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ACTIVE AND PASSIVE PRECAUTIONS IN AIR AND MISSILE WARFARE

By Marco Sassòli and Anne Quintin⁺

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V. CONCLUSION

I. INTRODUCTION

The most important rule for targeting, in air and missile warfare as in any other kind of warfare, is that only military objectives may be attacked.¹ The second rule is that the expected incidental effects on civilians and civilian objects shall not be excessive in relation to the concrete and direct military advantage anticipated as a result of the attack.² However, even

¹ Art. 52(2) of *Protocol [No. I] Additional to the Geneva Conventions of 12 August 1949 relating to the Protection of Victims of International Armed Conflicts*, (June 8, 1977) 1125 U.N.T.S. 3 [Protocol I]

² Art. 51(5)(b) of Protocol I

when launching lawful attacks complying with these two principles, precautionary measures must be taken, both by the attacker and the party under attack, to avoid (if possible) - or at least to minimise - the incidental effects on persons and objects that are not legitimate targets of attack. As the 1976 U.S. Air Force Pamphlet correctly states, “[p]recautionary measures are not a substitute for the general immunity of the civilian population, but an attempt to give effect to the immunity of civilians and the requirements of military necessity.”³

Some preliminary remarks will be made before entering into the core of our topic. In particular, we note that this contribution constitutes a commentary and critical discussion of the Manual produced by the Program on Humanitarian Policy and Conflict Research at Harvard University [HPCR] on Air and Missile Warfare [AMW Manual].⁴ What follows is largely based upon a report written by one of the authors for the Expert Group that drafted the Manual. Before going further, it is therefore necessary to determine the status of the Manual. In addition, the introduction will also tackle some general questions about the relation between treaty law and customary law in air and missile warfare, as well as whether the same rules apply, on the one hand, to hostilities taking place on land, sea and in the air, and on the other hand, to both international and non-international armed conflicts.

Following this, we will then look at the precautionary measures to be taken by the attacker. Here again, before discussing the individual provisions contained in Article 57 of the First Additional Protocol to the Geneva Conventions [Protocol I], certain general questions on precautionary measures will be addressed. Next, we will detail the precautionary measures recommended by Article 58 of Protocol I. For both sections, our methodology will consist of first looking at each precautionary measure as foreseen in Protocol I and determining its status under customary law. We will then assess how each rule has generally been interpreted, and more importantly how each rule has been applied to air and missile warfare, discussing what specific problems exist, particular in the context of air-to-air hostilities.

II. PRELIMINARY REMARKS

1. The HPCR Manual

Many scholars have commented on the history and contemporary sources of the law of air warfare; this will not be the topic of our discussion. These preliminary paragraphs instead offer a short reflection on the status of the AMW Manual. The Group of Experts responsible for drafting the Manual attempted to restate the law applicable to air and missile warfare – in the same way the San Remo Manual addressed armed conflicts at sea⁵ – taking into account the recent evolution of technologies and of State practice. Particular attention was paid to the

³ See U.S. Air Force Pamphlet 110-31, 19 November 1976, para. 5-3(c)(2), at 5-10. In 2001, the U.S. Air Force issued a Manual on *Air Force Operations and the Law*, which covers the basics of public international law, IHL and criminal responsibility. A second edition of the Air Force manual was published in 2009, and a third edition is underway. See U.S. Air Force, *Air Force Operations and the Law: A Guide for Air, Space and Cyber Forces*, 2nd ed. (The Judge Advocate General’s School, 2009), online at <http://www.afjag.af.mil/shared/media/document/AFD-100510-059.pdf>. Nevertheless, because the Pamphlet (which is still valid) remains much more detailed than the Manual, we will still use references from the Pamphlet when necessary.

⁴ Program on Humanitarian Policy and Conflict Research at Harvard University (HPCR), *Manual on International Law Applicable to Air and Missile Warfare* (Bern: HPCR, 2009), available at: <http://www.ihlresearch.org/amw/manual/>.

⁵ Louise Doswald-Beck (ed.), *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, (Cambridge: Cambridge Univ. Press, 1995) [San Remo Manual]. The San Remo Manual was prepared by a group of lawyers and naval experts convened by the International Institute of Humanitarian Law.

practice of major air forces, especially that of States not party to Protocol I.⁶ It should be noted that the important role played by experts from countries with major air forces had in our view a more problematic effect during the drafting of the AMW Manual than the role played by major naval forces during the drafting of the San Remo Manual. Countries without or with less-developed air forces are still concerned by the potential impacts of air and missile warfare: the civilian populations of such countries are more frequently and more directly affected by air and missile warfare than the civilian populations of navy-less countries are affected by naval warfare.

One important aspect to keep in mind as we reference the AMW Manual is that it is not a binding document; it remains the product of a consensus between military, governmental and humanitarian experts. Although it aims at being “an accurate mirror-image of existing international law”,⁷ the result nonetheless reflects some of the difficulties encountered in obtaining agreement between the experts, as well as their willingness to introduce recent - if not nascent – developments in the law. For instance, while the rules related to the protection of the civilian population on land against attacks from the air did not manage to go beyond Protocol I and only represent the least common denominator between the opinions of the experts, the Manual offers some considerable clarifications, and even some innovations, in the less controversial field of air-to-air hostilities.

2. Treaty Law and Customary Law

As mentioned above, the provisions listed in Articles 57 and 58 of Protocol I will be used as a starting point for our analysis; however, it will also be essential – whenever possible – to identify the corresponding customary law rules on precautionary measures. Although, for the 173 States party to Protocol I, Articles 57 and 58 apply as treaty law to *air operations directed against objectives on land*, some States often involved in air and missile warfare – e.g. the U.S., Israel, Turkey, Iran and Iraq - are not parties to that treaty. For them, and for all States when it comes to *air-to-air warfare*, it is worth identifying applicable customary law (or general international law) obligations.

In terms of methodology, statements made by belligerent and non-belligerent States, both on rules *in abstracto* and on actual events, will be taken into account when assessing the customary nature of a provision. However, no affirmative conclusion will be drawn if the actual practice of belligerents is clearly incompatible with the alleged customary rule.

In addition, our identification of customary rules will take into account the well-accepted fact that customary international law is influenced by treaty provisions, their preparation, their acceptance and the subsequent practice of both States party and States not party to a treaty dealing with the same issue.⁸ Hence, it is not surprising that, at least for the provisions discussed in this contribution, the rules identified in the ICRC Study on Customary International Humanitarian Law are substantially identical to those found in Articles 57 and 58 of Protocol I.⁹ In that respect, it should also be noted that the rules contained in the AMW

⁶ See HPCR, *Commentary on the HPCR Manual on International Law Applicable to Air and Missile Warfare* (Cambridge: HPCR, 2010) [*HPCR Commentary*], at 1

⁷ *Ibid.*, at 2

⁸ See *North Sea Continental Shelf cases*, ICJ Reports (1969) 3, paras 60-76, and, for a suggested theoretical framework, Marco Sassòli, *Bedeutung einer Kodifikation für das allgemeine Völkerrecht, mit besonderer Betrachtung der Regeln zum Schutze der Zivilbevölkerung vor den Auswirkungen von Feindseligkeiten* (Basel and Frankfurt am Main: Helbing & Lichtenhahn, 1990), at 82-222.

⁹ See Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law*, (Cambridge: ICRC and Cambridge University Press, March 2005) [ICRC Study], vol. I, at 51-76.

Manual closely resemble those in Protocol I with, however, some regrettable omissions¹⁰ – but some useful clarifications too.¹¹

3. Land, Naval and Air Warfare

This contribution will also heavily rely on rules related to land or naval warfare. Although attacks from the air, even if directed at targets on land, were traditionally considered an issue governed by the law of air warfare and distinct from the law of land warfare,¹² this is no longer the case. Today, Article 49(3) of Protocol I clarifies that its provisions on the protection of the civilian population and civilian objects against the effects of hostilities, which include Articles 57 and 58 on precautionary measures, “apply to all attacks from the sea or from the air against objectives on land but do not otherwise affect the rules of international law applicable in armed conflict at sea or in the air.” While this provision has given rise to controversies about naval warfare,¹³ it is uncontroversial that the given part of Protocol I applies to aerial bombardments directed at targets on land. During the Diplomatic Conference that, in 1974-1977, discussed and adopted Protocol I [Diplomatic Conference], no State questioned that at least objectives “on land” should be covered by the rules of the Protocol (regardless of the origin of the attack) – the disagreements focused exclusively on whether they should apply *only* to such attacks.¹⁴ Such unanimity has undeniable weight and an impact on our assessment of whether the same conclusion (i.e. that the same rules apply to all attacks directed against targets on land) can be reached under customary law as well.

Several other elements also lead to that conclusion. First, because of modern technology, attacks by aircraft, drones, missiles or artillery are interchangeable. Second, most discussions on the law of the conduct of hostilities in recent years, whether by States, NGOs, the Office of the ICTY Prosecutor, or renowned scholars, have mainly concerned aerial attacks, including, most recently, by drones. At the same time, no post-1960 manual, document, or author mentioned in this contribution claims that different rules apply to attacks not involving aircraft or missiles. To mention but one example, the U.S. Department of Defense Report on the Conduct of the 1991 Gulf War discusses targeting mainly in relation to aerial bombardments, but makes no distinction between cases where the attacks actually originated in the air, by missiles or artillery. As for the standards the Report applies, it refers exclusively to the law of land warfare, including Article 23(g) of the Hague Regulations, and applies or

¹⁰ See for instance the difference between Arts 35(3) and 55 of Protocol I on the natural environment and Rules 88-89 of the AMW Manual (*supra* note 4).

¹¹ See for instance, *ibid.*, Rules 22-24 on military objectives.

¹² See *General Report of the Commission of Jurists at the Hague: Part I, Rules for the Control of Radio in Time of War; Part II, Rules of Aerial Warfare*, The Hague, December 1922 – February 1923, 17 *American Journal of International Law* (1923) “Official Documents” Supp., at 242 [*Hague Rules on Air Warfare*], Arts 22-26. Reproduced in Dietrich Schindler and Jiri Toman (eds), *The Laws of Armed Conflicts, A Collection of Conventions, Resolutions and Other Documents*, 4th ed. (Leiden/Boston: Martinus Nijhoff Publishers, 2004), at 315.

¹³ See, for the dispute on whether and to what extent the provisions of Protocol I apply to naval warfare, Henri Meyrowitz, “Le protocole additionnel I aux Conventions de Genève de 1949 et le droit de la guerre maritime” 89 *Revue générale de droit international public* 245 (1985), at 254, and Elmar Rauch, *The Protocol Additional to the Geneva Conventions for the Protection of Victims of International Armed Conflicts and the United Nations Convention on the Law of the Sea: Repercussions on the Law of Naval Warfare* (Berlin: Duncker & Humblot, 1984), at 57.

¹⁴ See *Official Records of the Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law applicable in Armed Conflicts* (Geneva, 1974-1977) [*Official Records*], vol. XIV, 13-25, 85, and in particular, *ibid.*, vol. XV, 255, where a working group reported to the competent committee of the Conference that it was unanimously of the view that the rules should at least cover military operations from the air against persons and objects on land.

criticizes certain provisions of Protocol I equally for both air and land warfare.¹⁵ Similarly, the 1976 U.S. Air Force Pamphlet reproduces nearly all rules of Protocol I without changing one word.¹⁶

4. Applicability of the Same Rules in International and Non-International Armed Conflict

While most contemporary armed conflicts are not of an international character, the treaty rules regulating such conflicts are much more limited than those regulating international armed conflict. Article 3 common to the four Geneva Conventions and Additional Protocol II indeed contain no rule relating to precautionary measures in attack or against the effects of attacks. Nevertheless, the law of non-international armed conflict has in the last few decades gotten closer to the law of international armed conflict. This occurred through the case law of the international criminal tribunals for the former Yugoslavia and Rwanda¹⁷ and their analysis of customary international law;¹⁸ the definition of war crimes in the Statute of the International Criminal Court;¹⁹ the applicability of recent weapons treaties and treaties on the protection of cultural property to both categories of conflict;²⁰ the increasing influence of international human rights law; and the conclusions of the ICRC Study on Customary International Humanitarian Law, which lists 136 (if not 141) rules out of 161 as applicable to both categories of conflict.²¹ Moreover, according to the Study all the rules related to precautions in and against the effects of attacks are the same both in international and non-international armed conflict.²² Even the Commentary on the AMW Manual, the drafters of which had an approach to customary international law more restrictive than that employed for the ICRC Study, comes to the conclusion that all the rules on precautions also apply to non-international armed conflict,²³ with the exception of one single rule referring to neutrality – for obvious reasons, as neutrality law does not exist in non-international armed conflict.²⁴

II. PRECAUTIONS IN ATTACK

Three distinct categories of precautionary measures are traditionally discussed under the heading of precautions in attack and are mentioned in Article 57 of Protocol I. First is the articulation of the principle itself - that precautions must be taken. The second category comprises measures to ensure compliance with the material prohibitions to attack anything other than military objectives or to provoke excessive incidental losses when targeting

¹⁵ U.S., “The Air Campaign” (Chapter VI), in *Conduct of the Persian Gulf War*, Final Report to Congress, (April 1992) [U.S., *Conduct of the Persian Gulf War*], at 153, online <http://www.ndu.edu/library/epubs/cpgw.pdf>

¹⁶ See U.S. Air Force Pamphlet, *supra* note 3, at 5-7. The 2009 *Air Force Operations and the Law Manual*, *supra* note 3, also draws heavily from the provisions of Protocol I.

¹⁷ See in particular ICTY, Decision on the Defence Motion for Interlocutory Appeal on Jurisdiction, *The Prosecutor v. Duško Tadić alias “Dule”*, 2 October 1995, para. 97.

¹⁸ See in particular *ibid.*, paras 96-136.

¹⁹ See the difference between Art. 8(2)(a) and (b) and Art. 8(2)(c) and (e) of the *ICC Statute*, 17 July 1998.

²⁰ See *Amendment to Article 1* (in particular paras 2 and 3) of the 1980 *Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects*, in Order to Extend it to Non-International Armed Conflicts (December 21, 2001), 2260 U.N.T.S. 82; Art. 19 of the *Convention for the Protection of Cultural Property in the Event of Armed Conflict* (May 14, 1954), 249 U.N.T.S. 240, and Art. 22 of the *Second Protocol to the Hague Convention of 1954 for the Protection of Cultural Property in the Event of Armed Conflict* (March 26, 1999), 2253 U.N.T.S. 212.

²¹ See ICRC Study, *supra* note 9.

²² *Ibid.*, Rules 14-24.

²³ See *HPCR Commentary*, *supra* note 6, at 124 and 140.

²⁴ See *ibid.*, at 139.

military objectives. This category consists of quasi-procedural rules aiming at avoiding inadvertent or deliberate attacks on non-military objectives or excessive incidental losses, such as the obligations to verify the objective and to cancel unlawful attacks. The third category comprises measures to be taken in lawful attacks to avoid or minimise losses among the civilian population. This category also includes the obligations to choose the means, methods and objectives implying the least danger for the civilian population, and the requirement to issue warnings. Obligations of the second category may be considered necessary consequences of the material prohibition, while for the first and third categories, a separate source in treaty or customary law has to be found.

In conformity with the terminology of Article 49(1) of Protocol I, the term “attack” used in this contribution covers acts of violence from the air or through missiles, whether offensively or defensively, and, because of the separation between *jus ad bellum* and *jus in bello*, whether launched by a State fighting in self-defence or as aggressor.

1. The Principle

a. Treaty Provisions and Customary Law

While incidental losses among the civilian population are accepted as a possible side effect of attacks directed at military objectives, they have never been considered a legitimate aim (otherwise the principle of distinction would be violated). The principle of military necessity as a prohibitive rule²⁵ implies that civilian losses must be avoided whenever possible.

Rules on precautions have long been implicit in obligations to avoid undesirable effects. Article 15 of the 1863 *Lieber Instructions* only admitted unavoidable losses among non-combatants, while Article 23(1)(g) of the 1907 Hague Regulations prohibits destruction not “imperatively demanded by the necessities of war”. A specific obligation to avoid, “as far as possible”, incidental effects can be found in Article 27 of those Regulations concerning cultural objects and hospitals, as well as in Hague Convention No. IX concerning an entire town subject to a naval bombardment²⁶ and in Hague Convention No. VIII concerning the safety of peaceful navigation.²⁷ All this, in turn, implies that precautionary measures must be taken.

Since then, statements by governments,²⁸ international organizations,²⁹ the ICRC,³⁰ as well as numerous military manuals,³¹ support the principles that (1) care has to be taken to spare the

²⁵ Gabriella Venturini, *Necessità e proporzionalità nell'uso della forza militare in diritto internazionale* (Milano: Giuffrè, 1988), at 127-165; William V. O'Brien, “The Meaning of Military Necessity in International Law”, *World Policy* 1 (1957), at 138-163; Georg Schwarzenberger, *International Law as applied by International Courts and Tribunals*, Vol. 2, *The Law of Armed Conflict* (London: Sweet & Maxwell Ltd, 1968), at 135; Robin Geiss, “Military Necessity: a Fundamental “Principle” Fallen Into Oblivion”, 2 *Select Proceedings of the European Society of International Law* (2008), at 554; Robert Kolb, “La nécessité militaire dans le droit des conflits armés – Essai de clarification conceptuelle”, in Société française de droit international, *La nécessité en droit international : colloque de Grenoble* (Paris: Pedone, 2007), at 151-186.

²⁶ Art. 2(3) of *Hague Convention (IX) concerning Bombardment by Naval Forces in Time of War*, signed at The Hague, 18 October 1907, in Schindler/Toman, *supra* note 12, at 1081.

²⁷ Art. 3(1) of *Hague Convention relative to the Laying of Automatic Submarine Contact Mines*, signed at The Hague, 18 October 1907, in Schindler/Toman, *supra* note 12, at 1073.

²⁸ See for instance UK Prime Minister Sir Neville Chamberlain concerning the Spanish Civil War, UK, House of Commons, *Parliamentary Debates - Hansard*, vol. 337, cols. 937-938 (21 June 1938)

²⁹ See League of Nations and UN resolutions concerning the protection of the civilian population, e.g. *Protection of Civilian Populations against Bombing from the Air in Case of War*, Resolution of the League of Nations Assembly, adopted 30 September 1938; or *Basic Principles for the Protection of Civilian Populations in Armed*

civilian population and civilian objects and that (2) incidental losses and damage have to be avoided or minimized. The primary obligation is to avoid incidental losses, while “the goal of ‘minimizing’ such damage will come into play only when total avoidance is not feasible.”³² The first principle has been formulated as follows in Article 57(1) of Protocol I: “In the conduct of military operations, constant care shall be taken to spare the civilian population, civilians and civilian objects”, and its customary nature was acknowledged in Rules 30 and 34 of the AMW Manual. Both principles, which are interrelated and reinforce each other, lie behind the detailed obligations foreseen in Art. 57(2)-(4) and reappear in subsequent treaty provisions.

At the Diplomatic Conference that adopted Protocol I, Article 57 as a whole was controversial. However, this was mainly due to some delegations objecting to any mention of the proportionality principle (because it implicitly allows for incidental civilian losses as long as they are not excessive,³³ and because paragraphs (2) and (3) were considered too vague).³⁴ Such objections by States desiring more protective or more precise rules do not contradict the conclusion that at least the less protective and vaguer rules finally adopted correspond to customary international law. Only France persistently objected to the precautionary measures laid down in paragraph (2),³⁵ but it has since become a party to Protocol I.

State practice, including that of States not party to Protocol I such as the U.S.³⁶ and Israel,³⁷ has confirmed the customary status of these rules. And even if certain doubts remain, one could add that the U.S. itself has recognized that Article 57(1) corresponds to customary law³⁸

Conflicts, UNGA Res. 2675 (XXV), adopted 9 December 1970; or UNGA Res. 2444, 23 U.N. GAOR Supp. (No. 18) at 164, U.N. Doc. A/7433 (1968).

³⁰ See ICRC memoranda accepted by the belligerents in the 1967 Middle East War. ICRC, “The International Committee’s action in the Middle East”, 152 *International Review of the Red Cross* 583 (1973), at 584-585.

³¹ ICRC Study, *supra* note 9, Vol II, Ch. 5, paras 6-29 and 71-94.

³² Frits Kalshoven and Liesbeth Zegveld, *Constraints on the Waging of War* (Geneva: ICRC, 2001), at 108.

³³ *Official Records*, *supra* note 14, Vol. III, 205 (Algeria, Egypt, Yemen, Iraq, Kuwait, Libya, Morocco, Sudan, Syria, United Arab Emirates), 206 (Philippines), 204, 227 (Romania), 228 (Ghana), 230 (Egypt, Jordan, Kuwait, Libya, Mauritania, Qatar, Sudan, United Arab Emirates); Vol. VI, 236 (Romania); Vol. XIV, 48 (Syria), 49 (Hungary), 52 (Ghana), 56 (German Democratic Republic, Romania), 61 (Poland, North Korea, Uganda), 62 (Mauritania), 69 (Czechoslovakia), 193 (North Vietnam), 303, 305 (Romania), 308 (Ivory Coast).

³⁴ *Ibid.*, Vol. VI, 212 (Switzerland, Austria), 213 (Iran), 219 (Afghanistan), 231 (Italy).

³⁵ *Ibid.*, Vol. VI, 211; Vol. VII, 193.

³⁶ For instance “U.S. Military Assistance Command, Vietnam, Directive No. 525-13 [May 1971]”; “Rules of Engagement of the American Division and of the 11th Infantry Brigade” and extracts of instructions, Annexes of a letter from Secretary of Defence Schlesinger to Senator Goldwater, published in U.S. Congressional Record, 94th Congress, Vol. 121, No. 88 (6 June 1975), at 9897-9904; Stephen B. Young, “Westmoreland v. CBS: The Law of War and the Order of Battle Controversy”, 21 *Vanderbilt Journal of Transnational Law* (1988), at 249-253; Marjorie M. Whiteman, *Digest of International Law*, Vol. 10 (Washington: Government Printing Office, 1968), at 428/429; *Hearings before the Preparedness Investigating Subcommittee of the Committee on Armed Services*, United States Senate, 90th Congress, First Session, August 25, 1967: *Air War against North Vietnam, Testimony of Robert S. McNamara, Secretary of Defense*, at 296 and 305. W. Hays Parks, “Linebacker and the Law of War”, *Air University Review* 2 (1983), at 8; W. Hays Parks, “Rolling Thunder and the Law of War”, 33 *Air University Review* 2 (1982), at 17, even considers that the Johnson administration had a “paranoiac fixation with regard to incidental civilian casualties.”

³⁷ See for instance Israel, Ministry of Foreign Affairs, *Briefing: The Israeli Operation in Lebanon, Legal Aspects* (Jerusalem: Information Division, 18 July 1982).

³⁸ See “Additional Protocol I as an Expression of Customary International Law”, in The Judge Advocate General’s Legal Center and School, *Law of Armed Conflict Documentary Supplement* (Charlottesville: TJAGLCS, 2013), at 233. The text summarizes the remarks that Michael J. Matheson, then Department of State Legal Advisor, presented to the Sixth Annual American Red Cross-Washington College of Law Conference on International Humanitarian Law, and reported in 2 *American University Journal of International Law and Policy* 419 (1987). He expounded on the provisions of Protocol I which the U.S. considers (and, where noted, does not consider) expressions of customary international law.

and has included it as such in its military manuals.³⁹ Other examples can be mentioned, such as the *Abella* case before the Inter-American Commission of Human Rights,⁴⁰ or the ICTY judgment in *The Prosecutor v. Kupreskić*.⁴¹ Finally, scholars generally consider Article 57(1) and (2) to correspond to customary law.⁴²

Finally, the purpose of precautionary measures should be specified. First, they aim at avoiding attacks upon, or incidental losses among, the civilian population, civilians and civilian objects (hereafter referred to as “incidental civilian losses”). In addition, feasible precautionary measures must also be taken to spare other persons and objects protected by international humanitarian law (IHL), such as medical aircraft, hospitals and places where the wounded and sick are collected,⁴³ civil defence organizations, buildings and personnel, United Nations personnel that are not combatants, works and installations containing dangerous forces,⁴⁴ cultural objects,⁴⁵ buildings dedicated to charitable purposes, the natural environment,⁴⁶ and objects protected by specific agreement.⁴⁷

b. Specific Practice Relating to Aerial Bombardments against Objectives on Land

During the Second World War, and specifically during aerial bombardments, the Western Allies took precautionary measures only in favour of the civilian population of German-occupied allied countries,⁴⁸ but they also considered the very extensive losses among the German and Japanese civilian populations during area bombardments as “lamentable and undesired.”⁴⁹ The then General Counsel of the U.S. Department of Defence wrote, reviewing instructions to U.S. forces in Vietnam air operations, that “extensive constraints are imposed to avoid if at all possible the infliction of casualties on non-combatants and the destruction of

³⁹ For the U.S. Joint Doctrine on targeting, “precautions must be taken to limit collateral damage to the protected buildings” and monuments devoted to religion, art, charitable purposes, or historical sites. See “International Law and Legal Considerations in Targeting” (Appendix A), in *Joint Doctrine for Targeting*, Joint Publication 3-60, (17 January 2002), at A-5, online http://www.dtic.mil/doctrine/jel/new_pubs/jp3_60.pdf.

⁴⁰ See Inter-American Commission on Human Rights, Report No. 55/97, Case No. 11.137: Argentina, OEA/Ser/L/V/II.97, Doc. 38, November 19, 1997, para. 177. The Commission stated that customary law imposes an obligation to take precautions to avoid or minimize loss of civilian life and damage to civilian property that may occur as a consequence of attacks on military targets.

⁴¹ *Prosecutor v. Kupreskić*, (Case no. IT-96-16-T), Judgment, 14 January 2000, paras 524 and 525. The ICTY indiscriminately classified Arts 57 and 58 of Protocol I as customary international law (applying them, in addition, to both international and non-international armed conflicts).

⁴² See for instance William H. Boothby, *The Law of Targeting* (Oxford: Oxford University Press, 2012), at 72; Christopher Greenwood, “Customary Law Status of the Protocols”, in Astrid J. M. Delissen and Gerard J. Tanja (eds), *Humanitarian Law of Armed Conflict - Challenges Ahead* (Dordrecht: Martinus Nijhoff Publishers, 1991), at 111; Sassòli, *supra* note 8, at 453-489, with further references.

⁴³ See Art. 27 of the *Hague Regulations* and, for certain precautions concerning medical units, Art. 21 of *Convention [No. I] for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field* (Aug. 12, 1949), 75 U.N.T.S. 31 and 34 of *Convention [No. II] for the Amelioration of the Condition of the Wounded, Sick and Shipwrecked Members of Armed Forces at Sea* (Aug. 12, 1949), 75 U.N.T.S. 85.

⁴⁴ See Art. 56(3) of Protocol I and AMW Manual, *supra* note 4, Rule 36

⁴⁵ See Art. 27 of the *Hague Regulations* and Art. 7 of the *Second Protocol to the Hague Convention of 1954*, *supra* note 20.

⁴⁶ See Art. 55(1) of Protocol I and “International Law and Legal Considerations in Targeting” (Appendix A), in *Joint Doctrine for Targeting*, *supra* note 39, at A-5, A-6. The AMW Manual, *supra* note 4, remains much vaguer in Rule 89.

⁴⁷ AMW Manual, *supra* note 4, Rule 31.

⁴⁸ See Annex to *Draft Rules for the Limitation of the Dangers Incurred by the Civilian Population in Time of War*, 2nd ed., (Geneva: ICRC, 1958) [Draft Rules], at 163.

⁴⁹ J. M. Spaight, “Legitimate Objectives in Air Warfare”, 21 *British Yearbook of International Law* (1944), at 163.

property.”⁵⁰ The U.S. Air Force confirms the principle in its instructions⁵¹ and even considers “the ability to deliver desired effects with minimal [...] collateral damage” as one of its six “core competencies.”⁵²

c. Applicability to Air-to-Air Warfare

While this contribution and the AMW Manual draw heavily upon it, Protocol I, and in particular Article 57 on precautionary measures, does not apply as such to air-to-air operations.⁵³ Such attacks may endanger civilians and civilian objects in the air or on land. As explained in the ICRC Commentary to Protocol I, hostilities between adverse aircraft could endanger the civilian population “because missiles could miss their target or civilian [...] aircraft could get mixed up in the battle. Similarly, fighting between adverse military aircraft could have incidental repercussions on the civilian population on land – for example, when a crippled aircraft crashes.”⁵⁴ For purposes of protection, it seems highly desirable that precautionary measures should apply equally to air-to-air operations. It must therefore be clarified whether the general principle and the detailed rules apply at all in the case of missile and air attacks directed at targets in the air.

Oppenheim/Lauterpacht wrote that the same “humanitarian principles of unchallenged applicability [apply in air-to-air warfare as in land warfare, including] the fundamental prohibition of direct attack upon non-combatants [and therefore, we would add, also the principle of distinction and the prohibition of indiscriminate attacks]. Whenever a departure from these principles is alleged to be necessary, its cogency must be proved by reference either to express agreement or to the peculiar conditions of air warfare.”⁵⁵ Looking at Article 57(4) of Protocol I, which states that in air warfare “each Party to the conflict shall [...] take all reasonable precautions to avoid losses of civilian lives and damage to civilian objects”, one could wonder whether this is an example of such “express agreement” distinguishing between the conduct of operations in the air compared to land. The “reasonable” standard is indeed “undoubtedly slightly different from and a little less far-reaching than the expression ‘take all feasible precautions’, used in paragraph 2 [for attacks on land]. [T]he nuance is [however] tenuous.”⁵⁶ In addition, the provision is much vaguer than the detailed obligations prescribed in paragraphs 2 and 3. However, there are no other instances of express agreement in treaties, and the attempt to lay such agreement down in the Hague Rules of 1922 was unsuccessful.⁵⁷

⁵⁰ See Letter by J. Fred Buzhardt, General Counsel of the Department of Defence to Senator Edward Kennedy, Chairman of the Subcommittee on Refugees of the Committee on the Judiciary, reproduced in 67 *American Journal of International Law* 122 (1973), at 125. Hays Parks, “Conventional Area Bombing and the Law of War”, Proceedings, U.S. Naval Institute, *Naval War Review* 98 (May 1982), at 100, objects that those restrictions “far exceeded the requirements of the laws of war, [and] were political restrictions.” The U.S. however did not declare so.

⁵¹ See U.S. Air Force Pamphlet, *supra* note 3, at 5-9 and 5-10.

⁵² U.S. Air Force, *Vision 2020*, online: www.af.mil/vision

⁵³ See Art. 49(3) of Protocol I and text accompanying *supra* notes 12-14.

⁵⁴ Yves Sandoz, Christophe Swinarski & Bruno Zimmermann (eds.), *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949*, (Geneva and The Hague: ICRC, 1987), at para 2230.

⁵⁵ Oppenheim, *International Law – A Treatise*, 7th edition edited by Hersch Lauterpacht, Vol. II, *Disputes, War and Neutrality* (London: Longman, 1952), at 520. The Canadian Manual mentions that its chapter 7 “Law relating to the conduct of hostilities in the air” must be read in conjunction with chapters 4 “Targeting” and 5 “Restrictions on the use of weapons” – the latter two prescribing most of the precautionary measures. See Office of the Judge Advocate General, National Defense, *Law of Armed Conflict at the Operational and Tactical Levels*, Doc. B-GJ-005-104/FP-021 [Canadian Manual], para. 701, at 7-1. Online: http://www.forces.gc.ca/jag/training/publications/law_of_armed_conflict/loac_2004_e.pdf

⁵⁶ *Commentary Protocols*, *supra* note 54, at para 2230.

⁵⁷ See the *Hague Rules*, *supra* note 12.

Therefore, Article 57(4) of Protocol I should not be construed as a departure from the fundamental principles.

The San Remo and the AMW Manuals both came to the conclusion that all rules on precautions apply on land, on sea and in the air.⁵⁸ The Commentary of the AMW Manual even specifies that “the Group of Experts reached the conclusion that, as a general principle, the same legal regime applies equally in all domains of warfare (land, sea or air).”⁵⁹

Nevertheless, this conclusion applies to air warfare in general, and may not necessarily be correct for air-to-air operations. The same is true for Article 57(4): understanding it as an authoritative affirmation of the applicability of the rules codified in Protocol I to air-to-air operations would be incompatible with the scope of application of the entire chapter as specified in Article 49(3), and which precisely excludes air-to-air operations.⁶⁰ In addition, the AMW Manual itself contains a separate set of rules addressing attacks directed at aircraft in the air. Because of the specificities of air-to-air warfare, in particular the vulnerability of all persons located inside an aircraft to targeting, and the “speed of modern aircraft [which] is likely to require rapid decision-making relating to identification of their nature as a lawful target”,⁶¹ the only rules on the obligation to verify contained in that section relate to the verification that the target is indeed a military objective.⁶²

The remaining question is whether precautionary measures during air-to-air warfare must also take into account the possible effects of such attacks for civilians and civilian objects on land. On the one hand, one may argue that the wording of Article 49(3) of Protocol I clearly answers affirmatively, as it makes the precautionary measures prescribed by that Protocol applicable to “air or sea warfare which may affect the civilian population, individual civilians and civilian objects on land.”⁶³ On the other hand, this provision was too controversial at the Diplomatic Conference in all respects other than attacks directed at targets on land,⁶⁴ and the majority of the Group of Experts that drafted the AMW Manual rejected the assertion that “consideration [should] be given to the possibility that aircraft that are shot down in the air may cause collateral damage on the ground”.⁶⁵

In conclusion, during air-to-air warfare “reasonable precautions” have to be taken according to rules of international law other than those of Protocol I *qua* treaty law.⁶⁶ These rules will equally be discussed in this article, based upon sometimes innovative, but reasonable solutions found in the AMW Manual.

d. What is “Feasible”?

⁵⁸ *HPCR Commentary*, *supra* note 6, at 125.

⁵⁹ *Id.*

⁶⁰ It would also be contrary to the preparatory works of the provisions. See *Official Records*, *supra* note 14, vol. XIV, 299, at para. 60 (Canada).

⁶¹ *HPCR Commentary*, *supra* note 6, at 136

⁶² See Rules 40 and 41 of the AMW Manual, *supra* note 4

⁶³ The ICRC seems to have some doubts, as it refers to this situation under Art. 57(4) of Protocol I and not under Art. 49(4) of Protocol I (See *Commentary Protocols*, *supra* note 54, at para 2230).

⁶⁴ *Commentary Protocols*, *supra* note 54, at paras 1892-1899. Natalino Ronzitti, “The Codification of Law of Air Warfare”, in Natalino Ronzitti et Gabriella Venturini (eds), *The law of air warfare: contemporary issues* (Utrecht: Eleven International Publ., 2006), at 11. The same disagreement arose during the drafting of the AMW Manual (see *HPCR Commentary*, *supra* note 6, at 136).

⁶⁵ *HPCR Commentary*, *supra* note 6, at 136

⁶⁶ See in this sense the report of the competent committee of the Diplomatic Conference, *Official Records*, *supra* note 14, vol. XV, 261, at para 99.

Several States understand the term “feasible” as meaning “that which is practicable or practically possible taking into account all circumstances ruling at the time, including humanitarian and military considerations.”⁶⁷ This interpretation was also explicitly included in Article 2(3) of the 1980 Protocol III on incendiary weapons of the UN Weapons Convention⁶⁸ and it was applied by an ICTY Trial Chamber.⁶⁹ Some States as well as some authors nevertheless consider that such terminology imposes too high a standard on parties capable of taking greater precautions, and argue that the customary law standard is that only all “reasonable” and not all “feasible” precautions have to be taken.⁷⁰ For instance, the U.S. disputes such a burden and prefers the term “all practicable precautions”⁷¹ combined with “a reasonableness standard for evaluating command decisions”.⁷²

While the “feasible” standard certainly would not require taking “unreasonable” precautions, it imposes a higher positive obligation to take such measures.⁷³ By definition, it is nearly impossible to assess whether customary law based on actual practice corresponds to one or the other adjective. Although certain States like the U.S. have persistently objected to the use of “feasible”, the fact that treaties and understandings by the majority of States use the “feasible” standard indicates, however, that it enjoys the widest support (concerning attacks against objectives on land).⁷⁴ And indeed, the same terminology was used in the AMW Manual in Rule 1(q), thereby confirming that the Group of Experts was of the opinion that the “feasible” standard was reflective of existing international law.⁷⁵

i. What Factors Should be Considered to Determine “Feasibility”?

Article 3(10) of the 1996 Amended Mine Protocol of the UN Weapons Convention adopts the same definition as above and provides examples of what “circumstances ruling at the time” and “humanitarian and military considerations” may be.⁷⁶ The UK Military Manual adds that: “[A] commander should have regard to the following factors: a. the importance of the target and the urgency of the situation; b. intelligence about the proposed target – what it is being, or will be, used for and when; c. the characteristics of the target itself, for example, whether it houses dangerous forces; d. what weapons are available, their range, accuracy, and radius of effect; e. conditions affecting the accuracy of targeting, such as terrain, weather, night or day; f. factors affecting incidental loss or damage, such as the proximity of civilians or civilian objects in the vicinity of the target or other protected objects or zones and whether they are

⁶⁷ Declaration of the UK, Schindler/Toman, *supra* note 12, at 815-816. Similar declarations were made by Algeria, Belgium, Canada, France, Germany, Ireland, Italy, the Netherlands, and Spain.

⁶⁸ *Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons* (10 October 1980), 1342 U.N.T.S. 171.

⁶⁹ *Prosecutor v. Stanislav Galić* (Case no. IT-98-29-T), Judgement (Trial Chamber), 5 December 2003, para. 58, footnote 105.

⁷⁰ See Danielle L. Infeld, “Precision-Guided Munitions Demonstrated Their Pinpoint Accuracy in Desert Storm; But Is a Country Obligated to Use Precision Technology to Minimize Collateral Civilian Injury and Damage?”, 26 *George Washington Journal of International and Comparative Law* 109 (1992-1993), at 118; and Art. 57(4) of Protocol I, discussed *supra*, text accompanying notes 55-57.

⁷¹ See “Additional Protocol I as an Expression of Customary International Law”, *supra* note 38, at 233.

⁷² The Judge Advocate General’s Legal Center and School, *Law of Armed Conflict Deskbook* (Charlottesville: TJAGLCS, 2013), at 152. See also Christopher J. Markham and Michael N. Schmitt, “Precision Air Warfare and the Law of Armed Conflict”, 89 *International Law Studies* 669 (2013), at 685-686

⁷³ See *Commentary Protocols*, *supra* note 54, at 688.

⁷⁴ Thilo Marauhn and Stefan Kirchner, “Target Area Bombing”, in Ronzitti/Venturini, *supra* note 64, at 102

⁷⁵ AMW Manual, *supra* note 4, Rule 1(q)

⁷⁶ *Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices* as amended on 3 May 1996, annexed to the 1980 *Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects*, 2048 U.N.T.S. 93.

inhabited, or the possible release of hazardous substances as a result of the attack; g. the risks to his own troops of the various options open to him.”⁷⁷ In addition, publicists also mention “the amount of information readily available, the staff available to deal with it, whether the information raises questions that require further research into other sources of information [...] [and] the time available for making the decision.”⁷⁸ While the standard and the factors mentioned are objective, only subjective certainty of the addressee can be required.⁷⁹

ii. A Duty to Use Precise Technology?

As noted above, one of the reasons why the “feasible” standard is still rejected by some States and experts lies in the fact that it is perceived as creating a disproportionate burden on technologically-advanced States.⁸⁰ More precisely, such States reject the idea that the obligation to take all feasible precautions entails an obligation to acquire new weapons and information technology, and reject even more an obligation for a party having such technology to use it. Conversely, some authors and NGOs consider that there is a duty to use precision-guided munitions in urban areas⁸¹ or that countries with arsenals of “smart bombs” are compelled to use them everywhere.⁸²

The AMW Manual states: “There is no specific obligation on Belligerent Parties to use precision guided weapons. There may however be situations in which the prohibition of indiscriminate attacks, or the obligation to avoid – or, in any event, minimize – collateral damage, cannot be fulfilled without using precision guided weapons”.⁸³ In our opinion, the AMW Manual’s position is correct. No country has an obligation to acquire modern technology. If it does so, it has many military advantages, including that of being able to lawfully attack some targets which a country with less precise weapons would not be allowed to attack under the proportionality principle.⁸⁴ The (slight) disadvantage is that when it chooses weapons to be used for a given lawful attack, it has the choice of using smart weapons, which additionally reduce incidental losses and damage. The UK Manual correctly states that “[t]he employment of ‘dumb’ bombs has not been rendered unlawful by the advent of precision guided or ‘smart’ bombs, but developing technology does bring with it a change in the standards affecting the choice of munitions when taking the precautions.”⁸⁵ In other

⁷⁷ UK Ministry of Defence, *The Manual of the Law of Armed Conflict* (Oxford: Oxford University Press, 2004) [UK Manual], at para. 5.32.5 (footnote omitted).

⁷⁸ A. P. V. Rogers, *Law on the Battlefield* (Manchester: Manchester University Press, 1996), at 66-67.

⁷⁹ Stefan Oeter, “Methods and Means of Combat”, in Dieter Fleck (ed.), *The Handbook of Humanitarian Law in Armed Conflict* (Oxford: Oxford University Press, 2013), at 200, para 460.

⁸⁰ See *supra* note 70. In addition, see Yoram Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflict*, 2nd ed. (Cambridge: Cambridge University Press, 2010), at 142-143; J. F. Murphy, “Some Legal (and a Few Ethical) Dimensions of the Collateral Damage Resulting from NATO’s Kosovo Campaign”, 31 *Israel Yearbook on Human Rights* 51 (2001), at 63; William G. Schmidt, “The Protection of Victims of International Armed Conflict: Protocol 1 additional to the Geneva Conventions”, 24 *Air Force Law Review* 189 (1984), at 231.

⁸¹ See “‘Smart’ Bombs, ‘Dumb’ Bombs, and Inaccurate Attacks on Targets in Civilian Population Centers”, in Human Rights Watch, *Needless Deaths in the Gulf War: Civilian Casualties During the Air Campaign and Violations of the Laws of War* (New York: Human Rights Watch, 1991), online <http://www.hrw.org/reports/1991/gulfwar/>; S. W. Belt, “Missiles over Kosovo: Emergence, *Lex Lata*, of a Customary Norm Requiring the Use of Precision Munitions in Urban Areas”, 47 *Naval Law Review* 115 (2000), at 174.

⁸² See Infeld, *supra* note 70, at 110-111 (who is herself critical of this position).

⁸³ AMW Manual, *supra* note 4, Rule 8. See also Boothby, *supra* note 42, at 124-125.

⁸⁴ *HPCR Commentary*, *supra* note 6, at 127. See also Jean-François Quéguiner, “Precautions under the law governing the conduct of hostilities”, 88 *International Review of the Red Cross* 793 (2006), at 798 and 801-803; Marauhn/Kirchner, *supra* note 74, at 101-102.

⁸⁵ UK Manual, *supra* note 77, at paras 12.51.

words, “it does mean that parties to an armed conflict which *could* do more (account taken of their state of technological advancement and available resources) cannot get away with implementing the lowest common denominator of precautions simply because their adversaries are not in the same technologically privileged position as they are.”⁸⁶

When the choice is available, financial considerations should not be included in the feasibility evaluation. However, a belligerent may take into account the fact that it only has a limited number of smart weapons and must therefore save them for targets which are particularly important (from a military perspective) or particularly risky (for the civilian population).⁸⁷ If this could not be taken into account, a State possessing some smart weapons would be, unlike the one having none, obliged to acquire more of them, which would indeed constitute discrimination against such States (and would mean that IHL encourages the proliferation of weapons).⁸⁸

iii. Should the Risks Incurred by the Attacker’s own Forces be Considered?

Another area of debate relates to how the risks incurred by an attacker’s own military personnel when taking certain precautionary measures affect the feasibility of those measures. Some scholars consider that this factor should be taken into account in the proportionality equation.⁸⁹ In our opinion, this can only be included in the assessment of whether a precautionary measure (which would imply risks for the attacking forces) is practically feasible. Indeed, what has to be compared in the proportionality assessment is the military advantage of destroying or neutralizing the target with the risks for the civilian population. The goal of preserving the attacking aircraft and the lives of pilots could be better achieved by not engaging in attack at all.

State practice on this question has not always been consistent. Writing about the 1991 Gulf War, General Schwarzkopf notes that the security of civilians was more important than that of the pilots.⁹⁰ During the Kosovo Air Campaign, however, Human Rights Watch and Amnesty International denounced NATO’s extraordinary efforts to avoid casualties among its pilots, for they precluded low-flying operations that might have helped identify targets more accurately.⁹¹ The Report to the ICTY Prosecutor by the Committee Established to Review the NATO Bombing Campaign indeed concluded that operating at a lower altitude would have

⁸⁶ Kimberley Trapp, “Assessing Compliance with API Obligations in the Information Age”, in Dan Saxon (ed.), *International Humanitarian Law and the Changing Technology of War* (Leiden: Martinus Nijhoff Publishers, 2013), at 156

⁸⁷ See Markham/Schmitt, *supra* note 72, at 687. This approach is also shared by Robert Kolb, *Ius in bello : Le droit international des conflits armés : précis*, 2nd ed. (Bâle: Helbing Lichtenhahn, 2009), at 263-264. For a similar analysis with computer technology, see Michael N. Schmitt, *Computers and War: The Legal Battlespace*, Background Paper prepared for Informal High-Level Expert Meeting on Current Challenges to International Humanitarian Law (Cambridge, 25-27 June 2004), at 2, available at: <http://www.hpcrresearch.org/sites/default/files/publications/schmittetal.pdf>

⁸⁸ Marauhn/Kirchner, *supra* note 74, at 102.

⁸⁹ Yoram Dinstein, *The Conduct of Hostilities*, *supra* note 80, at 141-142. Peter Margulies, “Valor’s Vices: Against a State Duty to Risk Forces in Armed Conflict”, 37 *Vermont Law Review* 271 (2012).

⁹⁰ Richard Pyle, *Schwarzkopf/The Man, The Mission, The Triumph* (New York: Signet Books, 1991), at 202-203.

⁹¹ Human Rights Watch, “Case Studies of Civilian Deaths”, in *Civilian Deaths in the NATO Air Campaign* (February 2000); Amnesty International, *NATO/Federal Republic of Yugoslavia “Collateral Damage” or Unlawful Killings? Violations of the Laws of War by NATO during Operation Allied Force*, (June 2000), at 19, online: http://www.amnesty.org/ailib/intcam/kosovo/docs/nato_all.pdf. See also William J. Fenrick, “Attacking The Enemy Civilian as a Punishable Offense,” 7 *Duke Journal of Comparative and International Law* (1997), at 546.

improved the likelihood of avoiding the incident in which Kosovo Albanian refugees were bombed, after being misidentified as a military convoy.⁹²

How the risks to the attacking forces must be balanced with the importance of the target and the risk for the civilian population when determining what precautions are feasible depends on the circumstances. Is a pilot flying at a higher altitude less anxious about anti-aircraft fire and therefore more able to comply with IHL through modern computerized means? When precision-guided weapons are used, are they more accurate when they fly for a longer period from the delivering platform to the target, because they can stabilize their trajectory?⁹³ If the answer to both questions is affirmative, the advantage of attacking from a higher altitude has to be balanced with the real possibility for a low-flying pilot at high speed to verify the military nature of the target. If a positive balance in favour of low-altitude attacks subsists, we would agree with the approach of A.P.V. Rogers: “[i]f the target is sufficiently important, higher commanders may be prepared to accept a greater degree of risk to the aircraft crew to ensure that the target is properly identified and accurately attacked. No-risk warfare is unheard of. [...] However, if the target is assessed as not being worth that risk and a minimum operational altitude is set for their protection, the aircrew involved in the operation will have to make their own assessment of the risks involved in verifying and attacking the assigned target. If their assessment is that (a) the risk to them of getting close enough to the target to identify it properly is too high, (b) that there is a real danger of incidental death, injury or damage to civilians or civilian objects because of lack of verification of the target, and (c) they or friendly forces are not in immediate danger if the attack is not carried out, there is no need for them to put themselves at risk to verify the target. Quite simply, the attack should NOT be carried out.”⁹⁴

iv. Feasibility Evolves through Experience

Precautions that prove to be unsuccessful do not render past attacks unlawful. But they may imply the need to revise the practice to avoid such incidents in the future.⁹⁵ Concerning the Kosovo war, Human Rights Watch reports that “[a]fter the technical malfunction of a cluster bomb used in an attack on the urban Nis airfield on May 7 [...], the White House quietly issued a directive to restrict cluster bomb use.”⁹⁶ Concerning the war against Iraq, the same organization argues that the continuation of the “aerial strikes targeting the leadership of [Iraq]” (“decapitation strikes” in U.S. military parlance), which were based on satellite-phone derived coordinates – in spite of their lack of success and the causation of civilian casualties – “can be seen as a failure to take ‘all feasible precautions’ in the choice of means and methods of warfare.”⁹⁷ On the same point, the Eritrea-Ethiopia Claims Commission also sanctioned “Eritrea’s failure to take appropriate actions to prevent future recurrence”⁹⁸ following an attack that missed the planned targets.

⁹² *Final Report to the Prosecutor by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia* (1999), at para. 70. Online <http://www.un.org/icty/pressreal/nato061300.htm#IVA1>.

⁹³ As mentioned by Michael N. Schmitt, “Precision in Aerial Warfare and the Law of International Armed Conflict”, Paper submitted at the Second expert meeting on International Humanitarian Law in Air and Missile Warfare, at 18.

⁹⁴ A. P. V. Rogers, “Zero-casualty warfare”, 82 *International Review of the Red Cross* 165 (2000), at 179. See also Amnesty International, *NATO/Federal Republic of Yugoslavia*, *supra* note 91, at 19 (emphasis in the original).

⁹⁵ Quéguiner, *supra* note 84, at 810-811.

⁹⁶ Human Rights Watch, “Conclusions and Recommendations”, in *Civilian Deaths in the NATO Air Campaign*, *supra* note 91.

⁹⁷ Human Rights Watch, *Off Target: The Conduct of the War and Civilian Casualties in Iraq* (2003), at 40.

⁹⁸ Eritrea-Ethiopia Claims Commission, Partial Award, Ethiopia’s Claim No. 2, para. 110.

2. The Obligation to Verify

a. Treaty Provisions, Legal Logic and General Customary Law

“[T]hose who plan or decide upon an attack shall do everything feasible to verify that the objectives to be attacked are neither civilians nor civilian objects and are not subject to special protection but are military objectives [...] and that it is not prohibited by the provisions of this Protocol to attack them”. (Article 57(2)(a)(i) of Protocol I)

To determine the exact content of the provision, one should start by looking at the broader notions of *dolus* (deliberate violation) and *culpa* (negligence). If one agrees with the International Law Commission and in particular its first rapporteur on State responsibility, Roberto Ago, that States may be held responsible for both *dolus* and *culpa*,⁹⁹ then a State will have violated its substantive obligations if its agents fail to do everything feasible to verify whether an attack is prohibited. As some have noted, whether a State is also responsible for negligence nevertheless depends on the formulation of the specific primary rule violated; however, in cases where the primary rule is not explicit on this question, there must be a general secondary rule¹⁰⁰ – and that secondary rule precisely foresees responsibility for both *dolus* and *culpa*.¹⁰¹

When considering the obligation to verify, one shall first admit that nothing in the formulation of the primary rules prohibiting indiscriminate attacks and attacks with excessive incidental effects indicates that their scope is limited to deliberate attacks. Second, although the prohibition codified in Articles 51(2) and 52(1) of Protocol I – that civilians and civilian objects “shall not be the object of attack” – may be seen as covering only deliberate attacks, verification appears as a necessary consequence of the principle of distinction. Verification is indeed the only way to avoid attacks directed by negligence at civilians or civilian objects.¹⁰² If those who attack do not do everything feasible to verify what they attack, they deliberately put themselves in a situation in which they cannot distinguish between military objectives and civilian objects. The obligation to verify therefore flows as a kind of procedural obligation from the customary obligation to distinguish civilian objects from military objectives.¹⁰³

b. Specific Practice Relating to Air and Missile Warfare

⁹⁹ See Alfred Verdross and Bruno Simma, *Universelles Völkerrecht, Theorie und Praxis*, 3.A. (Berlin, 1984), 850-855, with further references; Mohammed Bedjaoui, “Responsibility of States, Fault and Strict Liability”, in Bernhardt (ed.), *Encyclopedia of Public International Law*, vol. 10 (Amsterdam, New York, Oxford: North Holland, 1987), at 358-362. Verdross/Simma, *ibid.*, at 850, and Eduardo Jiménez de Aréchaga, “International Responsibility”, in Max Sørensen (ed.), *Manual of Public International Law* (London: McMillan, 1968), at 534, mention intent and negligence indifferently. The *Draft Articles on Responsibility of States for internationally wrongful acts*, United Nations, International Law Commission, *Report on the work of its fifty-third session (23 April - 1 June and 2 July - 10 August 2001)*, GAOR, 55th Sess., Supp. No. 10 (A/56/10) [Draft Articles], online: <http://www.un.org/law/ilc/reports/2001/2001report.htm>, are based on the idea that State responsibility is objective responsibility (James Crawford, *The International Law Commission's Articles on State Responsibility* (Cambridge, Cambridge University Press, 2002), at 12-14). This point was particularly underlined by Roberto Ago in his “Third Report”, *Yearbook of the International Law Commission* (1971) vol. II, part 1, 199, at 219.

¹⁰⁰ See Ian Brownlie, *System of the Law of Nations, State Responsibility, Part I* (Oxford: Clarendon Press, 1983), at 38-47.

¹⁰¹ See Art. 2 of the Draft Articles, *supra* note 99, and para. 10 of the Commentary of the ILC to that article.

¹⁰² *Draft Rules*, *supra* note 48, at 77, and Hans Blix, “Area Bombardment: Rules and Reasons”, 49 *British Yearbook of International Law* (1978), at 48.

¹⁰³ Schmidt, *supra* note 80, at 235.

The 1976 U.S. Air Force pamphlet reproduces the exact wording of Article 57(2)(a)(i) of Protocol I.¹⁰⁴ During the 1991 Gulf War, allied aircrew attacking targets in populated areas were ordered not to expend their munitions if they lacked positive identification of their targets.¹⁰⁵ If the probability of collateral damage – especially if there were schools, hospitals and mosques in the area – was considered too high, military objectives were not attacked.¹⁰⁶

c. What Has to Be Verified?

i. Verification that the Target is a Military Objective

The first issue to be verified is whether the target is indeed a military objective. In this context, the question arises as to whether certain objects must be presumed not to be military objectives. States Parties to Protocol I are bound by its Article 52(3) which reads: “In case of doubt whether an object which is normally dedicated to civilian purposes, such as a place of worship, a house or other dwelling or a school, is being used to make an effective contribution to military action, it shall be presumed not to be so used.”

Determining whether this provision has obtained a customary status is, however, complex. It imposes a higher standard of verification. The provision was intended by the drafters as a partial replacement for a definition of civilian objects, but during the Diplomatic Conference, many (even those favouring the presumption) objected that it did not reflect customary law and instead constituted a progressive development of the law.¹⁰⁷ Indeed, beyond the general difficulty of considering presumptions as customary (it is difficult, if not impossible, to know when a specific behaviour in conformity with the rule resulted from a situation in which there was actually no doubt), this particular presumption simply does not enjoy sufficient State support to be customary. It has met with considerable criticism from the US,¹⁰⁸ and even writers who support it come to the conclusion that it does not correspond to customary law.¹⁰⁹ Resistance is particularly motivated by the fear that a defender may be tempted to conceal its military forces in civilian installations – which does not violate IHL.¹¹⁰

A conclusion that the presumption does not correspond to customary law should however not be misunderstood. First, it only covers cases of doubt. Where nothing indicates that an object contributes to military action, it is clear that it shall not be attacked – and many objects such as places of worship, houses or schools already benefit from a factual presumption that they are civilian. Second, in cases of genuine doubt, there is no opposite presumption that the object is a military objective. The decision-maker must, rather, as always when he or she lacks information, do everything feasible to obtain such information. This kind of procedural

¹⁰⁴ U.S. Air Force Pamphlet, *supra* note 3, at 5-9.

¹⁰⁵ U.S. Department of Defense, *Conduct of the Persian Gulf Conflict/An Interim Report to Congress*, (July 1991) [U.S., *Interim Report on the Persian Gulf Conflict*], at 27-1; UK Manual, *supra* note 77, at para. 5.32.10, footnote 212. In this footnote it is also noted that similar instructions were given to NATO aircrews in the Kosovo conflict 1999.

¹⁰⁶ U.S., *Conduct of the Persian Gulf War*, *supra* note 15, at 153.

¹⁰⁷ See *Official Records*, *supra* note 14, vol. XV, 277 and 332; vol. XIV, 220. See also Frits Kalshoven, “Reprisals, The Global Community is not yet Ready to Abandon them, Remarks by Frits Kalshoven”, *ASIL Proceedings*, 1980, at 203; Elmar Rauch, “Attack Restraints, Target Limitations and Prohibitions or Restrictions of Use of Certain Conventional Weapons”, 18 *Military Law and the Law of War Review* (1979), at 54.

¹⁰⁸ See in particular U.S., *Conduct of the Persian Gulf War*, *supra* note 15, at 703; Guy Roberts, “The New Rules for Waging War: The Case against Ratification of Additional Protocol I”, 26 *Virginia Journal of International Law* 109 (1985), at 150-151; Burrus M. Carnahan, “Additional Protocol I, A Military View”, 19 *Akron Law Review* (1986), at 543-545.

¹⁰⁹ See Frits Kalshoven, *ASIL Proceedings* (1980), *supra* note 107, at 203; Elmar Rauch, *supra* note 107, at 54.

¹¹⁰ W. Hays Parks, “Air War and the Law of War”, 32 *Air Force Law Review* 1 (1990), at 136-137.

obligation necessarily results from the customary obligation to distinguish civilian objects from military objectives.¹¹¹ He who launches an attack without knowing what he is attacking and without verifying the nature of the target, despite his own doubts and while he could verify the target, deliberately launches an indiscriminate attack.

Applying this obligation to air and missile attacks on targets in the air, it is often accepted that civilian aircraft and other specially protected aircraft shall be presumed not to be making an effective contribution to military action whenever doubt arises.¹¹² The AMW Manual however restricts the applicability of the presumption to civilian airliners,¹¹³ although its Commentary regrettably fails to explain *de lege lata* why they should have a specific status. One may argue that their destruction would indeed entail a higher toll of civilian death than that of another civilian aircraft; but this is a question of proportionality, to be evaluated on a case-by-case basis.

Generally in air warfare, whenever “there is doubt as to the status of civil aircraft, [the latter] should be called upon to clarify that status. If it fails to do so [...], it may be attacked.”¹¹⁴ This does not mean that the presumption applies differently in air and missile warfare, but is simply a consequence of the physical reality that clarification by the aircraft crew is the only way to eliminate doubt as to the latter’s status. Of course protected aircraft shall follow passive precautions – as will be discussed below –¹¹⁵ such as ensuring that they can be easily identified. However such measures are only efficient if the enemy belligerent takes the corresponding measures of verification before attacking the aircraft. Rules 40 and 41 of the AMW Manual mention several means of verification offered by contemporary technology.¹¹⁶

As mentioned before, the obligation to verify the nature of the target is probably the only active precaution that also applies in air-to-air warfare. Accordingly, even when the enemy fails to take the necessary passive precautions to identify itself, a belligerent may still not attack an aircraft – or must interrupt the attack – if he perceives it to be protected. Concerning both enemy and neutral civil aircraft, the AMW Manual reasserts that any attack against civilian airliners that have lost their protection would still be unlawful unless it complies with the prohibition of indiscriminate attacks and the rules on precautionary measures.¹¹⁷

ii. Verification that the Target is not Protected by IHL

Beyond checking that the target is a military objective, an attacker has to verify whether such target is not otherwise protected by IHL. Most of the rules prohibiting attacks upon specific objects or persons are necessarily respected when the target is a military objective, because those objects and persons are not military objectives (e.g. hospitals are simply not military objectives). But even military objectives may sometimes not be attacked, either to protect the objective itself,¹¹⁸ or because of the incidental effects of such attack (for instance if the target

¹¹¹ Schmidt, *supra* note 80, at 235. In this sense we can agree with Antonio Cassese, “The Geneva Protocols of 1977 on the Humanitarian Law of Armed Conflict and Customary International Law”, 3 *UCLA Pacific Basin Law Journal* 55 (1984), at 89, when he writes that Article 52(3) “specifies a concept that could be inferred from the general principles on the matter. In this respect the provision should also be held to enunciate customary law.”

¹¹² San Remo Manual, *supra* note 5, Rule 58.

¹¹³ AMW Manual, *supra* note 4, Rule 59.

¹¹⁴ Canadian Manual, *supra* note 55, at para. 714, at 7-6.

¹¹⁵ See *infra* IV. 3. d.

¹¹⁶ AMW Manual, *supra* note 4, Rule 41.

¹¹⁷ *Ibid.*, Rule 68(d).

¹¹⁸ See Arts 9 and 11 of the *Hague Convention on Cultural Property*, *supra* note 20, 12 and 13 of the *Second Protocol on Cultural Property*, *supra* note 20; Art. 21 of Convention I; Art. 35 of Convention II; 19 of

consists of works or installations containing dangerous forces,¹¹⁹ or “if the attack is likely to cause collateral environmental damage which would be excessive in relation to the direct military advantage which the attack is expected to produce.”¹²⁰ However, concerning the protection of the environment, it is worth noting that during the drafting of the AMW Manual, most (Anglo-Saxon) military and (Northern) governmental experts denied that anything beyond the prohibition of wanton destruction had reached a customary status.¹²¹

iii. Verification that the Proportionality Principle is Respected

The proportionality principle is a rule of customary law, derived from a general principle of law,¹²² and codified in Article 51(5)(b) of Protocol I.¹²³ The rule prohibits attacks, even if directed at a military objective, that “may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.” This principle is the inescapable link between the principles of military necessity and humanity, when they lead to contradictory results.¹²⁴ Article 57(2)(a)(iii) of Protocol I states a necessary consequence of the prohibition of such attacks: those who plan or decide must refrain from launching them. This is not, as indicated by Protocol I, a precautionary measure, but mere respect for the substantive prohibition and will therefore not be discussed in this contribution. What is a precautionary measure however, is the obligation flowing from Article 57(2)(a)(i) of Protocol I and the corresponding rule of customary international law to verify, before launching an attack, whether that attack may be expected to have such excessive incidental effects. This obligation is mentioned in several States’ military manuals, including that of the U.S. (i.e. a State not party to the Protocol),¹²⁵ and in Rule 32(c) of the AMW Manual.¹²⁶

The verification must take into account the possibility (and degree of probability) of the malfunctioning of a particular weapons system, as happened when the UK air commander in the 1991 Gulf war twice vetoed particular targets because severe incidental damage could have resulted from malfunctioning.¹²⁷

The verification of whether the proportionality principle is respected does not only imply getting the right information, but also involves problems of subjective evaluation. Despite the qualifiers attached to the notion of military advantage in Article 57(2)(a)(iii), comparing military advantage with incidental civilian losses remains very difficult and open to inevitably

Convention [No. IV] relative to the Protection of Civilian Persons in Time of War (Aug. 12, 1949), 75 U.N.T.S. 287.

¹¹⁹ See Art. 56 of Protocol I.

¹²⁰ Art. 35(3) of Protocol I. For the corresponding rule of customary law, see *Final Report to the Prosecutor*, *supra* note 92, at para. 18. See also Rogers, “Zero-casualty warfare”, *supra* note 94, at 177-8.

¹²¹ See *HPCR Commentary*, *supra* note 6, at 205.

¹²² Max Huber, “Quelques considérations sur une révision éventuelle des Conventions de la Haye relatives à la guerre”, 37 *International Review of the Red Cross* 417 (1955), at 423.

¹²³ See for detailed criticism of this provision, Parks, “Air War and the Law of War”, *supra* note 110, at 168-176.

¹²⁴ Myres S. McDougal and Florentino P. Feliciano, *Law and Minimum World Public Order, The Legal Regulation of International Coercion* (New Haven: Yale University Press, 1961), at 524-530. Waldemar A. Solf, “Protection of Civilians against the Effects of Hostilities under Customary International Law and under Protocol I”, 1 *American University Journal of International Law and Policy* 107 (1986), at 128; Michael Bothe, Karl Josef Partsch and Waldemar A. Solf, *New Rules for Victims of Armed Conflicts* (Boston: Martinus Nijhoff Publishers, 1982), at 309.

¹²⁵ See ICRC Study, *supra* note 9, vol. II, ch. 5, paras 331-349, in particular U.S. Air Force Pamphlet, *supra* note 3, at 5-3.

¹²⁶ See AMW Manual, *supra* note 4, Rule 32(c) and specifically for civilian airliners, see Rule 68(d).

¹²⁷ See UK, House of Commons Defence Committee, 10th Report, *Preliminary Lessons of Operation Granby* (1991) xi, quoted in UK Manual, *supra* note 77, at para. 5.32.7, footnote 206.

subjective personal and cultural value judgements. In addition, the probabilities of gaining the advantage and of affecting civilians are often different and lower than 100%.¹²⁸

The verification as to whether the proportionality rule will be respected must include possible reverberating effects,¹²⁹ which become all the more important as weaponry becomes increasingly precise and immediate incidental effects therefore rarer.¹³⁰ Thus preceding the 1991 Gulf War, U.S. planners verified through tests the possible release of radioactive material and anthrax spores when (suspected) nuclear and biological weapons facilities were attacked.¹³¹

d. How to Verify?

It is obvious that those who are under the obligation to verify, in particular in air and missile warfare, have to rely on military intelligence and information gathering done by others, generally of a lower rank.¹³² They have “a continuing obligation to assign a high priority to the collection, collation, evaluation and dissemination of timely target intelligence.”¹³³ More precisely, the Report to the ICTY Prosecutor about the NATO Bombing Campaign considers that “[a] military commander must set up an effective intelligence gathering system to collect and evaluate information concerning potential targets. The commander must also direct his forces to use available technical means to properly identify targets during operations. Both the commander and the aircrew actually engaged in operations must have some range of discretion to determine which available resources shall be used and how they shall be used.”¹³⁴ In addition, one should keep in mind that, as the ICRC Commentary reminds us, “in case of doubt, even if there is only slight doubt,” those who plan or decide on an attack “must call for additional information and if need be give orders for further reconnaissance.”¹³⁵ It must be observed, however, that the adverse Party will do its utmost to frustrate target intelligence activity and may be expected to employ ruses to conceal targets, deceive and confuse reconnaissance agents— “particularly as there is nothing to prevent the enemy from setting up fake military objectives or camouflaging the true ones.”¹³⁶

Finally, the Report to the ICTY Prosecutor notes that “a determination that inadequate efforts have been made to distinguish between military objectives and civilians or civilian objects should not necessarily focus exclusively on a specific incident. If precautionary measures

¹²⁸ See, on those dilemmas in the recent war in Iraq, Daphne Eviatar, “Civilian Toll: A Moral and Legal Bog”, *New York Times*, 22 March 2003, online: <http://www.nytimes.com/2003/03/22/arts/22CIV.html>, and on the proportionality calculus, Henry Shue and David Wippman, “Limiting attacks on Dual Use Facilities performing Indispensable Civilian Functions”, 35 *Cornell International Law Journal* 559 (2002), at 564-569.

¹²⁹ See *Joint Doctrine for Targeting*, *supra* note 39, at I-6, and Michael Schmitt, “The Principle of Discrimination in 21st Century Warfare”, 2 *Yale Human Rights & Development Law Journal* 143 (1999), at 168. *Contra* Lt. Col. Kenneth A. Rizer, “Bombing Dual Use Targets: Legal, Ethical and Doctrinal Perspectives” (2001), online: <http://www.airpower.maxwell.af.mil/airchronicles/cc/Rizer.html>.

¹³⁰ Michael N. Schmitt, “Future War and the Principle of Distinction”, 28 *Israel Yearbook on Human Rights* 51 (1999), at 79-80.

¹³¹ Interview with Brig. Gen. David A. Deptula (Mar. 15, 1998), quoted by Michael W. Lewis, “The Law of Aerial Bombardment in the 1991 Gulf War”, 97 *American Journal of International Law* 481 (2003), at 489.

¹³² See Bernhard L. Brown, “The Proportionality Principle in the Humanitarian Law of Warfare: Recent Efforts at Codification”, 10 *Cornell International Law Journal* 134 (1976-1977), at 145-146; Dinstein, *The Conduct of Hostilities*, *supra* note 80, at 140-141.

¹³³ Bothe/Partsch/Solf, *supra* note 124, at 363. See also Quéguiner, *supra* note 84, at 799.

¹³⁴ *Final Report to the Prosecutor*, *supra* note 92, at para. 29.

¹³⁵ *Commentary Protocols*, *supra* note 54, at 680-681. Several authors contend that the ICRC is setting too high a standard. See Ian Henderson, *The Contemporary Law of Targeting* (Leiden: Martinus Nijhoff Publishers, 2009), at 163; Boothby, *supra* note 42, at 121-122.

¹³⁶ *Commentary Protocols*, *supra* note 54, at 681.

have worked adequately in a very high percentage of cases then the fact they have not worked well in a small number of cases does not necessarily mean they are generally inadequate.”¹³⁷ Nevertheless, the general effectiveness of such measures does not relieve the attacking party of its obligation to review procedures and to learn from mistakes.

In practice, the U.S. Department of Defence decided to develop its own satellite coverage during the wars in Iraq and Afghanistan, in order to ensure the requisite level of information gathering capabilities.¹³⁸ Another example is that of drones: although they will be discussed later as weapons, one should not forget that they are also largely used by States as surveillance and reconnaissance tools. Their existence, and the degree of precision that they offer for gathering real-time information, necessarily increases the means available to belligerents and hence the expectation that they obtain precise information.¹³⁹

3. The Obligation to Choose the Appropriate Target when a Choice between Several Military Objectives Exists

a. Treaty Rules, General Principles and General Customary Law

“When a choice is possible between several military objectives for obtaining a similar military advantage, the objective to be selected shall be that the attack on which may be expected to cause the least danger to civilian lives and to civilian objects.” (Article 57(3) of Protocol I)

The illegality of failing to pursue an alternative means was already suggested in the natural law theory of just war.¹⁴⁰ While the provision could be derived from a combination of the obligation to spare the civilian population as far as possible with the principles of military necessity and proportionality,¹⁴¹ it is in our view not a necessary result of that combination.¹⁴² Despite some elements suggesting the contrary,¹⁴³ it may nevertheless be concluded that the

¹³⁷ *Final Report to the Prosecutor*, *supra* note 92, at para. 29.

¹³⁸ Trapp, *supra* note 86, at 159. As she notes, “the programme resulted in the launch of the first operational satellite (ORS-I) in June 2011”.

¹³⁹ *Ibid.*, at 160

¹⁴⁰ Gerald J. Adler, “Targets in War: Legal Considerations”, in Richard A. Falk (ed.), *The Vietnam War and International Law*, vol. 3 (Princeton: Princeton University Press, 1972), at 310.

¹⁴¹ Bothe/Partsch/Solf, *supra* note 124, at 368; Frits Kalshoven, *The Law of Warfare, A Summary of its recent History and Trends in Development* (Leiden: Sijthoff, 1973), at 66; Brown, *supra* note 132, at 137.

¹⁴² See Sassòli, *supra* note 8, at 485-486.

¹⁴³ See for instance the U.S.’s inconsistent practice on this aspect. *ICRC Study*, *supra* note 9, practice concerning Rule 21. Even the 1956 ICRC Draft Rules had to admit that the rule discussed here was suggested *de lege ferenda*. However, when the ICRC suggested the rule to government experts preparing Protocol I, it already referred to “a practice generally accepted in military circles.” At the Diplomatic Conference, those who wanted to delete it were not opposed to the rule, but simply considered that it is already included in the obligation to choose means and methods minimizing civilian casualties. General criticism against Art. 57, including that made by France, did not include paragraph 3 (For both, see *Official Records*, *supra* note 14, respectively vol. XIV, 188 (The Netherlands concerning a UK proposal) and vol. VI, 211, 213 (Iran), 219 (Afghanistan), 231 (Italy), and vol. VII, 193, except for Switzerland and Austria, *ibid.*, 212). Since the adoption of Protocol I, the obligation is mentioned in military manuals of several States, including of the U.S. On other occasions, the U.S. is however reported to have insisted that the obligation is not part of customary international law. See *ICRC Study*, *supra* note 9, vol. II, para. 536. It is also worth mentioning that this is the only precautionary measure which does not appear, for sea warfare, in Rule 46 of the San Remo Manual, which mentions all other precautionary measures listed in Art. 57 of Protocol I for attacks directed at targets at sea. Such inconsistencies can not- in our view – prevent it from being classified as belonging to customary international law, at least as far as attacks directed at targets on land are concerned. It is in addition argued that this obligation becomes easier to respect with the developing of new modeling technologies. See for instance Schmitt, “Precision in Aerial Warfare”, *supra* note 93, at 29.

obligation to choose an alternative target when appropriate has reached a customary status, at least concerning attacks directed against targets on land. Rule 33 of the AMW Manual applies it to air and missile warfare in general. In any case, it is becoming easier to comply with the rule owing to the development of new computer technologies allowing attackers to simulate their attack before the fact.

b. Specific Practice Relating to Air Warfare

During World War II, the Western Allies are reported to have interrupted railway lines in German occupied territories outside towns and villages.¹⁴⁴ However, on enemy territory, the carpet bombing of German and Japanese towns demonstrates that they did not feel obliged to make such a choice. Precise bombardments of key nodes of the German war economy were possible and showed great successes towards the end of the war; carpet area bombings nevertheless continued.¹⁴⁵ As for military manuals, it is interesting to note that the 1976 U.S. Air Force Pamphlet reproduces the exact wording of Article 57(3) of Protocol I.¹⁴⁶ Therefore, although history does not support a customary rule, Protocol I and its positive reception by major States not party to it may lead to the conclusion that the rule is generally binding.

4. The Obligation to Choose the Appropriate Means and Methods

a. Treaties, General Principles and General Customary Law

“[T]hose who plan or decide upon an attack shall take all feasible precautions in the choice of means and methods of attack with a view to avoiding, and in any event to minimizing, incidental loss of civilian life, injury to civilians and damage to civilian objects.” (Article 57(2)(a)(ii) of Protocol I)

The obligation is a consequence of the principle of military necessity: the latter would indeed be violated if the same results, but with no (or more limited) incidental effects could have been achieved with other means and methods.

This obligation was already mentioned in the 1956 ICRC Draft Rules and by scholars before it was codified in Protocol I.¹⁴⁷ At the Diplomatic Conference, controversies surrounding the formulation of the rule were all solved by adopting wording that put fewer obligations upon belligerents.¹⁴⁸ The text of Article 57(2)(a)(ii) can consequently be seen as the least common denominator agreed upon by all States and therefore as reflective of general international law. One may therefore consider that this rule has in the last decades become customary: it has been adopted in military manuals (including by States that have not ratified Protocol I such as the U.S. and Israel),¹⁴⁹ and mentioned (concerning cultural property) in Article 7(b) of the Second Protocol to the Convention for the Protection of Cultural Property in the Event of an Armed Conflict.¹⁵⁰ The AMW Manual also contains such a provision in Rule 32(b), and adds in Rule 68 that civilian airliners and aircraft granted safe conduct that become military

¹⁴⁴ Draft Rules, *supra* note 48, at 79; *Commentary Protocols*, *supra* note 54, at 687.

¹⁴⁵ See Sassòli, *supra* note 8, at 261-263.

¹⁴⁶ See U.S. Air Force Pamphlet, *supra* note 3, at 5-3.

¹⁴⁷ Art. 9(1) of the Draft Rules, *supra* note 48, and Erik Castrén, *The Present Law of War and Neutrality* (Helsinki: Annales Academiae Scientiarum Fennicae, 1954), at 202.

¹⁴⁸ Thus Australia (*Official Records*, *supra* note 14, vol. III, 229 and vol. XIV, 185) and the UK (*ibid.*, vol. III, 231, and vol. XIV, 187). For the result see *ibid.*, vol. XV, 353 and 285.

¹⁴⁹ ICRC Study, *supra* note 9, vol. II, ch. 5, paras 271-295. See for instance the U.S. Air Force Pamphlet, *supra* note 3, at 5-9, which reproduces the exact wording of Article 57(2)(a)(ii).

¹⁵⁰ *Second Protocol on Cultural Property*, *supra* note 20.

objectives may still only be targeted if “no other method is available for exercising military control”.¹⁵¹ Finally, the United Nations Fact-Finding Mission on the Gaza Conflict also discussed at length violations of the obligation by Israel, which is not party to Protocol I.¹⁵²

b. Specific Practice Relating to Air and Missile Warfare

During the Vietnam War, the U.S. gave its pilots detailed instructions on the means and methods to be chosen to minimize incidental civilian losses.¹⁵³ After the 1991 Gulf War, the Pentagon reports that the coalition “sought to minimize civilian losses through use of precision munitions and various restrictions on the employment of weapons”, *inter alia* when they were “employed near civilian areas, permitting some attacks only during the night when most civilians would be home and not near the target area.”¹⁵⁴ When attacking suspected nuclear, biological, and chemical weapons facilities, the coalition is reported to have resorted to a mixture of precautions in the choice of means and methods, by using “penetrating warheads followed by incendiaries designed to keep high-intensity fires burning for as long as possible. The planes then ‘seeded’ the area around the bunkers with aerial mines to prevent human access to the storage areas. Finally, the planners timed the attacks for one hour before sunrise to maximize the amount of direct sunlight any escaping spores would be subjected to during the first day.”¹⁵⁵ During the 1999 Kosovo War, NATO insisted on its efforts to choose the most precise weapon when attacking targets.¹⁵⁶ The NATO Secretary-General is even reported to have declared that international law requires the use of precise weapons.¹⁵⁷

c. Controversies Surrounding Specific Means

i. Cluster Bombs

Although the Oslo Convention now prohibits cluster munitions,¹⁵⁸ the legality of their use in densely populated areas located on the territories of States not party to the Convention remains open to question.¹⁵⁹ Human Rights Watch observed, in relation to the Kosovo air campaign, that, “After the technical malfunction of a cluster bomb used in an attack on the urban Nis airfield on May 7 [...], the White House quietly issued a directive to restrict cluster bomb use (at least by U.S. forces). Cluster bombs should not have been used in attacks in

¹⁵¹ AMW Manual, *supra* note 4, Rule 68(a)-(c).

¹⁵² See Human Rights Council, *Report of the United Nations Fact-Finding Mission on the Gaza Conflict*, 25 September 2009, UN Doc. A/HRC/12/48, § 543-595, online <http://www.ohchr.org/EN/HRBodies/HRC/SpecialSessions/Session9/Pages/FactFindingMission.aspx>.

¹⁵³ U.S. Military Assistance Command, Vietnam, Directive No. 525-13 (May 1971), *supra* note 36, at 9902; “Rules of Engagement of the American Division and of the 11th Infantry Brigade”, *supra* note 36; Parks, “Linebacker and the Law of War”, *supra* note 36, at 19-27; Burrus M. Carnahan, “Linebacker II and Protocol I: The Convergence of Law and Professionalism”, 31 *American University Law Review* 861 (1982), at 865-866; and William V. O’Brien, *The Conduct of Just and Limited War* (New York: Greenwood Publishers, 1981), at 311-312, with further references.

¹⁵⁴ U.S., *Interim Report on the Persian Gulf Conflict*, *supra* note 105, at 27-1. See also additional declarations by the U.S. and the U.K. referred to in ICRC Study, *supra* note 9, vol. II, ch. 5, paras 307-310.

¹⁵⁵ Interview with Brig. Gen. David A. Deptula (Mar. 15, 1998), quoted by Lewis, *supra* note 130, at 489-490.

¹⁵⁶ See ICRC Study, *supra* note 9, vol. II, ch. 5, para. 314.

¹⁵⁷ Belt, *supra* note 81, at 165, quoting Vago Muradian, *Robertson: Europe Must Spend More Wisely to Achieve Gains*, *Def. Daily*, December 8, 1999, at 6.

¹⁵⁸ Arts 1, 3 and 4 of the *Convention on Cluster Munitions* (May 30, 2008), 2688 U.N.T.S. 1.

¹⁵⁹ International Humanitarian Law and Human Rights Law, in *Independent International Fact-Finding Mission on the Conflict in Georgia, Report*, Volume II, at 338-343, online at: http://www.ceig.ch/pdf/IIFMCG_Volume_II.pdf; Human Rights Watch, *Up In Flames: Humanitarian Law Violations and Civilian Victims in the Conflict over South Ossetia*, January 2009, at 64-66, online at: <http://www.hrw.org/sites/default/files/reports/georgia0109web.pdf>

populated areas, let alone urban targets, given the risks. The use prohibition clearly had an impact on the subsequent civilian effects of the war, particularly as bombing with unguided weapons (which would otherwise include cluster bombs) significantly intensified after this period. Nevertheless, the British air force continued to drop cluster bombs.”¹⁶⁰ Concerning the 2003 war against Iraq, many of the accusations of indiscriminate attacks were based on the use by coalition aircraft of cluster bombs against legitimate targets situated in otherwise residential areas.¹⁶¹ Some experts considered such attacks even to amount to war crimes.¹⁶² In its most detailed report on the wars against Afghanistan and Iraq, Human Rights Watch notes that “while not inherently indiscriminate, cluster bombs are prone to being indiscriminate, particularly when certain methods of attack or older or less sophisticated models are used.” Based on its research, it believes that “when cluster bombs are used in any type of populated area, there should be a strong, if rebuttable, presumption under the proportionality test that an attack is indiscriminate.”¹⁶³ In our view, it was not (necessarily) the proportionality principle which was violated, but the precautionary obligation discussed here, as we did not find explanations by coalition forces for why only cluster bombs and no other weapon could be used in those attacks. As long as alternatives exist, the use of cluster bombs in densely populated areas is contrary to the obligation discussed here, since these weapons are inherently less discriminate in their effects than other weapons when military objectives are collocated with civilians or civilian objects, regardless of how accurate the weapons are in striking their intended military target.¹⁶⁴

ii. Drones

Drones – or unmanned aerial vehicles (UAV) – have become the subject of numerous controversies since the U.S. decided to massively resort to them during the “armed conflict against Al Qaeda and associated forces”.

First, drones raise serious questions regarding rules of international law other than those related to precautions, such as the extension of the geographical scope of the battlefield or the lack of transparency that surrounds their use. This being said, drones do not seem to pose serious problems when it comes to precautionary measures, as long as they are controlled by a human being. Of course mechanical or technical failures remain a possibility, but that is also the case for piloted aircraft, and human beings themselves make mistakes. On the positive side, a drone can fly over a given target for hours before the attack, leaving enough time for the decision-maker to verify its lawfulness and ensure that the principle of proportionality is respected.¹⁶⁵ The attack may then happen at the time and under circumstances that allow for the highest probability of hitting the target with no, or minimal, incidental civilian losses. In addition, certain precautionary measures that could not be taken by a human being piloting an aircraft are made feasible with drones: as discussed before, one of the factors that may render an additional precautionary measure unfeasible is the risk that measure would entail for the pilot. With a drone, the operator is often remotely located and hence faces no additional risk –

¹⁶⁰ “Conclusions and Recommendations”, in *Civilian Deaths*, *supra* note 91.

¹⁶¹ Human Rights Watch, *Off Target*, *supra* note 97; Amnesty International, *Iraq: Civilians Under Fire* (2003), at 55-63.

¹⁶² *Report of the Inquiry into the Alleged Commission of War Crimes by Coalition Forces in the Iraq War during 2003*, at para. 2.1.9, online <http://www.law.mcgill.ca/news/attachments/2004-04-23-report-iraq.pdf>.

¹⁶³ Human Rights Watch, *Fatally Flawed: Cluster Bombs and their Use by the United States in Afghanistan* (December 2002), at footnote 44, online www.hrw.org/reports/2002/us-afghanistan/index.htm#TopOfPage. Similarly on the 2008 conflict in South Ossetia, Human Rights Watch, *supra* note 159, at 11-12, 103.

¹⁶⁴ Marina Mancini, “Air Operations against the Federal Republic of Yugoslavia”, in Ronzitti/Venturini, *supra* note 64, at 282-283.

¹⁶⁵ See Markham/Schmitt, *supra* note 72, at 689

which may even lead to “making possible attacks on alternative targets that might not otherwise be viable”.¹⁶⁶ Moreover, the operator is not placed in a combat situation and is therefore in a better position to assess a given situation and calmly make a decision. Finally, it should be added that, because drones also record everything, it is much easier to implement criminal responsibility or disciplinary sanctions in case of violations (assuming that the attacking party indeed wants to sanction violations).

iii. Automated and Autonomous Weapons

Automated weapons (also called semi-autonomous weapons, i.e. those weapons that are “able to function in a self-contained and independent manner although [their] employment may initially be deployed or directed by a human operator”)¹⁶⁷ and autonomous weapons (i.e. weapons “that can learn or adapt [their] functioning in response to changing circumstances in the environment in which [they are] deployed”)¹⁶⁸ raise even more heated debates than drones. It is currently difficult to determine their capacity to respect the rules on precautions, as their technical capacities and programming remain unknown. It is however encouraging to see that the 117 States party to the UN Weapons Convention have agreed to hold - in 2014 - a four-day intergovernmental meeting to explore questions related to lethal autonomous weapon systems (in view of potentially drafting a Protocol VI to the Convention).¹⁶⁹

One of the main questions that the meeting will need to explore is a technical one: is it – or will it be – possible to develop a program which enables a robot to distinguish between on the one hand legitimate targets and on the other, civilians, civilian objects, and specially protected objects? Given that we are human beings, we are inclined to think that machines cannot be as smart as ourselves. At the same time, we must also admit that only humans can be inhuman, only humans can deliberately decide to violate rules, and humans more frequently make mistakes than machines have technical failures. In addition, an automated weapon does not fear for its own life, which is something that usually affects a soldier’s decision to take additional precautionary measures.

Nevertheless, many elements enable a human being to understand what is a legitimate target and what is not; it is precisely these factors that must be reproduced in a computer program. This may be incredibly challenging, for instance for the programmer who will have to translate the ICRC Interpretive Guidance on direct participation in hostilities into a computer program. More generally, to write a computer program, it must be clarified which factors guide the process of distinction and how these factors can be determined. Computer programs cannot be instructed to apply unrealistic criteria, such as determining the intent of an enemy.

¹⁶⁶ *Id.*

¹⁶⁷ ICRC, “International Humanitarian Law and the Challenges of Contemporary Armed Conflict”, Report prepared for the 31st International Conference of the Red Cross and Red Crescent, November 2011, at 39, online <http://www.icrc.org/eng/resources/documents/report/31-international-conference-ihl-challenges-report-2011-10-31.htm>

¹⁶⁸ *Id.*

¹⁶⁹ Meeting of the High Contracting Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, 15 November 2013, CCW/MSPI2013/CRP.1, paras 18 and 32. In addition, for a discussion on whether autonomous systems should or should not be banned, see Kenneth Anderson and Matthew Waxman, “Law and Ethics for Autonomous Weapons Systems, Why a Ban Won’t Work and How the Laws of War Can”, *Hoover Institution* (2013), online <http://www.hoover.org/publications/monographs/144241>, and Peter Asaro, “On Banning Autonomous Weapon Systems: Human Rights, Automation, and the Dehumanization of Lethal Decision-Making”, 94 *International Review of the Red Cross* 687 (2012).

The assessment will then depend upon the machine's capacity to generally make better decisions regarding precautionary measures than the average soldier.¹⁷⁰ It may well be that the average soldier is more apt to respect IHL in certain respects than an automated weapon, while such a weapon is better in other respects. Even if an overall assessment is favourable, it must in our view be made concerning every given attack. It may be particularly difficult to automatize the indicators, which convince a human being that a certain person belongs to a category or has a conduct that makes that person a legitimate target. It will be equally difficult to formalize factors that convince a human being that he or she must interrupt an attack because the target is not lawful. To have a machine take such decisions autonomously may be even more difficult because nothing hinders the enemy from feigning such indicators. If the enemy artificially fulfils the indicators which make a robot decide that it may not attack under IHL, the fascinating question arises whether a machine can be "led to believe" something, or whether it is possible to "invite the confidence" of a machine – two elements of an act of perfidy, prohibited under IHL.¹⁷¹

One final possibility should be considered, which is that of autonomous weapons "going rogue": such weapons may one day have the technical ability, either by their own will or following computer deficiencies, to free themselves from computer programmes and instructions and start "deciding" in a truly autonomous manner to violate IHL. In such a case, the whole implementation and accountability system of international law, which is exclusively addressed to humans, would collapse.

d. Methods

The timing of an attack is a classic example when discussing the choice of available methods.¹⁷² The UK Military Manual explains that "[i]f it is known, for example, that a bridge is heavily used by civilians during the day but hardly at all at night, a night-time attack would reduce the risk of civilian casualties."¹⁷³ Human Rights Watch asserts that coalition air forces should have refrained during the 1991 Gulf War from attacking during daytime targets where civilians were likely to be present, such as bridges or factories not being used in direct support of military operations.¹⁷⁴ For the Kosovo Air Campaign, the same organization reports that "after a mid-day attack on the bridge in the town of Varvarin [...] which resulted in civilian deaths [...], pilots were directed not to attack bridges during daylight hours, on weekends, on market days, or on holidays." In its opinion, "there is no evidence that the daylight timing of the attack at Varvarin (or on many other fixed targets) was critical to the destruction of the target – the attack was not directed specifically against military traffic. Around-the-clock bombing in these and other cases rather seems to have been part of a psychological warfare strategy of harassment undertaken without regard to the greater risk to the civilian population."¹⁷⁵ If these facts are true, the attacks should indeed have been executed by night-time.

¹⁷⁰ For someone who thinks that this will indeed be the case, see Dan Saxon, "Conclusions", in Dan Saxon (ed.), *supra* note 86, at 340.

¹⁷¹ See Art. 37 of Protocol I and ICRC Study, *supra* note 9, vol. I, at 223.

¹⁷² See Dinstein, *The Conduct of Hostilities*, *supra* note 80, at 137, 143-144; H. McCoubrey, "Kosovo, NATO and International Law, 14(5) *International Relations* 29 (1999), at 40; Quéguiner, *supra* note 84, at 800.

¹⁷³ UK Manual, *supra* note 77, at para. 5.32.6.

¹⁷⁴ Human Rights Watch, "Legal Standards, Conclusions and Unanswered Questions", in *Needless Deaths*, *supra* note 81.

¹⁷⁵ "Conclusions and Recommendations", in *Civilian Deaths*, *supra* note 91. Quéguiner, *supra* note 84, at 801. Similarly, see Amnesty International, *Collateral damage*, *supra* note 91, at 45, 54 and 55.

In our view, the obligation to choose the appropriate method also applies to the choice of the time and place where an enemy aircraft is to be hit. Because of the dangers for the civilian population on land when such aircraft crashes, it has to be hit, when feasible, over the sea or over uninhabited land, rather than over concentrations of civilians. As mentioned before, such position was largely rejected by the Group of Experts during the drafting of the AMW Manual,¹⁷⁶ for the mere reason that those planning and deciding attacks are most often unable to foresee where such a moving target will actually be hit, and because the crew operating an aircraft or a missile has allegedly no time to evaluate alternatives and only rarely sufficient certainty that an alternative attack will actually be successful. However, the Group of Experts still recognized that “there may be exceptional circumstances in some rare instances of air supremacy [where], when a military aircraft intends to shoot down an aircraft — other than an armed military aircraft — over densely populated areas, the attack ought to be delayed in order to avoid — or, in any event, to minimize — collateral damage.”¹⁷⁷

Methods equally include the direction from which an attack is launched and the point on which the impact on the target is aimed at.¹⁷⁸ After a precision bomb dropped from a British bomber had missed its target – a bridge in Falluja – during the 1991 Gulf War and hit a market place instead, it was reported that pilots had taken extra care to aim their bombs at the centre of the bridge, rather than the ends as is normally the case. In addition, they flew straight down the river, “so that if the bombs [didn’t] glide in their normal trajectory they [would] either fall short or long, and, one would hope, safely.”¹⁷⁹

5. The Obligation to Interrupt Attacks when it Becomes Apparent that they Are Unlawful

a. Treaties, General Principles and General Customary Law

“[A]n attack shall be cancelled or suspended if it becomes apparent that the objective is not a military one or is subject to special protection or that the attack may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.” (Article 57(2)(b) of Protocol I)

This obligation only concerns cases where, while an attack is in progress, the attacker becomes fully aware of its illegality; it does not cover situations of negligence, which the obligation to verify (discussed above) already addresses. In that sense, it is only an inevitable consequence of the previous substantive prohibitions related to the conduct of hostilities.¹⁸⁰ For that reason too, we consider that the meaning of Article 57(2)(b) is misunderstood by critics arguing that it is too demanding for those executing attacks, because it would require them to make their own proportionality evaluation, which in turn would make coordinated military operations impossible.¹⁸¹ All the provision demands is that the person executing an attack interrupts it when it becomes apparent *to him or her* that the attack is unlawful. At least for customary law, the rule must be so understood. For instance, during the Diplomatic

¹⁷⁶ HPCR Commentary, *supra* note 6, at 136.

¹⁷⁷ *Id.*

¹⁷⁸ *Ibid.*, at 127.

¹⁷⁹ John Lancaster, “Tape of Errant Bomb Highlights the PR War Over Civilian Casualties”, *The Washington Post*, February 18, 1991.

¹⁸⁰ Thus also Henri Meyrowitz, “Le bombardement stratégique d’après le Protocole I aux Conventions de Genève”, 41 *Zeitschrift für Ausländisches öffentliches Recht und Völkerrecht* 1 (1981), at 61, 63.

¹⁸¹ Bothe/Partsch/Solf, *supra* note 124, at 366-367; Roberts, *supra* note 108, at 160; and Frédéric de Mulinen, “The Law of War and the Armed Forces”, 70 *International Review of the Red Cross* (1978), at 41.

Conference, as Brazil wanted to replace the words “if it becomes apparent” by “if they perceive”,¹⁸² it was explained that “apparent” and “evident” were equivalents. Brazil later concluded that it understood the word “apparent” as “becoming aware” and “realizing.”¹⁸³

Since the adoption of Protocol I, the obligation has been mentioned in military manuals of several States, including that of the U.S.,¹⁸⁴ and recently in Rule 35 of the AMW Manual. As specified in both Article 57(2)(b) of Protocol I and Article 7 of the 1999 Second Hague Cultural Property Protocol (which reinforces the customary character of the rule), attacks must not only be interrupted when the target appears to be protected, but also when excessive incidental effects upon protected persons or objects must be expected.¹⁸⁵

If it is understood as we suggest, some declarations and reservations made by States in respect of Article 57(2)(b) are problematic. For instance, Switzerland made a reservation concerning the whole of paragraph 2, stating that it imposes obligations only upon commanders at battalion or group level or of a higher rank.¹⁸⁶ However, Switzerland later withdrew this reservation.¹⁸⁷ The UK stated when ratifying Protocol I that the obligation mentioned in Article 57(2)(b) of Protocol I only applied “to those who have the authority and the practical possibility to cancel or suspend the attack”¹⁸⁸ and its military manual specifies that such authority is “laid down in national laws, regulations, or instructions or agreed rules for NATO or other joint operations.”¹⁸⁹ Limiting the obligation to those who have the practical possibility of interrupting an attack is obvious. Those who have this possibility and become aware that their attack is unlawful must however interrupt it, whatever their rank. Otherwise they deliberately violate the substantive prohibition, e.g. to attack civilians.¹⁹⁰

b. Specific Practice Relating to Air and Missile Warfare

At the beginning of World War II and during the Vietnam War, aircrews had instructions to return home with their bombs if they were not able to positively identify their targets.¹⁹¹ Even before Protocol I was adopted, the U.S. reproduced in its 1976 Air Force Pamphlet the exact wording of Article 57(2)(b) of Protocol I.¹⁹² After bombing a hospital during the 1983 invasion of Grenada, the U.S. declared that it was impossible for the pilots to identify the hospital as such.¹⁹³ In so doing, they implicitly recognized that the attack should have been interrupted by those executing it had they become aware that it was directed at a hospital.

¹⁸² *Official Records*, *supra* note 14, vol. III, 228, and vol. XIV, 184.

¹⁸³ *Ibid.*, vol. XIV, 306/307.

¹⁸⁴ ICRC Study, *supra* note 9, vol. II, ch. 5, paras 373-395.

¹⁸⁵ *Second Protocol to the Hague Convention of 1954*, *supra* note 20.

¹⁸⁶ Schindler/Toman, *supra* note 12, at 814.

¹⁸⁷ Switzerland, “Protocole additionnel du 8 juin 1977 aux Conventions de Genève du 12 août 1949 relatif à la protection des victimes des conflits armés internationaux”, *Retrait de réserves*, RO 2005 2619, 17 June 2005, online: <http://www.admin.ch/ch/f/as/2005/2619.pdf>

¹⁸⁸ *Ibid.*, at 817.

¹⁸⁹ UK Manual, *supra* note 77, at para. 5.32.10 (footnote omitted).

¹⁹⁰ Kolb, *supra* note 87, at 265-266; Quéguiner, *supra* note 84, at 803-805; Salah El-Din Amer, “The Protection of Civilian Population”, in Ronzitti/Venturini, *supra* note 64, at 26.

¹⁹¹ See J.M. Spaight, *Air Power and War Rights*, 3rd ed. (London: Longmans, 1947), at 268 (for the first year of World War II) and Carnahan, *supra* note 153, at 865-866 and ICRC Study, *supra* note 9, vol. II, ch. 5, para. 408 (for the Vietnam War).

¹⁹² U.S. Air Force Pamphlet, *supra* note 3, at 5-9.

¹⁹³ Claude Emanuelli, “L’application du droit international humanitaire durant l’intervention de la force multinationale à Grenade”, 37 *Etudes internationales* 81 (1986), at 95.

Applying the provision to the specificities of missile warfare may be a complex task, in particular when the attacking party is using long-range missiles, which imply “a significant time delay between the firing of a weapon and its arrival at the target [...] which in the case of certain classes of the Tomahawk cruise missile [...] may amount to approximately 100 minutes”¹⁹⁴ In such a case, the application of the provision should take into account whether the missile design characteristics allow abortion or diversion.¹⁹⁵

6. The Obligation to Give Advance Warning

a. Treaties and General Customary Law

“[E]ffective advance warning shall be given of attacks which may affect the civilian population, unless circumstances do not permit.” (Article 57(2)(c) of Protocol I)

This is an old rule, already set down in Article 19 of the *Lieber Instructions*, in Article 26 of the Hague Regulations (where exceptions were only admitted “in case of assault”) and in Article 6 of Hague Convention IX.¹⁹⁶

At the Diplomatic Conference, some delegations wanted to keep the more binding formulation of the Hague Regulations, while other delegations wanted to formulate the exception positively (i.e. that the warning be given “whenever circumstances permit”). This latter formulation, as the least common denominator, therefore reflects the customary rule.¹⁹⁷ After the adoption of Protocol I, the rule was repeated in the 1980 and 1996 versions of Protocol II on mines to the 1980 UN Weapons Convention¹⁹⁸ and in military manuals of several States, including that of States not party to the Protocol I.¹⁹⁹ The U.S. has also officially declared that it considers that rule to be customary law,²⁰⁰ and the AMW Manual included it in its Rule 37.

Finally, some consider that the warning requirement also covers attacks which may affect “non-combatants”, i.e. “members of the armed forces who enjoy special protected status, such as medical personnel and chaplains, or who have been rendered incapable of combat by wounds, sickness, shipwreck, or capture.”²⁰¹

b. Specific Practice Relating to Air and Missile Warfare

Many questioned whether the rule applied to aerial bombardments. They argued that, if warned, the defender could concentrate its air defences around the announced target and a

¹⁹⁴ Boothby, *supra* note 42, at 341

¹⁹⁵ *Id.*

¹⁹⁶ A. R. Thomas and James C. Duncan (eds), “Annotated Supplement to the Commander’s Handbook on the Law of Naval Operations”, in *International Law Studies* vol. 73 (Rhode Island: Naval War College, 1999) [Annotated Supplement] 427, note 126.

¹⁹⁷ *Official Records*, *supra* note 14, Vol. III, at 227 (Romania), at 229 (German Democratic Republic), at 230 (Egypt, Jordan, Kuwait, Libya, Mauritania, Katar, Sudan, United Arab Emirates), at 231 (United Kingdom); Vol. XIV, at 185 (German Democratic Republic), at 303; Vol. XV, at 353.

¹⁹⁸ See Art. 5(2) of *Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices (Protocol II)*, adopted in 1980, in Schindler/Toman, *supra* note 12, at 193; and Art. 6(4) of Protocol II, as amended on 3 May 1996, *supra* note 76.

¹⁹⁹ ICRC Study, *supra* note 9, vol. II, ch. 5, paras 430-458.

²⁰⁰ Annotated Supplement, *supra* note 196, at 427, note 126, and “Additional Protocol I as an Expression of Customary International Law”, *supra* note 38, at 426-427.

²⁰¹ Annotated Supplement, *supra* note 196, at 481.

warning would therefore not be possible due to the very nature of aerial bombardments.²⁰² More precisely, because the element of surprise is frequently critical to air operations, “and as a warning serves to alert air defence forces as well as to provide civilians an opportunity to take shelter, the practice of states during and after World War II has been either to omit warnings or to make them so general and unspecific as not to serve the intended purpose.”²⁰³ Such an impossibility is however precisely the exception foreseen in the rule. This “is supported by the negotiating record of the Hague Regulations which suggests that the ‘assault’ exception includes all cases where surprise is required.”²⁰⁴ This would explain why the requirement was gradually relaxed for aerial warfare. It should nevertheless be noted that it was applied to aerial bombardments in the past, for instance after World War I in the cases *Coënca* and *Kiriadolou* by the Greco-German Mixed Arbitral Tribunal.²⁰⁵ There were also cases of warnings before aerial attacks during World War II,²⁰⁶ the Korean War,²⁰⁷ the Middle East War of 1956²⁰⁸ and the Vietnam War.²⁰⁹ They were however not systematic, which again may be explained as resulting from the exception appearing in the rule.

Even before Protocol I was adopted, the 1976 U.S. Air Force Pamphlet reproduced the exact wording of Article 57(2)(c) of Protocol I.²¹⁰ The actual practice of belligerents since 1977 is difficult to assess specifically because of the exception. It may however be mentioned that Israel gave advance warnings before aerial bombardments during its invasion of Lebanon²¹¹ as well as during incursions into occupied Palestinian territories in recent years (criticism of such warnings mainly related to their effectiveness),²¹² as did Iraq during its war against Iran²¹³. Some kind of warning also preceded the NATO attack on the Belgrade television tower.²¹⁴ It may only be hoped that it is indeed true that “[m]ore recently, increased emphasis has been placed on the desirability and necessity of prior warnings.”²¹⁵

c. Time, Methods and Contents of Warnings

Regarding the timing of warnings, the UK Manual points out that “[t]he object of warnings is to enable civilians to take shelter or leave the area and to enable the civil defence authorities to take appropriate measures. To be effective the warning must be in time, sufficiently

²⁰² Eberhard Spetzler, *Luftkrieg und Menschlichkeit* (Göttingen: Musterschmidt, 1956), 43-45; Julian G. Verplaatse, “The *ius in bello* and Military Operations in Korea 1950 – 1953”, 23 *Zeitschrift für Ausländisches öffentliches Recht und Völkerrecht* 679 (1963), at 705-706; Morris Greenspan, *The Modern Law and Land Warfare* (Berkeley and Los Angeles: University of California Press, 1959), at 340-341; Jean S. Pictet, “La protection juridique de la population civile en temps de guerre”, 21 *International Review of the Red Cross* 268 (1939), at 279.

²⁰³ Bothe/Partsch/Solf, *supra* note 124, at 367 (footnote omitted).

²⁰⁴ *Ibid.*

²⁰⁵ See Schwarzenberger, *supra* note 25, at 144-150, and Cassese, *supra* note 111, at 84.

²⁰⁶ Whiteman, *supra* note 36, Vol. 10, 1968, at 416.

²⁰⁷ *Id.*, at 140/141; Greenspan, *supra* note 202, at 340; Raphael Littauer and Norman Uphoff (eds), *The Air War in Indochina*, 2nd ed. (Boston: Beacon, 1972), at 208; U.S. Air Force Pamphlet, *supra* note 3, at 5-16.

²⁰⁸ Whiteman, *supra* note 36, Vol. 10, 1968, at 425.

²⁰⁹ U.S. Military Assistance Command, *Vietnam*, *supra* note 36, at 9898-9900, 9903; Young, *supra* note 36, at 251.

²¹⁰ U.S. Air Force Pamphlet, *supra* note 3, at 5-9 and 5-10.

²¹¹ Israel, *Briefing*, *supra* note 37, at 6; Sean McBride (ed.), *Israel in Lebanon: The Report of the International Commission to enquire into reported violations of International Law by Israel during its invasion of the Lebanon* (London: Ithaca Press, 1983), at 71-73.

²¹² ICRC Study, *supra* note 9, Israel’s practice regarding Rule 20. See also Human Rights Council, *supra* note 152, paras 527-536, and in particular para. 530.

²¹³ UN Doc. S/16620 of 12 June 1984; Edgar O’Ballance, *The Gulf War* (London: Brassey’s, 1988), at 153.

²¹⁴ See *infra* note 223

²¹⁵ See U.S. Air Force Pamphlet, *supra* note 3, at 5-11. See also Annotated Supplement, *supra* note 196, at 427, note 125.

specific and comprehensible to enable them to do this.”²¹⁶ Methods used to give warnings include dropping leaflets and broadcasts by television and radio²¹⁷ on frequencies that reach the civilian population concerned.

Warnings must be distinguished from threats against the civilian population. Under Article 51(2) of Protocol I, “[a]cts or threats of violence the primary purpose of which is to spread terror among the civilian population are prohibited.” The difference between a warning and a threat lies first in its content. A warning announces an attack upon military objectives (which may affect the civilian population) and not an attack directed at the civilian population. Second, the precision of the warning *ratione loci* and if possible *ratione temporis* also makes a difference. A warning that is too vague, e.g. an announcement simply that a city will be bombed, will create terror among the civilian population.

Without going this far, the purpose of some warnings may be to “affect the enemy’s will to continue the fight or the civilian population’s support for the government.”²¹⁸ During World War II, generic warnings were also used to incite arms factory workers to desert their workplaces.²¹⁹ Michael Schmitt reports that “in order to demonstrate that they controlled the air during the Korean conflict, U.S. forces dropped leaflets preannouncing strikes on legitimate military targets.”²²⁰ [...] There is nothing inherently immoral or illegal about targeting the will of the people or their leader. That said, humanitarian law does, and should, dictate how that may be accomplished.”²²¹ As warnings are not attacks, they may be directed at the morale of the civilian population. If they announce acts of violence, the latter must be directed at military objectives and the warning must permit the civilian population to avoid such objectives.

The question of whether the warning given before the attack on the Serb Radio and Television tower in Belgrade was effective enough is controversial. Ove Bring reports that “[a]n indirect early warning of the attack seems to have been communicated to the authorities in Belgrade, but since the attack did not occur shortly thereafter, the warning was not effective. Civilian employees working the night shift, who had emptied the building at an early point in time, had returned to the building on the night of the attack.”²²²

The question of warnings was also discussed in depth by the United Nations Fact-Finding Mission on the Gaza Conflict. Paragraph 530 of its Report is particularly interesting: the Fact-Finding Mission provides that for Article 57(2)(c) to be effective, “it must reach those who are likely to be in danger from the planned attack, [...] it must clearly explain what they should do to avoid harm and it must be a credible warning. The warning also has to be clear so that the civilians are not in doubt that it is indeed addressed to them. As far as possible, warnings should state the location to be affected and where the civilians should seek safety. A credible warning means that civilians should be in no doubt that it is intended to be acted

²¹⁶ UK Manual, *supra* note 77, at para. 5.32.8 (footnote omitted); Rogers, *Law on the Battlefield*, *supra* note 78, at 49.

²¹⁷ AMW Manual, *supra* note 4, Rule 37; UK Manual, *supra* note 77, at para. 5.32.8.

²¹⁸ Michael N. Schmitt, “Targeting and Humanitarian Law: Current Issues”, 33 *Israel Yearbook on Human Rights* 59 (2003), at 73.

²¹⁹ Meyrowitz, *supra* note 180, at 62, note 120.

²²⁰ R.F. Futrell, *The United States Air Force in Korea 1950-1953* (Washington, DC: Air Force History & Museums Program, 1983), at 516.

²²¹ Schmitt, “Targeting and Humanitarian Law”, *supra* note 218, at 73.

²²² Ove Bring, “International Humanitarian Law after Kosovo: Is *lex lata* Sufficient?” 71 *Nordic Journal of International Law* 39 (2002), at 47, note 12. See also the criticism by the *Report to the ICTY Prosecutor*, *supra* note 92, at para. 77, and by Eric David, “Respect for the Principle of Distinction in the Kosovo War”, 3 *Year Book of International Humanitarian Law* 81 (2000), at 92, who puts the blame on both sides.

upon, as a false alarm of hoax may undermine future warnings, putting civilians at risk.” The Mission hence concluded that during Operation Cast Lead, some of the efforts made by Israel complied with IHL while others did not.²²³

In any case, even an effective warning does not turn unlawful attacks into lawful ones, nor does it divest the attacker from its other obligations to take precautionary measures, including for the benefit of civilians who do not comply with the warning.

The warning obligation is also specified in rules related to air-to-air warfare. Such rules do not only encourage warnings prior to attack, but also in case of military activities potentially hazardous to civil aircraft, civilian airliners, aircraft granted safe conduct and medical aircraft.²²⁴ Accordingly, belligerent parties and neutral States shall issue a Notice to Airmen (NOTAM) “providing information on military operations hazardous to civilian or other protected aircraft and which are taking place in given areas including on the activation of temporary airspace restrictions.”²²⁵

d. Cases where no Warning is Possible

The exception to the warning obligation covers cases in which “mission accomplishment requires the element of surprise or the security of the attacking forces would be otherwise compromised.”²²⁶ Three reasons for not giving a warning could be admissible. First, in case the enemy could deploy (additional) anti-aircraft defence around the announced military objective, which would endanger pilots of the party having given the warning. In case of missile attacks, such a risk does not exist, but an enemy possessing anti-missile defence means could after a warning more easily employ them. In both cases, a warning may therefore jeopardize the success of the attack. Secondly, following a warning, the enemy may move certain military objectives away or diminish the military advantage of attacking them. Third, warnings could even increase the risks for civilians, when the enemy is expected to use them as human shields to “protect” the military objectives concerned by the warning.

7. To Whom are the Aforementioned Obligations Addressed?

The rules of behaviour of IHL are usually addressed to States (and armed groups) and it is up to them to organize their forces in a way that ensures compliance. The criminal provisions, on the other hand, are addressed to everyone who wilfully violates those rules and to the commanders of those who commit such violations.²²⁷ Precautions obligations are rules of behaviour, not criminal provisions. In general, one can follow the analyses of the UK Manual: “[w]hether a person will have this responsibility will depend on whether he has any discretion in the way the attack is carried out and so the responsibility will range from commanders-in-chief and their planning staff to single soldiers opening fire on their own initiative. Those who do not have this discretion but merely carry out orders for an attack also have a responsibility: to cancel or suspend the attack if it turns out that the object to be attacked is going to be such that the proportionality rule would be breached.”²²⁸ In other words, everything depends upon the given attack. What counts is not the authority under rules, regulations and instructions,²²⁹

²²³ Human Rights Council, *supra* note 152, paras 500-542.

²²⁴ See AMW Manual, *supra* note 4, Rules 37, 38, 57, 70 et 74 (b).

²²⁵ *Ibid.*, Rule 55, which mentions in detail the information to be provided.

²²⁶ Annotated Supplement, *supra* note 196, at 482. Amer, *supra* note 190, at 28.

²²⁷ See Art. 86(2) of Protocol I and Arts 28 and 30 of the *Rome Statute of the International Criminal Court*, 17 July 1998, U.N. Doc. A/CONF.183/9 [ICC Statute].

²²⁸ UK Manual, *supra* note 77, at para. 5.32.9 (footnote omitted).

²²⁹ As claimed by the UK Manual, *supra* note 77, at para. 5.32.10.

but only who possesses the practical possibility to take precautions and in particular who has the necessary knowledge of risks.

Article 57 of Protocol I is exceptional in that its paragraph 2(a) – and only that part – is directly addressed to those “who plan or decide upon an attack.” Some authors even argue that “[i]n the event of a major military operation this will be the commanding general with his staff.”²³⁰ In our view, such a schematic approach is unreasonable. It cannot be simply assumed that “non-commissioned officers and unit commanders up to the level of company commanders will not normally have the overview of the military situation which is required for an adequate evaluation of the legality of operations under Articles 48-57 AP I.”²³¹ William Boothby correctly mentions that the rules are binding upon “*inter alia*, anyone who fires a weapon as part of the attack, anyone who directs a munition such as a rocket, missile, or bomb, anyone who plans the attack at the tactical level, those on whose orders the particular attack proceeds, and those who approve the attack plan.”²³² The UK Manual again correctly notes that “[t]he problem of verification is obviously different for the air [...] commander drawing up target lists from a distance than it is for a tank troop commander who has enemy armoured vehicles in his sights. The former has more time to make up his mind; the latter is more easily able to verify the target.”²³³ This remark is particularly important for air and even more for missile warfare, where those who are at the very end of the decision line have very little possibility (and time) for verification. In our view, the rule should be that the less possible it is for executors to verify, the more verification is necessary by those who plan and decide upon an attack. An additional factor, which is particularly important for air and missile attacks, is that such attacks are nearly always planned, decided upon and executed within a system based on division of labour.²³⁴ Everyone involved in such a system, i.e. both those who decide upon (who have in addition a duty to set up and control such a system)²³⁵ and those executing attacks, may trust that others within the system who are specifically assigned the duty to take certain precautionary measures fulfil their duties.²³⁶ Such an assumption is however only admissible as long as there is no indication to the contrary. It is nevertheless true that the unlawfulness of an attack often becomes only apparent to the commanders at higher echelons because they frequently have better intelligence sources than those actually engaged.²³⁷

III. PRECAUTIONS TO BE TAKEN BY THE PARTY SUBJECT TO AN ATTACK

As a preliminary remark, we should note that under the fundamental separation between *jus ad bellum* and *jus in bello*, both the aggressor State and the State fighting in self-defence can be the defender during attacks. Second, the precautions against the effects of attacks on the civilian population on land to be taken by the defender are not part of the law of air and missile warfare, but of the law of land warfare.

This section will assess the binding force and status in customary international law of these precautions, and whether the responsibility to protect the civilian population against effects of attacks is shared between the attacker and the defender. It will then detail several

²³⁰ Kalshoven/Zegveld, *supra* note 32, at 107.

²³¹ Oeter, *supra* note 79, at 200, para. 460. See also Dinstein, *The Conduct of Hostilities*, *supra* note 80, at 140.

²³² Boothby, *supra* note 42, at 120. See also Henderson, *supra* note 135, at 157

²³³ UK Manual, *supra* note 77, at para. 5.32.2 (footnotes omitted).

²³⁴ Quéguiner, *supra* note 84, at 799.

²³⁵ HPCR Commentary, *supra* note 6, at 126.

²³⁶ In that respect see also *ibid.*, at 126.

²³⁷ Bothe/Partsch/Solf, *supra* note 124, at 366.

precautionary measures. But in introduction, this section will also look at the most important obligation of the defender, i.e. the prohibition to shield military objectives and operations by using the civilian population. This is technically not a precautionary measure, but it is essential for the *bona fide* implementation of IHL and is also addressed to the defender as a means of protecting the civilian population.²³⁸

1. The Prohibition Against Using Civilians and Certain Other Persons and Objects to Shield Military Objectives from Attacks

a. Status and Meaning of the Prohibition

“The presence or movements of the civilian population or individual civilians shall not be used to render certain points or areas immune from military operations, in particular in attempts to shield military objectives from attacks or to shield, favour or impede military operations. The Parties to the conflict shall not direct the movement of the civilian population or individual civilians in order to attempt to shield military objectives from attacks or to shield military operations.” (Article 51(7) of Protocol I)

We refer to this as the prohibition to use human shields. Similar prohibitions may be found in the 1949 Geneva Conventions concerning protected civilians (i.e. those who are in enemy hands) and prisoners of war,²³⁹ and in Rule 45 of the AMW Manual. It is worth noting that it applies independently of Protocol I,²⁴⁰ as it results from the prohibition of attacks directed against the civilian population and civilian objects and the general principle of law prohibiting the abuse of rights.²⁴¹ In addition, the UN has consistently condemned the use of human shields²⁴² and such use is today elevated to the status of war crime in the ICC Statute.²⁴³

It may sometimes be difficult to distinguish between use of human shields and non-compliance with the obligation to take passive precautions. The determining factor is whether the simultaneous presence of civilians and legitimate targets results from the defender's efforts to obtain “protection” for its military forces and objectives,²⁴⁴ or simply from a lack of care for the civilian population.

The prohibition also implies that a belligerent may not accept voluntary human shields, except if one considers that such volunteers turn into combatants.²⁴⁵

b. Consequences of a Violation for the Attacker

²³⁸ This is probably why the AMW Manual included the prohibition of human shields in the Manual's section on “Precautions by the Belligerent Party subject to attack” (See Rule 45)

²³⁹ See Art. 28 of Convention IV and Art. 23(1) of *Convention [No. III] relative to the Treatment of Prisoners of War* (Aug. 12, 1949), 75 U.N.T.S. 135.

²⁴⁰ Dinstein, *The Conduct of Hostilities*, *supra* note 80, at 152-153; see also J. G. Gardam, *Non-combatant Immunity as a norm of International Humanitarian Law* (Dordrecht: Martinus Nijhoff Publishers, 1993), at 153.

²⁴¹ The extent of that principle in international law is however very controversial, see Robert Kolb, *La bonne foi en droit international public* (Paris: PUF, 2000), at 429-486, and very restrictively, Brownlie, *supra* note 100, at 51-52.

²⁴² See for the war between Iran and Iraq *infra* note 284 and for the 1991 Gulf war, U.N. General Assembly, “Situation of Human Rights in Iraq” A/RES/46/134, December 17, 1991, online : <http://www.un.org/documents/ga/res/46/a46r134.htm>.

²⁴³ See Art. 8(2)(b)(xxiii) of the ICC Statute, *supra* note 227.

²⁴⁴ This is precisely what the U.S. accused Iraq of, see U.S., *Interim Report on the Persian Gulf Conflict*, *supra* note 105, at 15-1.

²⁴⁵ As Dinstein contends, *The Conduct of Hostilities*, *supra* note 80, at 153-154.

Article 51(8) of Protocol I clarifies that the use of human shields does not release the attacker from his or her obligation to take precautionary measures. This must also be true under customary law,²⁴⁶ because obligations under IHL are not subject to suspension for reasons of reciprocity,²⁴⁷ nor to counter-measures.²⁴⁸ The AMW Manual correctly reasserts this clarification in its Rule 46. Technically, an omission to take precautionary measures could not even be justified as a reprisal (prohibited under Protocol I, but not necessarily under customary law): only an injured State may take counter-measures, and the use of human shields does not injure the attacking State.

Some authors consider that at least voluntary human shields are no longer civilians but (unlawful) combatants.²⁴⁹ As explained elsewhere,²⁵⁰ serving as a voluntary human shield to a military objective does not constitute a direct participation in hostilities, except if it physically hinders enemy military operations – an opinion that is shared by the ICRC.²⁵¹ First, in order to classify an act as direct participation, the act must provoke, through a physical chain of causality, harm to the enemy or its military operations. With the exception of human shields who physically hinder an operation (“physical human shields”), such shields are a moral and legal means to hinder the enemy from attacking. Second, the theory considering “non-physical” voluntary human shields as civilians directly participating in hostilities is self-defeating. If it were correct, the presence of such human shields would have no legal impact on the ability of the enemy to attack the shielded objective – but an act which cannot have any impact whatsoever upon the enemy cannot possibly be classified as direct participation in hostilities. Third, the distinction between voluntary and involuntary human shields refers to a factor, i.e. the voluntary involvement of the target, which is very important in criminal law and, to a lesser extent, in law enforcement operations, but is completely irrelevant in IHL. Why should armament workers, who go voluntarily to their working place, remain civilians benefiting from precautionary measures,²⁵² while voluntary human shields do not? The difference is only their *mens rea*, which cannot make the difference for the admissibility of attacks, as the latter do not constitute a form of punishment. Fourth, the distinction is simply not practicable. How can a pilot or soldier launching a missile know whether the civilians he observes around a military objective are there voluntarily or involuntarily? What counts as a voluntary presence? Fifth, in a self-applied system like that of IHL during armed conflict, the suggested loss of protection against attacks may prompt an attacker to invoke the prohibition to use human shields abusively, as an alibi, as a mitigating circumstance or “to ease his conscience”.

²⁴⁶ U.S., *Conduct of the Persian Gulf Conflict*, *supra* note 15, at 703, considers that the law is “correctly stated” in Art. 51(8) of Protocol I.

²⁴⁷ See Art. 60(5) of the *Vienna Convention on the Law of Treaties* (May 23, 1969), 1155 U.N.T.S. 331.

²⁴⁸ See Art. 50(1)(b) and (c) of the *Draft Articles*, *supra* note 99, and *Report (ibid.)*, at 336 (para. 8 to Art. 50), and Arts 46/47/13(3)/33(3), respectively of the four Conventions and Arts 20, 51(6), 52(1), 53(c), 54(4), 55(2) and 56(4) of Protocol I.

²⁴⁹ Dinstein, *The Conduct of Hostilities*, *supra* note 80, at 153-154. David, *supra* note 222, at 287. See also *HPCR Commentary*, *supra* note 6, at 144.

²⁵⁰ Marco Sassòli, “Human Shields and International Humanitarian Law”, in Andreas Fischer-Lescano, Hans-Peter Gasser, Thilo Marauhn and Natalino Ronzitti (eds), *Paix en liberté: Festschrift für Michael Bothe zum 70. Geburtstag* (Baden-Baden: Nomos, 2008), at 567-578; Quéguiner, *supra* note 84, at 817.

²⁵¹ See ICRC, *Interpretive Guidance on the Notion of Direct Participation in Hostilities in International Humanitarian Law* (Geneva: ICRC, 2010), at 58-60 (in particular footnote 141), available at: <http://www.icrc.org/eng/resources/documents/publication/p0990.htm>

²⁵² Historically, the warning obligation and the obligation to attack, if possible, by night, precisely applied to workers in armament industries (see Futrell, *supra* note 220, at 516, and *Commentary Protocols*, *supra* note 54, at 682, respectively). See also Dinstein, *The Conduct of Hostilities*, *supra* note 80, at 136: although “[t]he importance of a munitions factory is often so critical that [...] casualties among labourers may reach very high levels without coming under the rubric ‘excessive’ [...], [t]his is not to say that presence in a perilous working place leads to a loss of civilian status.”

It is even less controversial that involuntary human shields obliged to join combatants or military objectives, or civilians who are joined by combatants,²⁵³ do not lose their protection, including the benefit of precautionary measures by the attacker.²⁵⁴ It is however argued that in such a situation, the actual test of excessive injury would be relaxed.²⁵⁵ This suggestion is understandable, for it would reduce the possibility of the defender to successfully gain immunity for its military objectives. However, such a position fails to take into account several problems. First, such a relaxation of the test is certainly incompatible with Article 51(8) of Protocol I. Second, we do not see how the proportionality calculus could be influenced by the fact that the civilian losses were provoked by the enemy. The 1976 U.S. Air Force Pamphlet correctly notes that a “party to a conflict which chooses to use its civilian population for military purposes [...] cannot complain when inevitable, although regrettable, civilian casualties result.”²⁵⁶ The fact that a State “cannot complain” does however not mean that persons lose their protection.

In our view, the obligation to take precautionary measures, like so many other obligations under IHL, depends on the facts on the ground. It therefore needs to be adapted to actual practices of the enemy and not to the obligations the enemy has, but does not respect. In the 1999 Kosovo war, after incidents in which civilian convoys were destroyed because they allegedly intermixed with military transportation, “new guidance directed that if military vehicles were intermingled with civilian vehicles, they were not to be attacked.”²⁵⁷

2. The Protection of the Civilian Population – a Shared Responsibility between the Attacker and the Defender?

The U.S. and some writers have always claimed that both sides have an equal responsibility to protect the civilian population from the effects of hostilities.²⁵⁸ In fact, the civilian population is best protected if both sides take precautionary measures. In law, however, State practice and the text, legislative history, and context of Protocol I, indicate that both under Protocol I and customary international law the main responsibility is conferred upon the “attacker”. Doubts about the customary character of the obligation to take passive precautions are not only based upon the fact that such precautions are very frequently not taken and that the obligation was subject, as will be shown hereafter, to controversy at the Diplomatic Conference. Even when such precautionary measures are actually taken, the existence of an *opinio juris internationalis*, necessary to create customary international law, should be separately assessed, as those measures are taken within the jurisdiction of the State.²⁵⁹ In

²⁵³ Art. 50(3) of Protocol I clarifies that “[t]he presence within the civilian population of individuals who do not come within the definition of civilians does not deprive the population of its civilian character.” Article 50(3) is an application of the proportionality principle, a general principle of law, to the definition of the civilian population, and its customary character does therefore not need to be analysed separately (See Bothe/Parts/Solf, *supra* note 124, at 296).

²⁵⁴ UK Manual, *supra* note 77, at para. 5.22.1; *Needless Deaths*, *supra* note 81.

²⁵⁵ Dinstein, *The Conduct of Hostilities*, *supra* note 80, at 155; UK Manual, *supra* note 77, at para. 5.22.1.

²⁵⁶ U.S. Air Force Pamphlet, *supra* note 3, at 5-8.

²⁵⁷ Human Rights Watch, “Conclusions and Recommendations”, in *Civilian Deaths*, *supra* note 91.

²⁵⁸ See for the Vietnam war, Letter Buzhardt-Kennedy, *supra* note 50, at 123; U.S. Air Force Pamphlet, *supra* note 3, at 3-1; *U.S. Naval Handbook NWP 9* at 11-1; forcefully Parks, “Air War and the Law of War”, *supra* note 110, at 149-168 with further references; Rogers, *Law on the Battlefield*, *supra* note 78, at 77-79; Kenneth Anderson, “Who Owns the Rules of War?”, *The New York Times Magazine*, 13 April 2003, online: <http://www.nytimes.com/2003/04/13/magazine/13RULES.html>. According to Infeld, *supra* note 70, at 141, the defender even has the primary obligation. Outside the U.S., see Dieter Fleck, “Strategic Bombing and the Definition of Military Objectives” 27 *Israel Yearbook of Human Rights* 41 (1997), at 52.

²⁵⁹ See Benedetto Conforti, *Diritto internazionale*, 5th ed. (Naples: Editoriale scientifica, 1997), at 44.

addition, passive precautions constitute obligations of States for the benefit of the population under their own control. Such obligations are not frequent in the traditional IHL of international armed conflict, but they may today be derived from the Human Rights obligation to not only respect but also protect such rights. Finally, one could also mention that the Institute of International Law rejected the proposal of its *Rapporteur* von der Heydte to qualify as unlawful any action by the defender making the distinction between military objectives and the civilian population disappear.²⁶⁰

The wording of Article 58 of Protocol I, which lists several passive precautions to be taken by the defender, clearly indicates that these obligations are weaker than those of an attacker. They have to be taken only “to the maximum extent possible,” and the defender only needs to “endeavour to remove” the civilian population and “avoid” locating military objectives nearby. These qualifiers raise the question of the definition of “possible”.²⁶¹ For instance, several delegations at the Diplomatic Conference stressed that the provision, in particular the obligation regarding the location of military objectives, shall not prevent a State from organizing its national defence as it considers necessary.²⁶² When becoming a party to Protocol I, Belgium, Italy, the Netherlands, and Algeria declared that the term “feasible” must be understood taking the available means or military considerations into account. Austria even made a formal reservation subjecting Article 58 to the “exigencies dictated by the defence of the national territory.”²⁶³ In addition, participants report that in the competent working group of the conference “many representatives of both developing and developed countries strongly objected to the obligation to endeavour to avoid the presence of military objectives within densely populated areas.”²⁶⁴ This specific provision is discussed below – however, added to the other considerations, it can already be noted here as a clear indication of the general agreement that the defender has less responsibilities than the attacker. This is even reinforced by the fact that only violations by the attacker are qualified as grave breaches under Protocol I and as war crimes under the ICC Statute.²⁶⁵ With all this in mind, it is astonishing to see that the ICTY not only classifies Article 58 indiscriminately as customary law, but even concludes that this does “not appear to be contested by any State.”²⁶⁶

It is not astonishing that the U.S., not having experienced attacks on its mainland for two centuries,²⁶⁷ and having a relatively thinly populated territory, favours a rule putting the burden of the protection of the civilian population at least as much upon the belligerent controlling that population. But other States have not accepted such a rule. Customary law and treaties clearly do not impose obligations on the defender comparable to those of a

²⁶⁰ See Institut de droit international, “Le problème que pose l’existence des armes de destruction massive et la distinction entre objectifs militaires et non militaires en général, Délibérations de l’Institut en séances plénières”, 53(II) *Annuaire de l’Institut de droit international*, Session d’Edimbourg 48 (1969), at 52, 61-69, 74, 358-360.

²⁶¹ See *Official Records*, *supra* note 14, vol. VI, 214 (U.K., The Netherlands), 224 (Canada), 226 (Germany), 241 (U.S.).

²⁶² *Ibid.*, vol. VI, 213/214 (France, Switzerland, Austria), 232 (Italy), 234/235 (South Korea), 239 (Cameroon).

²⁶³ See for the text of declarations and reservations Schindler/Toman, *supra* note 12, at 792, 794, 796, 807, 810, and 814.

²⁶⁴ Bothe/Partsch/Solf, *supra* note 124, at 372.

²⁶⁵ See Art. 85(3)(a)-(c) of Protocol I and Art. 8(2)(b)(i)-(v), (ix), (xxiii) and (e)(i)-(iv) of the ICC Statute, *supra* note 227.

²⁶⁶ *Prosecutor v. Kupreskić*, *supra* note 41, at paras. 524 and 525.

²⁶⁷ The obvious exceptions are the attacks of 11 September 2001 against the World Trade Center and the Pentagon. One may wonder whether those U.S. military experts who mention that targeting financial institutions may on the long run be more destructive than targeting dual-use objects are prepared to move Wall Street in case of war (including the “war against terror”?) out of Manhattan, in conformity with the alleged obligation of defenders under the principle of distinction. John Warden, “The Enemy as a System”, 9 *Airpower Journal* 40 (1995); Jeanne M. Meyer, “Tearing Down the Façade: A Critical Look at the Current Law on Targeting the Will of the Enemy and Air Force Doctrine” 51 *Air Force Law Review* 143 (2001), at 181.

belligerent launching an attack. The defender may simply not abuse the obligations of the attacker to render its military objectives immune from attack and it has a weak obligation to take some precautionary measures as far as this is feasible.

3. The Obligation to Protect Civilians and Civilian Objects from the Effects of Attacks

a. The General Obligation to Take Measures to Protect Civilians and Civilian Objects against the Dangers Resulting from Air and Missile attacks

This obligation is “often viewed by commentators as more in the nature of recommendations than strict obligations.”²⁶⁸ It may be called weak, or even soft, but remains a legal norm, contrary to what is more often referred to as “soft law”, i.e. norms which are not (yet) legally binding.²⁶⁹ Formulated in this weak (and sometimes, in an even weaker) manner, the rule appears in many military manuals.²⁷⁰ In addition, the ICTY – as mentioned above – “indiscriminately” qualifies it, together with all other rules of Articles 57 and 58 of Protocol I, without any distinction, as customary law,²⁷¹ the ICRC is of the same opinion after reviewing military manuals and a certain number of declarations by States,²⁷² and so is the AMW Manual.²⁷³

Examples drawn from practice for such passive precautions are “the construction of shelters, digging of trenches, distribution of information and warnings, withdrawal of the civilian population to safe places, direction of traffic, guarding of civilian property and the mobilisation of civil defence organisations.”²⁷⁴ In our view, however, such practice is not sufficiently widespread among States to permit any of these examples to be considered as constituting a customary law obligation of States. When the International Civil Defence Organization inquired in 1988 among all States of the world about the measures taken in the field of civil defence, only 38 replied and most of them reported only limited measures.²⁷⁵

b. The Obligation to Avoid Locating Military Objectives Near or Within Densely Populated Areas

Article 58(b) of Protocol I obliges the Parties to the conflict “to the maximum extent feasible” to “avoid locating military objectives within or near densely populated areas.” As mentioned before, although this rule is supported by the U.S.,²⁷⁶ it met so much resistance during the Diplomatic Conference that it cannot be considered to have expressed customary law at that time. Beyond the point made by several States that the provision could not hinder them from organizing their national defence as they felt appropriate,²⁷⁷ it was also “deemed by

²⁶⁸ Dinstein, *The Conduct of Hostilities*, *supra* note 80, at 145. See also P. Bretton, “Le problème des ‘Méthodes et Moyens de Guerre ou de Combat’ dans les Protocoles Additionnels aux Conventions de Genève du 12 Août 1949”, 82 *Revue générale de droit international public* 32 (1978), at 69; Parks, “Air War and the Law of War”, *supra* note 110, at 159; Rogers, *Law on the Battlefield*, *supra* note 78, at 72-77.

²⁶⁹ See Prosper Weil, “Towards Relative Normativity in International Law?”, 77 *American Journal of International Law* 413 (1983), at 414.

²⁷⁰ See ICRC Study, *supra* note 9, vol. II, ch. 6, para. 9-25.

²⁷¹ *Prosecutor v. Kupreskić*, *supra* note 41, at paras. 524 and 525.

²⁷² See ICRC Study, *supra* note 9, vol. I, ch. 6.

²⁷³ See AMW Manual, *supra* note 4, Rule 44.

²⁷⁴ *Ibid.*, vol. I, ch. 6

²⁷⁵ See 1 *Revue internationale de protection civile* 36 (1988).

²⁷⁶ See Letter Buzhardt-Kennedy, *supra* note 50, at 123.

²⁷⁷ *Official Records*, *supra* note 14, vol. VI 213, 214, 232, 234, and 239.

representatives of densely populated countries to restrict their right to self-defence, and by others to impose too heavy an economic burden to disperse their industrial, communications and transportation facilities from existing locations in densely populated areas.”²⁷⁸ The only non-U.S. opinion arguing that a defender has a customary law obligation not to locate military objectives in densely populated areas comes from Iraq. The latter denounced Iran for, contrary to good faith, concentrating troops in towns that Iraq had promised the UN Secretary-General not to attack. It qualified such concentrations as violations of IHL and specifically referred to Article 58(b) of Protocol I as a reaffirmation of the existing law – neither Iran nor Iraq being parties to Protocol I.²⁷⁹ The UN Secretary-General responded that he was “deeply concerned that allegations were made that civilian population centres are being used for concentration of military forces. If this were indeed the case, such actions would constitute a violation of [...] basic standards of warfare that the international community expects to be observed.”²⁸⁰ However, in our view, this answer reduces the customary nature of Article 58(b), to the prohibition of human shields, discussed above: similarly in the 1982 invasion of Lebanon by Israel, the latter accused the PLO of using the civilian population to protect military objectives and not simply of leaving military objectives in the midst of concentrations of civilians.²⁸¹

Taking the actual practice of States into account, it remains open whether a customary rule has developed since 1977, although the rule now appears in many military manuals²⁸² and was reiterated in Rule 42 of the AMW Manual.

c. The Obligation to Remove Civilians and Civilian Objects from the Vicinity of Military Objectives

“The Parties to the conflict shall, to the maximum extent feasible [...] endeavour to remove the civilian population, individual civilians and civilian objects under their control from the vicinity of military objectives.” Article 58(a) of Protocol I.

The ICRC considers in its Study that such a rule has become customary since 1977. Several elements indeed support such a conclusion.²⁸³ First, similar injunctions can be found in other texts, such as the Geneva Conventions regarding medical units and hospitals,²⁸⁴ and the Second Hague Cultural Property Protocol.²⁸⁵ Second, several non-binding documents also mention it: the 1956 ICRC Draft Rules (formulated in a more binding way),²⁸⁶ and more recently the AMW Manual.²⁸⁷ Preceding UN General Assembly Resolution 2675 (XXV), the UN Secretary-General considered that removing the civilian population from military objectives would be the most effective way to protect that population and suggested a recommendation in this sense in the resolution.²⁸⁸ No such recommendation was however

²⁷⁸ Bothe/Partsch/Solf, *supra* note 124, at 372.

²⁷⁹ Letter dated June 28, 1984 from the Deputy Permanent Representative of Iraq to the UN, addressed to the Secretary-General, UN Doc. S/16649, partly reproduced in Marco Sassòli, Antoine Bouvier and Anne Quintin, *How does Law Protect in War? Cases, documents and teaching materials on contemporary practice in international humanitarian law*, 3rd ed. (Geneva: ICRC, 2009), at 1514.

²⁸⁰ Message dated June 29, 1984 from the Secretary-General addressed to the President of the Islamic Republic of Iran and to the President of the Republic of Iraq, UN Doc. S/16663, partly reproduced in Sassòli/Bouvier/Quintin, *ibid.*, at 1515.

²⁸¹ Israel, *Briefing*, *supra* note 37.

²⁸² See ICRC Study, *supra* note 9, ch. 6, paras. 77-98.

²⁸³ Rule 24. See *ibid.*, vol. I ch. 6.

²⁸⁴ See Arts 19(2) of Convention I and 18(5) of Convention IV.

²⁸⁵ Art. 7 of the *Second Protocol to the Hague Convention*, *supra* note 20.

²⁸⁶ See Draft Rules, *supra* note 48, Art. 11 (1).

²⁸⁷ AMW Manual, *supra* note 4, Rule 43

²⁸⁸ UN Document A/8052 at paras 32-33.

adopted in the resolution itself. Third, the provision is included in several military manuals,²⁸⁹ including that of the U.S.²⁹⁰ and was the subject of several declarations of States and international organizations. It is true however that the actual practice of belligerents certainly does not comply with such a rule. In today's frequent guerrilla wars, such a removal would even be contrary to the very essence of this form of warfare.

d. Passive Precautions to be Taken by Civilian Aircraft

Passive precautions to be taken by protected aircraft are listed in Rules 53, 54 and 56 of the AMW Manual, which have already been discussed. Additional ones can be deduced from the circumstances in which aircraft lose their protection (which, as a passive precaution, enemy civilian aircraft must avoid). The Hague Rules defined those circumstances very broadly, due to the more rudimentary means of verification and communication existing at the time. They stated in particular that enemy civilian aircraft "are exposed to being fired at" when flying within the jurisdiction of the enemy; in the immediate vicinity of such jurisdiction and outside that of their own country; in the immediate vicinity of the military land and sea operations of the enemy; or even within the jurisdiction of their State, but there only if they do not land at the nearest suitable point when an enemy military aircraft is approaching.²⁹¹ The conditions for neutral civilian aircraft were also formulated very broadly in the Hague Rules.²⁹² From the wording of the rules, it is not clear whether the terms "are exposed to being fired at" refer to a factual risk of aircraft engaged in such behaviour or to a loss of immunity in law. In our view, the terms could only refer to the factual risk such aircraft take, but not to a license to deliberately attack civilian aircraft identified as such and known not to be engaged in hostile activities. A detailed list of situations where civilian aircraft "may" lose their protection can be drawn from the AMW Manual, in particular Rules 27 (for enemy civilian aircraft), 63 and 68 (for civilian airliners) and 174 (for neutral civilian aircraft).²⁹³ The use of the term "may" clarifies, however, that even in the listed situation, civilian aircraft may only be attacked if they actually constitute military objectives.

V. CONCLUSION

As for almost all humanitarian problems caused by armed conflicts, existing IHL offers the highest degree of protection for civilians affected by air and missile warfare one may realistically expect in such inherently inhumane situations as are armed conflicts. Active and passive precautionary measures, if applied and interpreted in good faith, are no exception to this statement. One may of course argue in favour of even stronger protection, but unrealistic rules do not protect anyone. For instance, rules prohibiting all aerial bombing against military objectives located near civilian populations would not be respected – despite Article 58 of Protocol I, most military objectives are still so located.

Article 57 of Protocol I provides a flexible framework, made of principles and precise prescriptions applicable to attacks against objectives on land (indeed more precise than, for instance, the definition of military objective or the principle of proportionality). No one would deny today that these precautionary measures are obligations of general international law – regardless of whether they qualify as customary rules or if they are logically deduced from the general principles of IHL. Neither would anyone deny that these precautions also apply to

²⁸⁹ See ICRC Study, *supra* note 9, vol. II, ch. 6, paras. 138-159.

²⁹⁰ See U.S. Air Force Pamphlet, *supra* note 3, at 3-1; *U.S. Naval Handbook NWP 9*, at 11-1.

²⁹¹ See Arts 33 and 34 of the *Hague Rules*, *supra* note 12.

²⁹² *Ibid.*, Arts 30, 35, 50, and 51.

²⁹³ See AMW Manual, *supra* note 4.

non-international armed conflict – especially now that the Commentary to the AMW Manual has concluded accordingly. The latter's added value lies in the field of air-to-air warfare, for it provides numerous precisions and adaptations of general principles to the specificities of the air environment. This is essential considering that Protocol I does not formally cover air-to-air warfare, which remains governed by rather ill-defined customary rules.

Nevertheless, although existing law may appropriately govern air and missile warfare, the main problem – as with so many other aspects of international law – remains with its implementation. In practice, it is extremely difficult to assess whether the necessary precautionary measures were taken in a given situation. Loss of civilian life during aerial attacks does not necessarily mean that such precautions were ignored. On the contrary, major air forces seem to take them rather seriously, as indicated by numerous instructions and the diligent work done by military lawyers on a daily basis. Even when precautions are crucial to belligerents, mistakes may still occur, as demonstrated by several incidents of friendly fire in Afghanistan and Iraq, as well as by the 2001 bombing of ICRC installations in Kabul (despite the fact that they were clearly marked and had been notified to the U.S.).²⁹⁴ On the other hand, the recent conflicts in Iraq and Afghanistan still lead many to doubt whether the law was really respected. Those doubts could only have been eliminated by earnest investigations into attacks that raised such doubts and publication of findings of the investigations.

In any event, respect for precautionary measures during air and missile warfare could be reinforced through concrete implementation. One suggestion, mentioned elsewhere,²⁹⁵ is to encourage States to be more transparent about the precautionary measures they take, for instance by keeping written records of the measures taken. At least for pre-planned attacks, which are prevalent in air and missile warfare, this is certainly not an unrealistic requirement. In accordance with international human rights law, States could also initiate enquiries, the outcome of which would be made public. Planning and decision-making are by definition secret, and it is often impossible to determine what the commander knew and what alternatives, if any, were available at the time of the attack. In that sense, a higher degree of transparency after the fact would be useful before an international or domestic criminal court. It would also help prove the unlawfulness of certain behaviour or conversely prove that IHL was respected (this would be particularly useful for events that unnecessarily make the headlines or are used for propaganda). The credibility of IHL would in turn be reinforced. Hence, it is regrettable that States and military lawyers often refuse to even start discussing such proposals, perhaps in fear of potential criticism and criminal prosecution.²⁹⁶

²⁹⁴ See Sassòli/Bouvier/Quintin, *supra* note 279, at 2780.

²⁹⁵ Marco Sassòli and Lindsey Cameron, "The Protection of Civilians Objects – Current Status of the Law and Issues *de lege ferenda*", in Ronzitti/Venturini, *supra* note 64, at 71.

²⁹⁶ See Marco Sassòli and Julia Grignon, "Les limites du droit international pénal et de la justice pénale internationale dans la mise en œuvre du droit international humanitaire", in Abdelwahab Biad and Paul Tavernier (eds), *Le droit international humanitaire face aux défis du XXI^e siècle* (Brussels: Bruylant, 2012), at 142.