the few countries more or less openly developing this weaponry, India has a unique opportunity to assume leadership in this domain. The military benefits potentially provided by such systems, especially in terms of effectiveness and possible lives saved, mean it is in the country's interest to develop and deploy them. However, the potential damage that can be caused by the misuse of these technologies, especially by nonstate actors, also means it is in India's interest to ensure that any future international regulation prevents the abuse of new military technologies.

As one of the few countries more or less openly developing this weaponry, India has a unique opportunity to assume leadership in this domain.

Given the nascent stage of the international debates, it is possible that autonomous weapons may be developed and deployed before any substantial

international regulation is put in place. India can make use of this opportunity to set global standards by adopting a domestic regulatory framework that deals with all aspects of such weapon systems. As India is a major military power, any step taken by the country will be closely followed, and leading on this issue would allow India to set the global agenda on its terms.

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Correction: This paper originally stated that the International Committee of the Red Cross had called for a preemptive ban on the development of autonomous weapon systems. This is not the case and has been corrected.

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