

Chapter 2

The Legal Challenges of New Technologies: An Overview

William H. Boothby

Abstract It is difficult to determine whether it is technology that challenges the law or the law that challenges the use of novel technologies in armed conflict. New technologies that are in use for weaponry are posing legal challenges such as greater civilian involvement in hostilities, technological asymmetry between warring parties, and legal response to public ethical debates as to the acceptability of introducing those new technologies into warfare. In relation to new technologies on the horizon, we cannot go much further than re-discovering the law versus new technology conundrum. This chapter concludes by emphasising the significance of weapons review under Article 36 of *Additional Protocol I* as a way of ensuring that existing legal norms are applied to modern technological developments and that the applicable law remains relevant as technology evolves.

Contents

2.1	Introduction.....	22
2.2	Existing New Technologies	22
2.3	Futuristic New Technologies	24
2.4	Significance of Weapons Review	26
	References.....	27

The author is Former Deputy Director of Legal Services, Royal Air Force, UK.

2.1 Introduction

This book is addressing challenges which require careful and flexible thought. It is, for example, a matter of some difficulty to determine whether it is technology that challenges the law or the law that challenges the use of novel technologies in armed conflict. In a sense that is a matter that we will never be able to answer in prospect. It is something that we will be able to detect ‘after the event’ when we can judge whether it was technology that was adjusted to comply with the stipulations of the applicable law or whether, confronted with technological challenge, the law was in some way adjusted so as to enable the use of the new methods or means of warfare involved. This chapter provides a brief overview of legal challenges posed by different types of new technologies.

2.2 Existing New Technologies

Self-evidently, the answer to this deceptively simple question may be influenced by the categorisation of such new technologies into those that are already in use and those that are rather more futuristic. So, while it may be assumed that the weapons systems already in the arsenal have been evaluated by states in accordance with their obligations under Article 36 of *Additional Protocol I* or customary law,¹ as the case may be, the position as to future weapons will depend on how states in future go about that evaluation process. We all appreciate that the treaty and indeed the customary law obligation is to assess new weapons by reference to extant rules of law.² The interesting question, however, is whether states will in fact do so, and indeed whether they will implement in a systemic way their Article 36 obligations at all.³

New weapons already in use might include, for example, remote attack (meaning attacks in which the person undertaking the attack remains at a considerable distance from the scene where the violence is to be used) and the employment of sensors, data links and associated capabilities to support unmanned technology. But the development and operation of such technologies are frequently

¹ *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 12 December 1977, 1125 UNTS 3 (entered into force 7 December 1979) (*‘Additional Protocol I’*), Article 36. It reads: ‘In the study, development, acquisition or adoption of a new weapon, means or method of warfare, a High Contracting Party is under an obligation to determine whether its employment would, in some or all circumstances, be prohibited by this Protocol or by any other rule of international law applicable to the High Contracting Party’. All states, bound by the customary elements of weapons law, are obliged to ensure that they comply with those rules in acquiring new weapons: Boothby 2009, p. 341.

² For details, see, Boothby 2009, pp. 342–352.

³ Cf ICRC 2006.

in the hands of civilians, a factor which often has the effect of placing those civilians in close causal proximity to the actual conduct of hostilities. So a tension emerges between the recognition that civilians who so participate lose their protection from attack while doing so and the reality that the effective conduct of military operations in the new technological, digital age seems to pre-suppose civilian presence in or near the fight. It is after all civilians that tend to have the expertise in the use of such modern technologies as cyber capabilities.⁴ This aspect, taken together with the increasing civilianisation of western military effort through placing activities either directly or indirectly in civilian hands through contractisation,⁵ leads to the inescapable conclusion that civilian involvement in hostilities is likely to become a more frequent feature of armed conflict.

An initiative of the International Committee of the Red Cross (ICRC) and the TMC Asser Institute has over a 6 year period sought to clarify the notion of direct participation in hostilities,⁶ but the experts failed to agree on many issues and the ICRC has published its own Interpretive Guidance on the notion,⁷ a document which also has not been greeted without a certain degree of criticism.⁸

Another challenge that promises to become more acute in future conflicts is the disparity in technology available to the respective parties to the contest.⁹ The United States attempted, during the Oslo Diplomatic Conference that negotiated the *Ottawa Convention*,¹⁰ to carve out an exemption from the ban for anti-personnel landmines that are equipped with self-destruction and self-deactivation features.¹¹ The proposal, if it had been adopted, would have resulted in only a very small proportion of mines remaining live and dangerous after a specified, and probably limited, period. The states negotiating the Convention rejected this proposal, partly due to reluctance to see an exemption from the treaty prohibition that is dependent on possession of sophisticated, potentially expensive and therefore impliedly not universally available technology.¹²

Unmanned platform technologies raise concerns about whether international law is lagging behind the public ethical debate as to the acceptability of such unmanned operations.¹³ The ethical concern seems to have much to do with

⁴ Dinniss 2012, pp. 25–27.

⁵ Stephens and Lewis 2006.

⁶ ICRC 2009a; McDonald 2004.

⁷ ICRC 2009b.

⁸ See, for example, Schmitt 2010; Watkin 2010; Boothby 2010; Parks 2010.

⁹ See generally, Schmitt 2008.

¹⁰ *Convention on the Prohibition of Anti-Personnel Mines*, 3 December 1997, 2056 UNTS 211 (entered into force 1 March 1999) ('*Ottawa Convention*').

¹¹ Dolan and Hunt 1998, pp. 41, 43.

¹² Personal knowledge of the author who was a member of the United Kingdom's Delegation to the Ottawa Convention negotiations and who attended a meeting at which this United States proposal was presented.

¹³ For ethical debates on the use of robotic technologies for warfare, see, for example, Sparrow 2012; Krishnan 2009.

Homeric notions of honourable warfare, being notions which were then linked to the employment of the phalanx and to the associated view that fighting in close proximity with the adversary produced a more honourable contest. Accordingly, it was felt that the cannon and the bow were to be despised as being dishonourable methods of warfare. The interesting resulting question is whether such notions, which seem to translate into concepts of chivalry that are reflected in at least some military manuals of today,¹⁴ continue to have relevance in a world of remotely piloted vehicles, cyber attack and autonomous attack.

Where outer space hostilities are concerned, the phenomenon of space debris is one of the central challenges in outer space targeting. The appropriate factor to consider seems to be the additional, or marginal amount of debris to be expected as a result of the planned attack on, say, a satellite and the degree of civilian harm that that debris can be expected to occasion. The consequences of the Chinese test attack on its failing Fengyun-IC satellite in 2007,¹⁵ raises the question of whether this experience will inform future attack decisions in outer space.

2.3 Futuristic New Technologies

The second category consists of new technologies, some elements of which are already available and some of which have yet to materialise but all of which are at least on the horizon. Into this category one might include:

- Nanotechnology;
- Genetics;
- Autonomous weapons; and
- Artificial intelligence.

Speaking to the first of these, it is possible that nanotechnology could challenge the *Chemical Weapons Convention* and *Biological Weapons Convention* regimes,¹⁶ or the definitions under these regimes may challenge nanotechnological scientific development. Reflecting that this is really another way of expressing the law versus new technology conundrum posed at the beginning, the question to

¹⁴ Boothby 2012, p. 60; Green 2000, pp. 23–25.

¹⁵ Boothby 2012, p. 371; Koplow 2010, pp. 164–165.

¹⁶ *Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction*, 10 April 1972, 1015 UNTS 163 (entered into force 26 March 1975) ('*Biological Weapons Convention*'); *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction*, 13 January 1993, 1974 UNTS 45 (entered into force 29 April 1997) ('*Chemical Weapons Convention*'). For early analysis, see, for example, Pinson 2004; Pardo-Guerra and Aguayo 2005; cf Kosal 2010.

consider seems to be: are you in the ‘nothing can stop the march of science’ school or do you believe that civil society recognises that the law should win this contest, and that therefore the law will win it?

In considering the legal implications of futuristic new technologies, it is important to bear in mind that the law of targeting, for example, is replete with relative language: proportionality in Article 51(5) of *Additional Protocol I* is a relative notion; discrimination in Article 51(4) of *Additional Protocol I* is a relative notion; what is ‘feasible’ in Article 57 of *Additional Protocol I* is a relative notion; and so is the ‘maximum extent feasible’ in Article 58 of *Additional Protocol I*. Those relative notions seem likely to be capable of adaptive interpretation as technological development improves, for example, the precision with which objectives can be targeted. However, what is possible for the more technologically advanced may be unachievable by the less technologically sophisticated, and legal interpretations must, in the author’s view, take into account that the rules as to the conduct of hostilities must be capable of proper application in all armed conflicts.

Future developments in weapons technologies are likely to enable attacks to be prosecuted remotely, automatically, potentially autonomously and, in either case, perhaps also anonymously. Some such developments cause one to wonder whether notions of remote attack will take us to a point at which there is a degree of dissociation between armed forces personnel and the hostilities for which they are responsible. Taken to an extreme, perhaps hostilities in which machines target one another autonomously and/or automatically would cease to be ‘warfare’ as that term has traditionally been understood.

Discussion of developments on the horizon of technology should not, however, mask the fact that, no matter to what degree the sophistication of weapons technology increases, traditional armed conflicts involving combatants inflicting death and serious injury on one another by means of bloody combat will continue to be fought. The requirement is that the law of armed conflict should be relevant and applicable to all armed conflicts, whether the means and methods employed are technologically advanced or primitive. In the author’s view, we have such a body of law in the targeting rules—Articles 48 to 67 of *Additional Protocol I* and their customary international law equivalents—and in the weapons law rules—Articles 35(2) and 51(4) of *Additional Protocol I* and their customary international law equivalents.

It can therefore be concluded that the existing body of law is capable of being applied to novel weapons technologies. However, if a novel technology should emerge which raises humanitarian concerns that cannot easily be addressed by the application of existing law, it would be for the international community of states to decide whether new, specific treaty regulation is required to address such concerns.

2.4 Significance of Weapons Review

The requirement under Article 36 of *Additional Protocol I* to undertake weapons reviews ought to be more universally applied by states. As at 5 June 2013, 173 states are party to *Additional Protocol I* and are required to undertake such reviews. Ironically the most experienced state in the field, the United States, has no such treaty obligation but undertakes such reviews in compliance with what it sees as the customary law obligation.¹⁷ These weapons reviews should be the means whereby states ensure that these issues are sorted out, and specifically should be the means whereby existing legal norms are applied to modern technological developments. The interesting question is whether states will continue to pay lip service to their obligations under that provision or whether Article 36 will become the medium in which the law is properly brought to bear. Unfortunately, only a handful of states are known to have systematic approaches to the conduct of such reviews at the moment,¹⁸ so it is difficult to take a particularly optimistic view.

If, however, states do begin to discharge their Article 36 responsibilities more regularly, this raises the question of how they should apply traditional interpretations of treaty law rules, which seem to sit uncomfortably with these new technologies? Standing as we do on the cusp of some momentous developments in weapons technology, the international community needs to understand the weapons law rules it has already adopted, needs to be rigorous in applying them and needs to be agile in developing interpretations and adaptations of those rules that so fit the new circumstances as to provide effective protection to those whom the law seeks to protect, namely both combatants and civilians.

The 1899 *Hague Declaration II* on asphyxiating gases,¹⁹ did not prevent the horrors of gas warfare in the trenches. Moreover, arguably the law did not really even start to address air warfare until 1977.²⁰ Therefore, expecting states to legislate in advance of technological development may be optimistic, or indeed unrealistic. The way that current law provides for the control of developments in weapons technology is through Article 36 of *Additional Protocol I*, and therefore clearly more widespread implementation of that obligation must be the global priority. The challenge is to try to ensure that the applicable law remains relevant as technology evolves. If the law is destined always to follow technological progress,²¹ often at a significant distance, the legal and ethical challenge lies in finding ways to ensure that the vulnerable, the victims, retain the protection

¹⁷ Parks 2005, pp. 109–113.

¹⁸ Daoust et al. 2002; Jacobsson 2006; Fry 2006, pp. 473–480.

¹⁹ *Hague Declaration (II) on the Use of Projectiles the Object of Which is the Diffusion of Asphyxiating or Deleterious Gases*, 29 July 1899, 187 CTS 453 (entered into force 4 September 1900) (*'Hague Declaration II'*), reproduced in Roberts and Guelff 2000, pp. 60–61.

²⁰ Cf Commission of Jurists 1923. For details, see, Lippman 2002.

²¹ McCormack 1997, p. 90.

of the law. The words of the Martens Clause²² assure us that customary law based on humanity and the dictates of the public conscience protect even where no specific legal rules have been agreed. In the context of new technologies, however, specific law may be the only route to ensuring effective protection.

References

- Boothby WH (2009) Weapons and the law of armed conflict. Oxford University Press, Oxford
- Boothby WH (2010) 'And for such time as': the time dimension to direct participation in hostilities. *N Y Univ J Int Law Politics* 42:741–768
- Boothby WH (2012) The law of targeting. Oxford University Press, Oxford
- Commission of Jurists (1923) The Hague rules for aerial warfare. *Am J Int Law* 17:246–260
- Daoust I et al (2002) New wars, new weapons? The obligation of States to assess the legality of means and methods of warfare. *Int Rev Red Cross* 84:345–362
- Dinniss HH (2012) Cyber warfare and the laws of war. Cambridge University Press, Cambridge
- Dolan M, Hunt C (1998) Negotiating in the Ottawa process: the new multilateralism. *Can. Foreign Policy J* 5(3):25–50
- Fry JD (2006) Contextualized legal reviews for the methods and means of warfare: cave combat and international humanitarian law. *Columbia J Trans Law* 44:453–519
- Green LC (2000) The contemporary law of armed conflict, 2nd edn. Manchester University Press, Manchester
- ICRC (2006) A guide to the legal review of new weapons, means and methods of warfare: Measures to implement Article 36 of Additional Protocol I of 1977. *Int Rev Red Cross* 864:931–956
- ICRC (2009a) ICRC clarification process on the notion of direct participation in hostilities under international humanitarian law (proceedings). <http://www.icrc.org/eng/resources/documents/article/other/direct-participation-article-020709.htm>. Accessed 9 June 2013
- ICRC (2009b) Interpretive guidance on the notion of direct participation in hostilities under international humanitarian law. ICRC, Geneva
- Jacobsson M (2006) Modern weaponry and warfare: the application of Article 36 of Additional Protocol I by governments. In: Helm A (ed) The law of war in the 21st century: weaponry and the use of force. US Naval War College International Law Series, vol 82. Naval War College, Newport, pp 183–191
- Koplow DA (2010) Death by moderation: the U.S. military's quest for useable weapons. Cambridge University Press, Cambridge
- Kosal ME (2010) The security implications of nanotechnology. *Bull At Sci* 66:58–69
- Krishnan A (2009) Killer robots: legality and ethicality of autonomous weapons. Ashgate, Farnham
- Lippman M (2002) Aerial attacks on civilians and the humanitarian law of war: technology and terror from World War I to Afghanistan. *Calif West Int Law J* 33:1–67
- McCormack TLH (1997) A non liquet on nuclear weapons—the ICJ avoids the application of general principles of international humanitarian law. *Int Rev Red Cross* 316:76–91

²² *Hague Convention II with respect to the Laws and Customs of War on Land*, 29 July 1899, 187 CTS 429 (entered into force 4 September 1900) ('*Hague Convention II*'), preamble; *Additional Protocol I*, Article 1(2). It reads: 'In cases not covered by this Protocol or by other international agreements, civilians and combatants remain under the protection and authority of the principles of international law derived from established custom, from the principles of humanity and from the dictates of public conscience'.

- McDonald A (2004) The challenges to international humanitarian law and the principles of distinction and protection from the increased participation of civilians in hostilities. TMC Asser Institute. http://www.asser.nl/default.aspx?site_id=9&level1=13337&level2=13379. Accessed 9 June 2013
- Pardo-Guerra JP, Aguayo F (2005) Nanotechnology and the international regime on chemical and biological weapons. *Nanotechnol Law Bus* 2(1):55–61
- Parks WH (2005) Conventional weapons and weapons reviews. *Yearb Int Humanit Law* 8:55–142
- Parks WH (2010) Part IX of the ICRC ‘direct participation in hostilities’ study: no mandate, no expertise, and legally incorrect. *N Y Univ J Int Law Politics* 42:769–830
- Pinson RD (2004) Is nanotechnology prohibited by the biological and chemical weapons convention? *Berkeley J Int Law* 22:279–309
- Roberts A, Guelff R (2000) Documents on the laws of war, 3rd edn. Oxford University Press, Oxford
- Schmitt MN (2008) Asymmetrical warfare and international humanitarian law. *Air Force Law Rev* 62(1):1–42
- Schmitt MN (2010) The interpretive guidance on the notion of direct participation in hostilities: a critical analysis. *Harv Natl Secur J* 1:5–44
- Sparrow R (2012) Robotic weapons and the future of war. In: Tripodi P, Wolfendale J (eds) *New wars and new soldiers: military ethics in the contemporary world*. Ashgate, Farnham, pp 117–133
- Stephens D, Lewis A (2006) The targeting of civilian contractors in armed conflict. *Yearb Int Humanit Law* 9:25–64
- Watkin K (2010) Opportunity lost: organized armed groups and the ICRC ‘direct participation in hostilities’ interpretive guidance. *N Y Univ J Int Law Politics* 42:641–695

New Technologies and the Law of Armed Conflict

Nasu, H.; McLaughlin, R. (Eds.)

2014, XX, 259 p. 1 illus., Hardcover

ISBN: 978-90-6704-932-0

A product of T.M.C. Asser Press