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Protecting Civilians from the Effects of Explosive Weapons

An Analysis of International Legal and Policy Standards

Maya Brehm

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from the Effects of Explosive Weapons**
An Analysis of International Legal and Policy Standards

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UNIDIR
United Nations Institute for Disarmament Research
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About the cover

Detail of Libya Hurra (from the series) © 2011 Mauricio Lima.

Image courtesy of Mauricio Lima. See the full image opposite.

The photograph was taken in Sirte, Libya, on 25 October 2011. It shows an elderly man standing in front of his destroyed compound after returning back home only five days after Col. Qaddafi's capture and death. The man was followed by another (not in frame) trying to clean up the area the day he returned home.

A print of this photo is included in the *Friends of Anton* auction hosted by Christie's (<www.friendsofanton.org>) to raise funds for the children of freelance photojournalist Anton Hammerl who was killed in Libya on 5 April 2011.

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ABOUT THE AUTHOR

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SUMMARY OF FINDINGS AND RECOMMENDATIONS

The use of explosive weapons, such as bombs, rockets, and mortar and artillery shells, in cities, towns and villages and in other populated areas has devastating humanitarian consequences. Explosive weapons act mainly through the projection of blast and fragmentation within an area. Their use, in populated areas, causes severe suffering to civilians, both in terms of death and serious injury resulting directly from the explosion, and in terms of damage to property and public infrastructure, which can indirectly affect civilian well-being and survival, sometimes for many years after a conflict has ended. Explosive weapons also leave behind explosive remnants that pose a threat to populations until those remnants are removed.

In recent years, there has been growing intent among international policymakers to address this humanitarian concern. In response, UNIDIR launched the Norms on Explosive Weapons project in August 2012. This study is the main output of the project. It is a survey and reference work of existing legal and policy standards on explosive weapons. The study analyses how explosive weapons are regulated in international law and policy today, what constraints existing standards place on the use of explosive weapons in populated areas and how civilians are protected against the effects of explosive weapons. A better understanding of the existing regulatory framework can assist policymakers in their efforts aimed at enhancing the protection of civilians, including through the development of stronger international standards.

The study finds that the regulation of explosive weapons under international law and policy is fragmentary and incoherent. Explosive weapons are addressed in a myriad of legal and policy texts under different terms and definitions. The study examines instruments relating to ammunition stockpiling and the transport of dangerous goods; to the control of major conventional weapons, small arms and light weapons; to terrorism; to law enforcement and human rights; and to the protection of civilians and the conduct of hostilities. Some standards in these issue areas are evidence of concern at the risks to human health associated with the use, stockpiling and transport of explosive weapons, but terms and definitions used in these standards split up the category of explosive weapons on relatively arbitrary grounds. The dominant notions tend to cover only part of the spectrum of explosive weapons, are not specific to explosive weapons, and are, at times, overlapping and ambiguous.

The term “explosive weapons” would provide greater clarity and would allow for a categorical treatment of this weapon technology in international law and policy. It would bring into focus the blast and fragmentation effects shared by all explosive weapons, and would, hence, have particular utility for the elaboration of standards aimed at reducing humanitarian harm associated with these effects.

The study concludes that the dominant legal and policy discourse fails to articulate the serious risk of humanitarian harm associated with the use of explosive weapons in populated areas in a manner that adequately protects civilians—people who share a legitimate expectation to be protected against the effects of explosive weapons.

Regarding the use of force by states in the context of law enforcement, the study shows that human rights standards are typically not weapon-specific, and that courts have not adopted a systematic approach to assessing the risks and effects of explosive (and other) weapons and their impacts on human rights. Nevertheless, case-law and national standards suggest that the use of explosive weapons is generally considered unsuited for law enforcement purposes. **Spelling out the exclusion of explosive weapons from law enforcement in national and international standards could help eliminate uncertainties and make explicit the strong presumption that weapons with blast and fragmentation effects are incompatible with human rights standards on the use of force.**

By the same token, a categorical exclusion of explosive weapons from law enforcement would reinforce the perception that use, by a state, of explosive weapons, especially in populated areas, signals the crossing of an important threshold, both in terms of humanitarian protection concerns, and potentially in terms of the legal boundary between normal life and the exceptional situation of armed conflict.

Use of explosive weapons, even in densely populated areas, is a pervasive feature of many armed conflicts. Such use tends to be framed by the rules of international humanitarian law (IHL) governing the conduct of hostilities. IHL confers location-specific protections to civilians against the effects of hostilities, including from explosive weapons, in a number of ways. The notion of “populated area”, used in slightly differing formulations, is well-established in this area of law. The IHL prohibition on indiscriminate attacks evolved with particular reference to the use of explosive weapons in populated areas. It entails a ban on “area bombardment”, which reflects

long-standing recognition that the projection of multiple explosive weapons into cities, towns or villages raises distinct humanitarian concerns.

But IHL provides only limited protection against the pattern of harm documented in relation to the use of explosive weapons in populated areas. IHL rules on the conduct of hostilities do not reflect detailed agreement on or provide significant guidance about *how* risk of harm from blast and fragmentation effects is to be characterized, assessed and reduced, with particular regard to the context of populated areas. Existing IHL standards reflect contrasting levels of concern directed at different forms of explosive violence. Some explosive weapon types are regulated separately in dedicated treaties. In the case of cluster munitions, this is, in part, to prevent harm from “indiscriminate area effects”. But humanitarian concerns also arise in relation to the use, in populated areas, of other explosive weapons with wide area effects (heavy explosive weapons), due to the large blast and fragmentation radius of an individual explosive weapon, the launching of multiple explosive weapons into an area, or the inaccurate delivery of explosive weapons.

The focus under IHL is on preventing direct death and injury of civilians from specific attacks. IHL standards emphasize the presence of populations at the time of attack (“populated” area, “inhabited” towns). Standards do not adequately reflect humanitarian concerns related to the indirect impacts on populations from the destruction and devastation that tends to accompany the use of explosive weapons, especially of heavy explosive weapons, in populated areas. Also, not all places enjoy equally specific protections under IHL, thus in effect favouring some types of destruction over others (places of worship are specifically protected, but markets are not).

Formally recognizing the particular impacts that blast and fragmentation have on the built environment, emphasizing the protection of public infrastructure and private property, and paying more attention to the role that locations and buildings play in the well-being and survival of communities could help reduce humanitarian harm, especially indirect and longer-term harm.

A systematic effort to characterize the harm faced by civilians, both direct and indirect, and a detailed assessment of the risk of harm and the measures taken to reduce that risk could further a shared understanding of the conditions under which explosive weapons in general may or may not be used in populated areas. In order to

effectively prevent harm caused by the use, in populated areas, of explosive weapons with wide area effects, it may well be necessary to move toward a prohibition on such use.

"[She] is standing in her kitchen when she hears a deafening bang. Rushing to her living room she sees her family in pieces, spread across floors, walls and ceiling. The horror is total and meaningless. Nobody meant it to happen, so what was its cause?"¹

INTRODUCTION

BACKGROUND

"Our era is wasteful not least in its use of bombs".² Since the weaponization of high-explosive materials, explosive weapons have come to play a key role among the means used to visit death and destruction on ones' enemies in war.³ The growing range of naval artillery and the advent of air warfare at the beginning of the twentieth century enabled the delivery of explosive weapons over ever-larger distances. As a consequence, the "theatre of war" has increasingly spread into domestic spaces.⁴ The First World War saw the bombing of London, Paris and other large population centres. In the inter-war period, colonial powers bombarded settlements in Iraq, Morocco, Somalia and other places as a means of suppressing dissent and "policing" colonized territories. During the Spanish civil war, bombs were dropped on residential areas of Madrid and other Spanish towns. The horrors of that aerial destruction were memorialized in Picasso's *Guernica* (1937). During the Second World War, large urban centres, among them Dresden, London, Stalingrad and Tokyo, were saturated with explosive force in so-called "strategic bombing campaigns". Hundreds of thousands of bombs were subsequently dropped on the Korean peninsula, on Viet Nam and other countries in South-East Asia and elsewhere with disastrous

1 Simon Jenkins, "Indiscriminate Slaughter from the Air is a Barbarism that Must be Abolished", *The Guardian*, 16 January 2009, <www.guardian.co.uk/commentisfree/2009/jan/16/gaza-aerial-bombing-david-miliband>.

2 Carl Lidbom, Swedish Minister of State, cited in Hans Blix, "Area Bombardment: Rules and Reasons", *British Yearbook of International Law*, vol. 49, no. 1, pp. 31–69, 1978, p. 63.

3 At the beginning of the 19th century, new energetic materials began to displace black powder as a filling in shells. For a brief historical overview, see United States Department of the Army, *Military Explosives*, document TM-9-1300-214, September 1984, chp. 2.

4 Sven Lindqvist, *Bombing Savages in Law, in Fact, in Fiction*, London School of Economics, 2011, <www2.lse.ac.uk/newsAndMedia/videoAndAudio/channels/publicLecturesAndEvents/player.aspx?id=1245>.

consequences for civilian populations. These practices epitomize the notion of “indiscriminate attacks” and are no longer considered acceptable today.

Yet, shelling and bombing of populated areas continues to exact a heavy human toll in many places. Over the last two years, people in many areas of Afghanistan, Côte d’Ivoire, Gaza, Iraq, Libya, Pakistan, Somalia, the Sudan and Yemen have endured great hardship.⁵ A testimony from February 2012 of a resident of Baba Amr neighbourhood in Homs, Syrian Arab Republic, illustrates the tremendous suffering caused by the use of rockets, mortar rounds and other explosive weapons in Syrian towns and villages:

There is no escape or safe passage from the area and there is no safe shelter inside the area from the rockets and shells. There is no bread, no medication and no nutritional supplies, and after a field hospital was targeted, we lost several of our medical staff. ... Many of the wounded have very serious injuries—they lost their limbs, or eyes, had serious wounds to the body. They are in critical condition and are likely to die because there are no medical supplies to treat them properly.⁶

The quote illustrates several facets of the humanitarian harm caused by the use of explosive weapons in populated areas. People in the vicinity of the explosion are at grave risk of suffering mutilating ballistic, blast and burn injuries, which they may not survive, or which may result in life-long mental or physical disability.⁷ The powerful blast effect of certain explosive

5 For data on explosive violence and cases illustrating humanitarian harm from such violence, see Henry Dodd and Rob Perkins, *Monitoring Explosive Violence: The EVMP Dataset 2011*, Action on Armed Violence, March 2012; Esther Cann and Katherine Harrison, *100 Incidents of Humanitarian Harm: Explosive Weapons in Populated Areas, 2009–2010*, Action on Armed Violence, March 2011; Action on Armed Violence, *Explosive Weapons in Populated Areas in 2010–2011*, November 2011.

6 Testimony of “Mahmud”, a resident of Baba Amr neighborhood of Homs, Syrian Arab Republic, in Human Rights Watch, “Syria: Stop Shelling of Residential Areas”, 9 February 2012, <www.hrw.org/news/2012/02/09/syria-stop-shelling-residential-areas>.

7 The effects of explosive weapons on human health are well documented in medical, military surgery and forensics literature. See, for example, Ronald F. Bellamy and Russ Zajtchuk (eds), *Conventional Warfare, Ballistic, Blast, and Burn Injuries*, vol. 5, Textbook of Military Medicine, Series of Combat Casualty Care, Office of the Surgeon General, Department of the Army, United States of America, 1991; Adam Brooks et al. (eds), *Ryan’s Ballistic Trauma: A Practical Guide*, 3rd ed., Springer, 2011, chps. 6–10; Robin Coupland and Hans

weapons can result in structural damage to buildings, causing them to collapse and crushing people within them.

The use of explosive weapons in populated areas also compounds other humanitarian impacts of armed violence.⁸ Explosive weapons have been shown to be a key threat to the provision of health care in armed conflicts.⁹ Explosive weapons can cause life-threatening wounds that require qualified and sustained medical attention. At the same time, the damage they can cause to health infrastructure risks disrupting health care services at the moment when they are needed most. The destructive force of explosive weapons can also damage homes and destroy assets, leaving people without shelter or the means of earning an income. Damage to public services infrastructure may lead to a break-down of water treatment plants, lead to power disruptions, and prevent the production and distribution of food items and other goods and services essential to the well-being of the population. In many conflicts, the use of explosive weapons in populated areas is a major cause of displacement,¹⁰ but the destruction of roads and bridges may hinder the delivery of humanitarian aid, and prevent people from receiving medical assistance or fleeing the violence.

Samnegaard, "Effect of Type and Transfer of Conventional Weapons on Civilian Injuries: Retrospective Analysis of Prospective Data from Red Cross Hospitals", *British Medical Journal*, vol. 319, no. 7207, pp. 410–412, 14 August 1999; Lt Col M.M. Harjai et al., "Mine Blast Injuries—Our Experience", *Medical Journal Armed Forces India*, vol. 61, no. 2, pp. 143–147, 2005; Z. Lovric et al., "Ballistic Trauma in 1991/92 War in Osijek, Croatia: Shell Fragments versus Bullets", *Journal of the Royal Army Medical Corps*, vol. 143, no. 1, pp. 26–30, February 1997.

- 8 In this book "armed violence" means the use of force through arms. "Explosive violence" refers to the use of explosive weapons. Explosive and other armed violence is characteristic of situations of armed conflict in the legal sense, but is by no means limited to such situations. For more information, see Geneva Declaration Secretariat, *Global Burden of Armed Violence 2011: Lethal Encounters*, 2011, <www.genevadeclaration.org>.
- 9 The International Committee of the Red Cross considers that violent attacks on health care are a "crucial yet overlooked humanitarian issues". International Committee of the Red Cross, *Health Care in Danger: Making the Case*, August 2011, p. 4; International Committee of the Red Cross, *Health Care in Danger: a Sixteen-Country Study*, 2011.
- 10 Security Council, *Report of the Secretary-General on the Protection of Civilians in Armed Conflict*, UN document S/2012/376, 22 May 2012, para. 38.

The use of explosive weapons is likely to have long-term impacts on socio-economic and human development. Unexploded explosive remnants present a continuing threat to people, are an obstacle to the safe return of displaced populations, and prevent safe access to homes, farming land and schools. The reconstruction of public infrastructure may be costly, and survivors with physical and psychological impairments may require long-term medical care and other forms of assistance.

The use of explosive weapons is associated with a global *pattern of harm*. Based on data on incidents involving explosive weapons between April and September 2006, a study by Landmine Action—now called Action on Armed Violence (AOAV)—showed that the use of explosive weapons is geographically widespread and tends to be experienced at high frequency in contexts of armed conflict. The study also found that explosive weapon incidents tend to produce multiple deaths and injuries, and that explosive violence kills and injures significant numbers of people who are not “combatants”. In particular when attacks with explosive weapons are carried out in populated areas, these people make up the great majority of victims.¹¹ These findings are consistent with those of subsequent studies by AOAV and others.¹² Despite the scarcity of gender and age disaggregated data, research also indicates that the use of explosive weapons in populated areas has a devastating impact on children.¹³ Data on civilian harm from armed violence in Iraq further suggests that the use of explosive weapons disproportionately affects women. In that context, tank fire, artillery, aircraft bombs, missiles and mortars were found to result in higher proportions of female, as well as child, casualties than other explosive weapon types.¹⁴

11 Richard Moyes, *Explosive Violence, the Problem of Explosive Weapons*, Landmine Action, 2009, pp. 22–25. This study uses the term “civilians” broadly. For a discussion, see section 1.2.2. below, starting p. 25.

12 In 2011, AOAV’s Explosive Violence Monitoring project recorded 30,127 people killed or injured by explosive weapons in 2,522 incidents across 68 countries. 21,499 (71%) of these casualties were civilians. Henry Dodd and Rob Perkins, *Monitoring Explosive Violence: The EVMP Dataset 2011*, AOAV, March 2012, p. 9.

13 Kerry Smith, *Devastating Impact: Explosive Weapons and Children*, Save the Children UK, 2011.

14 Madelyn Hsiao-Rei Hicks et al., “The Weapons that Kill Civilians: Deaths of Children and Noncombatants in Iraq, 2003–2008”, *The New England Journal of Medicine*, vol. 360, no. 16, pp. 1585–1588, 16 April 2009; Richard Moyes, *Impact of Explosive Weapons by Gender and Age—Iraq 2003–2011*, AOAV,

On the basis of these findings, the *Explosive Violence* report argued for a reframing of conventional attitudes to the use of explosive weapons and proposed elements of a research and policy agenda to promote a stronger international norm against the use of explosive weapons in populated areas.¹⁵ It called for the development of a common language to articulate the humanitarian concerns around explosive violence, invited states and other users of explosive weapons to acknowledge the suffering caused by explosive violence, to work to fulfil the rights of victims, to gather and share data on the use and the humanitarian impacts of explosive weapons and to publish policy statements outlining under what conditions the use of explosive weapons in populated areas would be considered acceptable.

Over the last years, there has been growing recognition among multilateral policymakers of the grave and wide-ranging humanitarian problems associated with the use of explosive weapons, especially in populated areas.¹⁶ A number of civil society actors and representatives of governments and international organizations have begun to critically re-evaluate claims regarding the acceptability of the use of explosive weapons. Non-governmental organizations mobilized around the issue and formed the International Network on Explosive Weapons (INEW) in March 2011.¹⁷ The Network seeks to coordinate research and advocacy aimed at promoting greater understanding of the issue and concrete steps that can be taken to address it. The International Committee of the Red Cross (ICRC) identified the use of certain explosive weapons in densely populated areas as an important challenge to the effective protection of

June 2012. According to the United Nations Assistance Mission in Afghanistan, women and children represented nearly two thirds of the total number of civilian casualties caused by aerial attacks in Afghanistan in the first six months of 2012. United Nations Assistance Mission in Afghanistan and the United Nations Office of the High Commissioner for Human Rights, *Afghanistan, Mid-Year Report on Protection of Civilians in Armed Conflict 2012*, August 2012, p. 37.

- 15 Richard Moyes, *Explosive Violence, The Problem of Explosive Weapons, Landmine Action*, 2009, pp. 66–67.
- 16 United Nations Institute for Disarmament Research, *Addressing Civilian Harm from Explosive Weapons Use in Populated Areas: Activities Underway*, background paper of the Discourse on Explosive Weapons project, November 2010.
- 17 INEW's founding members are AOAV, Handicap International, Human Rights Watch, IKV Pax Christi, Medact, Norwegian People's Aid, Oxfam, and Save the Children UK. For more information, visit <www.inew.org>.

civilians under international humanitarian law (IHL).¹⁸ High-level United Nations representatives have underlined on several occasions the grave harm explosive weapons cause to civilians, and children in particular.¹⁹ In 2009, the United Nations Secretary-General identified the use of explosive weapons in populated areas as a core challenge to the protection of civilians in armed conflict. Since then, the Secretary-General has repeatedly called for “more systematic data collection and analysis of the human costs” of the use of explosive weapons and urged United Nations Member States to issue “policy statements that outline the conditions under which explosive weapons might be used in populated areas”.²⁰ In his 2012 report on the protection of civilians, the Secretary-General encouraged states to “intensify their consideration of this issue, including through more focused discussion”.²¹

18 “Even if you intend to respect those two rules [IHL rules on proportionality and distinction], it is very difficult to do so if you use such weapons in densely populated areas” (our translation). Pierre Ruetschi, “Jakob Kellenberger «Combien de morts faudra-t-il encore à Gaza!»”, *24heures*, 2 February 2009.

19 For Emergency Relief Coordinator Valerie Amos, “the shelling ... of a market in the Abobo district of Abidjan that resulted in the deaths of at least 25 civilians” in March 2011, underlined “the dreadful humanitarian impact of explosive weapons when used in populated areas”; United Nations Office for the Coordination of Humanitarian Affairs, “United Nations Humanitarian Chief Alarmed at Côte d’Ivoire Violence”, press release, 18 March 2011. See also General Assembly, *Report of the Special Representative of the Secretary-General for Children and Armed Conflict*, UN document A/67/256, 6 August 2012, paras. 59–73; General Assembly, Security Council, *Children and Armed Conflict: Report of the Secretary-General*, UN document A/65/820–S/2011/250, 23 April 2011, para. 134; General Assembly, Security Council, *Children and Armed Conflict: Report of the Secretary-General*, UN document A/66/782–S/2012/261, 26 April 2012, para. 242; Department of Public Information, “Secretary-General, in Message to Conference Reviewing Certain Conventional Weapons Convention, Calls for Easing Burden of Conflict on Civilians”, UN document SG/SM/13941, 14 November 2011; Ban Ki-moon, “Secretary-General’s message to the Second Meeting of States Parties to the Convention on Cluster Munitions” 13 September 2011, <www.un.org/sg/statements/index.asp?nid=5512>; and Security Council, UN document S/PV.6354, 7 July 2010, statement by Emergency Relief Coordinator John Holmes, pp. 4–6.

20 Security Council, *Report of the Secretary-General on the Protection of Civilians in Armed Conflict*, UN document S/2010/579, 11 November 2010, paras. 50–51. See also Security Council, *Report of the Secretary-General on the Protection of Civilians in Armed Conflict*, UN document S/2009/277, 29 May 2009, para. 36.

21 Security Council, *Report of the Secretary-General on the Protection of Civilians in Armed Conflict*, UN document S/2012/376, 22 May 2012, para. 75.

A growing number of states are already engaging on this humanitarian issue today. Notably within the framework of United Nations Security Council open debates on the protection of civilians, Australia, Austria, Botswana, Costa Rica, Gabon, Germany, the Holy See, Japan, Luxembourg, Mexico, Morocco, Nigeria, Norway, Slovenia, Switzerland, Togo, Uruguay and others have expressed concern at the humanitarian impacts of explosive weapons. Several states welcomed initiatives to address these concerns effectively and voiced support for the Secretary-General's recommendations.²²

What direction initiatives to address this humanitarian concern could take became clearer during the first half of 2012, when the call for greater constraints on the use, in populated areas, of explosive weapons with wide area effects emerged as a central theme of discussion. In a report prepared for the 31st International Conference of the Red Cross and the Red Crescent, held in December 2011, the ICRC considered that "explosive weapons with a wide impact area should generally not be used in densely populated areas".²³ Along the same lines, the United Nations Secretary-General, in his report of May 2012 on the protection of civilians, called on "Parties to conflict to refrain from using explosive weapons with

22 Security Council, UN document S/PV.6151 (Resumption 1), 26 June 2009, pp. 10, 22; Security Council, UN document S/PV.6427, 22 November 2010; Security Council, UN document S/PV.6427 (Resumption 1), 22 November 2010; Security Council, UN document S/PV.6650, 9 November 2011; Security Council, UN document S/PV.6650 (Resumption 1), 9 November 2011; Security Council, UN document S/PV.6790, 25 June 2012; Security Council, UN document S/PV.6790 (Resumption 1), 25 June 2012. Azerbaijan, Chile, Finland, Guatemala, and Portugal also mentioned harm from explosive weapons during the June 2012 United Nations Security Council open debate on the protection of civilians. See, in particular, Statement by Silvano M. Tomasi, Permanent Representative of the Holy See to the United Nations and Other International Organizations at the Meeting of the States 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 (CCW), Geneva, 15–16 November 2012, <www.holyseemissiongeneva.org/index.php?option=com_content&view=article&id=11261:the-convention-on-prohibitions-or-restrictions-on-the-use-of-certain-conventional-weapons-ccw&catid=56:disarmament&Itemid=81>. A number of states have further expressed willingness to engage on this issue in national fora, are supporting research and advocacy efforts, or are conducting internal studies.

23 ICRC, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts*, document 31IC/11/5.1.2, October 2011, pp. 4, 42.

a wide-area impact in densely populated areas".²⁴ This call was echoed by the Special Representative of the Secretary-General for Children and Armed Conflict.²⁵ In the run-up to the United Nations Security Council open debate of June 2012 on the protection of civilians, INEW urged states to lend their support to this policy orientation.²⁶ At that debate, the representatives of Austria and Germany clearly spoke in favour of avoiding the use of weapons with a wide impact area in populated areas.²⁷

RATIONALE

UNIDIR launched the Norms on Explosive Weapons project in August 2011.²⁸ The project's objectives were to raise further awareness of the human cost associated with the use of explosive weapons in populated areas, to gain a better understanding of the normative framework governing activities involving explosive weapons, and to support the development of policy and practice that would reduce humanitarian harm and enhance the protection of civilians.

This study is the main output of the Norms on Explosive Weapons project. It is a survey and reference work of existing legal and policy standards on explosive weapons. The study analyses how explosive weapons are regulated in international law and policy. It examines what constraints existing standards place on the use of explosive weapons in populated

24 Security Council, *Report of the Secretary-General on the Protection of Civilians in Armed Conflict*, UN document S/2012/376, 22 May 2012, para. 75.

25 General Assembly, *Annual Report of the Special Representative of the Secretary-General for Children and Armed Conflict*, Radhika Coomaraswamy, UN document A/HRC/21/38, 28 June 2012, para. 47; General Assembly, *Report of the Special Representative of the Secretary-General for Children and Armed Conflict*, UN document A/67/256, 6 August 2012, para. 69.

26 INEW, "INEW advocacy ahead of Security Council debate on protection of civilians", 14 May 2012, <www.inew.org/news/inew-advocacy-ahead-of-security-council-debate-on-protection-of-civilians>.

27 Security Council, UN document S/PV.6790, 25 June 2012, p. 23; Security Council, UN document S/PV.6790 (Resumption 1), 25 June 2012, p. 16. See also the statement of the Head of the Delegation of the European Union (*ibid.*, p. 6).

28 The Norms on Explosive Weapons project is funded by the Government of Norway. For more information about the project's work, visit the project website at <www.explosiveweapons.info> or UNIDIR's website at <www.unidir.org/bdd/fiche-activite.php?ref_activite=635>.

areas and how civilians are protected against the effects of explosive weapons.

A better understanding of existing standards will help guide efforts aimed at enhancing the protection of civilians. The information presented in this study is meant to assist international policymakers to identify ways of reducing harm from explosive violence, notably through the development of stronger standards.

The report answers the following questions:

- What are “explosive weapons” in legal and policy terms?
- How are explosive weapons regulated at the international and national levels today?
- How do international legal and policy standards protect civilians, particularly in populated areas, against the effects of explosive weapons?
- How do international legal and policy standards constrain the use of explosive weapons in these environments?
- Does the existing regulatory framework adequately prevent civilian harm from explosive weapons?
- How could stronger legal or policy standards enhance the protection of civilians from the effects of explosive weapons?
- What could it mean to “place greater constraints on the use, in populated areas, of explosive weapons with wide area effects”?

The work of the Norms on Explosive Weapons project built on research carried out earlier at UNIDIR on explosive weapons, and on cluster munitions in particular. UNIDIR’s Discourse on Explosive Weapons project (2010–2011) called attention to the humanitarian problems surrounding the use of explosive weapons. The project contributed to bringing about a shared understanding of the problems involved and structured policy debate about how to address them.²⁹ Both projects are part of UNIDIR’s *humanitarian disarmament* stream of work. Driven by humanitarian imperatives, the focus of humanitarian disarmament research at UNIDIR is on bringing about a better understanding of the nature and range of harmful impacts of armed violence, and to create new opportunities for effectively addressing these impacts, including by informing and supporting

29 Find more information about the Discourse on Explosive Weapons project at <www.unidir.org/bdd/fiche-activite.php?ref_activite=499>.

the elaboration of policies and standards that reduce human suffering, civilian harm and socio-economic devastation.

OUTLINE

The study is structured into three parts. Section 1 clarifies the scope of the study and explains the terminology used. It describes what explosive weapons are in technical terms, what their effects are, and what sets them apart from other weapon technologies. This section also includes a description of the legal and policy standards of concern to this study and the regulatory texts analysed for this report across a number of issue areas.

With that understanding in hand, section 2 turns to a discussion of what explosive weapons are in legal and policy terms and how they are regulated under international law and policy today. This section surveys existing categories and definitions, examines how these relate to the notion of “explosive weapons”, and shows that the latter provides greater clarity in relation to existing definitions, in particular with a view to the elaboration of standards aimed at reducing humanitarian harm from the blast and fragmentation effects characteristic of explosive weapons.

Building on the findings of section 2, section 3 surveys existing standards protecting civilians from the effects of explosive weapons, particularly in the context of “populated areas”. It examines how risk of civilian harm is characterized, assessed and reduced, and how standards account for the presence of civilians and civilian structures in places that may be affected by blast and fragmentation effects of explosive weapons. This part of the study focuses on the use of force for law enforcement and the conduct of hostilities (during armed conflict). It examines what human rights standards on the use of force entail for the use of explosive weapons in law enforcement situations. With respect to the use of explosive weapons for the conduct of hostilities, the study discusses how rules of IHL aim to protect civilians from the effects of explosive weapons, and how harm from the use, in populated areas, of explosive weapons with wide area effects (heavy explosive weapons) is articulated under IHL.

The study concludes by proposing ways in which humanitarian harm from the use of explosive weapons could be reduced through the development of stronger international standards that adequately reflect the specific protection concerns arising in connection with blast and fragmentation effects from explosive weapons in the context of populated areas, and that establish a strong barrier to the use, in populated areas, of explosive weapons with wide areas effects.

1. SCOPE AND METHOD

1.1. EXPLOSIVE WEAPONS AND HOW THEY FUNCTION

In the absence of an authoritative definition of “explosive weapons”, this report takes as a starting point policy statements and literature that identify weapon types and refer to them as “explosive weapons”. The United Nations Secretary-General’s report of 2012 on the protection of civilians in armed conflict provides an illustrative list: “Explosive weapons include artillery shells, missile and rocket warheads, mortars, aircraft bombs, grenades and improvised explosive devices”.³⁰ Similar descriptions can be found in scientific literature. Zukas and Walters write, for instance, “Among the explosive weapons that man uses to take life and destroy property are bombs dropped by aircraft, artillery shells, mines, and torpedoes”.³¹ Such descriptions highlight two things: First, explosive weapons can be launched from various platforms, including airplanes, field artillery or naval vessels, or they can be thrown by hand (grenades) or emplaced (mines). Second, the focus is on the part of a weapon that contains high-explosive material, that is, the explosive mine, bomb, grenade, shell, round or warhead, also sometimes referred to as the explosive *munition*.³² When speaking of a

30 Security Council, *Report of the Secretary-General on the Protection of Civilians in Armed Conflict*, UN document S/2012/376, 22 May 2012, para. 35. In a statement delivered by United Nations Emergency Relief Coordinator John Holmes at the United Nations Security Council open debate in July 2010 on the protection of civilians, he mentioned “landmines”, “cluster munitions”, “air strikes and artillery attacks”, “rockets” and “car bombs” in relation to the use of “ordinary explosive weapons”; Security Council, UN document S/PV.6354, 7 July 2010, p. 6. Similarly, Richard Moyes, *Explosive Violence, The Problem of Explosive Weapons*, Landmine Action, 2009, p. 10: “explosive weapons include artillery shells, bombs (such as aircraft bombs, car bombs, ‘suicide’ bombs), grenades, landmines, mortars and rockets, amongst others”; ICRC, *Wound Ballistics, An Introduction for Health, Legal, Forensic, Military and Law Enforcement Professionals*, June 2008, p. 6: “shells, bombs, grenades and other explosive weapons”.

31 Jonas A. Zukas and W.P. Walters, *Explosive Effects and Applications, High-Pressure Shock Compression of Condensed Matter*, 1998, p. 9.

32 Program on Humanitarian Policy and Conflict Research at Harvard University, *Commentary on the HPCR Manual on International Law Applicable to Air*

mortar as an explosive weapon, reference is to the explosive mortar round, rather than to the firing tube. If the mortar round is used as a carrier for explosive sub-munitions, it would refer to these. But as the casing and other parts of a weapon may also have explosive properties, and considering the great variety of weapon designs, the distinction between “(am)munition”, “launcher” and “weapon” is not always clear-cut or meaningful, nor do regulatory instruments consistently make such a distinction.³³

A basic knowledge of how explosive weapons function is helpful to understand their effects and humanitarian impacts. From a technical point of view, explosive weapons can broadly be described as weapons that act mainly through blast and fragmentation. *Blast* effects observed in connection with explosive weapons generally stem from a shock wave in air produced by the detonation of a high-explosive compound. Explosives, such as TNT or RDX mixtures, typically used as fillings in shells, bombs or warheads, produce such a blast wave when detonated. Blast waves are characterized by a sudden and steep increase in atmospheric pressure. They radiate outward from the detonation point and propagate above the speed of sound.³⁴ Hence, a person in front of the blast wave cannot hear it

and Missile Warfare, 2010, p. 55: “munitions (or ammunition) is a narrower concept than ‘weapon’ and refers to the object that actually causes the injury, death, damage or destruction. Some weapons are munitions in themselves, as in the case of a bomb or missile which is carried aboard an aircraft. However, the term weapon also includes the integral equipment directly necessary to cause the force which launches the ammunition or munitions”.

33 Consider the inconsistencies in the definitions of “firearms” and “ammunition” in the Organization of American States’ *Inter-American Convention against the Illicit Manufacturing of and Trafficking in Firearms, Ammunition, Explosives, and Other Related Materials*, 1997. Similar inconsistencies exist among the definitions of “small arm”, “light weapon”, and “ammunition” in the Economic Community of West African States’ *Convention on Small Arms and Light Weapons, Their Ammunition and Other Related Materials*, 2006. Note also the exclusion of certain “munitions”, such as explosive bombs and fragmentation shells, from the definition of an incendiary “weapon” in the *Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III to the CCW)*, 10 October 1980, art. 1.

34 This study uses the term “blast” as shorthand for “blast wave”. Peter O.K. Krehl, *History of Shock Waves, Explosions and Impact, A Chronological and Biographical Reference*, Springer, 2009, pp. 29, 35. The United Nations Office for Disarmament Affairs, *International Ammunition Technical Guidelines (IATG)*, 1st ed., 2011, <www.un.org/disarmament/convarms/Ammunition>, defines “blast” as “a destructive wave of gases or air produced in the surrounding

before the shock strikes.³⁵ The overpressure (and other effects induced by it) causes destructive effects known as “blast damage”, such as disruption of human tissue, traumatic amputations and the collapse of buildings. This, in part, accounts for the grave humanitarian impacts described in the introduction to this report.

Among the effects induced by a blast wave is the acceleration of objects nearby the explosion site. This *debris*, also called *secondary* fragments,³⁶ can include portions of the natural ground or of structures, like window glass. It is propelled from the site of the explosion at a speed of hundreds of metres per second. In addition to the projection of debris, so-called *primary* fragments, shards of the munition casing, are also projected by the explosion. These fragments are usually small, initially travel at thousands of metres per second and may be harmful at long distances from an explosion. Both kinds of fragments can cause death, injury and damage. Injury from flying munition fragments and debris is the most common cause of death in victims of explosive weapons.³⁷ Although explosive weapons also cause other effects (e.g. thermal radiation), blast and fragmentation are the marks of this technological category.

The effects of an explosion affect a potentially *wide zone* around the point of detonation. Within this zone, persons and structures are affected indiscriminately. Within the technological category of explosive weapons, a distinction is sometimes proposed between “blast weapons” and “fragmentation weapons” on the basis that they are *designed* to cause

atmosphere by an explosion. The blast includes a shock front, high pressure behind the shock front and a rarefaction following the high pressure”; *IATG 01.40:2011(E)*, p. 4. For an introduction to explosions and blasts, see C.R. Wilkinson and J.G. Anderson, *An Introduction to Detonation and Blast for the Non-Specialist*, Department of Defence, Australian Government, DSTO Systems Sciences Laboratory, 2003. For more detailed discussions, see Jonas A. Zukas and W.P. Walters, *Explosive Effects and Applications, High-Pressure Shock Compression of Condensed Matter*, Springer, 1998; and J. Köhler, R. Meyer and A. Homburg, *Explosivstoffe*, Wiley-VCH, 2008.

35 Similar to being overrun by the sonic boom of a supersonic aircraft.

36 The IATG define “secondary fragmentation” as “fragmentation which, in an explosive event, was not originally part of the ammunition”; United Nations, *IATG 01.40:2011(E)*, p. 26.

37 Jonas A. Zukas and W.P. Walters, *Explosive Effects and Applications, High-Pressure Shock Compression of Condensed Matter*, Springer, 1998, p. 13. See also Charles Stewart, “Blast injuries: Preparing For The Inevitable”, *Emergency Medicine Practice*, vol. 8, no. 4, 2006, p. 11.

blast and fragmentation effects to varying degrees.³⁸ The question is of interest with regard to thermobaric and other “enhanced blast weapons”. These weapon types function differently from “conventional” explosive weapons.³⁹ They tend to cause very little primary fragmentation, but their blast wave can be extremely powerful and can, through interaction with the surrounding environment, lead to significant secondary fragment projection. From the perspective of their effects, the use of these weapons raises humanitarian concerns similar to those of “conventional” explosive weapons with wide area effects, and are hence kept within that broader category. Enhanced blast weapons that generate significant heat raise additional humanitarian concerns that deserve focused attention.⁴⁰

This report distinguishes between *explosive* and *non-explosive* weapons. The latter tend to produce no or significantly less blast and fragmentation effects. In contrast to explosive munitions with a *high-explosive* filling that are the main concern of this study, non-explosive weapons, such as small

38 Even supporters of such a distinction recognize that both effects are present to varying degrees in both weapon types. ICRC, *Weapons that May Cause Unnecessary Suffering or Have Indiscriminate Effects, Report on the Work of Experts*, 1973, pp. 39–40; Program on Humanitarian Policy and Conflict Research at Harvard University, *Commentary on the HPCR Manual on International Law Applicable to Air and Missile Warfare*, 2010, p. 75.

39 “The purest blast munitions are the new fuel-air explosive (FAE) devices”. ICRC, *Weapons that May Cause Unnecessary Suffering or Have Indiscriminate Effects, Report on the Work of Experts*, 1973, p. 40. Fuel-air explosives detonate a vapour cloud of liquid hydrocarbon, previously released into the atmospheric oxygen. The generated blast wave can affect a very wide area, and, due to the longer duration of the overpressure, has a greater destructive effect than “conventional” high-explosives. Enhanced blast explosives are being increasingly used in a range of munitions from small grenades to large-calibre rockets. P. Dearden, “New Blast Weapons”, *Journal of the Royal Army Medical Corps*, vol. 147, 2001, p. 81.

40 So-called “thermobaric weapons” generate high temperatures that can start fires, and can cause particularly cruel wounds to people within a wide area. The *Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III to the CCW)*, 10 October 1980, restricts the use of “incendiary weapons”. Civil society organizations are increasingly calling on states to amend that Protocol and impose stricter rules in order to adequately address the serious and ongoing harm of incendiary weapons. See Human Rights Watch, *Strengthening the Humanitarian Protections of Protocol III on Incendiary Weapons*, memorandum to Convention on Conventional Weapons (CCW) Delegates, 2011.

arms cartridges, tend to be filled with a *propellant* (e.g. black powder). Their use does not produce a blast wave, although fragment projection may occur. The difference between *explosives* and substances used as *propellants* is not always clear-cut. Under normal circumstances propellants *deflagrate* but do not *detonate*.⁴¹ However, propellants can be detonated when they are subjected to excess heat energy or mechanical shock, and explosives can be deflagrated steadily without a detonation wave when they are gently heated without a mechanical shock.⁴² International legal and policy instruments do not consistently distinguish between these chemical processes. The terms *detonation*, *deflagration* and *explosion* are at times used interchangeably.⁴³

Not all explosives are considered explosive *weapons* for the purposes of this report. Explosive weapons can be defined as substances and materials with explosive properties that are used, designed or intended for *harmful* purposes.⁴⁴ They can be set apart from explosives and other

41 A deflagration is a slow combustion process that gives off heat and light but is unlikely to produce sufficient overpressure to create a supersonic shock wave. Peter O.K. Krehl, *History of Shock Waves, Explosions and Impact, A Chronological and Biographical Reference*, Springer, 2009, pp. 22, 109. See also the definitions of “explosives” and “propellants” in European Union, *Common Military List of the European Union*, Official Journal C 86, 18 March 2011, pp. 1–36; Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, *List of Dual-use Goods and Technologies and Munitions List*, document WA-LIST(11)1, 14 December 1995 (as of 14 December 2011), pp. 196, 205.

42 Naminosuke Kubota, *Propellants and Explosives: Thermochemical Aspects of Combustion*, 2nd ed., Wiley-VCH, 2007, p. 89.

43 The definition of a “mine” in art. 2(1) of *Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices (Protocol II to the CCW)*, 10 October 1980, uses the phrase “detonated or exploded”, whereas 1996 amended Protocol II to the CCW only uses “exploded”. Art. 2(1) of the *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction*, 18 September 1997, defines an “anti-personnel mine” as “a mine designed to be exploded by the presence, ... of a person” to the exclusion of “Mines designed to be detonated by the presence ... of a vehicle”. Note the translation of “explosive weapons” as “armes explosives à déflagration” in the French version of Security Council, *Report of the Secretary-General on the Protection of Civilians in Armed Conflict*, UN document S/2009/277, 29 May 2009, para. 36.

44 See for example the definition of a “weapon” given in United Nations, *IATG 01.40:2011(E)*, p. 32. See also United States Department of the Army,

energetic materials used to peaceful ends. However, such a distinction is difficult to make on the basis of the inherent characteristics of materials and substances. Many explosive substances have important civilian applications, for example, in the mining, construction and agriculture industries, or in mine action. Certain chemical substances, such as ammonium nitrate, can be an essential ingredient of a variety of products, some of which are intended for use as fertilisers and others as explosives. Likewise, it can be difficult, on the basis of technical characteristics, to draw a line between *explosives*, often used for blasting purposes, on the one hand, and *pyrotechnics*, primarily used for producing light or sound, on the other.⁴⁵

It should also be borne in mind that this study focuses on “conventional” weapons. The specific humanitarian issues that arise in relation to the use of chemical, biological or nuclear explosive weapons are not addressed. A large majority of states consider the use of such weapons unacceptable. Nuclear weapons cause destruction mainly through a blast wave potentially many times more powerful than that of a “conventional” explosive weapon. Nuclear explosions are also accompanied by intense heat, ionized radiation and radioactive fallout as by-products. Luckily, neither “tactical” nor “strategic” nuclear weapons are a common feature of today’s armed conflicts. Such use would likely have catastrophic humanitarian consequences distinct from those of other explosive weapons.⁴⁶ Concern

Military Explosives, TM-9-1300-214, September 1984. Section 2.1.(d) defines “Explosives” as “the materials that detonate” and explains that “They may be used independent of, or form a part of, ammunition. For military management purposes, the two are controlled as one category of weapons or armaments”.

45 “Certain articles falling within Class 1 of the United Nations recommendations have a dual function, since it is possible to use them either as explosives or as pyrotechnic articles”. European Union, *Commission Directive 2004/57/EC of 23 April 2004 on the Identification of Pyrotechnic Articles and Certain Ammunition for the Purposes of Council Directive 93/15/EEC on the Harmonisation of the Provisions Relating to the Placing on the Market and Supervision of Explosives for Civil Uses*, Official Journal L 127, 23 April 2004, pp. 73–80, preambular para. 3.

46 “Nuclear weapons cannot be employed in compliance with those rules [universally accepted rules of humanitarian law] because their blast, heat, and radiation effects ... are uncontrollable in space and time”. Simons Foundation and the International Association of Lawyers Against Nuclear Arms, *Vancouver Declaration: Law’s Imperative for the Urgent Achievement of a Nuclear-Weapon-Free World*, 11 February 2011. See also International Court of Justice,

about the consequences for public health, human safety and the environment plays an increasing role in nuclear disarmament efforts and underpins calls by civil society actors, such as the International Campaign to Abolish Nuclear Weapons, for the elimination of nuclear weapons.⁴⁷

Finally, this study focuses on the practices of states. It does not deal with how non-state (armed) actors manage explosive weapons or the risks they pose to civilians. It should be noted, though, that non-state armed actors are responsible for a significant part of civilian harm caused by explosive weapons. Improvised explosive devices (IEDs), including roadside bombs and car bombs, have become the weapon of choice of certain non-state armed groups. Of all civilian casualties from explosive weapons recorded by AOA in 2011, 60% were caused by IEDs.⁴⁸ States tend to strictly control non-state actor involvement with explosives and explosive weapons. Hence, the increasing use of IEDs and of other explosive weapons, like grenades, man-portable air defence systems (MANPADS), mines and mortars by non-state actors constitutes a direct challenge to states' monopoly over explosive force. This may in part explain why state actors tend to frame explosive weapon use by non-state actors in terms of terrorism. Although outside of the scope of this study, finding ways to reduce and prevent civilian harm from explosive violence will require a better understanding of the norms that guide non-state actor behaviour in this regard. In any case, the hope is that state policy and practice that

Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 8 July 1996.

- 47 67th session of the United Nations General Assembly First Committee, *Joint Statement on the Humanitarian Dimension of Nuclear Disarmament*, 22 October 2012; Council of Delegates of the International Red Cross and Red Crescent Movement, *Working Towards the Elimination of Nuclear Weapons*, resolution 1, 26 November 2011; Preparatory Committee for the 2015 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, *Joint Statement on the Humanitarian Dimension of Nuclear Disarmament*, 2 May 2012; International Campaign to Abolish Nuclear Weapons, *Catastrophic Humanitarian Harm*, August 2012; Norwegian Ministry of Foreign Affairs, *Svar på interpellasjon om atomvåpen*, Utenriksminister Jonas Gahr Støre svarte 17. april på en interpellasjon fra stortingsrepresentant Snorre Serigstad Valen (SV) (opprinnelig fra Bård Vegar Solhjell) om å legge forholdene til rette for forhandlinger om et forbud mot atomvåpen, response to a parliamentary interpellation, 2012.
- 48 Henry Dodd and Rob Perkins, *Monitoring Explosive Violence: The EVMP Dataset 2011*, AOA, March 2012, p. 24.

is more respectful of civilians will help to hold non-state armed actors to a higher standard.

1.2. A STUDY OF FORMAL STANDARDS REFLECTED IN REGULATORY TEXTS

This study is mainly concerned with *norms* about how states ought to behave with respect to activities involving explosive weapons, and the risks these activities pose to civilians.⁴⁹ The study is limited in that it only examines indirect evidence of norms in the form of *formal standards* reflected in regulatory instruments and policy documents. It does not analyse other manifestations of normative behaviour, as may be expressed in informal practices of states.

This study is the result of a *desk study* of selected international and national *written regulatory texts*. Eighty international (including regional) texts were selected for quantitative analysis of terminology and scope to identify patterns of how they describe, categorize and regulate items and activities. This was done as a way of explaining trends in regulatory approaches across different texts. There are no international instruments dedicated, specifically, to the regulation of explosive weapons. Texts were chosen for quantitative analysis if they fulfilled one or more of the following criteria: they use the term “explosive weapon(s)” or identify explosive weapon types;⁵⁰ they use a generic term that presumably covers at least some explosive weapons;⁵¹ they regulate the use of armed force, including the

49 Norms can broadly be understood as standards of appropriate or accepted behaviour within a society or group. Regulative norms order and constrain behaviour. See for example Martha Finnemore and Kathryn Sikkink, “International Norm Dynamics and Political Change”, *International Organization*, vol. 52, no. 4, 1998, pp. 887–917.

50 For example, the *Convention on Cluster Munitions*, 30 May 2008, refers to “cluster munitions” and “explosive submunitions”; the Southern African Development Community’s *Protocol on the Control of Firearms, Ammunition and Other Related Materials in the Southern African Development Community (SADC) Region*, 2001, mentions “automatic cannons”, “howitzers”, “mortars”, “grenade launchers”, and “rockets”.

51 For example, Security Council, [*On measures against the sale or supply to Eritrea and Ethiopia of arms and related matériel of all types*], UN document S/RES/1298, 17 May 2000, mentions “arms and related matériel of all types, including weapons and ammunition”.

use of explosive weapons;⁵² or they reflect a standard on the protection of civilians from these weapons.⁵³

Among the regulatory documents examined for this study are both instruments that reflect *legal* norms, in a formal sense, and documents embodying substantive agreement and guiding state conduct, but which are not formally law.⁵⁴ Almost 40% of international texts analysed for this study are treaties, around 17% are otherwise legally binding (e.g. United Nations Security Council resolutions), and 14% are judgements or decisions by international judicial or quasi-judicial bodies (see figure 1). Standards or guidelines make up almost one third of international instruments. These instruments are not binding in a formal legal sense, but they may reflect customary international law. The rest are legally non-binding texts, such as munitions lists or technical annexes. It is important to note that findings as to the general acceptability of state behaviour are *not* claims to the existence of a rule of customary international law (or absence thereof).

In terms of geographical distribution, over 60% of texts (excluding decisions or judgements) are of global reach. The rest are regional instruments. These are mostly arms control texts on firearms or on small arms and light weapons (SALW). The selected texts are not a representative sample of regulatory instruments of a geographic region or type of document.

In addition to international texts, the report also discusses a number of national legal and policy texts (acts and other forms of legislation, criminal codes, domestic case-law, and military regulations) to clarify the content and implementation of international standards and to examine whether there are important differences between national and international regulations. For example, the study looks at equipment states authorize

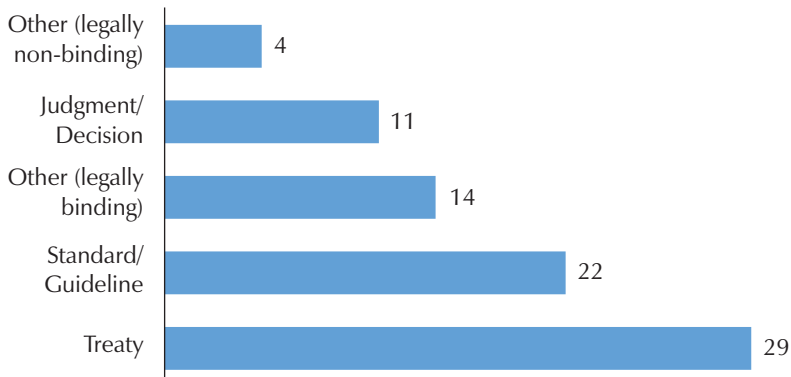
52 For example, *International Convention for the Suppression of Terrorist Bombings*, 1997; European Court of Human Rights, *Esmukhambetov and Others v. Russia*, Judgement, Application no. 23445/03, 29 March 2011; *Hague Convention (IX) concerning Bombardment by Naval Forces in Time of War*, 18 October 1907.

53 For example, *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977.

54 For a recent review of the long-standing theoretical debate about the conceptualization of public international legal norms in contrast to other moral, social, or political norms, see Joost Pauwelyn, "Is it International Law or Not and Does it Even Matter?", in Joost Pauwelyn, Ramses Wessel, and Jan Wouters (eds), *Informal International Lawmaking*, Oxford University Press, 2012.

their domestic police forces to use in order to gain a better understanding of what weapons may (not) be appropriate for law enforcement purposes under international human rights law (HRL). The focus is on Belgium, France, Kosovo (under Security Council resolution 1244 (1999)), Switzerland and the United States of America. Belgium, France and Switzerland were chosen mainly because of the researchers' familiarity with the respective legal systems. Kosovo is of interest because its laws were elaborated fairly recently. The United States was included because it provides greater online access to military documents than many other states. Although the domestic texts represent different legal traditions and geographic regions, they are for illustrative purposes only and are not representative case studies. Language limitations, lack of online access to documents, as well as time restraints did not allow for complete and representative national case studies.

Figure 1. Number of international texts by document type



1.2.1. ISSUE AREAS

The texts examined for this study deal with a range of issues: from the handling of dangerous goods and the stockpiling of ammunition, over the production, possession and use of weapons, to arms control, non-proliferation and disarmament. In order to allow the identification of patterns in the regulation of explosive weapons within and across issue areas, international texts that are generally considered to belong to the

same “rule-complex” or “regime” and deal with the same subject matter were grouped by “issue area”:⁵⁵

1. Arms control

1.1 Arms control (general): This group includes texts that are mainly concerned with the possession and transfer of conventional arms, military technology or equipment, munitions, and heavy or major conventional weapons.

1.2. Arms control (SALW): These texts predominantly seek to regulate the production, possession, transfer, (and sometimes the right to use, but not the modalities of use) of firearms, small arms and light weapons.

2. Law enforcement/human rights: Texts in this group reflect standards on law enforcement, including rules on the use of force and firearms and relevant human rights standards. In graphs, this area is, at times, labelled “human rights” to save space.

3. Protection of civilians/conduct of hostilities: This group includes texts that govern the use of weapons, means or methods of warfare in the conduct of hostilities (during an armed conflict), and standards on the protection of civilians from the effects of hostilities. For the sake of brevity, this issue area is labelled “humanitarian law” in graphs. It is important to note that texts in this area may reflect or apply rules of IHL, but not all of them are IHL instruments, strictly speaking.⁵⁶

55 A regime can be defined as a set of explicit or implicit principles, norms, rules and decision-making procedures around which actor expectations converge in a given issue area. See Stephen D. Krasner, *International Regimes*, Cornell studies in political economy, Cornell University Press, 1983, p. 2. As Koskenniemi notes in relation to the fragmentation of international law, “the increasing specialization of parts of society and the related autonomization of those parts” has been “accompanied by the emergence of specialized and (relatively) autonomous rules or rule-complexes, legal institutions and spheres of legal practice”. “Each rule-complex or ‘regime’ comes with its own principles, its own form of expertise and its own ‘ethos’”. General Assembly, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law, Report of the Study Group of the International Law Commission Finalized by Martti Koskenniemi*, UN document A/CN.4/L.682, 13 April 2006, paras. 7–8, 15.

56 Security Council, *[On targeted sanctions against individuals meeting the criteria set out in resolution 1572 (2004) on arms embargo against Côte d’Ivoire]*, UN

4. Safety

4.1. Safety (dangerous goods): Texts in this group aim mainly at the prevention and mitigation of accidents during the production, storage or transport of hazardous chemicals or dangerous goods (including explosives). This area is labelled “safety (DG)” in some graphs and tables.

4.2. Safety (explosive ordnance): This area groups together texts that are mainly concerned with the prevention of accidents in the stockpiling of conventional ammunition and accidents involving unexploded ordnance (UXO) or explosive remnants of war (ERW). This area is labelled “safety (EO)” in some graphs and tables.

5. Terrorism

5.1. Terrorism (explosives): Under this heading fall texts that seek to prevent or punish the use of explosives in terrorist acts, including by restricting access to explosive materials.

5.2. Terrorism (MANPADS): Texts in this group aim to restrict access to man-portable air defence systems.

An international text was assigned to one of the eight issue areas on the basis of its stated object and purpose and the items and activities within its scope.⁵⁷ A clear example is the European Convention on Human Rights, which was assigned to the issue area “human rights” on the basis of its subject matter. Admittedly, some texts could be assigned to more than one area. Characterizations of rule-complexes as “human rights” or “humanitarian law” have no normative value per se. “They are only informal labels that describe the instruments from the perspective of different interests or different policy objectives”.⁵⁸ “Weapon treaties”,

document S/RES/1975, 30 March 2011, for instance, is assigned to this issue area. Its paragraph 6 reflects a standard on the protection of civilians and the conduct of hostilities by authorizing the peacekeeping mission “to use all necessary means to carry out its mandate to protect civilians ... , including to prevent the use of heavy weapons against the civilian population”. Case-law of the ICTY and legally non-binding texts like the Program on Humanitarian Policy and Conflict Research at Harvard University, *Manual on International Law Applicable to Air and Missile Warfare*, 15 May 2009, are other examples.

57 The list of international texts by issue area is provided in the annex.

58 General Assembly, *Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law*, Report of the Study

such as the Convention on Certain Conventional Weapons (CCW) or the Convention on Cluster Munitions (CCM), can be considered arms control instruments in that they restrict or prohibit the production or transfer of weapons. This report assigns them to the area “protection of civilians/conduct of hostilities” because the rationale for restrictions or prohibitions placed on these weapon technologies lies in the prevention of humanitarian harm from the *use* of these weapons.⁵⁹ Conversely, texts reflecting standards on ERW could very well be discussed in relation to the protection of civilians. However, this report deals with them under the heading “safety (explosive ordnance)” because—like instruments on ammunition stockpile management—they first and foremost aim to prevent accidental explosions, whereas instruments focusing on the protection of civilians are more concerned with the *use*, that is, the *intentional detonation*, of explosive weapons. Finally, MANPADS could be included in the issue-area “arms control (SALW)” or “arms control (general)”, but as states tend to single out this weapon technology in relation to the prevention of terrorism, they form a separate category in this report.

Figure 2 below shows the distribution of international texts by issue area: over one third of all international texts fall within the area “protection of civilians/conduct of hostilities” (labelled “humanitarian law”), almost another third falls within arms control (general and SALW), and 15% of texts relate to law enforcement and human rights (labelled “human rights”).⁶⁰

Group of the International Law Commission Finalized by Martti Koskenniemi, UN document A/CN.4/L.682, 13 April 2006, para. 21.

59 For a discussion of the overlap between humanitarian law and arms control, see Ove Bring, “Regulating Conventional Weapons in the Future—Humanitarian Law or Arms Control?”, *Journal of Peace Research*, vol. 24, no. 3, September 1987, pp. 275–286; K.S. Carter, “New Crimes against Peace? The Application of International Humanitarian Law Compliance and Enforcement Mechanisms to Arms Control and Disarmament Treaties”, in Canadian Council on International Law and The Markland Group (eds), *Treaty Compliance: Some Concerns and Remedies*, Kluwer Law International, 1998.

60 A bit over 11% of texts relate to terrorism (explosives and MANPADS) and 10% to safety (dangerous goods and explosive ordnance).

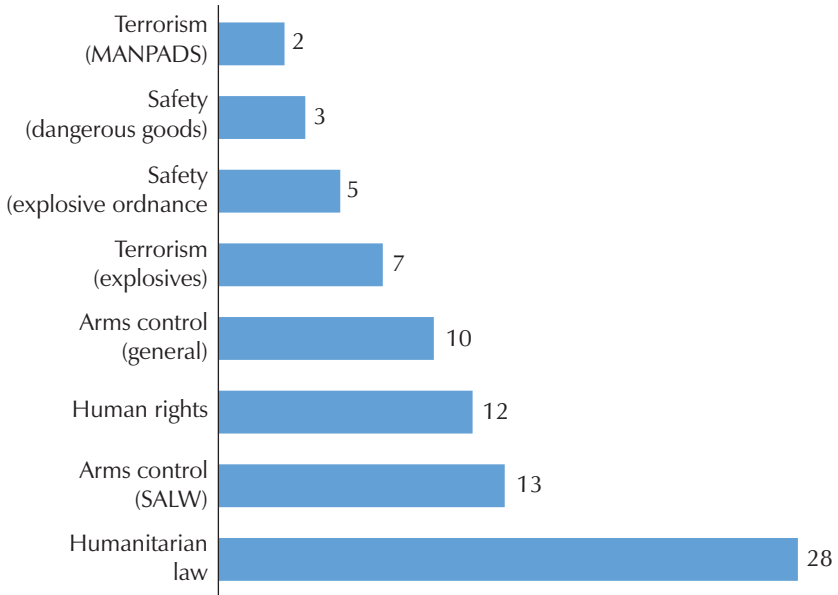
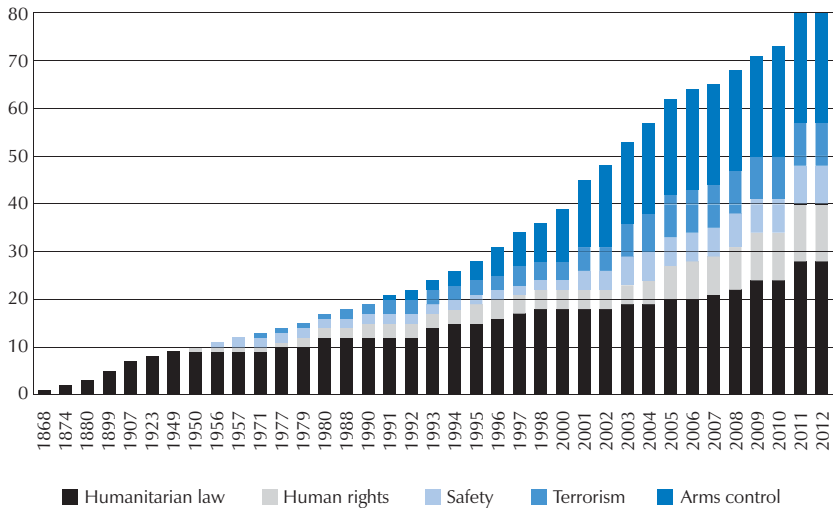
Figure 2. Number of international texts by issue area

Figure 3 illustrates, using the example of the 80 international texts chosen for this study's analysis, how regulation in different issue areas has evolved over time. The oldest texts belong to the field of humanitarian law. International safety standards and human rights instruments developed at a later stage, as did explosive-weapon-related texts in the areas of arms control and terrorism.

Figure 3. Cumulative numbers of international texts by date of adoption or year of decision/judgement, and issue area



1.2.2. STANDARDS ON THE PROTECTION OF CIVILIANS

The term “civilian” is used widely in texts across several issue areas. Who qualifies as a civilian may differ slightly depending on the context. Ammunition stockpile management guidelines, for example, speak of the protection of “local civilian communities” and “buildings inhabited by civilians”.⁶¹ In the human rights context, “civilian” stands for bystander or uninvolved member of the public—people who are not members of a state’s military or police force.⁶² Under IHL, applicable in armed conflict,

61 United Nations, *IATG 01.10:2011(E)*, p. 3; United Nations, *IATG 02.20:2011(E)*, p. 4.

62 See for example, European Court of Human Rights, *McCann and Others v. The United Kingdom*, Judgement, Application no. 18984/91, 27 September 1995, para. 68: “The shooting consequently was witnessed by a considerable number of people, including police officers involved in the operation, police officers who happened to pass the area on other duties, members of the surveillance team and a number of civilians and off-duty policemen”. The term civilian is also used, presumably in a similar sense, in national and

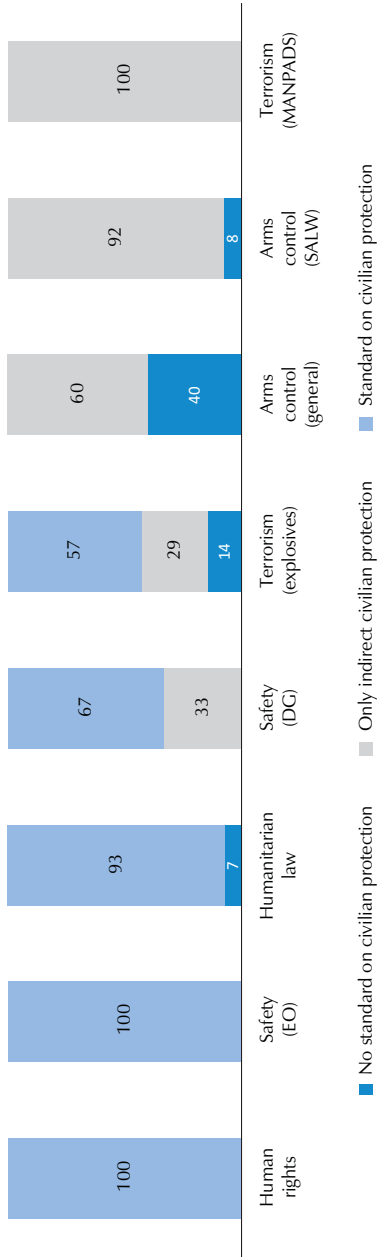
a civilian is defined by way of exclusion and is, broadly speaking, anyone who is not a member of the armed forces of a party to an armed conflict (or of a militia, volunteer corps, or paramilitary or law enforcement agency incorporated into the armed forces).⁶³ One difference that emerges is that, in armed conflict, members of the police (provided they are not incorporated into the armed forces) are considered to be civilians, whereas outside of armed conflict, police officers, and other agents of the state with the authority to use force, tend to be distinguished from the civilian population. Bearing this nuance in mind, “civilians” across different contexts share a legitimate expectation to be protected against the effects of (explosive) weapons.

For the purposes of this report, texts that contain provisions aimed at preventing or reducing harm to (*inter alia*) civilians from the effects of (*inter alia*) explosive weapons were considered to reflect a *standard on the protection of civilians*. Of 80 international texts, 49 texts (over 60%) reflect such a standard in that they *directly* contribute to the prevention of civilian harm, for example, by imposing safety distances between ammunition stockpiles and inhabited areas or by regulating the modalities of the use of weapons. Legal and policy standards that confer such protection are discussed in section 3. Not considered to reflect a standard on the protection of civilians are texts that only *indirectly* contribute to the protection of civilians, for example, by preventing access to technologies with a view to lessen the global burden of armed violence (23 of 80 of texts). Arms control instruments and terrorism instruments on MANPADS fall within this group, for example. Figure 4 shows the inclusion of a standard on the protection of civilians in international texts by issue area.

international regulatory instruments on SALW. See for example Southern African Development Community, *Protocol on the Control of Firearms, Ammunition and Other Related Materials in the Southern African Development Community (SADC) Region*, 2001, art. 5(3)(a)–(b).

63 *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, art. 50(1). The applicability of IHL is dependent on the existence of an armed conflict in the legal sense. For a recent discussion of this legal notion, see Marko Milanovic and Vidan Hadzi-Vidanovic, “A Taxonomy of Armed Conflict”, in Nigel White and Christian Henderson (eds), *Research Handbook on International Conflict and Security Law*, Edward Elgar Publishing, 2012.

Figure 4. Inclusion of a standard on the protection of civilians by issue area shown in percentage



1.2.3. STANDARDS ON THE USE OF WEAPONS

The study differentiates between texts that set a standard protecting civilians against “unplanned explosive events” (a term common in the context of ammunition stockpile management), where the explosive effects are the result of an accident, and texts that reflect a *standard on the use of weapons*, where explosive effects are intended. Even though explosive effects are intended, this does not necessarily mean that there is intent to cause civilian harm, however.⁶⁴ This study sets aside cases where violence is perpetrated with the intent to harm civilians. Direct attacks on civilians are presumed illegitimate and are illegal in the absence of strong justificatory circumstances.⁶⁵

Instead, the focus of this study is on situations where states deliberately engage in activities that bear a foreseeable risk of incidental or accidental civilian harm. This study uses the term “risk” to describe a characteristic of an action (such as the launching of an explosive weapon) wherein different outcomes are possible, the particular outcome that will occur is unknown, and at least one of the possibilities—civilian harm—is undesired.⁶⁶

Texts that reflect a standard on the use of weapons include instruments prohibiting, restricting, otherwise regulating or criminalizing the use of weapons, including explosive weapons. Only certain safety instruments and some human rights texts set a standard on the protection of civilians without, at the same time, regulating the use of weapons.⁶⁷ There is a strong

64 “Indeed, there may be a considerable disparity between intended behaviour and intended consequence”. World Health Organization, “Violence—A Global Public Health Problem”, in Etienne G. Krug et al. (eds), *World Report on Violence and Health*, 2002, p. 5.

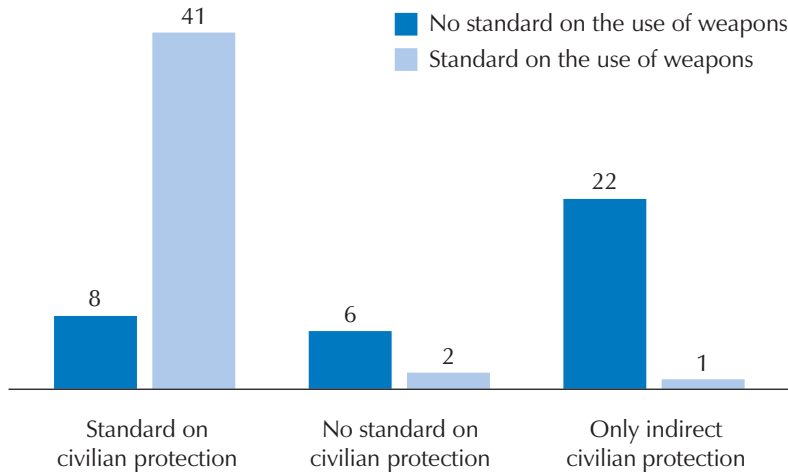
65 Personal self-defence under HRL and national criminal law provides such a justification. In an armed conflict, civilians may temporarily lose protection from attack during the time they take a direct part in hostilities. See Nils Melzer, *Interpretive Guidance on the Notion of Direct Participation in Hostilities under International Humanitarian Law*, ICRC, May 2009.

66 Vincent T. Covello and Miley W. Merkhofer, *Risk Assessment Methods: Approaches for Assessing Health and Environmental Risks*, Plenum Press, 1993, p. 2.

67 Examples include the *European Convention on Human Rights*, 4 November 1950; Organization for Security and Co-operation in Europe, *OSCE Handbook of Best Practices on Conventional Ammunition*, 2008; *Protocol on Explosive Remnants of War (Protocol V to the CCW)*, 28 November 2003; Economic Commission for Europe, *European Agreement Concerning the International*

correlation between texts reflecting a standard on the use of weapons and those reflecting a standard of civilian protection from explosive effects (see figure 5). Instruments that do *not* contain a standard on civilian protection from the effects of explosive weapons also tend *not* to reflect a standard on the use of weapons. Notable exceptions are CCW Protocol III, which expressly excludes most explosive weapons of concern to this study from its ambit, and the St. Petersburg Declaration on explosive projectiles, which protects combatants, rather than civilians, against superfluous injury and unnecessary suffering.⁶⁸ Almost all instruments that only *indirectly* contribute to the protection of civilians do not reflect a standard on the use of weapons.⁶⁹

Figure 5. Number of texts with and without a standard on the use of weapons and with and without a standard on the protection of civilians



Carriage of Dangerous Goods by Road, 1957 (applicable as from 1 January 2010).

68 *Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III to the CCW)*, 10 October 1980, art.1(1); *Declaration Renouncing the Use, in Times of War, of Explosive Projectiles under 400 Grammes Weight*, 1868.

69 League of Arab States, *Arab Model Law on Weapons, Ammunitions, Explosives and Hazardous Material*, unofficial translation, 2002, is the only exception. Conceived for adaptation at the national level, it regulates the use of weapons, whereas other international texts tend to task national legislators to adopt such rules.

2. THE REGULATION OF EXPLOSIVE WEAPONS

What are explosive weapons in legal and policy terms and how are they regulated under international law and policy? The determination of the pertinent rules is not straightforward. Although explosive weapons form a technological category, and the term “explosive weapon” is widely used by states, explosive weapons are not formally recognized as a regulatory category in international law or policy. Instead, international regulatory texts in various issue areas, from “safety” and “arms control”, over “terrorism”, to “law enforcement/human rights” and the “protection of civilians/conduct of hostilities”, use a variety of terms and categories that potentially cover some explosive weapons.

This part of the study evaluates existing notions from the viewpoint of whether they are *comprehensive*, in that they cover all explosive weapons, and whether they are *specific* to explosive weapons, or also cover a range of other items. The report looks at the criteria used to categorize weapons (and other items) for regulation, and, in particular, at the role explosive properties play in this categorization. Are explosive weapons treated differently from other weapons? To what extent do texts explicitly or implicitly make a distinction between weapons that explode and other weapons? Are different types of explosive weapons treated in a similar manner? Are particular types of explosive weapons subject to special regulation, and if so, on what basis? Are explosive weapons defined, and if so, how?

The following survey of legal and policy texts shows that existing terms and definitions tend to overlap, are not explosive weapon specific or split up the category of explosive weapons, resulting in an incoherent and fragmentary regulation of this weapons category. It demonstrates that the notion of “explosive weapons” provides greater clarity in relation to existing definitions and has particular utility for the elaboration of standards aimed at reducing harm from the blast and fragmentation effects characteristic to explosive weapons.

2.1. SAFETY

A number of international and national regulations are concerned with the prevention of accidental explosions of high-explosive items and—should an explosion nevertheless occur—with the reduction of its impacts on human health and the environment.⁷⁰ The dominant notions in this issue area, “(am)munition”, “explosive ordnance”, “ERW” and “Hazard Class 1—Explosives” all pertain to explosive weapons. Existing definitions tend to highlight the destructive force of explosive weapons and mark them as highly damaging and dangerous items.

Explosive properties and the risks from blast and fragmentation effects are explicit criteria for the classification of items in texts belonging to this issue area. However, risks from blast and fragmentation effects in the context of transport and stockpile safety differ from those associated with the use of explosive weapons. Consequently, explosive items raising similar humanitarian concerns when they are used as weapons are not necessarily treated alike under safety regulations.

The categories in this issue area are also not explosive weapon specific. The International Ammunition Technical Guidelines’ notion of “explosive ordnance” and Hazard Class 1 both include items that are not explosive weapons. Also, none of the categories surveyed in this issue area is comprehensive in its coverage of explosive weapons. For instance, even though CCW Protocol V reflects a broadly categorical approach to explosive weapons, its definition of “explosive ordnance” excludes IEDs and mines, and the Protocol is only concerned with the humanitarian impacts of ERW in post-conflict situations.

2.1.1. DANGEROUS GOODS: HAZARD CLASS 1—EXPLOSIVES

Accidents involving explosives and other chemical substances can cause grave harm. Those working with them and uninvolved persons may be injured or killed, and property and the natural and human habitat may be damaged. When such substances are transported, they pass through ports, railway stations and airports—places that are likely to be highly populated. Accidents may also have transboundary effects, and the safety of dangerous goods transports are therefore of international concern. Primarily to promote standards of safe transport of such goods, an internationally

70 Some texts in this issue area also reflect security concerns, for example, in relation to the risk of theft of explosives for harmful purposes. These aspects are discussed in relation to terrorism on pp. 64–65.

harmonized approach to hazard classification and an internationally comprehensible approach to hazard communication were developed. The Globally Harmonized System of Classification and Labelling of Chemicals (GHS)⁷¹ classifies chemicals, including military and civil explosives, by types of physical hazard and toxicity. It provides a basis for the harmonization of standards on chemicals at the national, regional and worldwide level, which often have a bearing on the transport of explosive weapons.

One set of standards is the United Nations Recommendations on the Transport of Dangerous Goods: Model Regulations. The Model Regulations aim to promote public safety in the transport of dangerous goods. In the development of the Model Regulations (and legal regulations based on them), “military ammunition and explosives” were taken into consideration to the extent that they are likely to be transported by commercial carriers.⁷² The Model Regulations form the basis of legally binding national and international regulations, including the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) concluded in 1957.⁷³

Under these instruments, dangerous substances (including mixtures and solutions) and articles are assigned to one of nine hazard classes according to the most predominant of the hazards they pose if initiated

71 United Nations Economic and Social Council, *Globally Harmonized System of Classification and Labelling of Chemicals*, UN document ST/SG/AC.10/30/Rev.4, 4th rev. ed., 2011, <www.unece.org/trans/danger/publi/ghs/ghs_rev04/04files_e.html>. The GHS was completed in 2001 and is regularly revised to reflect national, regional and international experiences in its implementation.

72 United Nations Economic and Social Council, *Recommendations on the Transport of Dangerous Goods, Model Regulations*, UN document ST/SG/AC.10/1/Rev.17 (Vol. I), 17th rev. ed., 2011, p. 57.

73 Economic Commission for Europe, *European Agreement Concerning the International Carriage of Dangerous Goods by Road*, 1957 (applicable as from 1 January 2010). Similar instruments consistent with the United Nations Model Regulations govern the transport of dangerous goods by sea and air, e.g. International Maritime Organization, *International Maritime Dangerous Goods Code*, 1965 (as amended); International Civil Aviation Organization, *Convention on International Civil Aviation*, document 7300/9, 7 December 1944 (9th ed., 2006), annex 18 on the Safe Transport of Dangerous Goods by Air.

during transport.⁷⁴ Hazard Class 1 identifies “explosives”. Assignment of an item to Hazard Class 1 depends on whether it has explosive properties or is intended to function as explosive or pyrotechnic, and on whether its reaction in terms of stability and sensitivity (e.g. to shock) make it acceptable for transport.

What counts as an “explosive” is defined by reference to the chemical processes involved and the potential impacts on human health and property. “Explosive substances” in Hazard Class 1 are in themselves “capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings”. (“Explosive articles” are articles that contain one or more explosive substances.) The orientation towards classifying items in terms of their potential impacts on human health is also evident in the definition of the term “explode” in the United Nations Model Regulations’ Glossary of Terms. The term is used to indicate “those explosive effects capable of endangering life and property through blast, heat and projection of missiles. It encompasses both deflagration and detonation”.⁷⁵

Reference to the destructive force, potential to cause damage and the danger they pose to life are also a common feature of national regulations on explosives. A Swiss Federal Act, for instance, defines “explosives” as “chemicals that can be induced to explode ... and that, even in relatively small quantities, are dangerous due to their destructive power”.⁷⁶ The

74 A complete United Nations Hazard Classification Code (HCC) provides information about a substance’s Hazard Class and Division and its Compatibility Group. The latter is designed to minimize the risk of storing items together that will either increase the risk of an accident or, for a given quantity, the magnitude of the effects of such an accident. The numerical order of the classes does not indicate the degree of danger. United Nations Economic and Social Council, *Guiding Principles for the Development of the UN Model Regulations*, 2010, p. 7.

75 United Nations Economic and Social Council, *Recommendations on the Transport of Dangerous Goods, Model Regulations*, UN document ST/SG/AC.10/1/Rev.17 (Vol. I), 17th rev. ed., 2011, pp. 57–58, 356–357. The glossary distinguishes between a *deflagrating* explosive—a substance, such as a propellant, “which reacts by deflagration rather than detonation when ignited and used in its normal manner”, and a *detonating* explosive—“a substance which reacts by detonation rather than deflagration” under the same conditions.

76 Unofficial translation. The original reads “dont l’explosion peut être provoquée [...] et qui, même en quantité relativement faible, sont dangereux en raison

relationship between the chemical processes involved (detonation and deflagration) and the related dangers are reflected in national regulations in that stricter controls tend to apply to explosives used for destruction (blasting) than to chemical substances with explosive properties used for other purposes.⁷⁷ The great destructive force of some explosives also means that, at the national level, safety considerations are intertwined with security concerns.⁷⁸ From that perspective, an important distinction in the regulation of explosives relates to their potential use for hostile or harmful purposes. These considerations are discussed in relation to arms control and terrorism below.

In relation to international transport safety standards, however, no distinction is made among explosives assigned to Hazard Class 1 on the basis that some of them are used or designed for harmful purposes.⁷⁹ The

de leur pouvoir destructif". Switzerland, *Loi fédérale du 25 mars 1977 sur les substances explosibles*, Recueil officiel 1980 522, 25 March 1977 (as of 1 July 2010), art. 5(1).

77 Switzerland, *Ordonnance du 27 novembre 2000 sur les substances explosibles*, Recueil officiel 2001 334, 27 November 2000 (as of 4 April 2012), distinguishes between explosives and pyrotechnics ("matières explosives" and "engins pyrotechniques"). Activities involving explosives by the police are regulated separately in Switzerland, *Ordonnance du 27 juin 1984 sur l'emploi de matières explosives par la police*, Recueil officiel 1984 761, 27 July 1984 (as of 22 October 2002). That text also distinguishes explosives from pyrotechnical articles. Belgium, *Arrêté royal portant règlement général sur la fabrication, l'emmagasinage, la détention, le débit, le transport et l'emploi des produits explosifs*, Moniteur Belge 22/12/1958, 23 September 1958 (as of 11 December 2009), art. 2, applies to "products that could be used for their explosive, deflagrating or pyrotechnic properties" (the original reads "les produits susceptibles d'être utilisés pour leurs propriétés explosives, déflagrantes ou pyrotechniques") and distinguishes between "explosive substances" (substances explosives), "ammunition" (munitions) and "fireworks" (artifices).

78 The preamble of European Union, *Council Directive 93/15/EEC of 5 April 1993 on the Harmonization of the Provisions Relating to the Placing on the Market and Supervision of Explosives for Civil Uses*, Official Journal L 121, 15/5/1993, 5 April 1993 (as amended 20 April 2009), pp. 20–36, refers to "detailed national regulations" covering explosives for civil uses "mainly in respect of safety and security requirements".

79 Some states parties to the ADR have taken up its provisions to regulate not only the transboundary shipment, but also national transport of dangerous goods by road. See, Switzerland, *Ordonnance du 29 novembre 2002 relative au*

United Nations Model Regulations treat explosive weapons in the same way as bursting charges for the mining industry. This is evident from its Glossary, which identifies several weapon types and which in some instances explicitly mentions their explosive properties. “Ammunition” is used as a “Generic term related mainly to articles of military application consisting of all kind of bombs, grenades, rockets, mines, projectiles and other similar devices or contrivances”, and “projectiles” denotes “Articles such as a shell or bullet which are projected from a cannon or other artillery gun, rifle or other small arm”, and hence include both explosive and non-explosive weapons. In contrast, the Glossary stresses the explosive properties of “bombs”, “mines”, “grenades”, “rockets”, and “torpedoes”, and the definition of a “warhead” even specifically refers to articles consisting of “detonating” explosives.⁸⁰

On a more general level, blast and fragmentation effects are important classification criteria in international transport safety regulations based on the GHS. Items are classified on the basis of their properties and the risks they pose to human health, property and the environment through interaction with their surroundings. Different rules apply to different explosive weapon types depending on the blast and fragment projection hazards they present. On that basis, many explosive weapon types are

transport des marchandises dangereuses par route, Recueil officiel 2002 4212, 29 November 2002 (as of 1 January 2011), art. 4. In the European Union, the ADR was brought into effect by European Union, *Council Directive 94/55/EC on the Approximation of the Laws of the Member States with Regard to the Transport of Dangerous Goods by Road*, Official Journal L 319, 12/12/1994, pp. 7–13, 21 November 1994. The ADR and related EU directives do not apply to the transport of dangerous goods by vehicles belonging to or under the orders of a state’s armed forces (ADR, art. 1(a)). Note, however, that military regulations, such as NATO, *Manual of NATO Safety Principles for the Storage of Military Ammunition and Explosives*, document AASTP-1 (Edition 1, Change 3), May 2010, are not meant as a substitute for international standards like the ADR, but are to be used in conjunction with them (para. 1.1.0.5).

80 United Nations Economic and Social Council, *Recommendations on the Transport of Dangerous Goods, Model Regulations*, UN document ST/SG/AC.10/1/Rev.17 (Vol. I), 17th rev. ed., 2011, pp. 352, 358, 360–362. Bombs are “Explosive articles which are dropped from aircraft”, the term “grenade” may refer to grenades with a bursting charge or to practice grenades, mines are “Articles consisting normally of metal or composition receptacles and a bursting charge”, the payload of a rocket “may be an explosive warhead or other device”, and torpedoes may contain “an inert head or a warhead”.

assigned to Hazard Class 1.⁸¹ Within that hazard class, they are further assigned to one of six Divisions depending on the type of explosive hazard they present. For example, substances in Division 1.1 pose a mass explosion hazard, and those in 1.2 a projection hazard but not a mass explosion hazard. Air-dropped bombs, mines or torpedoes with a bursting charge, as well as rocket warheads, tend to be assigned to Divisions 1.1 or 1.2.⁸²

There is clearly overlap between the items falling within Hazard Class 1 and explosive weapons of concern to this study. Both categories are explicitly based on blast and fragmentation effects and on how these may affect the surroundings. But classification for the purpose of transport safety differs from classification for the purpose of preventing humanitarian harm from the use of explosive weapons. What makes explosive weapons dangerous during transport is a function of their sensitivity and reaction to shock or heat and of how their detonation is likely to affect other cargo.⁸³ Consequently, some explosive weapon types are not assigned to Hazard Class 1, for instance if their toxic or incendiary properties pose a more prevalent hazard to safe transport. At the same time, Hazard Class 1 is not restricted to explosive weapons. Hazard Class 1 comprises “pyrotechnic substances” designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonative self-sustaining exothermic chemical reaction not raising humanitarian concerns.⁸⁴

81 See the Index of Substances and Articles in *ibid.*, p. 366.

82 Explosives in Hazard Division 1.3 present a fire hazard and either a minor blast hazard or a minor projection hazard or both. Substances in Division 1.4 present only a small hazard in the event of ignition, the effects being largely confined to the package with no projection of fragments of appreciable size or range. Some rocket warheads with burster or expelling charge present only a slight risk of explosion during transport and are assigned to Division 1.4. *Ibid.*, p. 193.

83 Type and method of packaging have a decisive effect on the hazard, and therefore on the assignment of an explosive to a particular division or compatibility group. Although based on a harmonized system, transport regulations for dangerous goods differ in function of the mode of transport. Bulk shipment characteristic of maritime transport presents particular safety challenges. For a discussion, see Meltem Deniz Guener-Oezbek, *The Carriage of Dangerous Goods by Sea*, 1st ed., Springer, 2008.

84 Whereas certain air-dropped bombs are assigned to Hazard Division 1.1, so are certain liquid and solid propellants, pyrotechnic articles, blasting caps, blank

2.1.2. AMMUNITION AND EXPLOSIVE ORDNANCE

Inadequately managed ammunition stockpiles threaten public safety. Because of the highly explosive nature of ammunition and explosives and their potential for unplanned, violent reaction, so-called “undesired” or “unplanned explosive events” in ammunition storage areas can “result in a large number of casualties, widespread destruction of infrastructure, and the disruption of the livelihood of entire communities”.⁸⁵ The detonation of munitions sites in Brazzaville, Republic of the Congo, in March 2012 tragically claimed over 250 lives, injured more than 2,300 persons, caused extensive damage to infrastructure and left large parts of the population without a home or income.⁸⁶ Based on data on unplanned explosive events, the Small Arms Survey warns that “the number of explosions is not decreasing despite efforts to address their causes”.⁸⁷

The prevention and reduction of explosions at ammunition stockpiles were among the reasons that led the United Nations to develop the International Ammunition Technical Guidelines (IATG), published in 2011.⁸⁸ The IATG reflect existing national and international standards, including guidelines by the North Atlantic Treaty Organization (NATO), the 2008 Handbook of Best Practices on Conventional Ammunition of the Organization for Security and Co-operation in Europe (OSCE), and the International Mine Action Standards (IMAS),⁸⁹ and use standardized terms and definitions

cartridges for weapons, flares, igniters and fuses. United Nations Economic and Social Council, *Recommendations on the Transport of Dangerous Goods, Model Regulations*, UN document ST/SG/AC.10/1/Rev.17 (Vol. I), 17th rev. ed., 2011, p. 57.

85 United Nations, *IATG 01.10:2011(E)*, p. 3.

86 William McDermott, “Munition Sites in Populated Areas: Exposing Civilians to Intolerable Danger”, *ExplosiveWeapons.info*, 17 April, 2012, <<http://explosiveweapons.info/2012/04/17/munition-sites-in-populated-areas-exposing-civilians-to-intolerable-danger/>>; Henry Dodd and Rob Perkins, *Case Studies of Explosive Violence: Republic of Congo*, AOAV, June 2012.

87 Based on data provided by the United Nations Statistic Division, the Small Arms Survey reported 302 unplanned explosions at munitions sites in 76 Member States between January 1998 and October 2011. Small Arms Survey, *Unplanned Explosions at Munitions Sites*, research note, updated January 2012.

88 United Nations, *IATG 01.10:2011(E)*, pp. 10–11.

89 OSCE, *OSCE Handbook of Best Practices on Conventional Ammunition*, 2008; United Nations Mine Action Service, *International Mine Action Standards*

that are consistent with those used in existing international, regional and national standards, including the United Nations Model Regulations discussed above. By providing a common language and frame of reference, the IATG are meant to be used or adapted by states to draw up national stockpile management regulations. As the Guidelines reflect the most up-to-date standards of global reach on ammunition stockpile management, they form the basis of the following discussion.⁹⁰

As their title indicates, the IATG are concerned with ammunition. “Ammunition” is defined as “a complete device, (e.g. missile, shell, mine, demolition store etc.) charged with explosives, propellants, pyrotechnics, initiating composition or nuclear, biological or chemical material for use in connection with offence, or defence, or training, or non-operational purposes, including those parts of weapons systems containing explosives”. The IATG’s definition of a “munition” is nearly identical, but instead of mentioning use in offence or other purposes, it refers to their use in military operations, including demolitions.⁹¹ Clearly, these notions include a great variety of items that are not explosive weapons of concern to this study.

The term “explosive ordnance”, also frequently used in the IATG, suggests greater focus on items with explosive properties. Under the IATG, an

(IMAS), 2001, <www.mineactionstandards.org>.

90 The IATG have no legal standing on their own, but they in part draw on and are reflected in or transposed into legally binding instruments at the national and international levels. Stockpile-management-related provisions of the forthcoming United Nations, *International Small Arms Control Standard (ISACS)*, 1st ed., 2012, are meant to be consistent with the IATG. The ISACS cover stockpiling of weapons, the IATG stockpiling of ammunition.

91 United Nations, *IATG 01.40:2011(E)*, p. 2. To be precise, the IATG are concerned with “conventional” ammunition, but the Glossary’s definitions also refer to non-conventional (nuclear, chemical or biological) items. “Munition” is “a complete device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological or chemical material for use in military operations, including demolitions” (ibid., p. 19). A “cartridge” is defined as “a cased quantity of explosives (excluding rocket motors) complete with its own means of ignition” or, alternatively, “ammunition, ready for firing, wherein the propelling charge(s), its primer, and the projectile with its fuze are assembled in one unit for handling and firing” (ibid., p. 5). “Projectile” is not defined. In NATO documents, the term ammunition is synonymous with munition. NATO, *Specialist Glossary of Terms and Definitions on Ammunition Safety*, AOP-38 (Edition 5), October 2009, annex B, p. B-71.

“explosion” is described as a “sudden release of energy”. On the one hand the definition is wide in that it encompasses fast combustion and deflagration, as well as detonation. On the other hand, the definition explicitly links explosions to the production of “a blast effect with the possible projection of fragments”.⁹² With reference to these effects, use of the term “explosive” under the IATG would clearly identify weapons as explosive weapons. That is, for instance, the case with regard to bombs. A “bomb” is defined as an “explosive munition, not subject to centrifugal forces and with a nearly vertical angle of descent, usually delivered from an aircraft or mortar”.⁹³

Nevertheless, the generic term “explosive ordnance” is much broader than the category of explosive weapons. It means:

all munitions containing explosives, nuclear fission or fusion materials and biological and chemical agents. This includes bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket and small arms ammunition; all mines, torpedoes and depth charges; pyrotechnics; clusters and dispensers; cartridge and propellant actuated devices; electro-explosive devices; clandestine and improvised explosive devices; and all similar or related items or components explosive in nature.⁹⁴

92 United Nations, *IATG 01.40:2011(E)*, p. 11. An *explosive* is defined widely as a “solid or liquid substance or mixture of substances which, by intrinsic chemical reaction is capable of producing an explosion” or “which, under external influences, is capable of rapidly releasing energy in the form of gases and heat” (*ibid.*). A propellant is a deflagrating explosive used for propulsion (*ibid.*, p. 22) and a pyrotechnic is a device or material that can be ignited to produce light, smoke or noise (*ibid.*, p. 23).

93 *Ibid.*, p. 3. In contrast to the United Nations Model Regulations, a bomb under the IATG includes ground-launched munitions. A *mine* is “an explosive munition designed to be placed under, on or near the ground or other surface area” and to be victim actuated (*ibid.*, p. 18); *rockets*, including rocket-propelled grenades, are “munitions consisting of a rocket motor and a payload, which may be an explosive warhead or other device” (*ibid.*, p. 25).

94 *Ibid.*, pp. 11–12. The definition is near-identical to those used by NATO Standardization Agency, *NATO Glossary of Terms and Definitions (English and French)*, document AAP-6(2008), 2008) and by the United States (Joint Chiefs of Staff, *Department of Defense Dictionary of Military and Associated Terms*, 12 April 2001 (as amended through 4 March 2008)), except that in the latter “demolition charges” are also included.

Whereas explosive weapons are clearly included in the category “explosive ordnance”, the latter is not explosive weapon specific, in that it equally covers a range of other devices. Like in the context of transport safety regulations, categories used in stockpile safety regulations are to a large extent based on how items are impacted by, and risk affecting, their surroundings. This effects-oriented categorization recognizes explosive properties as a classification criterion (which is reflected in the word cloud shown in figure 6). But effects in the context of ammunition stockpiling differ from those associated with the use of explosive weapons. Security-related considerations may also play a role in the constitution of the IATG’s categories.

Figure 6. Word cloud based on the IATG’s Glossary⁹⁵



At the national level, the terms “ammunition”, “explosive ordnance” and “Hazard Class 1” are also used, but they may have a narrower scope due to user- and purpose-oriented limitations. For instance, a multi-volume Manual by the United States Department of Defence (DOD) regulates ammunition and explosives for storage and transport *under the authority of*

95 Data source: *ibid.* Graph generated at <<http://worditout.com/>>. Larger size and darker shade of words indicate higher frequency.

the DOD.⁹⁶ Other national or regional texts specifically exclude explosive weapons under military control from their scope. The Arab Model Law on Weapons, Ammunitions, Explosives and Hazardous Material, for example, does not apply to “explosives used by the Armed Forces and internal security forces for military purposes in accordance with applied laws and regulations”.⁹⁷ A European Union (EU) Council Directive of 1993 promoting harmonization of provisions relating to the placing on the market and supervision of explosives for civil uses excludes from its scope (with some exceptions) “explosives, including ammunition, intended for use, in accordance with national law, by the armed forces or the police”.⁹⁸ Similarly, EU Council Directive 96/82/EC, aimed at the prevention of major accidents involving dangerous substances and at the limitation of their consequences, applies to the storage of Hazard Class 1 explosives, but excludes from its ambit “military establishments, installations or storage facilities”.⁹⁹ Both directives operate with the notion of Hazard Class 1 explosives, but by excluding items from their scope based on military application or user, the regulated category in effect excludes most or all explosive weapon types of concern to this report.

Interestingly, user- and purpose-oriented criteria appear to play a subordinate role in the IATG. Although they contain many references to the “military” character of items, the IATG apply to the full range of ammunition stockpiles in a country, including those under the control of the police, military forces, border guards and ammunition producing

96 DOD, *DoD Ammunition and Explosives Safety Standards: General Explosives Safety Information and Requirements*, document 6055.09-M, vol. 1, 29 February 2008 (emphasis added). Among other sources, the document is based on and adopts the classification terminology of the United Nations Model Regulations. See also DOD, *Department of Defense Ammunition and Explosive Hazard Classification Procedures*, document TB 700-2, 5 January 1998.

97 League of Arab States, *Arab Model Law on Weapons, Ammunitions, Explosives and Hazardous Material*, unofficial translation, 2002, art. 16 (emphasis added).

98 EU, *Council Directive 93/15/EEC of 5 April 1993 on the Harmonization of the Provisions Relating to the Placing on the Market and Supervision of Explosives for Civil Uses*, Official Journal L 121, 15/5/1993, pp. 20–36, 5 April 1993 (as amended 20 April 2009), art. 1(3) (emphasis added).

99 EU, *Council Directive 96/82/EC of 9 December 1996 on the Control of Major-Accident Hazards Involving Dangerous Substances*, Official Journal L 10, 14/1/1997, pp. 13–36, 9 December 1996, arts. 1, 4, and annex I, part 2.

companies.¹⁰⁰ It is also remarkable that IEDs, though predominantly used by non-state actors and often singled out for separate regulation in other issue areas, are included in the IATG's definition of explosive ordnance.¹⁰¹

2.1.3. EXPLOSIVE REMNANTS OF WAR

In the aftermath of conflict, or following a stockpile explosion, local populations remain exposed to the risk of injury or death from unexploded explosive weapons. Texts concerned with the prevention of harm in these situations use the notions “explosive remnants of war”, “unexploded ordnance” and “explosive ordnance”.¹⁰² The IMAS use the term “explosive

100 RDX is defined as a “military explosive”, TNT as a “military high explosive”, and munitions (and by implication, explosive ordnance) are devices used “in military operations”. Similarly, ammunition in the IATG describes devices “for use in connection with offence, or defence, or training, or non-operational purposes”.

101 Explosive ordnance includes “clandestine and improvised explosive devices” which are defined as devices “placed or fabricated in an improvised manner incorporating explosive material, destructive, lethal, noxious, incendiary, pyrotechnic materials or chemicals designed to destroy, disfigure, distract or harass. They may incorporate military stores, but are normally devised from non-military components”. United Nations, *IATG 01.40:2011(E)*, p. 15.

102 As noted in the introduction, texts on ERW are discussed in conjunction with ammunition stockpile management standards, first, because there is a relationship between good stockpile management and the prevention of ERW, and second, because in both cases harm from an explosion tends to be the result of an accident. This is assuming that explosive weapons that become unexploded or abandoned ordnance are not meant to harm anyone, that is, the explosive weapon should have exploded at the time of use (UXO), or it should not explode at all (abandoned explosive ordnance, or AXO). Protocol V to the CCW sets out legal standards for the clearance, removal and destruction of ERW and imposes precautionary obligations for the protection of the civilian population and humanitarian actors. It also encourages states parties to take “generic preventive measures” aimed at minimizing the occurrence of ERW, including in the manufacturing process and in the management of munitions. *Protocol on Explosive Remnants of War (Protocol V to the CCW)*, 28 November 2003, art. 9 and Technical Annex, part 3, establishes a direct link between the occurrence of ERW and munitions management discussed in the context of the IATG above.

ordnance” (and “munition”) in the same sense as the IATG.¹⁰³ But these terms do not cover the same items in all regulatory instruments.

In Protocol V to the CCW, adopted in 2003, “explosive ordnance” refers to “conventional” munitions containing explosives. The Protocol does not define “munition” or “explosives”, nor does it identify particular explosive weapon types falling within its scope.¹⁰⁴ Nevertheless, the Protocol reflects “a broadly categorical approach to explosive weapons”.¹⁰⁵ There are two limitations, however. First, the Protocol excludes from its scope mines, booby traps and other devices, because these are regulated under another protocol to the CCW.¹⁰⁶ Second, the Protocol was adopted to minimize the risks and effects, and the occurrence of ERW in post-conflict situations. Its concern about UXO is limited to explosive ordnance that has been primed, fused, armed or otherwise prepared for use “and used

103 United Nations Mine Action Service, *IMAS 04.10*, 2nd ed., 1 January 2003, p. 14.

104 *Protocol on Explosive Remnants of War (Protocol V to the CCW)*, 28 November 2003, art. 2(1). The IMAS Glossary, in contrast, defines *cluster munition* and *anti-personnel mine* and refers to several explosive munition types in its definition of explosive ordnance. United Nations Mine Action Service, *IMAS 04.10*, 2nd ed., 1 January 2003, pp. 4, 7 and 14.

105 Richard Moyes, *Explosive Violence, The Problem of Explosive Weapons*, Landmine Action, 2009, p. 61.

106 *Protocol on Explosive Remnants of War (Protocol V to the CCW)*, 28 November 2003, arts. 1(1) and 2(1). For the purposes of CCW Protocol V, ERW is defined as “unexploded ordnance and abandoned explosive ordnance”. National regulations in force before the adoption of CCW Protocol V, or which are concerned with unexploded ordnance unrelated to war, may use different terminology. The French *Décret n° 76-225 du 4 mars 1976 fixant les attributions respectives du ministre de l’intérieur et du ministre de la défense en matière de recherche, de neutralisation, d’enlèvement et de destruction des munitions et des explosifs*, Journal Officiel 10/3/1976, 4 March 1976 (as of 25 October 2010), regulates the responsibilities of the Ministry of Defence and the Interior Ministry for the clearance and destruction of “explosives and unexploded ammunition” (the original reads “munitions non explosées ou des explosifs”) (art. 3(3)). See also France, *Décret n° 2010-1260 du 22 octobre 2010 modifiant le décret n° 2005-1325 du 26 octobre 2005 relatif aux règles de sécurité applicables lors des travaux réalisés dans le cadre d’un chantier de dépollution pyrotechnique*, Journal Officiel n° 0248 du 24 octobre 2010 page 19124, 22 October 2010 (as of 25 October 2010). Other domestic texts simply transpose the provisions of CCW Protocol V into national law, using essentially the same terminology.

in an armed conflict”.¹⁰⁷ Were it not for these limitations, the definition of explosive ordnance under CCW Protocol V would be largely equivalent to the category of explosive weapons of concern to this study.

2.2. ARMS CONTROL

International texts in this issue area mainly use the notions of “major conventional weapons”, “SALW” and “firearms”. These categories are primarily informed by considerations of calibre, size or portability, and, depending on the definition, cut across the category of explosive weapons. Although export control standards, for instance, operate with categories that are almost exclusively composed of explosive weapons and that identify certain explosive weapon types, blast and fragmentation effects are not explicit categorization criteria in this issue area. Due to inconsistencies and ambiguities across and within different texts, it is somewhat unclear how the category of “explosive weapons” relates to SALW and firearms, and to their respective (am)munition.

National laws on the civilian possession of weapons and arms export regulations point to the close association of explosive weapons with the military and war, and the dangers that the use of explosive weapons poses to public safety in terms of their capacity to inflict serious bodily injury, death or substantial property damage. Although there are stark differences among states in relation to the weapons civilians are allowed to possess, many draw the line at civilian ownership of explosive weapons. Some national legal systems formally recognize “explosive weapons” as a distinct legal category. But the connection between blast and fragmentation effects, on the one hand, and the exclusion of explosive weapons from civilian possession and their association with the military and war, on the other, remains implicit and somewhat opaque.

107 *Protocol on Explosive Remnants of War (Protocol V to the CCW)*, 28 November 2003, art. 2(2); United Nations Mine Action Service, *IMAS 04.10*, 2nd ed., 1 January 2003, p. 37, defines UXO as “[explosive ordnance] that has been primed, fuzed, armed or otherwise prepared for use or used. It may have been fired, dropped, launched or projected yet remains unexploded either through malfunction or design or for any other reason”. Paragraph 3.2. defines AXO as “explosive ordnance that has not been used during an armed conflict, that has been left behind or dumped by a party to an armed conflict, and which is no longer under control of the party that left it behind or dumped it. Abandoned explosive ordnance may or may not have been primed, fuzed, armed or otherwise prepared for use”. The IMAS definition of ERW is based on and consistent with that of CCW Protocol V.

2.2.1. MAJOR CONVENTIONAL WEAPONS

Arguably, conventional arms control is to a large extent about regulating explosive weapons. As the notion is used in this study, arms control is broadly about rules governing who may possess, use and stockpile weapons, with a view to channel and manage violence.¹⁰⁸ Domestically, arms control involves measures by the state to restrain the civilian possession of weapons and to regulate the use of weapons by the military and the police, in order to assert the state's monopoly on the legitimate use of force and maintain a social order that is perceived as legitimate. At the inter-state level, arms control involves restrictions on the transfer of arms and transparency regimes and other standards that states have developed out of concern for international peace, security or stability. This study also looks at texts developed with a view to lessening the global burden of armed violence. These texts reflect increasing awareness that armed violence undermines development and aid effectiveness, and hinders the achievement of the Millennium Development Goals.¹⁰⁹

The most important ordering principle in this issue area is the divide between "major" or "heavy" weapons, on the one side, and "small" or "light" ones, on the other. These notions indicate that regulatory categories tend to be oriented toward technical properties (this is reflected

108 International relations scholars advance a number of conceptions of "arms control". Debate is ongoing about the relationship between arms control, disarmament, peace and security. This study draws on a recent conceptual analysis of arms control practices in Keith Krause, "Leashing the Dogs of War: Arms Control from Sovereignty to Governmentality", *Contemporary Security Policy*, vol. 32, no. 1, 2011, pp. 20–39. This perspective allows seeing through the same lens arms control measures aimed at reinforcing or reasserting "the state's legal monopoly of lethal violence", maintaining "the geopolitical structure of contemporary world politics", and spreading "certain humanitarian norms of civilized warfare". From the perspective of "governmentality", the domestic–international divide is effaced and disparate arms control practices can be seen as forms of regulation and control of social conduct that share the same logic.

109 See *The Geneva Declaration on Armed Violence and Development*, 7 June 2006. The regulation of anti-personnel landmines and cluster munitions, or of MANPADS, could also be discussed in relation to arms control. But as these weapons tend to be connected in public discourse with concerns about the protection of civilians and terrorism, respectively, they will be discussed under the relevant headings below.

in the word cloud shown in figure 7). The United Nations Register of Conventional Arms (the Register) and the Wassenaar Arrangement's Munitions List illustrate this approach.

Figure 7. Word cloud based on the Wassenaar Arrangement's Munitions List¹¹⁰



The United Nations Register aims to bring greater transparency about international transfers of seven categories of *major conventional weapons* deemed the most “offensive” or “lethal”.¹¹¹ Two of its categories list a

110 Data source: Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, *List of Dual-use Goods and Technologies and Munitions List*, document WA-LIST(11)1, 14 December 1995 (as of 14 December 2011), pp. 160–188. Graph generated at <<http://worditout.com/>>. Larger size and darker shade of words indicate higher frequency. “CAS” stands for Chemical Abstract Service. A CAS Registry Number provides a unique identifier for chemical substances.

111 The United Nations Office for Disarmament Affairs refers to the lethality of weapons at <www.un.org/disarmament/convarms/Register/> and to their offensive character at <www.un-register.org/Background/Index.aspx>. United Nations Office for Disarmament Affairs, “Assessing the United Nations Register of Conventional Arms”, *UNODA Occasional Papers*, no. 16, April 2009, p. 1,

number of explosive weapon types—states can report transfers of “large-calibre artillery systems” under Category III, and of “missiles and missile launchers” under Category VII. Into Category III fall “Guns, howitzers, artillery pieces, combining the characteristics of a gun or a howitzers, mortars or multiple-launch rocket systems, capable of engaging surface targets by delivering primarily indirect fire, with a caliber of 75 millimetres and above”. Category VII comprises guided or unguided rockets, and ballistic or cruise missiles capable of delivering a warhead or weapon of destruction to a range of at least 25km, and means designed or modified specifically for launching such missiles or rockets, if not covered by Categories I through VI.¹¹² The categories of the United Nations Register are at times used in the context of arms embargoes imposed by the Security Council—for example, Security Council sanctions against the Democratic People’s Republic of Korea imposed in 2006, and against the Islamic Republic of Iran in 2010.¹¹³ But many regional and national export control standards are based on the categories of the Wassenaar Arrangement, an international export control regime.¹¹⁴

States participating in the Wassenaar Arrangement rely on detailed categories to control the export of items on the Munitions List in order to prevent unauthorized transfers or retransfers, several of which

characterizes the seven categories of major conventional weapons as those typically “used in offensive military operations carried out across international borders”.

- 112 The United Nations Register of Conventional Arms (<www.un-register.org>) established by General Assembly, *General and Complete Disarmament: Transparency in Armaments*, UN document A/RES/46/36, 6 December 1991.
- 113 Security Council, UN document S/RES/1718, 14 October 2006, para. 8; Security Council, UN document S/RES/1929, 9 June 2010, para. 8. Both resolutions refer to the seven categories of the United Nations Register, as well as related material including spare parts. In the case of the Democratic People’s Republic of Korea, a later resolution extends the embargo to “all arms and related materiel”, financial transactions and technical training, but specifically exempts the provision of “small arms and light weapons and their related materiel”. Security Council, UN document S/RES/1874, 12 June 2009, para. 10.
- 114 See for example European Union, *Common Military List of the European Union*, Official Journal C 86, 18/3/2011, pp. 1–36, 18 March 2011; Switzerland, *Ordonnance du 25 février 1998 sur le matériel de guerre*, Recueil officiel 1998 808, 25 February 1998 (as of 1 January 2010), annex 1.

comprise explosive weapon types (though never exclusively so).¹¹⁵ For instance, Category ML2 includes smooth-bore weapons with a calibre of 20mm or more and weapons or armament with a calibre greater than 12.7mm, including guns, howitzers, cannon, mortars, anti-tank weapons and projectile launchers, but it also includes military flame throwers, and smoke, gas and pyrotechnic projectors. Category ML3 includes ammunition for weapons and other armaments of Category ML2. Among other items, it covers “Submunitions including bomblets, minelets and terminally guided projectiles”. Category ML4 covers “bombs, torpedoes, rockets, missiles, other explosive devices and charges, and related equipment and accessories”. Category ML8 lists “Energetic materials” and related substances and subcategory ML8(a) identifies different types of “explosives” as well as other explosive materials of a particular detonation velocity or detonation pressure, even if not listed by name.¹¹⁶

That there are categories of the United Nations Register and the Wassenaar Arrangement’s Munitions List predominantly composed of explosive weapons suggests that explosive weapons raise particular concerns. However, non-explosive weapons are not subject to a different regulatory regime under these instruments, which suggests that the concern is more with transparency and proliferation in terms of international security and stability, and less about the effects and humanitarian impacts of weapons (in spite of the reference to weapons’ “lethality” in the context of the United Nations Register). Even Security Council resolutions imposing an arms embargo for humanitarian reasons (among others) do not usually name particular weapon types. A 1992 resolution on Somalia, for example, expresses grave alarm at the “heavy loss of human life and widespread material damage” resulting from the conflict, but the arms embargo is cast in general terms and applies to all “weapons and military equipment”.¹¹⁷

115 Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, *Guidelines & Procedures, Including the Initial Elements*, December 1996 (as amended in 2011), Initial Elements, para. III.1.

116 “Propellants” and “pyrotechnics” are listed in other subcategories of ML8. Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, *List of Dual-Use Goods and Technologies and Munitions List*, document WA-LIST(11)1, 14 December 1995 (as of 14 December 2011), ML3, note 1 (e); ML 8(a)(33), ML8(b), ML8(c). Note that, unless compounded or mixed with an energetic material, black powder is not a precursor covered by category ML8(g).

117 Security Council, UN document S/RES/733, 23 January 1992, para. 5.

A common formulation in more recent resolutions is the prohibition of the supply of “arms and (any) related materiel”.¹¹⁸ Embargoes against the Taliban and Al-Qaida in 2002, Liberia in 2003, the Sudan in 2004, and Libya in 2011 concerned “arms and related materiel of all types, including weapons and ammunition, military vehicles and equipment, paramilitary equipment and spare parts for the aforementioned”.¹¹⁹ Reports by sanctions committees show that these formulations cover explosive weapon types, but no distinction is generally made on the basis of blast and fragmentation effects of weapons.¹²⁰

2.2.2. FIREARMS, SMALL ARMS AND LIGHT WEAPONS

Explosive weapons cut across the divide between “major conventional weapons” and SALW. This divide does not, hence, appear to reflect a

118 See, for instance, Security Council, *[On renewal of measures on arms embargo against all non-governmental entities and individuals operating in the Democratic Republic of the Congo]*, UN document S/RES/1807, 31 March 2008; Security Council, *[On extension of travel ban on persons deemed to be a threat to the peace in Liberia and readjustment of the arms embargo]*, UN document S/RES/1903, 17 December 2009.

119 Security Council, UN document S/RES/1390, 16 January 2002; Security Council, UN document S/RES/1521, 22 December 2003; Security Council, UN document S/RES/1556, 30 July 2004; Security Council, UN document S/RES/1970, 26 February 2011.

120 In relation to “arms and ammunition”, a report by the Panel of Experts overseeing the Sudan embargo mentions assault rifles; general purpose, heavy and anti-aircraft machine guns; recoilless guns and mortars; portable launchers for anti-tank and anti-personnel grenades and rockets; and surface-to-air missile launchers, as well as mortar bombs, different types of grenades and rifle cartridges. Security Council, UN document S/2011/111, 3 March 2011, paras. 46–47. Note that, according to the Sanctions Committee overseeing the implementation of the embargo against Al-Qaida, the term “arms and related materiel of all types” should be applied to all types of *explosives*, whether military, civilian or improvised explosives. (Security Council Committee established pursuant to resolution 1267 (1999) concerning Al-Qaida and the Taliban and associated individuals and entities, *Explanation of Terms: Arms Embargo*, undated, p. 2, <www.sipri.org/databases/embargoes/un_arms_embargoes/afghanistan/explanation>.) Particular concern about air-launched explosive weapons can perhaps be inferred from the prohibition to deliver arms or any related materiel “in particular military aircraft and equipment” in Security Council, *[On arms embargo against Côte d’Ivoire]*, UN document S/RES/1572, 15 November 2004.

distinction between explosive and non-explosive weapons. Originally, the United Nations Register was only concerned with “major conventional weapons”. In 1994, the reporting threshold for large-calibre artillery systems was reduced from 100mm to 75mm to bring mortars within the purview of Category III, and Category VII was subdivided in order to allow for reporting of MANPADS.¹²¹ Since 2006 states may also submit reports on the import and export of SALW. Under the rubric “light weapons”, states may report transfers of mortars of calibers less than 75mm and of portable anti-tank missile launchers and rocket systems, and hand-held underbarrel and mounted grenade launchers.¹²²

SALW instruments mainly aim to lessen armed violence and prevent violent crime by reducing the availability and accumulation of weapons. The International Small Arms Control Standards (ISACS) developed by the United Nations’s Coordinating Action on Small Arms mechanism are the latest addition to this set of instruments, and build on a host of existing agreements, practice guidelines, codes of conduct and model regulations.¹²³

SALW instruments use the notions of “small arms”, “light weapons” and “firearms”. Due to divergent definitions of firearms in international texts and because some texts combine the notions of “firearms”, “small arms”

121 United Nations Office for Disarmament Affairs, “Assessing the United Nations Register of Conventional Arms”, *UNODA Occasional Papers*, no. 16, April 2009, p. 9.

122 See General Assembly, *United Nations Register of Conventional Arms, Report of the Secretary-General*, UN document A/66/127, 12 July 2011, pp. 73–144. Wassenaar Arrangement guidelines and procedures for information exchange among participating states about arms transfers to states not participating in the Arrangement use categories derived from the United Nations Register with the addition of an eighth category on “Small Arms and Light Weapons—Man-Portable Weapons made or modified to military specification for use as lethal instruments of war”. Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, *Guidelines & Procedures, Including the Initial Elements*, December 1996 (as amended in 2011), appendix 3, art. 8.

123 United Nations, *International Small Arms Control Standard (ISACS)*, 1st ed., 2012, <www.smallarmsstandards.org/isacs/>. The ISACS aim to be internationally accepted and validated standards that provide clear and comprehensive guidance to practitioners and policymakers on SALW control. As this report went to press before the release of the final version of the standards, the discussion is based on the texts upon which the ISACS are built.

and “light weapons” in fairly confusing ways, it is difficult to draw firm conclusions about how these categories relate to each other and what they imply for the regulation of explosive weapons.¹²⁴

Some texts in this issue area do not, in fact, distinguish between “light weapons” and “small arms”, using the term “small arms” as shorthand for SALW, rather than as a subcategory.¹²⁵ Those that do make a distinction base it on portability and other criteria related to a weapon’s mode of operation. For the purposes of the 2005 International Instrument to Enable States to Identify and Trace, in a Timely and Reliable Manner, Illicit Small Arms and Light Weapons (the International Tracing Instrument), for instance, “Small arms and light weapons” means “any *man-portable* lethal weapon that expels or launches, ... a shot, bullet or projectile by the action of an explosive”. The instrument describes “small arms” as “broadly speaking, weapons *designed for individual use*”, whereas “light weapons” are, generally, “*designed for use by two or three persons serving as a crew*”.¹²⁶ Its list of “light weapons” identifies launchers of projectiles, including of explosive ones, such as heavy machine guns, hand-held

124 One international text that refers to firearms and SALW is the Southern African Development Community, *Protocol on the Control of Firearms, Ammunition and Other Related Materials in the Southern African Development Community (SADC) Region*, 2001. Under this instrument firearms include any portable lethal weapon that expels a bullet or projectile, as well as any *small arm and any light weapon*. In contrast, under East African Community, *The Nairobi Protocol for the Prevention, Control and Reduction of Small Arms and Light Weapons in the Great Lakes Region and the Horn of Africa*, 2004, small arms include firearms, meaning any portable barrelled weapon and “any other weapon or destructive device such as an explosive bomb, ... grenade, rocket launcher, missile, missiles system or mine” (art. 1).

125 This is the case of the *Programme of Action to Prevent, Combat and Eradicate the Illicit Trade in Small Arms and Light Weapons in All Its Aspects*, UN document A/CONF.192/15, 2001. Its title indicates that it deals with “small arms and light weapons”, but the text does not define this notion, nor does it appear to differentiate between “small arms” and “light weapons”, or between launchers and munitions. See also Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, *Best Practice Guidelines for Exports of Small Arms and Light Weapons (SALW)*, 11–12 December 2002 (as amended in 2007); OSCE, *OSCE Document on Small Arms and Light Weapons*, document FSC.DOC/1/00, 24 November 2000.

126 *International Instrument to Enable States to Identify and Trace, in a Timely and Reliable Manner, Illicit Small Arms and Light Weapons*, UN document A/60/88 and A/RES/60/81, 8 December 2005, (emphasis added).

under-barrel and mounted grenade launchers, portable anti-aircraft guns, portable anti-tank guns, recoilless rifles, portable launchers of anti-tank missile and rocket systems, portable launchers of anti-aircraft missile systems, and mortars of a calibre of less than 100mm.¹²⁷

This would suggest that the divide between small arms and light weapons broadly corresponds to that between man-portable explosive and non-explosive weapons. However, not all small arms munitions are non-explosive. Draft 3.0 of ISACS module 03.30, for example, refers to “small arms specifically designed to fire explosive devices”.¹²⁸ It should also be noted that although some SALW instruments impose stricter controls over light weapons than over small arms (particularly in relation to civilian possession),¹²⁹ it is unclear what this implies for the regulation of explosive weapons due to definitional ambiguities and because instruments do not consistently differentiate between launchers and munitions.¹³⁰

127 Ibid., art. 4.

128 Draft 3.0 of United Nations, *ISACS 03.30*, 6.2.2.

129 Under East African Community, *The Nairobi Protocol for the Prevention, Control and Reduction of Small Arms and Light Weapons in the Great Lakes Region and the Horn of Africa*, 2004, art. 3(c)(i and ii), states are to totally prohibit civilian possession and use of light weapons, as well as of “automatic and semi-automatic rifles and machine guns”, whereas state parties are merely to restrict civilian possession of small arms. Economic Community of West African States, *Convention on Small Arms and Light Weapons, Their Ammunition and Other Related Materials*, 2006, art. 14, prohibits the “possession, use and sale of light weapons by civilians” whereas it merely requires states parties to regulate civilian possession, use and sale of small arms.

130 Some instruments do not contain specific rules on munitions, e.g. OSCE, *OSCE Document on Small Arms and Light Weapons*, document FSC.DOC/1/00, 24 November 2000; *International Instrument to Enable States to Identify and Trace, in a Timely and Reliable Manner, Illicit Small Arms and Light Weapons*, UN document A/60/88 and A/RES/60/81, 8 December 2005. In spite of citing the International Tracing Instrument as its basis, the ISACS draft definition of a “light weapon” explicitly *includes* light weapon *ammunition*, such as shells for mortars of a calibre of less than 100mm (Draft 3.2 of United Nations, *ISACS 01.20*, p. 11). The Nairobi Protocol’s definition of small arms (or firearms) may be so broad as to include explosive weapons and munitions, like rocket launchers, missiles, missile systems and mines, effectively erasing any distinction between explosive and non-explosive weapons, or their munitions.

The matter is further complicated by texts that do not refer to SALW, but regulate “firearms” instead. A clear understanding of what is meant by “firearm” is interesting for several reasons. Firearms are used for the purposes of law enforcement and are subject to specially strict rules under HRL. Firearms are also not categorically excluded from civilian possession. Is this because, in contrast to other weapons, firearms do not project explosive munitions? Unfortunately, there is no commonly agreed international definition of firearms and what is within or outside of that category varies widely across different instruments.¹³¹

The 1997 Inter-American Convention against the Illicit Manufacturing of and Trafficking in Firearms, Ammunition, Explosives, and Other Related Materials (CIFTA) uses a broad definition of “firearm”. Under this regional treaty “firearms” cover barrelled weapons as well as “other weapons or destructive devices”, such as an explosive bomb, grenade, rocket, missile, missile system or mine, whereas “ammunition” covers rounds or projectiles used in any firearm. Consequently, some explosive weapons are captured by both definitions.¹³² In contrast, the 2001 United Nations Protocol against the Illicit Manufacturing of and Trafficking in Firearms, their Parts and Components and Ammunition (the Firearms Protocol), a firearms treaty of global reach, uses a much narrower definition of a “firearm”. The Protocol defines firearm as “any portable barrelled weapon that expels, ... a shot, bullet or projectile by the action of an explosive”, and “ammunition” as

131 United Nations Office on Drugs and Crime, *Model Law against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition*, 2011, meant to assist states in their efforts to implement the Firearms Protocol, stresses that a definition of firearm will be “a critical element of domestic implementing legislation”. Unfortunately, the commentary on the Model Law sheds no light onto the meaning of “firearm”, “small arm”, “light weapon”, or SALW, or their munitions. It simply recommends that states “should be aware of the differences” (p. 8).

132 Organization of American States, *Inter-American Convention against the Illicit Manufacturing of and Trafficking in Firearms, Ammunition, Explosives, and Other Related Materials*, 1997, arts. 1(3–4). The CIFTA establishes a separate category of “explosives”, which includes “any substance or article that is made, manufactured, or used to produce an explosion, detonation, or propulsive or pyrotechnic effect”. On the basis of their fragmentation effects some articles that are not in and of themselves explosive are excluded, e.g. fire extinguishers, smoke grenades and signalling devices, and fireworks, if they “do not project or disperse dangerous fragments such as metal, glass, or brittle plastic” (art. 1(5) and annex).

“the complete round or its components, including cartridge cases, primers, propellant powder, bullets or projectiles, that are used in a firearm”.¹³³ The reference to propellant powder indicates that firearms ammunition under this treaty does not contain a high-explosive filling.¹³⁴

However, as this brief survey of international texts demonstrates, both, small arms “ammunition” and firearms “ammunition” can be explosive, and the difference between “ammunition” and “munitions”, as used in international legal and policy texts, does not relate to the explosive characteristics of these items.

2.2.3. MILITARY AND OTHER WEAPONS PROHIBITED TO CIVILIANS

Civilian ownership of explosive weapons is widely prohibited by states.¹³⁵ The reasons for this will not be investigated here because this study is

133 *Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition, supplementing the United Nations Convention against Transnational Organized Crime*, UN document A/RES/55/255, 8 June 2001, art. 3(a) and (c). The requirement that a firearm be a “barrelled” weapon excludes from the Protocol’s scope explosive munitions that are emplaced or thrown by hand. The qualifier that firearms be “portable” excludes weapons that could not be moved or carried without mechanical or other assistance, such as explosive bombs dropped from aircraft or launched by large, crew-operated weapons. General Assembly, *Interpretative Notes for the Official Records (travaux préparatoires) of the Negotiation of the Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition, supplementing the United Nations Convention against Transnational Organized Crime*, UN document A/55/383/Add.3, 21 March 2001, para. 3.

134 A review of the implementation of the Firearms Protocol conducted in 2008 revealed that there are great differences in how states interpret the Protocol’s terms. See, Conference of the Parties to the United Nations Convention against Transnational Organized Crime, *Implementation of the Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition, Supplementing the United Nations Convention against Transnational Organized Crime: Consolidated Information Received from States*, UN document CTOC/COP/2006/8/Rev.1, 12 August 2008, paras. 19–21. Interestingly, the ISACS draft definition of “ammunition”, although based on the Firearms Protocol, covers “shells, grenades and missiles for light weapons” within its scope. Draft 3.2, United Nations, *ISACS 01.20*, p. 2.

135 For a survey of national laws prohibiting civilian ownership of explosive weapons, see Richard Moyes, *Explosive Violence, The Problem of Explosive*

mainly concerned with the use of explosive weapons by states. The following survey of national regulations serves to reinforce two points: explosive weapons tend to be associated with the military and war, and the effects of explosive weapons are considered a danger to public safety. In relation to this danger, several states recognize explosive weapons as a distinct category in national law.

Under the criminal law of some states, the harmful use of explosives, that is, the use of explosive weapons, is punishable as a specific offence. For example, the Swiss penal code's title on felonies and misdemeanours constituting a public danger ("crimes ou délits créant un danger collectif") criminalizes the intentional causing of an explosion, as well as the use of an explosive putting other people's lives, health or property in danger.¹³⁶

At least two US penal codes even use the term "explosive weapon" in relation to offences creating a public danger: The penal code of the US state of Texas provides a definition of an explosive weapon in relation to "offenses against public health, safety, and morals":

'Explosive weapon' means any explosive or incendiary bomb, grenade, rocket, or mine, that is designed, made, or adapted for the purpose of inflicting serious bodily injury, death, or substantial property damage, or for the principal purpose of causing such a loud report as to cause undue public alarm or terror, and includes a device designed, made, or adapted for delivery or shooting an explosive weapon.¹³⁷

Section 46.05 on "prohibited weapons" makes it an offence to intentionally or knowingly possess an explosive weapon.¹³⁸ Similarly, under the chapter on "offenses against public health, safety and welfare" of the Tennessee Code, it is an offense to intentionally or knowingly possess, manufacture, transport, repair or sell "(1) An explosive or an explosive weapon; (2) A

Weapons, Landmine Action, 2009, pp. 46–47.

136 Switzerland, *Code pénal suisse du 21 décembre 1937*, Recueil officiel 54 781, 21 December 1937 (as of 16 July 2012), arts. 223–226. See also the French *Code pénal*, version of 24 August 2012, art. 322-6.

137 *Penal Code*, title 10, sec. 46.01(2), <www.statutes.legis.state.tx.us/Docs/PE/htm/PE.46.htm>.

138 The Texan Penal Code also criminalizes the possession of components of an explosive weapon with the intent to combine them into an explosive weapon for use in a criminal endeavour. *Ibid.*, title 10, sec. 46.05(a)(1) and sec. 46.09, <www.statutes.legis.state.tx.us/Docs/PE/htm/PE.46.htm>.

device principally designed, made or adapted for delivering or shooting an explosive weapon".¹³⁹

These definitions bring into focus the destructive effects and capacity to inflict serious harm of explosive weapons. But the inclusion of incendiary items in the definition of the Texas Criminal Code also suggests that similarly devastating harm can be caused by weapons that do not create blast and fragmentation effects. Indeed, incendiary weapons, as well as automatic firearms, tend to be excluded from civilian possession along with explosive weapons on the basis of the dangers they pose.¹⁴⁰

By the same token, weapons associated with public danger are reserved for use by the state, and particularly by its military forces. The aforementioned Arab Model Law (2002) defines "military weapons". They are "Firearms specially designed for the use in military operations, such as machine guns, cannons, missiles and their spare parts". The model law prohibits non-governmental actors from possessing military weapons and their ammunitions.¹⁴¹

The qualifier "military", and likewise "war", is used in international and national texts in relation to a wide range of items,¹⁴² and a connection

139 *Tennessee Code*, sec. 39-17-1302(a), <www.lexisnexis.com/hottopics/tncode/>. The Code also criminalizes the use of ammunition cartridges, metallic or otherwise, containing a bullet with a hollow-nose cavity that is filled with an explosive material and designed to detonate upon impact. Note that the provisions of this section do not apply to state or federal military units or personnel for use in the performance of their duties (*ibid.*, sec. 39-17-1304).

140 European Union, *Council Directive 91/477/EEC of 18 June 1991 on Control of the Acquisition and Possession of Weapons*, Official Journal L 256, 13/9/1991, 18 June 1991 (as amended 28 July 2008), pp. 51–58, following the signing on behalf of the European Community of the United Nations Firearms Protocol, distinguishes four categories of firearms. According to the "Summary" on the EU's website, <http://europa.eu/legislation_summaries/justice_freedom_security/fight_against_organised_crime/l14011_en.htm>, the categorization is "by order of their level of danger".

141 League of Arab States, *Arab Model Law on Weapons, Ammunitions, Explosives and Hazardous Material*, unofficial translation, 2002, art. 2. The law's licensing requirements do not apply to members of the army or the police (*ibid.*, art. 6).

142 These qualifiers are used in texts of other issue areas too and are not limited to the regulation of "major weapons". See *Convention on the Marking of Plastic Explosives for the Purpose of Detection*, 1991, art. I(5); OSCE, *OSCE Document*

between what is considered “military” and explosive weapons is evident in a number of texts.¹⁴³ An EU directive of 1991 on the control of the acquisition and possession of weapons lists, *inter alia*, “explosive military missiles and launchers”, automatic firearms, and “ammunition with penetrating, explosive or incendiary projectiles, and the projectiles for such ammunition” in “Category A—Prohibited firearms”. In this context, “ammunition with explosive projectiles” means ammunition for military use where the projectile contains a charge which explodes on impact. EU member states are to prohibit civilian acquisition and possession of these firearms and ammunition, whereas firearms assigned to other categories are subject to less strict regulation.¹⁴⁴

on Small Arms and Light Weapons, document FSC.DOC/1/00, 24 November 2000, note to preamble, para. 3.

- 143 Prohibited weapons under the Belgian *Loi réglant des activités économiques et individuelles avec des armes*, Moniteur Belge 9/6/2006, 8 June 2006 (as of 29 July 2009), art. 3(3) include anti-personnel landmines, submunitions, as well as “weapons designed for military use only, such as ... launchers, pieces of artillery, rockets ... , ammunition designed especially for such weapons, bombs, torpedoes and grenades” (emphasis added). The original reads “les armes conçues exclusivement à usage militaire, tel que [...] les lanceurs, les pièces d’artillerie, les roquettes [...] , les munitions conçues spécifiquement pour ces armes, les bombes, les torpilles et les grenades”.
- 144 The directive does not apply to commercial transfers of “weapons and ammunitions of war”, nor to the acquisition or possession of “weapons and ammunition” by the armed forces, the police or public authorities. European Union, *Council Directive 91/477/EEC of 18 June 1991 on Control of the Acquisition and Possession of Weapons*, Official Journal L 256, 13/9/1991, 18 June 1991 (as amended 28 July 2008), pp. 51–58, arts. 2(2), 6 and annex I, paras. II(a) and IV(h). Accordingly, the French *Loi n° 2012-304 du 6 mars 2012 relative à l’établissement d’un contrôle des armes moderne, simplifié et préventif*, Journal Officiel n° 0057 du 7 mars 2012 page 4200, 6 March 2012 (as of 8 March 2012), proposes a new classification of weapons into four categories, explicitly “based on the dangerousness of materials and weapons” (the original reads “fondé sur la dangerosité des matériels et des armes”). The law provides that with regard to firearms, “dangerousness should be assessed, *inter alia*, taking into account the shot repetition modalities and the number of shots fired without reloading the weapon” (the original reads “la dangerosité s’apprécie en particulier en fonction des modalités de répétition du tir ainsi que du nombre de coups tirés sans qu’il soit nécessaire de procéder à un réapprovisionnement de l’arme”), whereas “weapons using ammunition of specific calibres as decided by a decree of the Council of State are categorized solely on the basis of their calibre” (the original reads “armes

Kosovo's Law no. 03/L-143 on Weapons (2009) follows this approach and links the military purpose of a weapon to its explosive characteristics. The law provides a definition of an explosive weapon, which, in relevant parts, reads as follows:

'Explosive weapon' means any type of, but not limited to, bomb, mine, rocket, grenade or other device that contains explosive substances or inflammable materials, ... which due to internal or external action ... causes release or creation of energy and explosion. As explosive weapons, according to this Law, are considered also parts of the explosives, detonators, pyrotechnics or other parts for which it is obvious that they are intended for preparation of explosive weapons. This definition is meant to include Thermobaric weapons ...¹⁴⁵

Although explosive weapons are a type of weapon within the law's scope, no operative provision uses this exact term. However, the law lists "Explosive military missiles and launching systems" under "Category A—Prohibited weapons". The same category also comprises "explosive ammunition ... and the projectiles for such an ammunition". The law defines "Ammunition with explosive projectiles" as "ammunition dedicated only for military use, of which the bullet contains a filling which explodes at the time of impact or has a set timed or delayed fuse which will cause the round to detonate at a predetermined time".¹⁴⁶

utilisant des munitions de certains calibres fixés par décret en Conseil d'État sont classées par la seule référence à ce calibre"). Acquisition and possession of items in Category A will be prohibited to civilians. Category A includes some explosive weapons. A 2008 amendment to the Belgian *Loi réglant des activités économiques et individuelles avec des armes*, *Moniteur Belge* 9/6/2006, 8 June 2006 (as of 29 July 2009), arts. 3 and 8, introduced a prohibition on certain "devices, weapons and ammunition" (the original reads "engins, armes et munitions") which present "a new and grave danger for public safety" (the original reads "un danger grave et nouveau pour la sécurité publique") and may, for this reason, only be used by the army and the police.

145 *Law no. 03/L-143 on Weapons*, 17 September 2009, art. 2(1.18). Arnaud Braem, "La nouvelle législation sur les armes du Kosovo", *Military Law and the Law of War Review*, vol. 49, no. 3–4, 2010, pp. 373–406, traces the origins of Kosovo's weapons law.

146 *Law no. 03/L-143 on Weapons*, 17 September 2009, arts. 4(1) and 2(1.38) (emphasis added). Note that Category A refers to "weapons", not "firearms", as is the case in EU directive 91/477/EEC. Other categories use the term firearm.

The association of explosive weapons with the military is also evident in regulations outside of the EU, but it remains unclear whether all explosive weapon types are considered “military” weapons.¹⁴⁷ Similarly, association of explosive weapons with war is implicit in national categories of “war materials”, predominantly composed of explosive weapon types or their means of delivery. Under French legislation, war material (“matériels de guerre”) comprises “firearms and their ammunitions designed or intended for land, naval and aerial warfare” (“armes à feu et leurs munitions conçues pour ou destinées à la guerre terrestre, navale ou aérienne”), including “cannons, howitzers and mortars of any calibre” (“canons, obusiers et mortiers de tous calibres”) and “ammunition with penetrating, explosive or incendiary projectiles” (“munitions à balles perforantes, explosives ou

147 Switzerland, *Loi fédérale du 20 juin 1997 sur les armes, les accessoires d’armes et les munitions*, Recueil officiel 1998 2535, 20 June 1997 (as of 16 July 2012), art. 5(2), prohibits the possession of “military launchers of munitions, projectiles or missiles with explosive effects” (the original reads “lanceurs militaires de munitions, de projectiles ou de missiles à effet explosif”). Switzerland, *Ordonnance du 2 juillet 2008 sur les armes, les accessoires d’armes et les munitions*, Recueil officiel 2008 5525, 2 July 2008 (as of 12 December 2008), art. 5, specifies that such launchers include “anti-tank rocket launchers, rocket launch tubes, grenade launchers and mine-throwers which can be carried and used by one person” (the original reads “les lance-roquettes antichar, les tubes roquettes, les lance-grenades et les lance-mines qui peuvent être portés et utilisés par une seule personne”). Under the title “prohibited munitions”, the *Ordonnance* lists, among other things, “munitions containing an incendiary or explosive charge” (the original reads “munitions à projectile contenant une charge explosive ou incendiaire”) and “munitions, projectiles and missiles for military launchers with explosive effects” (the original reads “munitions, projectiles et missiles pour lanceurs militaires à effet explosif”). The Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, *List of Dual-Use Goods and Technologies and Munitions List*, WA-LIST(11)1, 14 December 1995 (as of 14 December 2011), in some instances specifies that it only covers materials, equipment or arms that are “military”, suitable or (specially) designed or modified “for military use”, or formulated “for military purposes”, suggesting that these items may exist in other forms. Category ML4(a), for example, covers bombs, torpedoes, grenades, rockets, mines, and missiles “specially designed for military use”. It is unclear whether all explosive bombs etc. are “specially designed for military use”.

incendiaires”), grenades, bombs, mines, missiles, and rockets.¹⁴⁸ However, “war materials” is not an explosive weapon-specific category either.

2.3. TERRORISM

Terrorism is closely associated with explosive weapons.¹⁴⁹ Regulatory texts in this issue area reflect concern about the grave dangers, even mass casualties, and the destruction associated with the use, especially in public places, of “bombs” and “high-consequence dangerous goods”. However, in spite of focused attention to the prevention and repression of “bombings”, many texts apply the same standards to the use of explosive and to non-explosive weapons.

The special focus laid on the regulation of MANPADS in relation to terrorism appears to have more to do with their portability and the dangers they pose to civil aviation, and other modes of transport, than with the propensity to create blast and fragmentation effects that cause humanitarian harm.

The public condemnation and abhorrence of terrorist violence is, hence, not specific to blast and fragmentation effects and the devastating impacts of explosive weapons.

2.3.1. TERRORIST BOMBINGS

Terrorism is a highly contested concept, and calling an act of violence “terrorism” conveys a sense of deep indignation and public condemnation of the violence as illegitimate and repugnant.¹⁵⁰ Six out of ten focus areas

148 France, *Décret n° 95-589 du 6 mai 1995 relatif à l'application du décret du 18 avril 1939 fixant le régime des matériels de guerre, armes et munitions*, Journal Officiel n° 108 du 7 mai 1995 page 7458, 6 May 1995 (as of 27 August 2012), art. 2(A); France, *Code de la défense*, version of 24 August 2012, art. L2331-1. Note that “firearms” (“armes à feu”) is used in a broad sense here. See also France, *Code de la sécurité intérieure*, consolidated version 1 May 2012, art. L312-1.

149 “The use of explosives to harm innocent citizens has been the most common method used by terrorists to instil fear in populations accustomed to living in democratic, free and open societies”. European Union, *Communication from the Commission on Measures to Ensure Greater Security in Explosives, Detonators, Bomb-Making Equipment and Fire-Arms*, 18 July 2005, p. 2.

150 Although there is still no single agreed definition of terrorism at the international level, common elements of existing definitions are reference to physical violence of such gravity that it causes death, serious bodily injury, substantial

for NATO anti-terrorist measures agreed at the 2004 Istanbul Summit concern explosive weapon types.¹⁵¹ These include measures to counter mortar and rocket-propelled grenade attacks, but in terms of specially dedicated international regulations, states have focused on restricting access to explosives and to MANPADS that may be used for terrorist purposes.

The train bombings in Madrid on 11 March 2004 killed 191 persons and wounded 1,800. The Mumbai bombings of 13 July 2011 claimed 26 lives. Both events have been called “terrorist bombings”. Bombings are carried out with explosives, a connection reflected in the 1991 Convention on the Marking of Plastic Explosive for the Purpose of Detection (MARPLEX Convention).¹⁵²

The MARPLEX Convention seeks to regulate explosives to prevent acts of terrorism, but it does not make explicit the humanitarian concerns around the use of explosives. Also, it does not treat all explosives meeting the technical specifications to be within its scope, in the same manner. Explosives that are incorporated (or meant to be incorporated) in “duly authorized military devices”, including shells, bombs, projectiles, mines,

material damage, and extensive destruction that may result in major economic loss; and to intent to intimidate a population, or to compel a government or an international organization to do or to abstain from doing an act. These elements set terrorist acts apart from other violent crime. For a discussion of concepts of terrorism, see Ben Saul, *Defining Terrorism in International Law*, Oxford University Press, 2008, pp. 1–10.

151 These are actions to counter IEDs, reduction of the vulnerability of civilian and military aircraft to MANPADS, reduction of the vulnerability of helicopters to rocket-propelled grenades, protection of harbours and ships from explosive-packed speedboats, explosive ordnance disposal and technologies to counter mortar attacks. NATO, *NATO Handbook*, 2006, pp. 172–173.

152 *Convention on the Marking of Plastic Explosives for the Purpose of Detection*, 1991. For the purpose of the MARPLEX Convention, explosives are defined with reference to technical properties described in its Technical Annex. They are “those that are formulated with one or more high explosives which in their pure form have a vapour pressure less than 10⁻⁴ Pa at a temperature of 25°C; are formulated with a binder material; and are, as a mixture, malleable or flexible at normal room temperature” (art. 1.1. and Technical Annex, part 1.). “High explosives” include, among others, cyclotetramethylenetetranitramine (HMX), pentaerythritol tetranitrate (PETN) and cyclotrimethylenetrinitramine (RDX). The Convention obligates state parties to prohibit and prevent the manufacture of unmarked explosives.

missiles, rockets, shaped charges, grenades and perforators manufactured exclusively for military or police purposes are subject to a different regime.¹⁵³

Another instrument that underlines the association of terrorism with explosive weapons is the European Convention on the Suppression of Terrorism adopted in 1977. The Convention promotes international legal assistance among states and the extradition of alleged perpetrators of terrorist offences. Among the offences for which an extradition request should not be denied on political grounds are those involving the use of “a bomb, grenade, rocket, automatic firearm or letter or parcel bomb if this use endangers persons”.¹⁵⁴ The list is not exclusively, but mostly composed of explosive weapons. The effects-oriented reference to the danger they pose to persons should be noted.

Other terrorism-prevention instruments stress the danger items pose to particular modes of transport. For example, the 1988 Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA Convention) makes it an offence to place on a ship, “a device or substance which is likely to destroy that ship, or cause damage to that ship or its cargo which endangers or is likely to endanger the safe navigation of that ship”. The text does not specify the nature of the potentially dangerous device or substance.¹⁵⁵

Some texts explicitly relate the danger of serious harm to the explosive properties of devices.¹⁵⁶ The 1997 International Convention for the Suppression of Terrorist Bombings (Terrorist Bombings Convention) makes

153 Ibid., arts. 1.5, 2.

154 Council of Europe, *European Convention on the Suppression of Terrorism*, 27 January 1977, art. 1(e).

155 *Protocol of 2005 to the Convention for the suppression of Unlawful Acts of Violence against the Safety of Maritime Navigation*, 14 October 2005, art. 3(1)(d). See also *Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation* for the *Suppression of Unlawful Acts against the Safety of Civil Aviation*, 23 September 1971, art. 1(1)(c).

156 Organization of African Unity, *OAU Convention on the Prevention and Combating of Terrorism*, 14 July 1999, uses the terms “arms, ammunition and explosives” without defining these further. Security Council, [*On threats to international peace and security caused by terrorist acts*], UN document S/RES/1373, 28 September 2001, calls upon states to find ways of intensifying information exchange regarding traffic in “arms, explosives or sensitive materials”.

it an offence to unlawfully and intentionally deliver, place, discharge or detonate “an explosive or lethal device in, into or against a place of public use, a State or government facility, a public transportation system or an infrastructure facility”. The Convention defines such a device as “An explosive or incendiary weapon or device that is designed, or has the capability, to cause death, serious bodily injury or substantial material damage” or toxic chemicals, biological agents or toxins, or radioactive material that have these effects.¹⁵⁷ Consequently, a broad range of harmful devices—explosive and non-explosive ones—fall within the scope of the Convention. In spite of the reference to “bombings” in the treaty’s title,¹⁵⁸ the harmful effects are not specific to the use of explosive weapons. A number of national provisions aimed at combating terrorism also highlight the connection between terrorism, bombings and certain explosive weapon types. But they, too, apply the same standards to other materials and weapons capable of producing the specified effects.¹⁵⁹

157 *International Convention for the Suppression of Terrorist Bombings*, 1997, preamble, arts. 1(3) and 2.

158 Its French title, “Convention internationale pour la répression des attentats terroristes à l’explosif”, makes the link explicit. The 1999 Organization of African Unity Convention on Terrorism (inaccurately) cites the 1997 Terrorist Bombings Convention as the “International Convention for the Suppression of Terrorist Explosive Bombs of 1997”. Under *Protocol of 2005 to the Convention for the suppression of Unlawful Acts of Violence against the Safety of Maritime Navigation*, 14 October 2005, a person commits an offence by using against or on a ship or discharging from a ship “any explosive, radioactive material or BCN weapon in a manner that causes or is likely to cause death or serious injury or damage” with the intent to intimidate a population or compel a government to a certain course of action (art. 4(5) introducing new Convention article 3bis(1)(a)(1)). Like many other terrorism instruments, the SUA Protocol does not apply to activities undertaken by military forces of a state in the exercise of their official duties or during an armed conflict (*ibid.*, art. 3 introducing new Convention article 2bis(2)).

159 US Code, Title 18, sec. 2332f prohibits “bombings” of places of public use, government facilities, public transportation systems and infrastructure facilities; art. 304 of the Syrian Penal Code mentions “explosives”; Under Pakistan’s Anti-terrorism Act (as amended in 1999), a person commits a terrorist act if he “does any act or thing by using bombs, dynamite or other explosive or inflammable substances”; The Liberian Penal Code (effective 1994) identifies the use of a “grenades, bombs, time-bombs, missiles, explosives, or other lethal devices” in relation to the offence of terrorism. Find these and other terrorism laws at <www.unodc.org/tldb/en/index.html>. For a recent analysis

Another set of instruments in this issue area highlights the potential to cause mass casualties, mass destruction or other “serious consequences”. Following the events of 11 September 2001, the United Nations Model Regulations were amended to include provisions on transport security (as opposed to safety). They now contain an indicative list of “high consequence dangerous goods”, defined as “those [dangerous goods] that have the potential for misuse in a terrorist event and which may, as a result, produce serious consequences such as mass casualties, mass destruction or, particularly for Class 7 [radioactive material], mass socio-economic disruption”.¹⁶⁰ The list includes explosives of Hazard Divisions 1.1 and 1.2, and some other explosives.

The connection between explosive weapons and the risk of serious consequences is also born out in certain national standards. The US Code lists several explosive-weapon-related offences in its chapter on terrorism, involving, *inter alia*, activities that appear to be intended “to affect the conduct of a government by mass destruction”. In this context, “weapons of mass destruction” means biological, chemical and radiological weapons, as well as “any destructive device”. The latter includes, notably, “any explosive”, including a bomb, grenade, rocket having a propellant charge of more than four ounces, missile having an explosive or incendiary charge of more than one-quarter ounce, mine or similar device.¹⁶¹

Like in the case of bombings, although explosive weapons are associated with a risk of mass casualties, this risk is not explosive weapon specific. The category of high-consequence dangerous goods also comprises certain

of terrorism laws worldwide, see Human Rights Watch, *In the Name of Security, Counterterrorism Laws Worldwide since September 2011*, June 2012.

160 United Nations Economic and Social Council, *Recommendations on the Transport of Dangerous Goods, Model Regulations*, UN document ST/SG/AC.10/1/Rev.17 (Vol. I), 17th rev. ed., 2011, p. 40. United States Court of Appeals, Tenth Circuit, *United States of America v. Terry Lynn Nichols*, Judgement, docket no. 98-1231, 26 February 1999, 169 F.3d 1255, 51 Fed. R. Evid. Serv. 336, 1999 CJ C.A.R. 1407, stresses the “great danger” posed by “an explosive weapon of mass destruction” in relation to the Oklahoma City bombing. The mass-destruction aspect is also evident in the notion of “CBRNE” terrorism, i.e., terrorist acts involving chemical, biological, radiological, nuclear or explosive weapons.

161 US Code, Title 18, sec. 2332a and sec. 921.

flammable, toxic, infectious or corrosive substances or materials.¹⁶² The term “weapons of mass destruction” in the US Code equally applies to incendiaries or poison gas.

That impacts from blast and fragmentation effects are but one consideration among others in this issue area is also evident in the IATG’s category of “items attractive to criminals and terrorist organizations”. Stockpiling of these items requires special security measures because they are “considered to be of immediate value to a terrorist or criminal” or would “significantly increase terrorist capability”.¹⁶³ Among them are detonators, bulk explosive, MANPADS and hand grenades. However, the list also includes small arms ammunition.

An idea of the factors that may play a role in the categorization of items as “attractive to criminals and terrorist organizations” can be gauged from a US military regulation. The Manual on the Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives categorizes “Sensitive Conventional Arms, Ammunition, and Explosives” into four “Security Risk Categories” on the basis of items’ “utility, casualty or damage effect, adaptability, and portability”. From a “utility” perspective, the manual rates the risk associated with “high-explosive, concussion, and fragmentation devices” higher than that associated with “small arms ammunition”. Although some of the categories are predominantly composed of explosive weapons, the combination of factors taken into account results in categories that are not explosive weapon specific.¹⁶⁴

162 Economic Commission for Europe, *European Agreement Concerning the International Carriage of Dangerous Goods by Road*, 1957 (applicable as from 1 January 2010), vol. I, p. 99. Under the ADR all explosives on the list are ipso facto high-consequence dangerous goods (even desensitized explosives of Hazard Class 3) whereas other listed substances, such as ammonium nitrate, are only considered high-consequence dangerous goods when carried in large quantities.

163 United Nations, *IATG 01.40:2011(E)*, p. 3; United Nations, *IATG 09.10:2011(E)*, p. 3.

164 DOD, *Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives (AA&E)*, document 5100.76, 17 April 2012, pp. 40–44. The manual is concerned with preventing terrorist acts, as well as other activities that may jeopardize the safety and security of personnel, missions and installations. On the basis of the criteria used, MANPADS are assigned to Security Risk Category I, high-explosive hand or rifle grenades and mines (below 50lbs) are in Category II, whereas Hellfire missiles, ammunition of .50 caliber and larger with explosive-filled projectiles below 100lbs, mortar tubes up to 81mm and

2.3.2. MAN-PORTABLE AIR DEFENCE SYSTEMS

MANPADS are treated differently from other explosive weapons, but not primarily for humanitarian reasons. MANPADS control is part of the SALW debate as well as of arms control concerned with major conventional weapons.¹⁶⁵ In the United Nations Register, MANPADS are included under a separate heading in Category VII (missiles and missile launchers), whereas they are listed in the Wassenaar Arrangement's Initial Elements under the title "Small Arms and Light Weapons—Man-Portable Weapons made or modified to military specification for use as lethal instrument of war". For reporting purposes under the Wassenaar Arrangement's Initial Elements, MANPADS are defined as "surface-to-air missile systems intended for use by an individual or several members of armed forces serving as a crew". However, they are set apart from both "small arms" and "light weapons".¹⁶⁶

The singling out of MANPADS for special regulation is best understood in the context of terrorism prevention. States participating in the Wassenaar Arrangement recognize the threats posed by the unauthorized proliferation and use of these weapons, "especially to civil aviation, peace-keeping, crisis management and anti-terrorist operations", and commit to "apply strict national controls on the export of MANPADS".¹⁶⁷ There are no

single-shot grenade launchers are assigned to Category III. Ammunition with non-explosive projectiles below 100lbs is in Category IV.

- 165 See James Bevan, "Connecting Paradigms: MANPADS in the National and Human Security Debates", *Disarmament Forum*, vol. 1, 2007, pp. 43–51.
- 166 Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, *Guidelines & Procedures, Including the Initial Elements*, December 1996 (as amended in 2011), appendix 3, para. 8; General Assembly, *General and Complete Disarmament: Transparency in Armaments*, UN document A/RES/46/36, 6 December 1991.
- 167 Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, *Elements for Export Controls of Man-Portable Air Defence Systems (MANPADS)*, 2003 (as amended in 2007). Largely based on these Elements, the OSCE also adopted instruments on MANPADS. See OSCE, *OSCE Principles for Export Controls of Man-Portable Air Defence Systems (MANPADS)*, document FSC.DEC/3/04, 26 May 2004; Organization for Security and Co-operation in Europe, *Updating the OSCE Principles for Export Controls of Man-Portable Air Defence Systems*, document FSC.DEC/5/08, 26 May 2008. The *United States Code*, version 1 March 2012, provides an example of national legislation. US Code, Title 18, sec. 2332g makes it an offence to produce, possess or use "an explosive or incendiary

explicit references to the explosive characteristics of MANPADS. Concern relates to their portability and operability. Their destructive potential and any humanitarian concerns related to their use remain implicit.

2.4. LAW ENFORCEMENT AND HUMAN RIGHTS

Regulation in this issue area is effects-oriented in that the primary concern is how any “use of force” or of “means capable of causing death or injury” affect the enjoyment of human rights. This includes the use of explosive weapons. It is unclear, however, whether the well-established (though ill-defined) notion of “firearms”, as it is used in regulatory instruments of this issue area, covers (some) explosive weapons.

There seems to be no systematic approach towards characterizing weapon technologies, their effects, and their impacts on human rights. Despite references in case-law to the explosive nature of weapons and to their blast, fragmentation and indiscriminate effects, explosive weapons are not currently treated differently from other weapons. It is also unclear what terms borrowed from other issue areas, like “military weapons” or “heavy weapons”, imply for the regulation of explosive weapons in this context.

2.4.1. USE OF FORCE AND FIREARMS

In a democratic society, the legitimacy of state use of force is tied up with the state’s obligation to secure respect for and observance of the human rights of people within its jurisdiction or control. One of the means by which states meet or fail to meet these obligations under international law is policing, including law enforcement. Those entrusted with the maintenance of public order and security are given the power and authority to use force—depending on the situation, they may be required to use force. State use of force is strictly regulated because if it violates human rights it defeats one of the prime purposes of policing.¹⁶⁸

One international instrument that contributes to the protection of human rights by placing restrictions on the use of force is the 1979 Code of

rocket or missile” that is guided to seek energy radiated from an aircraft or any device designed or intended to launch or guide such a rocket or missile.

168 On the connection between policing, the maintenance of a social order and the protection of human rights, see Ralph Crawshaw, Stuart Cullen and Tom Williamson, *Human Rights and Policing*, 2nd rev. ed., Martinus Nijhoff, 2007, pp. 19, 21–29.

Conduct for Law Enforcement Officials. The Code applies to all “officers of the law ... who exercise police powers”, and is, hence, also applicable to members of the military or other state security forces who carry out law enforcement tasks. The Code broadly identifies the circumstances under which they may use force and firearms.¹⁶⁹ The Basic Principles on the Use of Force and Firearms by Law Enforcement Officials (BPUFF) adopted in 1990, elaborate on the Code’s provisions and provide more detailed guidance.

The BPUFF contain “general provisions” referring to the “use of force and firearms”, and “special provisions” addressing the use of “firearms” and “ammunition”.¹⁷⁰ The standards set by the BPUFF reflect concern about the effects of the use of force on the enjoyment of human rights and, in particular, the right to life. They distinguish among law enforcement means on the basis of their potential to result in death or injury.¹⁷¹ Principle 2 promotes equipping law enforcement officials with “non-lethal incapacitating weapons” with a view to restraining recourse to “means capable of causing death or injury to persons”. Pursuant to principle 5, “force and firearms” may only be used as a last resort and any use must be necessary and proportionate. Principle 9 places explicit restrictions on the use of “firearms”, which must not be employed against persons except in limited, well-defined circumstances, as a last resort and only to the extent necessary.

169 General Assembly, *Code of Conduct for Law Enforcement Officials*, UN document A/RES/34/169, 17 December 1979. Pursuant to article 3 of the Code, law enforcement officials “may use force only when strictly necessary to the extent required for the performance of their duty”. The Commentary to this provision clarifies that the use of force is “exceptional” and is restricted to what is necessary and proportionate to achieve a legitimate objective, such as the prevention of a crime. The Commentary further creates a strong presumption against the use of firearms. Recourse to firearms is considered “an extreme measure”. They should not be used, except when less extreme measures are not sufficient to prevent a violation of the right to life.

170 Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, *Basic Principles on the Use of Force and Firearms by Law Enforcement Officials*, UN document A/CONF.144/28/Rev.1, 27 August–7 September 1990.

171 Principle 4 sets “non-violent means” apart from “force and firearms”. Force and firearms should only be used if non-violent means remain ineffective.

Neither the Code nor the BPUFF define the concept of use of force or the term “firearms”. Use of force clearly does not differentiate among different weapon types, but both the Code of Conduct and the BPUFF use the term “to discharge” in relation to firearms, suggesting an act of shooting or firing of a projectile or weapon. Certain emplaced or hand-thrown (explosive) weapon types would, hence, be excluded from that definition.¹⁷² But considering the broad understanding of “firearms” in certain instruments discussed in relation to arms control, and the ambiguities surrounding the nature of SALW (and their munition), it cannot be concluded with certainty that firearms munition is never explosive.

2.4.1.1. What weapons for law enforcement?

States are required to adopt national regulations that effectively control and limit the circumstances of use of force, including standards that “prescribe the types of firearms and ammunition permitted” and “prohibit the use of those firearms and ammunition that cause unwarranted injury or present an unwarranted risk”.¹⁷³ National regulations should therefore be expected to exclude weapons that cause blast and fragmentation effects. However, as the following examples illustrate, it is difficult to draw a firm conclusion about what national standards imply for the regulation of explosive weapons.

172 United Nations High Commissioner for Human Rights/Centre for Human Rights, *Human Rights and Law Enforcement: A Manual on Human Rights Training for the Police*, 1997, p. 86; General Assembly, *Code of Conduct for Law Enforcement Officials*, UN document A/RES/34/169, 17 December 1979, art. 3, commentary para. c; Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, *Basic Principles on the Use of Force and Firearms by Law Enforcement Officials*, UN document A/CONF.144/28/Rev.1, 27 August–7 September 1990, principle 11(e).

173 United Nations Economic and Social Council, *Principles on the Effective Prevention and Investigation of Extra-Legal, Arbitrary and Summary Executions*, 24 May 1989; Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, *Basic Principles on the Use of Force and Firearms by Law Enforcement Officials*, UN document A/CONF.144/28/Rev.1, 27 August–7 September 1990, Principles 1, 11(a)–(c). See also ECHR, *Isayeva, Yusupova and Bazayeva v. Russia*, Judgement, Applications nos. 57947/00, 57948/00 and 57949/00, 24 February 2005, para. 198; United Nations High Commissioner for Human Rights/Centre for Human Rights, *Human Rights and Law Enforcement: A Manual on Human Rights Training for the Police*, 1997, p. 106.

Swiss legislation explicitly restricts the fragmentation effects of munitions, which would have a bearing on the use of explosive weapons. Rules on the enforcement powers of the police at the federal level only authorize the use of long guns and handguns (“les armes à épauler et les armes de poing”), automatic firearms (“les armes automatiques”) and multi-purpose launchers and rifles (“les armes et les fusils polyvalents”).¹⁷⁴ A special provision on ammunition stipulates that only projectiles that deform on impact, *but do not fragment*, may be used.¹⁷⁵ This requirement was introduced with a view to the protection of bystanders from small calibre deformation ammunition.¹⁷⁶ The same considerations would seem to rule out the use of explosive munitions for policing in Switzerland.

In contrast, no explicit reference to blast or fragmentation effects can be found in relevant Belgian regulations. Weapons, munitions and equipment for the police are divided into three categories.¹⁷⁷ “Individual weapons”

174 Switzerland, *Loi du 20 mars 2008 sur l’usage de la contrainte et de mesures policières dans les domaines relevant de la compétence de la Confédération*, Recueil officiel 2008 5463, 20 March 2008 (as of 1 January 2011); Switzerland, *Ordonnance du 12 novembre 2008 relative à l’usage de la contrainte et de mesures policières dans les domaines relevant de la compétence de la Confédération*, Recueil officiel 2008 5475, 12 November 2008 (as of 1 January 2009). The law does not apply to the Swiss military, except when they carry out policing functions in support of the civil authorities.

175 Switzerland, *Ordonnance du 12 novembre 2008 relative à l’usage de la contrainte et de mesures policières dans les domaines relevant de la compétence de la Confédération*, Recueil officiel 2008 5475, 12 November 2008 (as of 1 January 2009), art. 12(2): “Only those projectiles that deform on impact, but do not fragment, are authorized” (the original reads “Seuls sont autorisés les projectiles qui se déforment lors de l’impact, mais ne se fragmentent pas”).

176 “Feu vert aux balles expansives en Suisse”, *RTS Info*, 28 June 2010, <www.rts.ch/info/suisse/1112626-feu-vert-aux-balles-expansives-en-suisse.html>. On this issue, see also Jordan J. Paust, “Does Your Police Force Use Illegal Weapons? A Configurative Approach to Decision Integrating International and Domestic Law”, *Harvard International Law Journal*, vol. 18, no. 1, 1977, pp. 19–54; Jorma Jussila and Pertti Normia, “International Law and Law Enforcement Firearms”, *Medicine, Conflict and Survival*, vol. 20, no. 1, 2004, pp. 55–69.

177 Belgium, *Arrêté royal relatif à l’armement de la police intégrée, structurée à deux niveaux, ainsi qu’à l’armement des membres des Services d’Enquêtes des Comités permanents P et R et du personnel de l’Inspection générale de la police fédérale et de la police locale*, *Moniteur Belge* 22/6/2007, 3 June 2007, arts. 3–6.

("armement individuel") describes a police officer's personal weapon and "collective weapons" ("armement collectif") refers to weapons temporarily provided to members of the police. Weapons in both categories are restricted to a calibre no greater than 9mm. As the regulatory texts do not indicate what motivates authorization or exclusion of weapons and munitions, any implications this calibre restriction may have for the use of explosive weapons remains implicit.

In other national texts, use of explosive weapons is explicitly contemplated in the context of policing. Use of force, as the term is defined in a recently adopted Law on Police in Kosovo (2012) "includes, but is not limited to the use of: physical force ... , firearms, ... special types of weapons and explosive devices".¹⁷⁸ A law of 2010 regulating weapons, ammunition and relevant security equipment for authorized state security institutions lists the "weapons that may be used by the Kosovo Police". Among these are "37mm or like launching platforms" of Category A1 (described as "explosive military missiles and launching systems" in the Law on Weapons (2009)), but only in order to launch "gas munitions, compliance munitions, or breaching munitions". This would exclude explosive munitions. But the police are also authorized to use "explosives and its parts", as well as "weapons with rifled barrels over 12,7mm" (Category A7).¹⁷⁹ The law does not specify which munitions are authorized for these weapons and the implications for the regulation of explosive weapons are hence unclear. Admittedly, the law contains no reference to "explosive ammunition" (Category A4 under the Law on Weapons), but it does provide a definition of "ammunition with explosive projectiles". Remarkably, that definition refers to "ammunition dedicated only for use by *institutions of the law enforcement* of which the bullet contains a filling which explodes".¹⁸⁰

178 Law no. 04/L-076 on Police, 23 January 2012, arts. 26–27 (emphasis added).

179 Law no. 03/L-246 on Weapons, Ammunition and Relevant Security Equipment for Authorised State Security Institutions, 28 October 2010, arts. 3(1)(13), 3(1)(25), 3(1)(36), 3(1)(2), 5(1). The law does not pertain to the weapons of the Kosovo Security Force, which is expected to take on the task of national defence, but applies to the Kosovo Police, Kosovo Intelligence Agency and other state security services.

180 Ibid., art. 3(1)(25) (emphasis added). In Law no. 03/L-143 on Weapons, 17 September 2009, art. 2(1)(38), the same ammunition is described as "dedicated only for military use". Consider also the reference to "police purposes" in the *Convention on the Marking of Plastic Explosives for the Purpose of Detection*, 1991, art. 1(5), to "shells, bombs, projectiles, mines, missiles,

Uncertainty about the treatment of explosive weapons for domestic law enforcement is compounded by the application of different standards, in a number of countries, to “special” police forces or units. What weapons such forces are authorized to use is not always publicly known.¹⁸¹ In Belgium, weapons other than individual and collective ones are considered special weapons (“armement particulier”) for special missions. To “avoid any erroneous interpretation”, an administrative text of 2008 lists these special weapons. The list includes grenades and launchers, but does not specify their types or characteristics. In any event, the list is not meant to be exhaustive, and may or may not include certain explosive munitions.¹⁸²

rockets, shaped charges, grenades and perforators manufactured exclusively for military or police purposes”.

- 181 By way of illustration, a Swiss intervention unit of “particularly well-trained and well-equipped police” called the “Tigris Unit”, carries out missions presenting a heightened risk of violence, for example, in relation to the arrest of persons associated with organized crime (our translation). Several parliamentary interpellations raised questions, among other things, about the armament of this unit. The government responded that Tigris was equipped “with additional weapons and specific materiel” without providing more concrete information (our translation). Josef Lang, *Groupe d’intervention Tigris*, Interpellation et Réponse du Conseil fédéral, Curia Vista 09.1034, 19 March 2009; Max Chopard-Acklin, *Police fédérale. Unité spéciale Tigris*, Interpellation et Réponse du Conseil fédéral, Curia Vista 09.3320, 20 March 2009; J. Alexander Baumann, *Unités de police secrètes?*, Interpellation et Réponse du Conseil fédéral, Curia Vista 09.3363, 27 April 2009; Josef Lang, *Unités spéciales. Assurer une pleine transparence*, Interpellation et Réponse du Conseil fédéral, Curia Vista 09.3570, 10 June 2009. For indications about the equipment of “special” police units worldwide, see Sören Sünkler, *Polizei Sondereinheiten: Internationale Anti-Terrorinheiten und Spezialeinsatzkommandos*, Motorbuch Verlag, 2010.
- 182 Belgium, *Arrêté royal relatif à l’armement de la police intégrée, structurée à deux niveaux, ainsi qu’à l’armement des membres des Services d’Enquêtes des Comités permanents P et R et du personnel de l’Inspection générale de la police fédérale et de la police locale*, Moniteur Belge 22/6/2007, 3 June 2007; Belgium, *Circulaire GPI 62 relative à l’armement de la police intégrée, structurée à deux niveaux*, Moniteur Belge 29/2/2008, 14 February 2008, sec. 3(5). The acquisition of special weapons is subject to strict controls and reporting requirements. However, exceptional procedures apply to a special police unit (the CGSU), “whose weapons must remain confidential due to the very ‘specialized’ activities it carries out” (the original reads “en raison de ses activités très ‘spécialisées’ qui nécessitent une certaine confidentialité quant à l’armement en sa possession”).

2.4.2. EXPLOSIVE WEAPONS IN CASES BEFORE REGIONAL HUMAN RIGHTS BODIES

As international and national texts on the use of force and firearms provide only limited guidance on the regulation of explosive weapons, what implications, if any, do explosive properties of weapons have under the more general HRL standards that apply to the use of force? Human rights instruments such as the International Covenant on Civil and Political Rights (1966) or the 1950 European Convention on Human Rights (ECHR)¹⁸³ do not contain weapon-specific provisions. But they guarantee a set of human rights that provide the standards against which the legality of state use of force is assessed. This study focuses on cases before regional judicial (or quasi-judicial) mechanisms entrusted with enforcing these standards. In the European context, the European Court of Human Rights (ECtHR) rules on individual or state applications alleging violations of the ECHR.

Human rights bodies have specifically mentioned explosive properties of weapons in some instances, but it is unclear what implications the explosive nature of a weapon had under the relevant HRL standard. In *Ahmet Özkan and Others v. Turkey*, the ECtHR noted that an “explosive device”, “rifle or other grenade” had been thrown or fired into a house. The Court also accepted that a young boy had been killed and his sister injured as the result of “the explosion of a hand grenade” left behind after the fighting.¹⁸⁴ In other cases, courts have pointed to the fragmentation and blast effects of explosive weapons and to their great power. And, they have identified their indiscriminate and highly destructive effects as particularly problematic with regard to the requirements of proportionality and necessity applying to the use of force. In *Streletz and Others v. Germany*, the ECtHR pointed to the “automatic and indiscriminate effect” of “anti-personnel landmines”.¹⁸⁵ On another occasion the same Court

183 Council of Europe, *European Convention on Human Rights*, 4 November 1950.

184 ECtHR, *Ahmet Özkan and Others v. Turkey*, Judgement, Application no. 21689/93, 6 April 2004, paras. 117, 314, 317. At para. 290, the Court refers to the “explosion of devices used by the security forces”.

185 ECtHR, *Streletz and Others v. Germany*, Judgement, Application nos. 34044/96, 35532/97 and 44801/98, 22 March 2001, para. 73. The case concerned senior officials of the border guard of the German Democratic Republic who were convicted after German reunification for killing people attempting to flee the German Democratic Republic in the 1970s and 1980s. Several of the victims were seriously injured by the explosion of fragmentation mines in their attempt to leave the GDR.

pointed out that the use of landmines has been widely condemned by the international community, although it is unclear what implications this has under HRL.¹⁸⁶ In *Esmukhambetov and others v. Russia*, the ECtHR characterized the events as an “indiscriminate bombing attack” involving “the deployment of military aviation equipped with heavy weapons”.¹⁸⁷ The ECtHR described the weapons used in the well-known case of *Isayeva v. Russia* as “heavy free-falling high-explosion aviation bombs FAB-250 and FAB-500 with a damage radius exceeding 1,000 metres”, and considered that the event involved “massive use of indiscriminate weapons”.¹⁸⁸ In *Isayeva and others v. Russia*,¹⁸⁹ involving “an aerial missile attack” during which a full load (twelve) S-24 non-guided air-to-ground missiles were fired, the ECtHR considered that “an extremely powerful weapon” had been used, noting that “On explosion, each missile creates several thousand pieces of shrapnel and its impact radius exceeds 300 metres (or 600–800 metres, as suggested by some documents ...)”. Finally, in *Santo Domingo v. Colombia*, a case presently pending before the Inter-American Court of Human Rights (IACtHR), the Inter-American Commission on Human Rights (IAmComHR) concluded with a view to the fragmentation effects of cluster munitions that these weapons “have limited precision

186 The Court observed that landmines presented a grave danger for young children in ECtHR, *Paşa et Erkan Erol c. Turquie*, Judgement, Application no. 51358/99, 12 December 2006, paras. 8, 32, 37–38. Other cases involving landmines include ECtHR, *Albekov and Others v. Russia*, Judgement, Application no. 68216/01, 9 October 2008; ECtHR, *Yakar v. Turkey*, Judgement, Application no. 36189/97, 26 November 2002; ECtHR, *Demiray v. Turkey*, Judgement (friendly settlement), Application no. 36189/97, 26 November 2002.

187 ECtHR, *Esmukhambetov and others v. Russia*, Judgement, Application no. 23445/03, 29 March 2011, paras. 17, 19, 21, 140, 146–150, 179, 186, 190. The Russian government described the events as “a pinpoint missile strike”.

188 ECtHR, *Isayeva v. Russia*, Judgement, Applications no. 57950/00, 24 February 2005, paras. 12, 18, 175, 176, 176–180, 188–191, 198, 200–201. A government expert called it “a localised method of fire”. See also ECtHR, *Abuyeva and Others v. Russia*, Judgement, Application no. 27065/05, 2 December 2010.

189 ECtHR, *Isayeva, Yusupova and Bazayeva v. Russia*, Judgement, Applications nos. 57947/00, 57948/00 and 57949/00, 24 February 2005, paras. 174, 184, 186, 193–200, 229, 233. The Court considered that there was “apparent disproportionality in the weapons used” and found a violation of the right to life, but did not find separate issues arising under the prohibition of inhuman treatment.

but great antipersonnel power”.¹⁹⁰ Even though courts highlight explosive characteristics of weapons, these cases also illustrate that courts do not adopt a systematic or categorical approach towards explosive weapons in this issue area.

2.5. PROTECTION OF CIVILIANS AND THE CONDUCT OF HOSTILITIES

Explosive effects of weapons are an important criterion informing regulation in this issue area. Instruments explicitly mention explosive properties of weapons and link them to humanitarian concerns, both in terms of the horrific wounds they cause (to combatants) and in terms of the challenges they pose for the protection of civilians due to their indiscriminate (area) effects. Concern about area effects is explicit in relation to “cluster munitions” and also finds expression in rules specifically applying to “bombardments”.

The notion of “blast and fragmentation weapons” that informed discussions about weapons regulation for humanitarian reasons in the 1970s reflects a broadly categorical approach to explosive weapons. However, this did not translate into categorical regulation of explosive weapons under IHL. Instead a great many instruments split up the category of explosive weapons and single out particular types of explosive weapons.

Differential treatment of certain explosive weapons is, in part, informed by humanitarian considerations, but considerations of military purpose, launch platform, mode of delivery or intended usage also play a role. For instance, different rules apply to anti-personnel landmines than to anti-vehicle mines. Similarly, national military regulations may distinguish between “indirect fire weapons” and other weapons on the basis of their mode of delivery, or among “precision-guided” and unguided munitions.

190 IAmComHR, *Santo Domingo v. The Republic of Colombia*, Referral to the IACtHR, Case No. 12.416, 8 July 2011, paras. 58, 119. The application of *Georgia v. Russia*, which is awaiting judgement on the merits by the ECtHR also concerns allegations of indiscriminate and disproportionate aerial bomb attacks, and rocket and tank attacks on civilian convoys and/or Georgian villages, as well as use of landmines and cluster munitions by Russian forces. ECtHR, *Georgia v. Russia*, Decision (admissibility), Application no. 38263/08, 13 December 2011, para. 27.

2.5.1. BOMBARDMENTS

In situations of armed conflict, standards of IHL place constraints on the use of force and aim to protect civilians (and others not or no longer taking part in the conflict) against the effects of hostilities. How IHL rules protect civilians against the effects of explosive weapons is discussed in more detail later in this study. The following discussion focuses on the categories used in regulatory instruments in this issue area, and the criteria upon which they are based.

Historically, many texts in this issue area contain provisions that specially mention “bombardment” or “bombing”, reflecting recognition that the projection of multiple explosive weapons from the ground, sea or air, in particular into cities, towns or villages, raises distinct humanitarian concerns. The drafters of the 1874 Brussels Declaration and the 1880 Oxford Manual devoted entire sections of these documents to the regulation of “bombardments”, and the Hague Regulations annexed to 1907 Hague Convention IV contain detailed rules on the “Means of injuring the enemy, sieges, and bombardments”.¹⁹¹ Some texts adopted much later, such as the Statute of the International Criminal Tribunal for the Former Yugoslavia (ICTY) and the Statute of the International Criminal Court (ICC) retain the distinction between “bombardments” and “attacks” in passages based on language from the 1907 Hague Regulations.¹⁹²

Specific rules on bombardments were also elaborated in relation to naval and air warfare. The 1907 Hague Convention IX was adopted specifically to regulate “bombardment” by naval forces in time of war, reflecting

191 *Project of an International Declaration concerning the Laws and Customs of War*, 27 August 1874, arts. 15–18; Institute of International Law, *The Laws of War on Land*, 9 September 1880, paras. 32–34. See also *Hague Convention (IV) respecting the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land*, 18 October 1907, arts. 25–27.

192 Security Council, [*On establishment of the international tribunal for prosecution of persons responsible for serious violations of international humanitarian law committed in the territory of the former Yugoslavia since 1991*], UN document S/RES/827, 25 May 1993, art. 3(c), on violations of the laws or customs of war, lists “attack, or bombardment, by whatever means, of undefended towns, villages, dwellings, or buildings”; *Rome Statute of the International Criminal Court*, 1998, art. 8(2)(b)(v).

concern for coastal towns increasingly within reach of naval artillery.¹⁹³ The advent of air warfare spurred on efforts to regulate bombardment from the air. Already a declaration adopted in 1899 (renewed in 1907) prohibited the launching of projectiles and explosives from balloons,¹⁹⁴ and the 1922/1923 Hague Rules of Air Warfare (never adopted in a legally binding form) forbid “bombardment of cities, towns, villages, habitations and building” not situated in the immediate vicinity of the operations of the land forces.¹⁹⁵ Concern about the humanitarian impacts of “bombardments” and “air raids” is also reflected in a few provisions of the 1949 Geneva Conventions.¹⁹⁶

Concern about the humanitarian impacts of bombardments evolved with particular reference to the context of populated areas—an issue that will be discussed further in section 3 of this study.

2.5.2. EXPLOSIVE PROJECTILES, MINES AND CLUSTER MUNITIONS

One of the first weapon-specific instruments of modern IHL outlaws a type of explosive weapon out of concern over the horrific injuries associated with its use. The 1868 St. Petersburg Declaration prohibits the

193 *Hague Convention (IX) concerning Bombardment by Naval Forces in Time of War*, 18 October 1907.

194 *Declaration (XIV) Prohibiting the Discharge of Projectiles and Explosives from Balloons*, 18 October 1907.

195 *Rules concerning the Control of Wireless Telegraphy in Time of War and Air Warfare*, 1922/1923, art. 24(3).

196 *Convention (II) for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea*, 12 August 1949, art. 23, specifically refers to the protection from “bombardment or attack from the sea” of medical establishments ashore. *Convention (III) relative to the Treatment of Prisoners of War*, 12 August 1949, art. 23, requires that prisoners of war have shelters against air bombardment; *Convention (IV) relative to the Protection of Civilian Persons in Time of War*, 12 August 1949, art. 88, contains a provision on shelters for internees to protect them from “air raids and other hazards of war”; other provisions refer to “attacks” more generally. See also *Convention for the Protection of Cultural Property in the Event of Armed Conflict*, 14 May 1954, art. 8(2): “A refuge for movable cultural property may also be placed under special protection, ... if it is so constructed that, in all probability, it will not be damaged by bombs”.

employment of explosive or incendiary projectiles under 400g.¹⁹⁷ After the introduction of exploding anti-aircraft bullets in the First World War, the customary prohibition that developed was limited to the *anti-personnel* use of projectiles *which explode within the human body*. The Hague Rules of Air Warfare drafted after the First World War provide that the use of “tracer projectiles, whether incendiary or explosive” by or against aircraft is not forbidden.¹⁹⁸ The British Joint Service Manual of the Law of Armed Conflict (2004) notes in this regard that a round that explodes on impact would uselessly aggravate the injury, but that this does not “prevent the use of explosive or combined-effects munitions”, even of small calibre, “for defeating material targets, even though personnel may be incidentally wounded by them”.¹⁹⁹ This passage underlines the importance of intentionality in the assessment of weapon effects on human health under IHL. Projectiles designed to explode within a person are considered unacceptable, but wounds inflicted by blast and fragmentation from a projectile landing next to that person are not.

Because civilians may not be the object of direct attack, the impact of the use of a weapon on this group of people is assessed under IHL, not in terms of the gravity of wounds or level of suffering, but in terms of

197 *Declaration Renouncing the Use, in Times of War, of Explosive Projectiles under 400 Grammes Weight*, 1868. In the language of the time, a projectile “which is either explosive or charged with fulminating or inflammable substances”. The prohibition to use bullets which explode within the human body against people is widely considered to be of customary nature and applicable in all armed conflicts today. Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law, Volume I: Rules*, ICRC, 2005, rule 78.

198 *Ibid.* *Rules concerning the Control of Wireless Telegraphy in Time of War and Air Warfare*, 1922/1923, art. 18.

199 UK Ministry of Defence, *The Joint Service Manual of the Law of Armed Conflict*, document JSP 383, 2004, paras. 6.10, 12.63. It is worth noting, however, that in the course of the 1970s process aimed at placing international restrictions on weapons that may be excessively injurious, the question whether “fragmentation weapons” inflict superfluous injury or unnecessary suffering was raised. A parallel was drawn between fragments travelling at a high velocity and high-velocity small calibre projectiles. Both tumble on impact with the human body and tend to cause extremely severe wounds. See for example Torgil Wulff et al., *Conventional Weapons, their Deployment and Effects from a Humanitarian Aspect: Recommendations for the Modernization of International Law*, 1973, p. 157.

whether the weapon has indiscriminate effects, that is, whether it affects civilians and legitimate military targets without distinction.²⁰⁰ Several types of explosive weapons are subject to special international restrictions, in part, on the basis of their indiscriminate effects, both during and after conflict. Protocol II on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices annexed to the 1980 Convention on Certain Conventional Weapons (CCW) and Amended Protocol II adopted in 1996 aim to prevent civilian harm from weapons that kill or injure indiscriminately, even long after a conflict has ended. The Amended Protocol prohibits the use of “booby-traps or other devices in the form of apparently harmless portable objects which are specifically designed and constructed to contain explosive material”. IEDs are included under “other devices”.²⁰¹

The CCW protocols also limit the use (and transfer) of certain mines, defined as munitions placed under, on or near the ground or other surface area and “designed to be exploded” by the presence, proximity or contact of a person or vehicle.²⁰² The 1997 Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction (Mine Ban Convention) completely bans anti-personnel

200 The majority opinion holds that, as civilians must not be the object of direct attack, IHL rules concerned with preventing superfluous injury or unnecessary suffering are aimed at the protection of combatants. For a detailed discussion, see Théo Boutruche, “L’interdiction des maux superflus : contribution à l’étude des principes et règles relatifs aux moyens et méthodes de guerre en droit international humanitaire”, PhD thesis, Graduate Institute of International Studies, Geneva, Switzerland, 2008.

201 *Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices as amended on 3 May 1996 (Amended Protocol II to the CCW)*, 3 May 1996, arts. 2(5), 7(2) (emphasis added). Consider also, *Convention (VIII) relative to the Laying of Automatic Submarine Contact Mines*, 18 October 1907, which prohibits the use of unanchored automatic contact mines that do not become harmless after the user ceases to control them, and the use of torpedoes which do not become harmless when they have missed their mark, reflecting concern over the indiscriminate and post-use effects of certain explosive weapons. These concerns are also at the basis of restrictions on the use of torpedoes and mines in the International Institute of Humanitarian Law, *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, 12 June 1994.

202 *Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices as amended on 3 May 1996 (Amended Protocol II to the CCW)*, 3 May 1996, art. 2(1).

mines “designed to be exploded by the presence, proximity or contact of a person and that will incapacitate, injure or kill one or more persons”.²⁰³ An important element in differentiating mines from other explosive devices under these instruments is that mines are intended to be activated by their victims—again, an element of intentionality on the basis of which explosive weapons with similar effects are subject to different regimes.

Preventing indiscriminate post-conflict effects of explosive submunitions that failed to function as intended and explode upon contact with a person or vehicle is one of the goals of the 2008 Convention on Cluster Munitions (CCM). The CCM also reflects other humanitarian concerns, such as those stemming from the wide area effects of cluster munitions, which at the time of use cause death, injury and destruction within the affected area without distinction. To prevent such effects, the Convention bans the use, possession, production, stockpiling and transfer of cluster munitions, defined as conventional munitions “designed to disperse or release explosive submunitions each weighing less than 20 kilograms”, which includes those explosive submunitions. An “explosive submunition”, in turn, means “a conventional munition ... designed to function by detonating an explosive charge prior to, on or after impact”. The Convention does not apply to weapons which, due to a number of specified technical properties, “avoid indiscriminate area effects and the risks posed by unexploded submunitions”.²⁰⁴

2.5.2.1. Blast and fragmentation weapons

The indiscriminate effects of cluster munitions and of other weapons that project fragments across a wide area were already a central theme of international expert discussions in the 1970s.²⁰⁵ These discussions

203 *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction*, 18 September 1997, art. 2(1).

204 *Convention on Cluster Munitions*, 30 May 2008, preamble, arts. 1, 2(2–3).

205 See for example, Eric Prokosch, “Armes à fragmentation: Tendances actuelles”, *International Review of the Red Cross*, vol. 57, no. 684, 1975, p. 712: “cluster bombs with wide area effects, by their very nature, entail indiscriminate effects whenever those weapons are used ... in areas where civilians are present; those areas will remain hazardous for some time after the attack if some of the cluster submunitions are duds or are delayed-action submunitions” (the original reads “une bombe en grappe à grande surface d’action a, par sa nature même, des effets indiscriminés dès lors qu’elle est utilisée [...] sur une zone où se trouvent aussi des civils et qu’en outre la zone visée restera dangereuse,

on the reaffirmation and development of IHL aiming at the elaboration of prohibitions or restrictions on weapons for humanitarian reasons (the process leading to the adoption of Additional Protocol I to the Geneva Conventions and of the CCW) adopted a broadly categorical approach to explosive weapons. Experts identified “explosive and penetrating weapons” as one of the principle categories of weapons. The report of a 1973 expert meeting organized by the ICRC described “explosive weapons” as weapons “which act through blast and fragmentation”, and described in great detail the medical effects of blast waves and fragment projection from bombs and shells on the human body. In these discussions, “blast weapons” were differentiated from “fragmentation weapons” on the basis that the “principal effects” of the former “result from the shock waves released when a high-explosive charge detonates”, whereas the latter are “explosive munitions maximizing fragmentation effects”.

At the same time, experts recognized that blast and fragmentation effects are to varying degrees inherent in all explosive devices.²⁰⁶ But by 1976

pendant une certaine durée après l’attaque, si certaines des petites bombes sont des ratés ou sont à retardement”). For more information on the historical background and negotiating history of the CCM, see Eric Prokosch, “Technology and its Control: Antipersonnel Weapons”, *International Social Science Journal*, vol. 28, no. 2, 1976, pp. 341–358; John Borrie, *Unacceptable Harm: A History of How the Treaty to Ban Cluster Munitions Was Won*, UNIDIR, 2009.

- 206 ICRC, *Weapons that May Cause Unnecessary Suffering or Have Indiscriminate Effects, Report on the Work of Experts*, 1973, pp. 19, 39–40, 45–46; ICRC, “Conference of Government Experts on the Use of Certain Conventional Weapons, Report”, paper presented at the Conference of Government Experts on the Use of Certain Conventional Weapons, Lucerne, 24 September–18 October 1974, p. 49. William H. Boothby, *Weapons and the Law of Armed Conflict*, 2009, p. 225, describes munitions falling within his category of “missiles, bombs and artillery” as those that “typically employ a warhead with an explosive fill such that a combination of blast and fragmentation will provide the damaging effect of the weapon”. See also Program on Humanitarian Policy and Conflict Research at Harvard University, *Commentary on the HPCR Manual on International Law Applicable to Air and Missile Warfare*, 2010, pp. 75–77. Like experts in 1973, the authors of the Commentary believe that “Blast weapons must be distinguished from fragmentation weapons”, while at the same time acknowledging that “Blast is an inherent aspect of high explosive munitions, whether they are weapons dependent solely on blast or a combination of blast and fragmentation”. Blast weapons are defined as creating “a pressure wave triggered by an explosion in order to damage objects and/or injure enemy combatants. In other words, the destructive force of a

“No general ban on blast and fragmentation weapons as a class” had apparently been proposed or contemplated by any side, and experts hence “concentrated their attention on specific weapons falling within this category”.²⁰⁷ Weapon types of concern were identified with a view to their humanitarian impacts, such as their propensity to cause multiple wounds, especially severe wounds, or to injure and kill people without distinction within a wide area. But considerations related to purported military utility or purpose, for example, whether they were “anti-personnel”, “anti-materiel” or “combined-effects” weapons, also played an important role. The resulting “agreements on prohibitions or restrictions on the use of specific conventional weapons” include CCW Protocol II discussed above and CCW Protocol I concerning weapon fragments that were not detectable by X-ray.²⁰⁸

Only one instrument that emerged from these discussions reflects a categorical approach to explosive weapons. CCW Protocol III on Prohibitions or Restrictions on the Use of Incendiary Weapons mentions “Munitions designed to combine penetration, blast or fragmentation effects with an additional incendiary effect, such as armour-piercing projectiles, fragmentation shells, explosive bombs and similar combined-effects munitions”. Protocol III remains the only IHL treaty to formally recognize explosive weapons as a category based on their blast and

blast weapon is the overpressure it causes”. Fragmentation munitions, in turn, are described as “anti-personnel and/or anti-materiel munitions that ... project a large number of projectiles on detonation”. The Commentary notes that these munitions “have been a major casualty producer on the battlefield”, but does not offer insights into the legal issues that such weapons may raise under the rule of distinction or the prohibition to cause unnecessary suffering.

207 ICRC, “Conference of Government Experts on the Use of Certain Conventional Weapons, Report, Second Session”, paper presented at the Conference of Government Experts on the Use of Certain Conventional Weapons, Lugano, 28 January–26 February 1976, p. 17.

208 Note the reference to “the effects of the use of ... certain blast and fragmentation weapons” in relation to the conviction “that the suffering of the civilian population and combatants could be significantly reduced if agreements can be attained on the prohibition or restriction for humanitarian reasons of the use of specific conventional weapons” expressed in Geneva Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law applicable in Armed Conflicts, 1974–1977, *Follow up Regarding Prohibition or Restriction of Use of Certain Conventional Weapons*, resolution 22, 9 June 1977.

fragmentation effects. The notions of blast weapons and fragmentation weapons continue to be used in connection with weapons regulation and in national standards, marking them as weapons of special humanitarian concern.²⁰⁹ But as Protocol III excludes these munitions from the definition of an “incendiary weapon”, and thereby also from its scope,²¹⁰ no treaty specifically regulates the use of explosive weapons as a category today.

2.5.3. INDIRECT FIRE AND PRECISION GUIDED MUNITIONS

States translate international standards into detailed rules, including on the use of explosive weapons, for the benefit of their armed forces. Unfortunately, these standards are seldom accessible to the public.²¹¹ Due to the paucity of military regulations in the public domain, the Rules of Engagement Handbook published by the San Remo International Institute

209 In connection with the rule of distinction and the prohibition on unnecessary suffering, Program on Humanitarian Policy and Conflict Research at Harvard University, *Commentary on the HPCR Manual on International Law Applicable to Air and Missile Warfare*, 2010, p. 73, mentions a number of weapons that “deserve notice”. Among them are “blast weapons”, “cluster munitions”, “fragmenting munitions” and certain mines. See for example, UK Ministry of Defence, *The Joint Service Manual of the Law of Armed Conflict*, document JSP 383, 2004, para. 6.11; Program on Humanitarian Policy and Conflict Research at Harvard University, *Commentary on the HPCR Manual on International Law Applicable to Air and Missile Warfare*, 2010, pp. 75–77.

210 *Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III to the CCW)*, 10 October 1980, art. 1(1)(ii).

211 “Too often national or multinational security classifications mean that the publication and sharing of rules of engagement experience and best practice is problematic. The ability for militaries to share their experiences as well as for academics, students and the public to consider the subject is critical in order to promote awareness of the practical implementation of International Humanitarian Law through rules of engagement”. International Institute of Humanitarian Law, *Rules of Engagement Handbook*, November 2009, p. ii. Belgium and Switzerland for example do not have a military manual. The French Ministry of Defence has published its *Manuel de droit des conflits armés*, 2001, but its content does not provide information as to the use of explosive weapons beyond the general rules of IHL. UK Ministry of Defence, *The Joint Service Manual of the Law of Armed Conflict*, document JSP 383, 2004, para. 6.4.1, is slightly more specific. For example, it identifies “V1 flying bombs” used in the Second World War and “Scud rockets” used during the Gulf conflict of 1990–1991 as examples of weapons likely to be indiscriminate weapons.

of Humanitarian Law is helpful to gain an idea of what national standards may look like.²¹² The Handbook provides Rules of Engagement (ROE) options that may be tailored to specific missions and in many instances is no more specific than the rules of IHL.

In some cases, however, the Handbook proposes rules pertaining to the use of explosive weapons not mandated in these terms by IHL. This is the case of ROE on “indirect fire”. Indirect fire is defined as “fire directed at a target that cannot be seen by the aimer and that is not itself used as a point of aim for the weapons or the director”. The Handbook distinguishes between “observed indirect fire”—for which the point of impact or burst can be seen by an observer—and “unobserved indirect fire”—for which points of impact or burst are not observed. Direct fire and observed indirect fire is permitted unless restricted by a rule. Noteworthy is that the proposed ROE refers to a prohibition in “populated areas”. Unobserved indirect fire is presumed prohibited, unless authorized by a rule specifying exceptional circumstances.²¹³ Use of the term “burst” in this context indicates that indirect fire is about weapons that explode, but the notion of indirect fire focuses on a mode of delivery rather than on blast and fragmentation effects.

Blast and fragmentation effects are an explicit consideration in some US regulations, but explosive weapons are nevertheless subject to differential treatment in function of their mode of delivery. US Joint Chiefs of Staff Instruction CJCSI 3106.01 (2009), for example, documents the DOD’s policy governing the “collateral damage estimation ... methodology (CDM)”, which describes a process that involves the assessment of the probability of civilians in the vicinity of the target suffering “serious/lethal wounds” from “primary warhead fragmentation or debris” and of structures being damaged by blast effects.²¹⁴ It is interesting to note that although

212 International Institute of Humanitarian Law, *Rules of Engagement Handbook*, November 2009. The Handbook is meant to assist in the drafting of Rules of Engagement (ROE), standards issued by competent authorities to, *inter alia*, authorize or limit the use of force by military forces. ROE may be more restrictive, but never more permissive, than applicable national and international legal standards.

213 *Ibid.*, pp. 37, 82, 84–85.

214 US Chairman of the Joint Chiefs of Staff, *No-Strike and the Collateral Damage Estimation Methodology*, document CJCSI 3160.01, 13 February 2009, p. D-A-1. Note that the CDM assumes that people *in structures* are predominantly injured or killed by blunt trauma from structural collapse and

the assessment process “accounts for all conventional munitions currently in the U.S. inventory”, no estimation is required for “surface-to-surface direct fire weapon systems”, including 120mm cannon and “rotary wing or fixed-wing air-to-surface direct fire weapon systems less than 105mm”, including 2.75in rockets. The exclusion is justified on the basis that “The risk of collateral damage from these weapon systems is presented by the distribution of munitions in the target area and not from the explosive effects of the warhead”.²¹⁵

Similar differences among explosive weapon types are based on the launching platform and the accuracy of delivery. The San Remo Handbook proposes special ROE to regulate use of air-to-surface munitions. One of the rules permits use of “precision-guided air to surface munitions” in specified areas. In contrast, “Use of non-precision air to surface munitions” is either completely prohibited or is prohibited in specified areas.²¹⁶ Likewise, the US CDM applies different standards to “precision-guided munitions” than to “air-to-surface unguided munitions” and “surface-to-surface ballistic munitions”, notably on the basis that the increased delivery errors associated with the latter two kinds of weapon systems present a higher risk of collateral damage than precision-guided munitions.²¹⁷ National military regulations in this issue area, it would seem, tend to

secondary debris. Although recognizing that “blast induced debris has been operationally observed to be a significant hazard to noncombatant personnel”, the “effects of blast induced debris have not been characterized” (ibid., p. D-A-2).

215 Ibid., p. D-4. Similarly, under UK Ministry of Defence, *The Joint Service Manual of the Law of Armed Conflict*, document JSP 383, 2004, para. 5.32.4, a “direct fire weapon” (such as a wire-guided anti-tank missile) is considered less likely to cause incidental damage than indirect fire weapons (such as mortar or artillery rounds).

216 International Institute of Humanitarian Law, *Rules of Engagement Handbook*, November 2009, rules of Series 100. See also rule 101C on the use of air to sub-surface munitions.

217 US Chairman of the Joint Chiefs of Staff, *No-Strike and the Collateral Damage Estimation Methodology*, document CJCSI 3160.01, 13 February 2009, pp. A-D-1, D-5. The CDM creates a presumption against the use of unguided munitions if civilian or other protected objects are located within the boundaries of the area affected by the attack. UK Ministry of Defence, *The Joint Service Manual of the Law of Armed Conflict*, document JSP 383, 2004, para. 5.32.4, distinguishes between “free fall bombs” and laser-guided bombs.

categorize weapons in ways that are not necessarily based on international standards resulting in differential treatment of weapons with similar blast and fragmentation effects.

2.6. EXPLOSIVE WEAPONS REGULATION: INCOHERENT AND FRAGMENTARY

To recapitulate, explosive weapons are addressed in a myriad of instruments in international law and policy under different terms and definitions that are overlapping and at times ill-defined, resulting in an incoherent and fragmentary regulatory framework. Explosive weapons are not treated as a coherent category under international law and policy today.²¹⁸ Regulatory texts largely fail to recognize the blast and fragmentation effects common to explosive weapons. Fifteen of 80 international instruments analysed for this study contain no explicit reference to explosive properties, nor can they be said to tacitly recognize explosive characteristics as a categorization criterion.²¹⁹ Over half of the texts (45 of 80) do *not*

218 Richard Moyes, *Explosive Violence, The Problem of Explosive Weapons, Landmine Action*, 2009, p. 13. Arguably, explosive weapons as a “regulatory category” makes sense only if rules are applied which differ in kind from those governing other weapons (and also from explosives and chemicals with explosive properties that are not used as weapons), and rules do exist, which are based on the concept of the term “explosive”, that is, on blast and fragmentation effects. Adapted from Meltem Deniz Guener-Oezbek, *The Carriage of Dangerous Goods by Sea*, 1st ed., Hamburg Studies on Maritime Affairs, Springer, 2008, p. 5.

219 A text is considered to *explicitly* distinguish among items on the basis of explosive characteristics when it describes them as:

- being explosive, or designed to detonate or explode;
- presenting a mass explosion, projection or blast hazard;
- producing a certain detonation velocity, detonation pressure; or
- producing blast or fragmentation effects.

An *implicit* distinction between explosive and other weapons (or materials), is inferred when an instrument:

- deals (almost) exclusively with explosive weapons;
- refers to “bombardment” or “bombing” or similar;
- singles out explosives or certain explosive weapon types; or
- uses categories that are predominantly composed of explosives or explosive weapon types.

Some instruments explicitly make a distinction among weapons on the basis of explosive characteristics. In other instruments such a distinction is implicit.

explicitly refer to explosive characteristics of weapons. Such instruments are found in all issue areas, except in the safety issue areas. Of the 35 texts that *explicitly* refer to explosive properties, only one does not also contain elements on the basis of which a distinction between explosive and other weapons can be inferred.²²⁰ However, even texts that explicitly recognize explosive properties of weapons, or that contain elements from which such recognition can be inferred, may fail to differentiate in the standards they set between explosive weapons and non-explosive weapons.²²¹ How explosive properties of weapons are reflected in regulatory texts is summarized in tables 1 and 2 below.

Existing regulatory texts tend to split up the category of explosive weapons on relatively arbitrary grounds, such as calibre, weight, length of barrel or

Some texts contain elements of both, others do not contain any reference to the explosive nature of weapons, nor can a distinction be inferred. Texts that contain neither include the Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, *Basic Principles on the Use of Force and Firearms by Law Enforcement Officials*, UN document A/CONF.144/28/Rev.1, 27 August–7 September 1990; Security Council, [*On measures against the sale or supply to Eritrea and Ethiopia of arms and related matériel of all types*], UN document S/RES/1298, 17 May 2000; *Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation*, 23 September 1971; Institute for Human Rights (Åbo Akademi University), *Turku/Åbo Declaration of Minimum Humanitarian Standards*, 2 December 1990 (as revised in September 1994).

220 *Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III to the CCW)*, 10 October 1980. Sixty-four of 80 texts fulfil at least one of the criteria of implicit recognition (and may contain additional explicit reference to explosive characteristics). In some instances, implicit recognition of explosive characteristics can be inferred from more than one element in the text.

221 For example, certain human rights cases explicitly refer to explosive characteristics of weapons or to blast and fragmentation effects, but it is unclear what implications this has under HRL standards on the use of force. See for example, ECtHR, *Ahmet Özkan and Others v. Turkey*, Judgement, Application no. 21689/93, 6 April 2004. Similarly, some instruments in the issue area “protection of civilians/conduct of hostilities” implicitly recognize the difference between (certain) explosive weapons and other weapon technologies in that they single out explosive weapon types (e.g. torpedoes) or “bombardment”. Yet, the standards these instruments set equally apply to non-explosive weapons. These points will be discussed further in section 3 of this study.

intended purpose or user.²²² The result are regulatory categories that are partial in that they only cover part of the spectrum of explosive weapons,²²³ or that are not specific in that they group non-explosive weapons together with explosive ones.²²⁴ Existing categories also tend to overlap and explosive weapon types fall within or outside of one or more of them, depending on the definition used in the respective instrument.

Existing definitions in international legal and policy instruments do not make the connection between blast and fragmentation effects and humanitarian impacts sufficiently clear. The category of “explosive weapons” is closely related to that of “blast and fragmentation weapons”, which informed the elaboration of international legal standards on the use of certain explosive weapons deemed to have indiscriminate effects or to raise other humanitarian concerns. But international texts that reflect a standard on the *use* of (explosive and other) weapons are more likely to only implicitly recognize explosive characteristics compared to texts that do not reflect such a standard (see table 3 below).²²⁵

The notion of explosive weapons provides greater clarity in relation to existing definitions. Focusing on explosive weapons as a category may be a new way of framing and understanding an ongoing humanitarian issue, but is consistent with and builds on existing regulatory categories. The existing framework already identifies the effects of explosive weapons as

222 For example, the category of explosive weapons cuts across the divide between major conventional weapons and SALW. Instruments that deal with certain explosive weapon types (e.g. anti-personnel landmines or cluster munitions) also split up the category of explosive weapons.

223 “Explosive ordnance”, as defined in CCW Protocol V, for example, excludes certain explosive weapons.

224 There is substantial overlap between the category of explosive ordnance as defined in the IATG and that of explosive weapons, but the former also covers munitions containing nuclear fission or fusion materials and biological and chemical agents, as well as small arms ammunition and pyrotechnics—devices unlikely to create the sort of blast and fragmentation effects of concern to this study.

225 Among 44 texts that reflect a standard on the use of (explosive and other) weapons, seven (16 %) neither explicitly nor implicitly distinguish between explosive and other weapons. A distinction is *explicit* in 17 texts (under 40%), whereas in 20 texts—almost half of all instruments reflecting a standard on the use of weapons—this distinction can only be inferred. A text is considered to reflect a standard on the use of weapons if it prohibits, otherwise regulates the modalities of, or criminalizes the use of weapons.

highly destructive, indiscriminate, and potentially lethal, and associates the use of these weapons with danger to public safety, even the risk of mass casualties. Some national regulations already use the term “explosive weapon”. The boundaries of the category of explosive weapons run broadly alongside existing classes of weapons subject to special controls for fear of terrorist misuse, and of weapons excluded from civilian possession, not normally contemplated for domestic law enforcement and, hence, reserved for military combat and war.

Because the category of “explosive weapons” focuses on the blast and fragmentation effects of weapons—effects that can clearly be connected to a pattern of civilian harm—it is particularly useful in relation to the elaboration of standards aimed at addressing this humanitarian concern. This is why the United Nations, the ICRC, certain states and humanitarian actors are increasingly using the term in relation to the protection of civilians in populated areas,²²⁶ and the phrase “explosive weapons in populated areas” can today be considered “an emerging term in the field of international humanitarian law”.²²⁷

226 See pp. 5–8.

227 Human Rights Watch and Harvard Law School’s International Human Rights Clinic, *Documentation of the Use of Explosive Weapons in Populated Areas*, November 2011, p. 1.

Table 1. Explicit reference to explosive characteristics in international texts by issue area

	Arms control (general)	Arms control (SAIW)	Terrorism (explosives)	Terrorism (MANPADS)	Human rights	Humanitarian law	Safety (EO)	Safety (DG)	Total
Is explosive, is designed to detonate/explode		6	5		2	8	2		23
Presents a mass explosion, projection or blast hazard							3	2	5
Produces a certain detonation velocity, detonation pressure	2							1	3
Produces blast, fragmentation effects					2		2		4
Does <i>not</i> contain an explicit reference to explosive characteristics	8	7	2	2	8	18			45

Table 2. Implicit recognition of explosive characteristics in international texts by issue area

	Arms control (general)	Arms control (SAIW)	Terrorism (explosives)	Terrorism (MANPADS)	Human rights	Humanitarian law	Safety (EO)	Safety (DG)	Total
Deals (almost) exclusively with explosive weapons			1	2	3	4	3		13
Refers to "bombardment" or "bombing" or similar					3	12			15
Singles out explosives or certain explosive weapon types		2	4		2	9			17
Uses categories that are predominantly composed of explosives or explosive weapon types	6	8					2	3	19
Does not implicitly recognize explosive characteristics	4	3	2		4	3			16

Table 3. Recognition of explosive characteristics in international texts reflecting a standard on the use of weapons

	Standard on the use of weapons	No standard on the use of weapons	All instruments
<i>Explicit</i> recognition of explosive characteristics (texts containing only explicit elements and texts containing explicit and implicit elements)	17	18	35
<i>Only implicit</i> recognition of explosive characteristics	20	10	30
<i>Neither explicit nor implicit</i> recognition of explosive characteristics	7	8	15
Total	44	36	80

3. PROTECTING CIVILIANS IN POPULATED AREAS FROM THE EFFECTS OF EXPLOSIVE WEAPONS

Civilians in populated areas are inadequately protected from the effects of explosive weapons. The pattern of humanitarian harm documented in these contexts shows that the problem is not merely one of isolated violations of applicable rules. To help orient endeavours to enhance the protection of civilians, this part of the study analyses existing legal and policy standards aimed at preventing or reducing civilian harm, with a focus on how they take account of the presence of civilians in the vicinity of the (potential) explosion. How do standards characterize risk of civilian harm? How is risk of harm assessed and reduced? Do standards identify certain locations where civilians are at particular risk of harm? How are such places described, and do different standards of protection apply in these contexts?

The following survey shows that standards specific to places where civilians live, work or gather can be found in texts across different issue areas, bringing into focus different protection concerns. Not all instruments apply a special standard of protection in relation to such places, however.

The focus of this study is on standards on the *use* of explosive weapons by states in relation to law enforcement and the conduct of hostilities. Human rights case-law surveyed in this section suggests that there is no systematic approach to evaluating the effects of weapons and their impacts on human rights, but that the use of explosive weapons is generally incompatible with law enforcement standards. Use of explosive weapons in such situations, hence, signals that an important boundary has been crossed.

In relation to the conduct of hostilities, the study surveys IHL standards on the protection of civilians that are location-specific, and shows that the prohibition on indiscriminate attacks has evolved with particular reference to the use of explosive weapons in populated areas. However, aside from explosive-weapon-specific treaties, general IHL rules on the conduct of hostilities appear to inadequately recognize and prevent the foreseeable risk of civilian harm from the use, in populated areas, of explosive weapons with wide area effects.

3.1. PROTECTING TRAFFIC ROUTES, INHABITED AND VULNERABLE BUILDINGS FROM “UNPLANNED EXPLOSIVE EVENTS”

The notions of “explosion danger area”, “area of effect” and “safety distance” used in ammunition stockpile safety instruments underline that stockpile explosions are not localized or easily contained phenomena, and that blast and fragmentation risk affecting people and infrastructure at a long distance from the explosion.

In relation to “unplanned explosive events” in munition stockpiles, humanitarian impacts are considered foreseeable and calculable. Widely shared standards provide detailed guidance on how risk of civilian harm is to be assessed and reduced to a tolerable level.

Proximity to the explosion site is viewed as a critical factor in civilian harm and distance as an important measure for its prevention. On this basis, particular standards of protection apply in relation to “public traffic routes”, “inhabited buildings”, and other places where people live, work or congregate or where there is infrastructure of particular importance to the public. Tolerated civilian harm at these locations is low: no direct blast injury and no collapse of structures at the “inhabited building distance”.

Stockpile explosions not being the focus of this study, the following brief overview merely highlights, with the example of the IATG, a number of aspects of the dominant approach to dealing with the risk of civilian harm from explosive effects in the context of ammunition stockpile management. This approach differs in important respects from approaches discussed in relation to the use of explosive weapons by states.²²⁸

The IATG approach civilian protection from the effects of explosive weapons in terms of hazards and risks that can be managed. The Brazzaville munitions depot explosions served as a stark reminder that “Ammunition and explosives, by their very nature, present an inherent risk during storage and, if not managed correctly, a latent hazard to local communities

228 Many texts that do *not* reflect a standard on the use of weapons, but reflect a standard on the protection of civilians, do not contain *detailed* provisions on *how* civilians are to be protected. This set of texts is quite diverse. It includes the ECHR and CCW Protocol V and its Technical Annex. This section focuses on standards on ammunition stockpile management, which contain such detailed provisions, illustrated with the example of the IATG.

in their vicinity".²²⁹ Inadequate storage conditions, inappropriate handling, accidental fire, human error, lightning strike or acts of sabotage can lead to so-called "unplanned explosive events". The IATG use the term "hazard" to refer to "a potential source of harm", and assess hazards posed by an explosive storehouse in terms of the quantity, hazard classification, physical condition and chemical stability of the ammunition at that storehouse. The combination of the probability of occurrence of harm (likelihood) and the severity of that harm (consequences) is called "risk".²³⁰

The IATG operate on the premise that for a known amount of explosive mass, the blast over-pressure at a given distance from the explosion site can be calculated and the risk of harm assessed. Within the so-called "explosion danger area", the space determined by the distances blast or fragments may be expected to travel, threshold blast over-pressures for effects on humans and on buildings have been established by experimentation. If the population density and the nature of structures is known within the appropriate ranges from the explosion site, an estimate of the fatalities, casualties and damage can be derived.²³¹

"A point to remember is the greater the separation distance, the greater the protection afforded". The idea that risk of civilian harm is essentially a function of proximity and distance is central to the IATG: "One of the most efficient means of protecting the public from the effects of an explosive event is by the use of separation distances, which ensure that they are always at a tolerably safe distance from the explosives during storage and handling".²³² A "separation distance" is the minimum permissible distance between a potential explosion site and an exposed site, where the risks due to an explosive event have been determined as tolerable. Many states consider it best practice to use so-called "quantity–distance rules" based

229 United Nations, *IATG 01.80:2011(E)*, p. 2.

230 United Nations, *IATG 02.10:2011(E)*, pp. 1, 2, 9.

231 The risk management process is described in *ibid.* The related definition of "fragmentation hazard zone" designates the area that could be reached by fragments in the case of detonation for a given explosive item, explosive storage or UXO contaminated area (United Nations, *IATG 01.40:2011(E)*, pp. 11, 13). For the formulae used to predict effects on people, see United Nations, *IATG 01.80:2011(E)*, p. 13. Note that the extent to which fragments damage structures is dependent on many variables and cannot be easily predicted without access to a massive range of data. The IATG note that this data is often held by the military and classified (*ibid.*, p. 12).

232 United Nations, *IATG 02.20:2011(E)*, p. v.

upon the type of explosives, their quantity, and the distance from the explosion site, to determine the risks to people and buildings.²³³

Not surprisingly, therefore, special separation distances apply with respect to locations characterized by a high population or traffic density, places where people live, work or congregate, or places fulfilling important social functions. The required distance to “public traffic routes”, for example, is “based on the amount of usage of the route by vehicles, people, etc. also known as traffic density”. Public traffic routes are routes, roads, railways, waterways, including rivers, canals and lakes, airport buildings and facilities and public rights of way, such as footpaths. The same rules applicable to public rights of way should also be applied to “playing fields, golf courses and similar recreational facilities”. At the “public traffic route distance”, un-strengthened buildings will suffer minor damage and injuries and fatalities are very unlikely as a direct result of the blast effects, but some injuries may occur as a result of fragments and debris.

A greater minimum separation distance applies in relation to “inhabited buildings”, defined as “buildings or sites where members of the general public ... either work, live or congregate”, including civilian houses and major roads and rail routes. At the proposed minimum distance, inhabited buildings (solid brick or equivalent) would not suffer serious structural damage, persons would not be directly injured by the effect of blast and radiant heat, but fragments and debris may cause some injuries.

An even greater distance applies to “vulnerable buildings”. These are described as “large facilities of special construction or importance”. Examples include:

233 Note that the IATG differentiate among three “risk reduction process levels”. The basic aim of stockpile management should be to make sure that stockpile management processes are conducted at Level 1 at a minimum. At that level, “basic safety precautions are in place to reduce the risk of undesirable explosive events during ammunition storage, but fatalities and injuries to individuals in local civilian communities may still occur”. The imposition of separation distances is not required at Level 1. However, the idea is that ongoing and gradual improvements should be made to implement activities of Levels 2 and 3 (separation distances at Level 2) as staff become able to handle more complex tasks and resources become available. In the Brazzaville stockpiles, “Ammunition was stacked to the ceilings and there was no effort to separate ammunition by type or by net explosive quantity”. Henry Dodd and Rob Perkins, *Case Studies of Explosive Violence: Republic of Congo*, AOA/V, June 2012, p. 2.

large factories; multi-storey office or apartment buildings; public buildings and structures of major value; large educational facilities; major transport centres such as ports, railway stations, airports, etc; major public utilities such as water, gas and electric works; facilities of vulnerable construction used for mass meetings such as assembly halls and fairs, exhibition areas and sports stadia; and built-up areas, which are both large and intensely developed.²³⁴

Safety, in this framework, refers to the “reduction of risk to a tolerable level”. The IATG recognize that risk is socially constructed in that the risk accepted in a given context is based on the current values of society. The determination of “tolerable risk” in a society takes account of “the inherent explosive safety hazards of storing, handling and processing ammunition”, the available resources and financial costs, and the conventions of the society where the ammunition is stored. To achieve a tolerable level, the state may have to take measures, increasing the safe separation distances, reducing the amount of ammunition stored at the site or transferring the stock elsewhere.²³⁵

234 United Nations, *IATG 02.20:2011(E)*, pp. 6–7, 10; United Nations, *IATG 05.20:2011(E)*, p. 13. “It is internationally agreed that fragments and debris are potentially lethal if their impact energy is 80 joules ... It is expected that, at the Inhabited Building Distance (IBD), the density of such lethal fragments will not exceed 1 per 56 square metres (m²) on the ground surface” (*ibid.*, p. 7). See also NATO, *Manual of NATO Safety Principles for the Storage of Military Ammunition and Explosives*, document AASTP-1 (Edition 1, Change 3), May 2010, para. 1.3.1.15: “There is a significant hazard even at 270 m from ammunition and explosives of Hazard Division 1.1 due to fragments and a considerable amount of debris unless these projections are intercepted by structural protection. This hazard may be tolerable for sparsely populated areas, ... but in densely populated areas considerations should be given to the use of a minimum Inhabited Building Distance of 400 m. This distance is required for earth-covered magazines and for heavy-walled buildings”.

235 United Nations, *IATG 02.10:2011(E)*, pp. 2, 5, 8, 13. The IATG envisage the option of formal acceptance of the probable impact of the estimated risk on the local community “at the appropriate political level”. In this case, it should be recorded in writing how the tolerable risk was determined and which authority accepted it. To improve the perception of safety, the local community that may be impacted by the risk should be involved in an “interactive process of exchange of information and opinion on risk” (*ibid.*, p. 14).

3.2. PROTECTING PLACES OF PUBLIC USE AND INFRASTRUCTURE FACILITIES FROM TERRORIST BOMBINGS

Texts aiming to prevent harm from terrorist violence, in particular from “bombings”, reflect particular concern about violence occurring in places where a number of civilians may be expected to be present. But these texts do not only reflect concern about preventing direct death and injury. Use of the term “place of public use”, “public transportation system or infrastructure facility” and the focus of certain treaties on particular modes of transport also point to the importance of protecting infrastructure that delivers services essential to the survival and well-being of the population, and prevent indirect harm.

As the focus of this study is on practices involving explosive weapons that tend not to be labelled “terrorism”, the following discussion serves the limited purpose of illustrating, with the examples of the Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation, the SUA Convention and its 2005 Protocol, and the Terrorist Bombings Convention, how texts that criminalize terrorist acts at the international level characterize the locations where terrorist violence occurs.

The SUA Convention and its 2005 Protocol and the Civil Aviation Convention seek to prevent and suppress terrorist attacks involving explosive and other devices, against ships and ports, and against aircraft and airports, respectively. These standards seek to protect workers and passengers from harm and hence reflect concern about locations where civilians are present in high numbers. They also reflect more abstract concern about the safety of maritime navigation and aviation, pointing to the economic and social importance of transport infrastructure for civilian well-being.²³⁶

Concern about protecting transport infrastructure is also evident in the Terrorist Bombings Convention. It criminalizes the unlawful and intentional delivery, placing or discharging of an “explosive or other lethal device in, into or against a *place of public use, a State or government facility, a public transportation system or an infrastructure facility*”²³⁷ with the intent to

236 MANPADS instruments do not reflect a standard on the protection of civilians, but are also mainly concerned with protecting civilian aircraft from terrorist attacks.

237 *International Convention for the Suppression of Terrorist Bombings*, 1997, art. 2(1) (emphasis added).

cause death or serious bodily injury, or with the intent to cause extensive destruction of such a place, facility or system, where such destruction results in or is likely to result in major economic loss.

By “place of public use” the Convention “means those parts of any building, land, street, waterway or other location that are accessible or open to members of the public, whether continuously, periodically or occasionally, and encompasses any commercial, business, cultural, historical, educational, religious, governmental, entertainment, recreational or similar place that is accessible or open to the public”. The Convention describes “infrastructure facility” as “any publicly or privately owned facility providing or distributing services for the benefit of the public, such as water, sewage, energy, fuel or communications”.²³⁸ Concern about these locations not only relates to the number of people likely to be directly affected by an explosion, it also points to the risk of indirect harm from damage to public service infrastructure.²³⁹

238 Ibid., arts. 1(2), 1(5), 2(1).

239 See Martin Coward, *Urbicide: The Politics of Urban Destruction*, Routledge, 2009; Stephen Graham, *Cities, War, and Terrorism: Towards an Urban Geopolitics*, Blackwell Publishing, 2004. Jo Beall, “Cities, Terrorism and Urban wars of the 21th Century”, Working Papers no. 9, Crisis States Research Centre, Development Studies Institute, London School of Economics, February 2007. For an articulation of the issue under IHL, see “Urban Violence”, *International Review of the Red Cross*, vol. 92, no. 878, 2010.

3.3. USE OF EXPLOSIVE WEAPONS IN A LAW ENFORCEMENT CONTEXT

The use of explosive weapons is difficult to reconcile with the principles governing the use of force for the purposes of law enforcement. The resulting harm to civilians, in terms of immediate death and injury, as well as longer term and indirect harm related to mental trauma, displacement and loss of livelihood and property would likely outweigh the benefits attached to any lawful objective pursued. In all likelihood, the use of explosive weapons will never be the lowest possible level of force necessary to achieve a legitimate law enforcement aim. The blast and fragmentation effects of explosive weapons would likely present such a grave risk of killing, not only the suspected offender, but also uninvolved bystanders (civilians) that their use must be considered lethal, even intentional lethal use of force.

Although no HRL standard of special protection attaches to the use of force in populated areas, and even though there are no human rights standards that are specific to weapons with explosive properties, jurisprudence on crowd control situations involving harm from blast and fragment projection suggests that explosive weapons may not be used in such situations. Courts have also found explosive weapons to be unsuited for other law enforcement tasks carried out in the vicinity of civilians and civilian property, stressing the particular risks such use entailed in the context of “populated areas”.

Because the use of explosive weapons, though often not explicitly excluded, must be presumed incompatible with law enforcement standards, if a state resorts to such use, it indicates that an important boundary of civilian protection has been crossed. Especially the use of heavy explosive weapons indicates that the violence is of an intensity commonly associated with that of an armed conflict.

The effects of explosive weapons in terms of death and injury, physical and psychological impairment, and their capacity to seriously damage the social and economic infrastructure upon which civilian populations rely raise a host of human rights concerns.²⁴⁰ The cases below illustrate

²⁴⁰ This section’s analysis is mostly based on case-law. The acceptability and legality of the risks to civilians from state use of force is assessed in light of the human rights standards guaranteed in instruments such as the ECHR, but the Convention, like other regional human rights treaties, does not regulate the use of weapons directly. Regional human rights bodies and other human rights mechanisms play an important role in the protection of civilians from

that explosive violence may affect the right not to be subject to inhuman treatment, the right to respect for family life, freedom of movement and residence, freedom of assembly and the protection of property, as well as the right to an adequate standard of living, to the enjoyment of the highest attainable standard of physical and mental health, and to education.²⁴¹ Arguably, the right most directly affected by the use of explosive weapons is the right to life.²⁴² The focus of the following discussion is on that right—the supreme right of the human being, essential for the exercise of all other human rights.²⁴³

As noted earlier, state agents, notably the police, have the authority and mandate to use force, if necessary, in the fulfilment of law enforcement tasks, such as the maintenance or re-establishment of public order. To be lawful, such use of force has to be *absolutely necessary* and *strictly proportionate* to the achievement of a specified *legitimate law enforcement*

the effects of weapons in that they help to determine whether use of force in a concrete case is in compliance with these standards.

241 *International Covenant on Economic, Social and Cultural Rights*, UN document A/RES/2200A(XXI), 16 December 1966, arts. 11–13; Council of Europe, *European Convention on Human Rights*, 4 November 1950, arts. 3, 8, 11, and Protocol I, art. 1. Many explosive weapons have the capacity to destroy or impair infrastructure necessary for the enjoyment of those rights, such as hospitals or schools. See also United Nations Human Rights Council, *Report of the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions, Philip Alston; the Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health, Paul Hunt; the Representative of the Secretary-General on Human Rights of Internally Displaced Persons, Walter Kälin; and the Special Rapporteur on Adequate Housing as a Component of the Right to an Adequate Standard of Living, Miloon Kothari, Mission to Lebanon and Israel, (7–14 September 2006)*, UN document A/HRC/2/7, 2 October 2006, para. 49. The rapporteurs noted that “the conflict was characterized, *inter alia*, by large-scale aerial attacks on parts of the Lebanese infrastructure, in particular roads and bridges... such attacks on the transportation infrastructure had a particularly debilitating effect on the safe transportation of IDPs, the provision of humanitarian assistance and access to medical care, and thus raises questions from a human rights perspective” (footnotes omitted).

242 *International Covenant on Civil and Political Rights*, UN document A/RES/2200A(XXI), 16 December 1966, art. 6; Council of Europe, *European Convention on Human Rights*, 4 November 1950, art. 2.

243 Human Rights Committee, *CCPR General Comment No. 06: The Right to Life (art. 6)*, 30 April 1982.

aim, which under the ECHR are listed as defence of any person from unlawful violence, lawful arrest or prevention of escape of a person lawfully detained, and action lawfully taken for the purpose of quelling a riot or insurrection.²⁴⁴ Whenever the use of force is unavoidable, law enforcement officials remain under an obligation to “Minimize damage and injury, and respect and preserve human life”.²⁴⁵ Human rights law permits the use of lethal force only when doing so is *strictly necessary to save human life*.²⁴⁶ Deprivation of life by state authorities is a matter of utmost gravity, and states are hence under an obligation to prevent *arbitrary* killing by their own security forces.

Although it is not entirely clear from the BPUFF’s provisions whether “firearms” include explosive weapons, the same strict requirements on proportionality and necessity that must be observed in relation to firearms also apply to other forms of use of force with potentially lethal consequences. Case-law indicates that the use of explosive weapons presents such a high risk of loss of life that it amounts to “lethal use of force”. In the case of *Goncharuk v. Russia* brought before the ECtHR, for instance, the applicant was wounded by shrapnel in a shelling attack on Grozny. With reference to “the circumstances of the attack on the applicant and the injuries sustained by her”, the Court concluded “that the degree and type of force used” brought the facts of the case into the ambit of the ECHR’s provision on the right to life.²⁴⁷ The Court reached the same conclusion in *Umayeva v. Russia*, where the applicant had sustained several

244 Council of Europe, *European Convention on Human Rights*, 4 November 1950, art. 2(2).

245 Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, *Basic Principles on the Use of Force and Firearms by Law Enforcement Officials*, UN document A/CONF.144/28/Rev.1, 27 August–7 September 1990, principle 5(b).

246 *Ibid.* The BPUFF set forth the principles of necessity and proportionality that state agents must respect in order to use firearms and other forms of lethal force in a manner consistent with the right to life. Principle 9 limits the use of firearms against persons to situations of “self-defence or defence of others against the imminent threat of death or serious injury, to prevent the perpetration of a particularly serious crime involving grave threat to life, to arrest a person presenting such a danger and resisting their authority, or to prevent his or her escape, and only when less extreme means are insufficient to achieve these objectives”.

247 ECtHR, *Goncharuk v. Russia*, Judgement, Application no. 58643/00, 4 October 2007, paras. 10, 74.

shell and bullet wounds from artillery fire and a sniper attack in Grozny. In that case, the Court noted “the scope of the applicant’s injuries and the level of the lethal force employed in the attack”.²⁴⁸ Reference to “the type of force” and the impacts on human health indicates that not only shelling and bombardment, but *any* use of explosive weapons constitutes lethal use of force. To go even further, in contrast to small arms fire, which can be aimed so as not to injure vital organs, fragment projection and blast effects of an explosive weapon cannot be so aimed. From that standpoint, the use of an explosive weapon constitutes *intentional* lethal use of force.²⁴⁹ Intentional lethal force may only be used when “strictly unavoidable in order to protect life”.²⁵⁰

The use of explosive weapons raises serious issues under these standards. In cases involving the use of explosive weapons, human rights courts have taken issue with the way states have assessed the risks of the use of explosive weapons and sought to reduce the risk and effects on civilians in the planning, conduct and in the aftermath of security operations.²⁵¹

248 ECtHR, *Umayeva v. Russia*, Judgement, Application no. 1200/03, 4 December 2008, para. 74. See also ECtHR, *Khatsiyeva and Others v. Russia*, Judgement, Application no. 5108/02, 17 January 2008, paras. 17, 68, 139. The latter case involves allegations of a helicopter attack with “missile launchers and aircraft machine-guns”. IAmComHR, *Santo Domingo v. The Republic of Colombia*, Referral to the Inter-American Court on Human Rights, Case No. 12.416, 8 July 2011, para. 119: “The fact that 27 people were wounded and not killed is merely fortuitous. For these reasons, ... the Commission considers that Article 4 of the American Convention [on the right to life] also applies with regard to the 27 people who were wounded in the bombing” (footnote omitted).

249 The author is indebted to Stuart Maslen for pointing this out. Consider, notably, ECtHR, *Finogenov and Others v. Russia*, Judgement, Applications nos. 18299/03 and 27311/03, 20 December 2011, para. 232: “In the present case, however, the gas used by the Russian security forces, while dangerous, was not supposed to kill, in contrast, for example, to bombs or air missiles”.

250 Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, *Basic Principles on the Use of Force and Firearms by Law Enforcement Officials*, UN document A/CONF.144/28/Rev.1, 27 August–7 September 1990, principle 9.

251 A violation of the right to life may result not only from the state’s use of force itself, but also from the state’s failure to take adequate positive measure, for example to verify whether there were any casualties after an attack, to provide appropriate medical treatment, to adequately fence a mined area, or to safely evacuate civilians prior to an attack. Also, a violation may be due to

When assessing the legality of state use of explosive weapons in light of the dangers it poses to life and limb and to other human rights guaranteed under the respective instruments, human rights bodies have had explicit regard to the context of use being in or near a populated area or otherwise in the presence of a number of civilians, both in relation to the policing of assemblies and in other law enforcement situations.²⁵²

3.3.1. POLICING ASSEMBLIES

Recent events in relation to the “Arab Spring” and the “Occupy Wall Street” movement have brought into sharp focus the question of what weapons are appropriate for the policing of assemblies. Some of these demonstrations have ended in bloodshed due to excessive use of force by state authorities. Use of force for the policing of assemblies is of interest to this study because it implies the presence of a crowd or gathering. Considerations about the use of weapons in such situations need to take into account not only the effects of a weapon on the suspected offender, but also on persons in her vicinity.

The BPUFF contain a section specially dedicated to the “policing of unlawful assemblies”. It does not define the notion, but distinguishes between assemblies that are unlawful but non-violent, and situations of violent protest. For the dispersal of non-violent assemblies force may only be used as a last resort and only to the minimum extent necessary. For the dispersal of violent assemblies law enforcement officials may only use firearms when less dangerous means are not practicable and *under the same conditions* applicable in other situations.²⁵³ This is remarkable because it implies, either, that the presence of a crowd of uninvolved

a state’s failure to carry out an effective investigation, capable of establishing a complete and accurate record of injury and cause of death, identifying victims, and ensuring accountability of state agents. Such an investigation must entail a sufficient element of public scrutiny. Victims’ next of kin and survivors have to be involved and given access to information, and the state has to provide them with an effective remedy.

252 Of the international texts that place constraints on the use of weapons and reflect a standard on the protection of civilians from explosive weapons analysed for this study, only General Assembly, *Code of Conduct for Law Enforcement Officials*, UN document A/RES/34/169, 17 December 1979, does not contain a reference to the location or context of use of force.

253 Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, *Basic Principles on the Use of Force and Firearms by Law*

bystanders has no bearing on the assessment of appropriate weapons, or conversely, that the same considerations apply equally to all policing situations.

One implication of the BPUFF's application of normal standards to the policing of violent assemblies is that lethal force, in order to be justifiable even in these complex situations, must be *directed* at the person posing the imminent threat to life. The Special Rapporteur on extrajudicial executions, Christof Heyns, recalls in this regard that "In principle shooting indiscriminately into a crowd is not allowed and may only be targeted at the person or persons constituting the threat of death or serious injury".²⁵⁴ This strict reading of the BPUFF may present difficulties to states for dealing with violent riots.²⁵⁵ Far from applying the same standards, the Special Rapporteur, to his dismay, was forced to conclude that in a significant number of countries, the police have *greater* powers to use lethal force during demonstrations than otherwise.²⁵⁶

In this context it is interesting to mention two recent French decrees that have sparked fears among protesters about the potential use of explosive grenades for crowd control. The two decrees of 2011, issued following the transfer of the National Gendarmerie from the Ministry of Defence to the Ministry of Interior Affairs, specify what firearms may be used for the dispersal of crowds in different scenarios.²⁵⁷ Among those firearms that may be used (the original reads "armes à feu susceptible d'être utilisées"),

Enforcement Officials, UN document A/CONF.144/28/Rev.1, 27 August–7 September 1990, principles 13, 14.

254 United Nations Human Rights Council, *Report of the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions, Christof Heyns*, UN document A/HRC/17/28, 23 May 2011, para. 61.

255 For a discussion of the dilemmas involved, see Ralph Crawshaw, Stuart Cullen and Tom Williamson, *Human Rights and Policing*, 2nd rev. ed., Martinus Nijhoff, 2007, pp. 150–152.

256 The Special Rapporteur found that domestic legal dispensations in respect of the deadly use of force during demonstrations in a significant percentage of countries do not comply with international standards. United Nations Human Rights Council, *Report of the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions, Christof Heyns*, UN document A/HRC/17/28, 23 May 2011, paras. 92, 103.

257 France, *Décret n° 2011-794 du 30 juin 2011 relatif à l'emploi de la force pour le maintien de l'ordre public*, Journal Officiel n° 0151 du 1 juillet 2011 page 11268, 30 June 2011; France, *Décret n° 2011-795 du 30 juin 2011 relatif aux armes à feu susceptibles d'être utilisées pour le maintien de l'ordre public*,

Decree no. 2011-795 mentions tear-gas and flashbang grenades, as well as munitions for grenade launchers (the original reads “lanceurs de grenades”). Some of these items are classified as war material under French law.²⁵⁸ Only if someone opens fire against the forces of order may they make use of a rifle of calibre 7.62x55mm and its munition. This rifle falls under category 1(2)—“Repeating or semi-automatic rifles ... designed for military use” (the original reads “Fusils, [...] à répétition ou semi-automatiques, conçus pour l’usage militaire”). Nothing in these decrees authorizes the use of explosive munitions for dispersing assemblies. But it is perhaps not surprising that the association of authorized weapons for crowd control with war material and military weaponry (and perhaps the somewhat confusing interplay of regulations) has alarmed French protesters.²⁵⁹ Explicit exclusion of weapons with blast and fragmentation effects for law enforcement purposes would eliminate such uncertainties.

In practice, it is difficult to imagine that explosive weapons could ever be used to police a violent assembly in compliance with human rights standards. This is clear from the following two cases.

In *Güleç v. Turkey*, a case before the ECtHR, Turkish gendarmes attempted to disperse a violent demonstration by firing into the crowd with a machine gun mounted on an armoured vehicle. The applicant’s son was hit by a bullet fragment which caused his death. The Commission had described the weapon as “a combat weapon with a very rapid rate of fire” whose use during a demonstration for the purpose of restoring order could not be regarded as proportionate. The Court later noted that the gendarmes “used a very powerful weapon” and concluded that the force used to disperse the demonstrators was not absolutely necessary.²⁶⁰

Journal Officiel n° 0151 du 1 juillet 2011 page 11269, 30 June 2011; France, *Code de la sécurité intérieure*, consolidated version 1 May 2012, art. L211-9.

258 See France, *Décret n° 95-589 du 6 mai 1995 relatif à l’application du décret du 18 avril 1939 fixant le régime des matériels de guerre, armes et munitions*, Journal Officiel n° 108 du 7 mai 1995 page 7458, 6 May 1995 (as of 27 August 2012), art. 2(A), para. 9(1)(b).

259 For an article clarifying these matters, see Maître Eolas, “Non, la police ne va pas tirer à balles réelles sur les manifs”, *Rue89*, 16 August 2011, <www.rue89.com/hoax/2011/08/16/non-la-police-ne-va-pas-tirer-a-balles-reelles-sur-les-manifs-217976>.

260 ECtHR, *Güleç v. Turkey*, Judgement (merits and just satisfaction), Application no. 21593/93, 27 July 1998, paras. 68, 70, 71, 73.

In *Neira-Allegría et al. v. Peru*, a case before the IAmCtHR arising out of the response of Peruvian security forces to a serious riot in a prison, the forces used explosives to demolish a building occupied by prisoners, crushing many of them to death. The Court concluded that there had been arbitrary deprivation of life as a consequence of the disproportionate use of force.²⁶¹

Neither case involves the use of explosive weapons, but given that death resulted from fragment projection in the first case, and blast effects in the second, the same arguments would a *fortiori* apply to the use of explosive weapons in similar situations.

3.3.2. USE OF EXPLOSIVE WEAPONS IN POPULATED AREAS

Human rights courts have also found serious problems with the use of explosive weapons in other situations where civilians are present at the site of the explosion, although the following survey of case-law shows that there is no systematic approach to assessing the effects of explosive weapons and their impacts on human rights. Whereas, in some cases, explosive weapons are considered blatantly inadequate for the law enforcement task at hand, in other cases, courts do not dwell on allegations of explosive weapon use in towns or villages.

In the case of *Santo Domingo v. Colombia*, recently referred to the IACtHR, and which, as was mentioned earlier, involves the use of a “cluster bomb” launched by a Colombian Air Force helicopter on 13 December 1998, the Court emphasized the fragmentation effects of this explosive weapon and its indiscriminate and devastating impact on the hamlet of Santo Domingo. As a result of the “bombing”, 17 civilians lost their lives, among them four boys and two girls. The blast from the cluster munition also wounded 27 civilians, including six children. The IAmCmHR noted the “limited precision” and “great antipersonnel power” of cluster munitions, “since the bombs burst into countless pieces of shrapnel that spread out in all directions”, and found violations of the right to life and rights of the child.²⁶² Citing the same characteristics of cluster munitions, the

261 IACtHR, *Neira-Alegría et al. v. Peru*, Judgement (merits), 19 January 1995, paras. 62, 69, 91.

262 IAmComHR, *Santo Domingo v. The Republic of Colombia*, Referral to the Inter-American Court on Human Rights, Case No. 12.416, 8 July 2011, paras. 119, 125–127.

Commission also took it as proven that the bombing of the village caused destruction to homes constituting a violation of the right to property. Following the bombing, “as a consequence of the terror that it inspired in the population” and the destruction of their homes, every inhabitant of Santo Domingo abandoned the village. The entire population of Santo Domingo was displaced for over a year.²⁶³ In the Commission’s view this constituted forced displacement directly resulting from the bombing, in violation of the right to freedom of movement and residence guaranteed by the IAmCHR. Finally, the IAmComHR found “that the loss of a loved one in circumstances such as those described caused suffering” amounting to a violation of the right to humane treatment.²⁶⁴

Whereas the IAmCHR highlighted the fact that the cluster munition strike was launched “at the urban area of the village of Santo Domingo”,²⁶⁵ the African Commission on Human and Peoples’ Rights (AfComHR) did not retain the context of use as a particularly important element in *Sudan Human Rights Organisation & Centre on Housing Rights and Evictions (COHRE) v. Sudan*, although both cases involve bombardment of villages from the air in violation of HRL. In the *COHRE* case the applicants complained of violations committed in the Darfur region by Sudan, including “large-scale killings, the forced displacement of populations, the destruction of public facilities, properties and disruption of life through bombing by military fighter jets in densely populated areas”. They also alleged that “villages, markets, and water wells have been raided and bombed by helicopter gunships and Antonov airplanes”. The Commission found violations of the right to life and the right to the respect of human dignity due to Sudan’s failure to act diligently to prevent and to effectively investigate cases of arbitrary killings. It also found a violation of the right to freedom of movement and residence due to forced displacement, but the Commission did not connect any of these violations specifically to bombing. In relation to the right to have one’s cause heard by a competent jurisdiction, the Commission noted, however: “Given the generalised fear perpetrated by constant bombing”, and other events, “victims were forced to leave their normal places of residence. Under these circumstances, it would be an affront to common sense and justice” to expect the victims to bring their plights to the courts of Sudan. And further, “the forced evictions, burning of houses, bombardments and violence perpetrated

263 Ibid., referral letter of 8 July 2011.

264 Ibid., paras. 130, 135–136, 164.

265 Ibid., para. 108.

against the victims made access to competent national organs illusory and impractical". Finally, in relation to the right to property, the IAfComHR considered that Sudan "did not take steps to protect the victims from the constant attacks and bombings" and concluded that "the fact that the victims cannot derive their livelihood from what they possessed for generations means they have been deprived of the use of their property under conditions which are not permitted".²⁶⁶

In two cases involving bombardment of villages in the European context, the ECtHR specifically noted that the attack had taken place in a "populated area". The case of *Isayeva v. Russia*, mentioned earlier, concerns the bombing of the village of Katyr-Yurt in February 2000 by Russian federal military forces. The applicant and her family were hit by an aerial bomb which exploded near their minivan while they were trying to flee the village. Several relatives died, others were seriously injured in the attack. The Court noted that in the planning of the operation "use of artillery and aviation was foreseen as an option", and argued that "when the military considered the deployment of aviation equipped with heavy combat weapons within the boundaries of a populated area, they also should have considered the dangers that such methods invariably entail". The ECtHR recalled that appropriate care must be taken to ensure that any risk to life is minimized, including by taking "all feasible precautions in the choice of means and methods of a security operation ... with a view to avoiding and, in any event, minimizing, incidental loss of civilian life". It pointed out that "the population of Katyr-Yurt at the material time constituted between 18,000 and 25,000 persons", and concluded that using "heavy free-falling high-explosion aviation bombs ... with a damage radius exceeding 1,000 metres ... in a populated area, outside wartime and without prior evacuation of the civilians, is impossible to reconcile with the degree of caution expected from a law-enforcement body in a democratic society".²⁶⁷

266 AfComHR, *Sudan Human Rights Organisation & Centre on Housing Rights and Evictions (COHRE) v. Sudan*, Decision, Case no. 279/03-296/05, 13 and 27 May 2009, paras. 3, 13, 145, 182, 205.

267 ECtHR, *Isayeva v. Russia*, Judgement, Application no. 57950/00, 24 February 2005, paras. 12, 18, 175, 176, 176–180, 188–191, 198, 200–201. The Court found a violation of the right to life. Five years later, once more called upon to assess the legality of the attack on Katyr-Yurt, the Court saw no reason to depart from its findings. ECtHR, *Abuyeva and Others v. Russia*, Judgement, Application no. 27065/05, 2 December 2010.

In *Esmukhambetov et al. v. Russia*, the ECtHR noted that the bombing affected “a village inhabited by civilians—women and children being among their number”. The case concerned an attack by Russian forces on the village of Kogi near Dagestan on 12 September 1999. According to the applicants, approximately 70 bombs were dropped on their village during the attack, resulting in the deaths of two children and three women and the destruction of or severe damage to about 30 houses—practically the entire village. According to eyewitness statements, “the corpses of the deceased were severely mutilated and heavily bleeding, and numerous pieces of shrapnel fell from the wounds when the bodies were moved”. The Court was “struck by the Russian authorities’ choice of means in the present case”, given that the authorities were (or should have been) aware of the presence of a civilian population in Kogi. It found that the use of force was manifestly disproportionate and in violation of the right to life. The residents of Kogi, their homes and property destroyed, were forced to leave the village and became refugees. The Court found that this amounted to a violation of the right to family and private life and an inadmissible interference with the right to the peaceful enjoyment of property. Further, the Court accepted that due to “the indiscriminate bombing attack during which their homes and possessions were destroyed” and their relatives killed, the applicants “endured profound mental suffering”. In the case of one applicant who witnessed the instantaneous deaths of his two young sons and his wife, the Court was of the opinion that the suffering was of such severity as to constitute inhuman treatment in violation of the ECHR.²⁶⁸

Another case before the ECtHR, *Isayeva et al. v. Russia*, deals with “an aerial missile attack” on a civilian convoy on 29 October 1999 near Grozny, during which the first applicant’s two children were killed and several applicants were injured. Although in this case the attack was not on a village, the Court again retained “The presence of a substantial number of civilian cars and thousands of people on the road” on the time of the attack as a significant element. It noted that by firing a full load (twelve) of S-24 non-guided air-to-ground missiles “The military used an extremely

268 ECtHR, *Esmukhambetov and Others v. Russia*, Judgement, Application no. 23445/03, 29 March 2011, paras. 17, 19, 21, 140, 146–150, 179, 186, 190. See also ECtHR, *Khatsiyeva and Others v. Russia*, Judgement, Application no. 5108/02, 17 January 2008, para. 136, where the Court criticized that during a helicopter missile attack, the pilots were not asked to provide any information as to “whether the area was populated”.

powerful weapon”, each missiles creating “several thousand pieces of shrapnel” and an impact radius exceeding 300 metres or more. The Court stressed that there were “several explosions on a relatively short stretch of the road filled with vehicles” and that consequently, “anyone who had been on the road at that time would have been in mortal danger”. With reference to the “apparent disproportionality in the weapons used”, the Court considered that the operation was not planned and executed with the requisite care for the lives of the civilian population. The attack also resulted in the destruction of the vehicles and household items belonging to one of the applicants and her family. In this regard, the Court found that the acts “constituted grave and unjustified interferences” with the right to the peaceful enjoyment of her possessions.²⁶⁹

Interestingly, the presence of civilians in the vicinity of the explosion was also a factor retained by the ECtHR in several cases involving explosive weapons that were not launched from a large distance. In cases involving landmines, the ECtHR noted their proximity to places where civilians live, work or gather. In *Paşa et Erkan Erol c. Turquie*, Turkish gendarmes had laid landmines on the grazing land of a village to protect their station nearby. The gendarmes had warned the villagers of the presence of mines and fenced the area, but young children who were herding sheep followed their animals into the mine field. Several children were injured and Erkan Erol, then nine years old, lost his lower left leg. The Court observed that landmines presented a grave danger for young children and that their use had been widely condemned by the international community. With reference to the specific situation of that piece of land, it concluded that it was “hard to understand that the pasture had been mined and fenced by two relatively distant rows of barbed wire only, which were clearly insufficient to dissuade children from entering the area”, and found that Turkey had failed to take the necessary safety measures to protect the right to life.²⁷⁰

269 ECtHR, *Isayeva, Yusupova and Bazayeva v. Russia*, Judgement, Applications nos. 57947/00, 57948/00 and 57949/00, 24 February 2005, paras. 174, 184, 186, 192–200, 229, 233. The Court found a violation of the right to life, but did not find separate issues arising under the prohibition of inhuman treatment.

270 The original text reads that it was “incompréhensible qu’une zone de pâturage ait été minée et simplement entourée de deux rangées de fils barbelés relativement écartées, ce qui est clairement insuffisant pour empêcher que des enfants y pénètrent”. ECtHR, *Paşa et Erkan Erol c. Turquie*, Judgement, Application no. 51358/99, 12 December 2006, paras. 8, 32–33, 37–38.

However, ECtHR jurisprudence also provides examples of cases where explosive weapons were used in or near villages or in other locations with large numbers of civilians present, but where the Court did not find that this was problematic per se. In *Ahmet Özkan and Others v. Turkey*, mentioned earlier, applicants alleged that in the early morning of 20 February 1993, security forces attacked the village of Ormaniçi “with rifles and heavy weaponry”. During the raid, a “rifle or other grenade” was fired at a window of one of the houses. The bomb exploded and caused severe intestinal injuries to a six-year-old girl. She died three days later, without having received medical attention. In this operation, the security forces, among other ammunition, used “6 rounds of 60mm mortar destruction bombs, 9 rounds of RPG-7 ammunition, 25 rounds of 40mm grenades, 12 rounds of Macar rifle grenades, 8 rounds of DM-22 rifle grenades and 10 hand grenades”. The Court described the “quality and quantity of the ammunition” as “impressive”, did not rule out the possibility that a number of houses near the mosque caught fire as a result of the “heavy ammunition” used and accepted as a fact that various grenades were fired into the village. But the Court considered that the use of force by the security forces “cannot be regarded as entailing a disproportionate degree of force” and found no violation of the right to life in this respect. However, the ECtHR did find that the Turkish authorities had violated their

The events occurred in 1995, before the endorsement of the IMAS in 2001, and prior to the conclusion of CCW Amended Protocol II and the Mine Ban Convention, which Turkey joined in 2005 and 2003 respectively. Turkey is not a party to CCW Protocol II of 1980. See also ECtHR, *Albekov and Others v. Russia*, Judgement, Application no. 68216/01, 9 October 2008, paras. 86–90. This case concerns harm to several people and their cattle from anti-personnel landmines and mines with a tripwire laid around a military camp on land used by villagers and in the communal forest nearby. It was disputed whether the government had laid the mines and whether it had adequately warned the villagers or marked the mine field. The Court considered that the government was, in any case, aware of the mines, and that it was hence under a positive obligation to protect the residents. It noted that “The area of the minefield” was “in the vicinity of the village”. In view of this, the Court concluded that the Russian Federation had failed to take “all necessary measures to protect the applicants’ relatives and other villagers from being exposed to the danger constituted by the land mines”. The events occurred in 2000–2001. The Russian Federation is a party to CCW Protocol II since 1982 and ratified CCW Amended Protocol II in 2005. The Court noted that the Russian Federation was not a party to the Mine Ban Convention but made no reference to its obligations under the CCW.

obligation to protect the life of the girl who died from the hand grenade explosion because “the security forces failed to make any attempt to verify whether there were any civilian casualties, which—given the amount and nature of the ammunition used by the security forces—was a realistic possibility”. Ten days after the events, a young boy was killed and his sister injured when a “hand grenade” exploded that had been left in the village after the encounter. The Court did not find that the right to life had been violated in respect of these events, because the security forces had in fact searched for weapons and ammunition after the encounter.²⁷¹

Similarly, in *Ahmet Ayder and Others v. Turkey*, applicants’ homes and property had been destroyed during fighting in the town of Lice on 22 October 1993. The government alleged that the damage resulted from the PKK “using heavy weapons and artillery”. The applicants said that they heard the sounds of helicopters, rockets and mortars and that the security forces pointed a “wide bore weapon” at a barn which began to burn furiously. On the merits in *Ayder*, the Court noted that applicants’ homes and possessions were burned before their eyes and that the destruction of their property deprived them and their families of shelter and their livelihood, and obliged them to leave their place of residence. The ECtHR found that this treatment “must have caused them suffering of sufficient severity for the acts of the security forces to be categorised as inhuman treatment”, but the Court did not give further consideration to allegations about the use of explosive weapons in the town, although it caused extensive destruction.²⁷² And that even though the Court, in *Hazar and Others v. Turkey*, characterized the same events as “clashes between security forces and PKK militants” with the security forces using “heavy weapons, canons, tanks and 5 helicopters”, as a result of which “16 people died, 19 people were wounded and 424 shops and 640 houses were destroyed”.²⁷³

271 ECtHR, *Ahmet Özkan and Others v. Turkey*, Judgement, Application no. 21689/93, 6 April 2004, paras. 12, 110, 117, 145, 161, 298, 305, 307.

272 ECtHR, *Ayder and Others v. Turkey*, Judgement, Application no. 23656/94, 8 January 2004, para. 110. The damage determination report by the public prosecutor of Lice documents extensive damage and destruction to private property and public infrastructure, cited in European Commission of Human Rights, *Ayder and Others v. Turkey*, Decision (admissibility), Application no. 23656/94, 15 May 1995.

273 ECtHR, *Hazar and Others v. Turkey*, Decision (admissibility), Application nos. 62566/00-62577/00 and 62579-62581/00, 10 January 2002. The application

In some instances, the Court's apparent reluctance to engage on the risks inherent in any use of explosive weapons in a populated area may have been due to uncertainty about the cause of the harm. At the admissibility stage in *Akdivar and Others v. Turkey*, for instance, applicants alleged that Turkish soldiers of a special anti-terrorist unit had fired "with heavy weapons from armoured cars at houses and at villagers" of Kelekçi. The Government contended that terrorists attacked the gendarme station at the village "with heavy weapons" causing it to collapse "under the bombardment".²⁷⁴ In *Çaçan v. Turkey*, the applicant alleged that soldiers opened fire on the village "and destroyed some of the houses with mortar shells". The Government denied that a military operation had taken place in this area.²⁷⁵ In both cases, the cause of the fire that destroyed the houses and people's possessions was disputed. In its judgement on the merits in *Akdivar and Others v. Turkey*, the Court retained that security forces were responsible for the burning of the applicants' houses. But although it found violations of the right to the peaceful enjoyment of property and to respect for private and family life as a result of the *deliberate* burning of applicants' homes and possessions, the Court did not dwell on the allegation of explosive weapon use in the context of a populated area and the risks such use would entail.²⁷⁶

Likewise, in the case of *Cagirga v. Turkey* the city of Cizre came under intensive fire on 7 November 1992. The European Commission of Human Rights referred to the events as "bombing" of the applicant's home and family, but did not address the question whether tank fire would have been appropriate in the context.²⁷⁷ Here too, the facts of "the explosive attack" were disputed. According to the applicants, there were several hours of military assault on the Cudi neighbourhood. They heard the sounds of rockets and cannons and asserted that a cannon-ball fell on the applicant's

was inadmissible on procedural grounds.

274 European Commission of Human Rights, *Akdivar and Others v. Turkey*, Decision (admissibility), Application no. 21893/93, 19 October 1994.

275 ECtHR, *Çaçan v. Turkey*, Judgement, Application no. 33646/96, 26 October 2004, paras. 13, 66.

276 ECtHR, *Akdivar and Others v. Turkey*, Judgement, Application no. 21893/93, 16 September 1996, para. 88.

277 European Commission of Human Rights, *Cagirga v. Turkey*, Decision (admissibility), Application no. 21895/93, 19 October 1994. As part of the friendly settlement Turkey paid the applicant 150,000 French francs. European Commission of Human Rights, *Cagirga v. Turkey*, Report, Application no. 21895/93, 7 July 1995.

house: “there was a big explosion Seven members of the applicant’s family were killed, and seven others injured”. The Government submitted that the applicant’s house was hit by a round fired by the PKK from an RPG-7, arguing that “A cannon-ball from a tank gun would have caused more damage to the target, not only on the western side of the house, but to all rooms in the building”. It is noteworthy that Turkey, disputing responsibility of its security forces for the harm, argued that “given the density of the surrounding housing, it would have been impossible to avoid damaging other property if such firing had occurred, but there was no damage to neighbouring residences. Long-range weapons like tank guns cannot be used in such operations with security forces and civilians around”. In this case, a “friendly settlement” was reached.

3.3.3. EXPLOSIVE WEAPONS FOR LAW ENFORCEMENT?

CROSSING A THRESHOLD...

The cases surveyed above, and national regulations discussed in section 2, suggest that explosive weapons are not entirely absent from law enforcement.²⁷⁸ But considering the challenges that the use of explosive weapons in the vicinity of civilians presents under HRL, the silence of national regulations with regard to explosive weapons should not be interpreted as acceptance of these weapons for policing. When states resort to the use of explosive weapons for (what they may claim to be) law enforcement purposes, such use tends to be justified as an exceptional measure taken in extraordinary circumstances. This reinforces the strong presumption against explosive weapons for the purposes of policing.

278 Note also the recent acquisition of fragmentation hand grenades by certain Mexican police forces. According to Ramsey, Mexico’s Secretariat of National Defense “received requests from at least nine state governments for hand grenades in order to give their local police forces an edge in the war on drugs” since 2009. “The defense agency has already given hand grenades to police in several states, including Zacatecas, Guerrero, Coahuila and Yucatan. On the waiting list for the explosives are Guanajuato, Jalisco, and Veracruz, which are expected to arm some local police with grenades by the end of the year”. Geoffrey Ramsey, “Mexican State Police Seek Increased Firepower”, *InSight Crime—Organized Crime in the Americas*, 22 February 2011, <www.insightcrime.org/insight-latest-news/item/594-mexican-state-police-seek-increased-firepower>.

The ECtHR in *Ahmet Özkan and Others v. Turkey* cited above, for instance, based its finding that the use of force did *not* entail a disproportionate degree of force to a large part on the existence of “serious disturbances in south-east Turkey involving armed conflict between the security forces and members of the PKK”.²⁷⁹ In *Isayeva v. Russia*, and a related case brought before the ECtHR, the Court accepted that the situation in Chechnya called for “exceptional measures”, which could presumably include the deployment of “army units equipped with combat weapons, including military aviation and artillery”. Reference is, of course, to the *de facto* existence of a non-international armed conflict, a situation characterized by loss of control by the state over the monopoly of deadly force, and even over parts of the national territory.²⁸⁰

Even in a situation of civil war, however, the use of certain explosive weapons in the vicinity of civilians was found to be incompatible with law enforcement standards. In *Isayeva v. Russia*, the ECtHR considered that even if the aim of the operation was to “protect the population of the village which had been held hostage by a large group of well-equipped and well-trained fighters against unlawful violence”, “The massive use of indiscriminate weapons” stood “in flagrant contrast with this aim” and could not be considered compatible with the standard of care prerequisite to an operation of this kind involving the use of lethal force by state agents.²⁸¹ In *Esmukhambetov v. Russia*, the government claimed that the strike resulting in the destruction of homes and property had been “necessary in order to suppress the criminal activity of members of illegal armed groups and to prevent terrorist attacks they had been preparing”. The Russian Federation also argued that it was carried out in view of the impossibility of using ground troops in the area. The Court did not subscribe to this argument. It found that the deployment of military aviation equipped with heavy weapons was “in itself, grossly disproportionate to the purpose of effecting the lawful arrest of a person”.²⁸²

279 ECtHR, *Ahmet Özkan and Others v. Turkey*, Judgement, Application no. 21689/93, 6 April 2004, para. 305. More contentious, the Court also based its finding on the fact that apart from one little girl, “no civilians were injured as a result of the security forces’ intensive firing”.

280 ECtHR, *Isayeva v. Russia*, Judgement, Applications no. 57950/00, 24 February 2005, para. 180.

281 *Ibid.*, para. 191.

282 ECtHR, *Esmukhambetov and Others v. Russia*, Judgement, Application no. 23445/03, 29 March 2011, paras. 146, 148, 171.

The rejection of these justifications in a law enforcement framework indicates that when states resort to the use of explosive weapons, and particularly, of heavy explosive weapons in populated areas, an important threshold has been crossed: the violence is of an intensity commonly associated with that of an armed conflict.²⁸³ The evolution of events in Syria illustrates this: “On 3 February 2012, in an escalation of violence, State forces in Homs began shelling densely populated areas in Khaldieh with heavy weapons. ... On 6 February, the same type of operation was extended to Bab Amr, which the Government shelled and attacked with rockets”.²⁸⁴

Soon after government forces started using heavy explosive weapons in Homs, the violence there, and subsequently also in other parts of the country, was qualified as a civil war.²⁸⁵ Although not the only factor in the determination of whether an armed conflict exists in legal terms, use of heavy explosive weapons has been cited as an important indicator, for instance, by the ICTY. The Trial Chamber in the case of *Ljube Boškosi and Johan Tarčulovski* concluded that “the type of weapons used, in particular the use of heavy weapons ... the extent of destruction and the number of casualties caused by shelling or fighting”, among other factors, indicated that the intensity of violence was that of a non-international armed conflict.²⁸⁶ Along the same lines, the representative of Luxemburg remarked in June 2012 that “the violence in some regions of Syria has reached such

283 For a non-international armed conflict to exist in the legal sense, the group (or groups) opposing the government’s armed forces are required to possess a certain level of organization. On the legal notion of armed conflict, see, ICRC, “How is the Term Armed Conflict Defined in International Humanitarian Law?”, opinion paper, March 2008.

284 United Nations Human Rights Council, *Report of the Independent International Commission of Inquiry on the Syrian Arab Republic*, UN document A/HRC/19/69, 22 February 2012, para. 46.

285 Stephanie Nebehay, “Some Syria Violence Amounts to Civil War: Red Cross”, Reuters, 8 May 2012, <<http://in.reuters.com/assets/print?aid=INDEE8470AF20120508>>. For a more detailed assessment, see Geneva Academy of International Humanitarian Law and Human Rights, Rule of Law in Armed Conflicts Project, *Syria: Current Conflicts*, 2012, <www.geneva-academy.ch/RULAC/current_conflict.php?id_state_211>.

286 ICTY, *The Prosecutor v. Ljube Boškosi, Johan Tarčulovski*, Trial Chamber II, Judgement, case IT-04-82-T, 10 July 2008, para. 177. In relation to the organizational requirements of an armed group, party to a non-international armed conflict, the Trial Chamber lists a number of explosive weapon types in

a level of intensity, and the use of heavy weapons, artillery and tanks in urban areas and of explosive devices of all types has reached so high a level that there can no longer be any doubts about the situation".²⁸⁷

Of course, states may want to avoid the association of the use of explosive weapons in populated areas with the existence of armed conflict. Turkey and the Russian Federation in the aforementioned cases have tried to justify recourse to explosive weapons by reference to the fight against terrorism on their territory. With the same justification states' police and military forces have used explosive weapons abroad.²⁸⁸ Drone strikes, such as those carried out by the US Air Force and the Central Intelligence Agency (CIA) in a number of countries with which the United States does not consider itself "at war" are an example. These justifications have generated significant controversy.²⁸⁹ Considering that the ECtHR applies doctrines developed on the use of force in law enforcement operations even to large battles involving thousands of insurgents, artillery attacks, and aerial bombardment,²⁹⁰ the same stringent HRL standards on the use of lethal force apply to "counter-terrorist operations" if these are not part of military hostilities during an armed conflict.²⁹¹ States have the opportunity

the possession of the non-state armed group, including portable missiles and mortars (ibid., para. 281).

287 Security Council, UN document S/PV.6790 (Resumption 1), 25 June 2012, p. 10.

288 In this connection arise issues of broader concern, about the role of the military in law enforcement, respect for human rights in the fight against terrorism, the legality of targeted killings and about accountability, transparency and redress to victims.

289 For a recent discussion of US drone strike policy and its humanitarian impacts, see International Human Rights and Conflict Resolution Clinic (Stanford Law School) and Global Justice Clinic (NYU School of Law), *Living Under Drones: Death, Injury, and Trauma to Civilians From US Drone Practices in Pakistan*, September 2012; Center for Civilians in Conflict and Human Rights Clinic (Columbia Law School), *The Civilian Impact of Drones: Unexamined Costs, Unanswered Questions*, 2012.

290 William Abresch, "A Human Rights Law of Internal Armed Conflict: The European Court of Human Rights in Chechnya", *The European Journal of International Law*, vol. 16, no. 4, 2005, p. 742. This has been criticized by some scholars and practitioners. See, e.g., ECtHR, *Abuyeva and Others v. Russia*, Judgement, Application no. 27065/05, 2 December 2010, concurring opinion of Judge Malinverni, joined by Judges Rozakis and Spielmann, para. 3.

291 United Nations Economic and Social Council, *Principles on the Effective Prevention and Investigation of Extra-legal, Arbitrary and Summary Executions*,

to derogate temporarily from some of their obligations in times of public emergency that threatens the nation, as may arise in connection with civil unrest or war, but no derogation is permitted to the right to life, except with respect to deaths resulting from lawful acts of war.²⁹² The legality of “acts of war” is assessed in light of the relevant rules of IHL. As the use of explosive weapons in the vicinity of civilians becomes generally permissible in the context of armed conflict, it also means that when states resort to such use “a key boundary of civilian protection has been crossed”.²⁹³

24 May 1989, Principle 1: “Governments shall prohibit by law all extra-legal, arbitrary and summary executions Exceptional circumstances including a state of war or threat of war, internal political instability or any other public emergency may not be invoked as a justification of such executions. Such executions shall not be carried out under any circumstances including, but not limited to, situations of internal armed conflict, excessive or illegal use of force by a public official”.

292 Human Rights Committee, *CCPR General Comment No. 29: States of Emergency (Art. 4)*, UN document CCPR/C/21/Rev-1/Add.11, 31 August 2001; Council of Europe, *European Convention on Human Rights*, 4 November 1950, art. 15.

293 AOAV, *Explosive Weapons Update: Côte d'Ivoire*, 10 August 2011, p. 1; Richard Moyes, “State Use of Explosive Weapons: An Indicator of Crisis”, Article 36, January 2012, elaborates on this point. General acceptance of the use of explosive weapon in situations of armed conflict raises concerns that governments may intentionally try to escalate violence to legitimize use of such weapons. However, Annyssa Bellal and Louise Doswald-Beck, “Evaluating the Use of Force during the Arab Spring”, *Yearbook of International Humanitarian Law*, vol. 14, 2012, p. 19, asserts that given the strict human rights constraints on the use of force, IHL in effect prohibits governments from creating a non-international armed conflict.

3.4. USE OF EXPLOSIVE WEAPONS FOR THE CONDUCT OF HOSTILITIES

Use of explosive weapons, even in densely populated areas, is a pervasive feature of many armed conflicts and is a principal cause of civilian harm during armed conflict. ICTY jurisprudence illustrates that especially the use of explosive weapons that affect a wide area—due to the large blast or fragmentation radius of an individual explosive weapon, the launching of multiple explosive weapons, or imprecise attacks with explosive weapons—raises grave humanitarian concerns.

But IHL standards fail to adequately acknowledge and protect civilians against the grave risk of harm, especially indirect harm from damage to public infrastructure and property, that foreseeably accompanies the use, in populated areas, of explosive weapons with wide area effects. IHL confers location-specific protections to civilians against the effects of hostilities, including from explosive weapons, in a number of ways. “Populated area” is a well-established notion of IHL and reflects recognition that special standards of protection apply in locations likely to contain “concentrations of civilians”. Certain types of infrastructure (notably, the health care services) essential to the survival or well-being of the civilian population are also specifically protected, and IHL establishes a presumption that places of an essentially civilian character, like dwellings, residential areas, villages, schools or places of worship, are not military objectives per se. However, the protection of civilians in such locations is tenuous. Whereas places of worship, for instance, are specially protected, market places are not, and civilians in populated areas remain at an extreme risk of being harmed by attacks with explosive weapons on military objectives in their vicinity.

Existing IHL standards reflect contrasting levels of concern directed at different forms of explosive violence.²⁹⁴ Certain explosive weapon types are regulated in dedicated treaties. Aside from these standards, attacks are governed by the general rules on the conduct of hostilities, which do not provide significant guidance on or reflect detailed agreement about *how* risk of civilian harm from the effects of explosive weapons is to be assessed and reduced. The particular risks to civilians in populated areas from blast and fragmentation are not explicit in IHL standards, although the historical development of the concept of “indiscriminate attacks” has consistently been tied to concerns about certain uses of explosive weapons in populated areas,²⁹⁵ namely, of “area bombardment”.

3.4.1. GENERAL PROTECTION OF CIVILIANS AGAINST THE EFFECTS OF HOSTILITIES

A report prepared by the ICRC for the 31st International Conference of the Red Cross and Red Crescent held in 2011 noted that “The use of explosive weapons in densely populated areas exposes the civilian population and infrastructure to heightened—and even extreme—risks of incidental or indiscriminate death, injury or destruction”, and stressed that such use poses important challenges to the respect of IHL rules.²⁹⁶

IHL rules on the conduct of hostilities and on the protection of civilians from the effects of hostilities are in their contemporary formulation reflected in the provisions of 1977 Additional Protocol I to the Geneva Conventions.²⁹⁷ Under IHL, civilians “enjoy general protection against dangers arising from military operations”. To give effect to this protection, IHL prohibits direct attacks on civilians, as well as attacks of a nature to strike military objectives and civilians or civilian objects without distinction (*indiscriminate attacks*), and attacks that may be expected to cause incidental civilian harm that would be excessive in relation to the concrete and direct military advantage anticipated from the attack (*disproportionate attacks*).²⁹⁸ IHL rules on *precautions in and against the effects of attack* deal with the risks of civilian harm from the conduct of hostilities. Parties to an armed conflict are mandated to take “constant care ... to spare the

294 Brian Rappert, Richard Moyes and Iain Lang, “The Case for Addressing Explosive Weapons : Conflict, Violence and Health”, *Social Science & Medicine*, vol. 75, no. 11, 2012, p. 2048.

295 Richard Moyes, *Explosive Violence, The Problem of Explosive Weapons, Landmine Action*, 2009, p. 60.

296 ICRC, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts*, document 31IC/11/5.1.2, October 2011, pp. 40–42 (footnote omitted).

297 Although Additional Protocol I is only applicable in international armed conflict, it is widely recognized that the basic rules on the conduct of hostilities it reflects, including the prohibition on indiscriminate attacks, are of customary nature applicable in international and non-international armed conflict. See, Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law, Volume I: Rules*, ICRC, 2005, rules 11–13.

298 *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, art. 51(4–5); Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law, Volume I: Rules*, ICRC, 2005, rules 11–14.

civilian population, civilians and civilian objects". It follows from the rule on distinction and the prohibitions on indiscriminate and disproportionate attacks that the attacker has to do everything feasible to assess, *inter alia*, whether the attack may be expected to cause civilian harm that is excessive in relation to the concrete and direct military advantage anticipated from the attack.²⁹⁹

These rules remain indeterminate in that they tell us nothing about the level of care that is expected, or of the level of certainty and precaution that is required.³⁰⁰ They do not provide *detailed* guidance on *how* risk of civilian harm is to be assessed with regard to particular weapon technologies or in particular settings where civilians may be exposed to the risk of harm. In contrast to the standards about stockpile management discussed above, IHL rules do not reflect agreement about how the conditions should be identified under which the use of weapons potentially causes civilian harm, by what process uncertainty about the magnitude and nature of humanitarian consequences should be described or quantified, and how the limits of acceptable risk or harm should be determined. These issues are essentially left to states to regulate at the national level where, if a systematic process for risk assessment exists, it is seldom disclosed in detail. One model used to assess the extent of direct civilian harm from an individual attack is the aforementioned US CDM, aspects of which are public. The CDM takes into account "the effectiveness of weapons, their effects radius, their impact on different structures, weapon accuracy and failure rates, and weaponeering solutions that can alter these effects"

299 *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, art. 57(1) and (2); Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law, Volume I: Rules*, ICRC, 2005, rule 18, identifies this obligation as a norm of customary international law applicable in non-international and international armed conflict. For a discussion of precautionary obligations under IHL, see Jean-François Quéguiner, "Precautions under the Law Governing the Conduct of Hostilities", *International Review of the Red Cross*, vol. 88, no. 864, pp. 793–821, December 2006.

300 For a detailed discussion of this concern regarding IHL rules on the conduct of hostilities, and the moral problems raised by the "Balancing Approach" they propose, see Adil Ahmad Haque, "Killing in the Fog of War", *Southern California Law Review*, vol. 86, no. 1, February 2012. See also Brian Rappert, *How to Look Good in a War: Justifying and Challenging State Violence*, Pluto Press, 2012, pp. 58-62, p. 119.

in conjunction with “regularly updated population density tables”. The weapons data is “subjected to physics-based computer modelling and is supplemented by weapons testing data and direct combat observations”, whereas the population data is “detailed enough to take into account changes in the population of a specified location based upon the time of day, holidays, religious events and other variables which may alter the population density”.³⁰¹ Such a processes could allow for an assessment of explosive weapon-specific blast and fragmentation effects on civilians and civilian structures, albeit only those likely to result *directly* from a specific attack.³⁰²

IHL is equally unspecific regarding how risk of civilian harm is to be reduced. Relevant IHL standards reflect recognition that civilian harm is a function of weapon effects and the presence of civilians in a certain location. Precautionary obligations include the duty to verify that the target is indeed a military objective and to give effective advance warning

301 Gregory S. McNeal, “The U.S. Practice of Collateral Damage Estimation and Mitigation”, Social Science Research Network, 9 November 2011, pp. 14–15.

302 US Chairman of the Joint Chiefs of Staff, *No-Strike and the Collateral Damage Estimation Methodology*, document CJCSI 3160.01, 13 February 2009, secs. B-1–B-7, requires the identification of different categories of “Protected or Collateral Objects” that are “functionally civilian or noncombatant in nature”. Category I includes diplomatic offices, religious, cultural and historical structures, medical facilities, dams or dikes as well as public schools and “civilian refugee camps and concentrations”. Category II includes private civilian housing, as well as “civilian meeting places”, like theatres, stadia and markets, as well as public utilities and facilities, including water supply facilities, police stations and financial institutions. Into this category also fall agricultural processing and storage facilities that market or distribute foodstuffs for civilian consumption. Population density plays an important role in the estimation of civilian harm under the CDM. However, the process is only concerned with the *number* of civilians likely to be present at the time of attack (differences between day, night and episodic events are accounted for). The *function* of a location is only taken into account for the identification and characterization of objects of concern within the “Collateral Hazard Area” of a strike, but does not appear to play a role in the estimation of civilian harm, that is, the process does not account for reverberating, longer-term impacts on civilians that may result from the destruction of infrastructure essential for their survival or well-being. See also United States District Court for the District of Columbia, *Nasser Al-Aulaqi v. Barack Obama et al.*, Declaration of Jonathan Manes, 8 October 2010, Exhibit A.

to the civilian population of attacks which may affect them (“unless circumstances do not permit”).³⁰³ In the choice of means and methods of attack, all feasible precautions have to be taken “with a view to avoiding, and in any event to minimizing” incidental civilian harm. “Avoiding combat in populated areas” is given as an example of the application of this rule in the ICRC’s customary law study.³⁰⁴ IHL also requires that, when a choice is possible among several military objectives, the attacker must select the one which is expected to present “the least danger” of civilian harm.³⁰⁵ Again, though, this rule does not specify on what basis the “least danger” is to be evaluated, and it does not reflect agreement about what measures are sufficient to avoid or minimize the risk of incidental civilian harm in specific environments, such as, notably, populated areas.

Concern about the protection of civilians in populated areas is explicit only in respect of the precautionary obligations of the defender. The defending side is under an obligation to protect the civilian population under its control against the dangers resulting from military operations. Specifically, it must avoid “locating military objectives within or near densely populated areas”.³⁰⁶ Whereas this rule has the potential to enhance protection of civilians in such locations, in that military bases, for example, should be located outside of densely populated areas, the ICRC’s customary law study found that in states’ interpretation, the rule is quite limited. This is not least related to the fact that objects that may become military targets, but which are also used by civilians (“dual-use objects”), typically, transport infrastructure, will often be located at the very centre of towns.³⁰⁷

303 *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, art. 57(2)(c).

304 *Ibid.*, art. 57(2)(a)(ii); Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law, Volume I: Rules*, ICRC, 2005, rule 17.

305 *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, art. 57(3); Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law, Volume I: Rules*, ICRC, 2005, rule 21.

306 *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, art. 58; Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law, Volume I: Rules*, ICRC, 2005, rule 23.

307 Transport and communication infrastructure, including bridges, railway lines and telephone infrastructure or broadcasting stations are at particular risk of

3.4.2. POPULATED AREAS AND OTHER LOCATIONS CONTAINING CONCENTRATIONS OF CIVILIANS

“(Densely) populated area” and “concentration of civilians” are well-established legal notions in relation to the protection of civilians and the regulation of the conduct of hostilities, although there is no single agreed definition and international texts vary slightly in the formulations they deploy.³⁰⁸ Of 26 texts in this issue area that regulate the use of weapons and reflect a standard on the protection of civilians only four do *not* in one way or another refer to populated areas.³⁰⁹ Such references include

attack because they “are generally acknowledged to be of military importance”. ICRC, *Draft Rules for the Limitation of the Dangers Incurred by the Civilian Population in Time of War*, September 1956, art. 7.

308 *Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices (Protocol II to the CCW)*, 10 October 1980, art. 4(2); *Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices as amended on 3 May 1996 (Amended Protocol II to the CCW)*, 3 May 1996, art. 7(3); *Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III to the CCW)*, 10 October 1980, arts. 1(2), 2(2); *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, art. 51(5)(a). Related, though perhaps narrower notions appear in national military and policy documents. Frequently used in this context is the term “built-up area”. US Marine Corps, *Military Operations on Urbanized Terrain (MOUT)*, document MCWP 3-35.3, 1998, secs. 1–4, presents four categories of built-up areas: villages, strip areas (i.e., industrial zones), towns or small cities, large cities with associated urban sprawl; Swiss Federal Council, *Message relatif à l’approbation de la Convention sur les armes à sous-munitions ainsi qu’à la modification de la loi sur le matériel de guerre*, 11.036, 6 June 2011, p. 5524, refers to “zone construite”, that is, “built-up area”. See also Israeli Ministry of Foreign Affairs, *The Operation in Gaza 27 December 2008–18 January 2009: Factual and Legal Aspects*, July 2009, para. 407.

309 Three of these are instruments that ban explosive weapon types and hence do not regulate the modalities of their use. The other one is Security Council, [*On targeted sanctions against individuals meeting the criteria set out in resolution 1572 (2004) on arms embargo against Côte d’Ivoire*], UN document S/RES/1975(2011), 30 March 2011. In this case, the lack of a reference to populated areas is somewhat surprising given that high-level United Nations representatives have highlighted the dreadful humanitarian impact of explosive weapons use in populated areas in this context. See, United Nations Office for the Coordination of Humanitarian Affairs, *United Nations Humanitarian Chief Alarmed at Côte d’Ivoire Violence*, press release, 2011. For the purposes

provisions on particular locations or objects likely to contain concentrations of civilians or which are important for civilian survival and well-being and which, due to their primarily civilian character, benefit from special protection under IHL.

The health care infrastructure, for example, is specially protected against attack. Civilians and other victims of war tend to be present in high numbers in hospitals. In addition, attacks on health care facilities and workers can have disastrous knock-on effects on the provision of medical assistance.³¹⁰ Geneva Convention IV provides for the establishment of “hospital and safety zones and localities” to protect from the effects of war, “wounded, sick and aged persons, children under fifteen, expectant mothers and mothers of children under seven”. It also contains provisions protecting from attack civilian hospitals organized to give care to the wounded and sick, the infirm and maternity cases.³¹¹

Similarly, special standards apply to “places of worship which constitute the cultural or spiritual heritage of peoples”.³¹² Additional Protocol I prohibits attacks on “any inhabited place” near or in a zone where armed forces are in contact, which is open for occupation, and which has been declared a “non-defended locality”, and on “demilitarized zones”. It is a war crime within the jurisdiction of the ICC and the ICTY to attack “towns, villages, dwellings or buildings” that are undefended and that are not military objectives.³¹³

of this report, a text is considered to refer to populated areas if it uses the term “populated area”, “concentration of civilians” or similar terms; to city, town, village, dwelling or similar places where civilians live; to a crowd, assembly, gathering or similar location/zone where civilians are present in large numbers; to a market, commercial premise, farm, or similar place where civilians work; or to transport, health, government facilities or similar public infrastructure or place of public use.

310 It has been noted earlier that in today’s conflicts explosive violence is a key driver of civilian harm through its negative impacts on health care. ICRC, *Health Care in Danger: a Sixteen-Country Study*, 2011.

311 *Convention (IV) relative to the Protection of Civilian Persons in Time of War*, 12 August 1949, arts. 14, 18, and Annex I. Draft Agreement Relating to Hospital and Safety Zones and Localities.

312 *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, art. 53.

313 *Ibid.*, arts. 59, 60; Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law, Volume I: Rules*, ICRC, 2005, rules

So-called “safety zones”, “safe areas” or “no-fly zones”—not necessarily based on provisions of IHL—also aim at protecting civilians in particular places. United Nations Security Council resolution 836 (1993), for example, authorized the United Nations Protection Force to use all necessary measures in response to bombardments against the safe areas created around the towns of Sarajevo, Bihać, Srebrenica, Goražde, Tuzla and Žepa, and their surroundings. A more recent example is the “ban on all flights in the airspace of the Libyan Arab Jamahiriya in order to help protect civilians” imposed by the United Nations Security Council with reference to the call by the Council of the League of Arab States “for the imposition of a no-fly zone on Libyan military aviation, and to establish safe areas in places exposed to shelling as a precautionary measure”.³¹⁴

Not all places likely to contain concentrations of civilians benefit from explicit location-specific protection, though. Whereas IHL establishes a strong presumption against attacks on places of worship that constitute the cultural or spiritual heritage of peoples, for example, no IHL rule specifically protects market places. With respect to the risk of civilian harm from explosive weapons, this differential treatment is difficult to justify. Studies show that the victims of incidents involving explosive weapons in both locations are predominantly civilians.³¹⁵

Markets are, of course, civilian objects and as such protected from direct attack. But civilian objects may lose protection if they become military objectives, that is, for the duration that they make an effective contribution

35–37; *Rome Statute of the International Criminal Court*, 1998, art. 8(2)(b)(v); Security Council, [*On establishment of the international tribunal for prosecution of persons responsible for serious violations of international humanitarian law committed in the territory of the former Yugoslavia since 1991*], UN document S/RES/827, 25 May 1993, art. 3(c).

314 Security Council, [*Extending the mandate of the UN Protection Force and authorizing the Force to use all necessary measures in reply to bombardments against the safe areas*], UN document S/RES/836, 4 June 1993; Security Council, [*On establishment of a ban on flights in the Libyan Arab Jamahiriya airspace*], UN document S/RES/1973, 17 March 2011. Consider also Security Council, [*On expansion and extension of the mandate of the UN Observer Mission in Georgia and its cooperation with the CIS Peace-Keeping Force*], UN document S/RES/937, 21 July 1994.

315 In 2011, 90% of casualties in or near places of worship, and 96% of casualties in or near markets recorded by AOVAV were reported to be civilians. Henry Dodd and Rob Perkins, *Monitoring Explosive Violence: The EVMP Dataset 2011*, AOVAV, March 2012, p. 15.

to military action by their *location, purpose, or use*.³¹⁶ IHL creates a *presumption* in relation to civilian objects “normally dedicated to civilian purposes” that they are not being *used* to make an effective contribution to military action. As examples of such places, Additional Protocol I lists “a place of worship, a house, or other dwelling or a school”.³¹⁷ The ICRC’s customary law study notes that “State practice considers civilian areas, towns, cities, villages, residential areas, dwellings, buildings and houses and schools, civilian means of transportation, hospitals, medical establishments and medical units, historic monuments, places of worship and cultural property, and the natural environment as *prima facie* civilian objects”. It is somewhat unclear what the “*prima facie*” civilian character and the presumption that certain locations are not used by a party to an armed conflict entails in terms of the threshold for loss of protection from attack.³¹⁸ ICTY jurisprudence shows, though, that even large populated areas are not deprived of their civilian character by the presence of military objectives in such places. In *Dragomir Milošević* (2007), a case involving attacks with modified air bombs, artillery and mortar fire on the city of Sarajevo, the ICTY Trial Chamber described the city as “a densely-populated urban area” constituted by residential and commercial areas. It noted that “the populated urban areas within the confrontation lines were civilian in status” and that this status was not altered by the presence of military objectives.³¹⁹

ICTY case-law illustrates that civilians are at grave risk of direct death and injury, and of indirect harm due to the disruption of services essential to civilian survival and well-being from attacks with explosive weapons on legitimate military objectives within that area. In the *Perišić* and *Galić* cases,

316 *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, art. 52(2).

317 *Ibid.*, art. 52(3).

318 Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law, Volume I: Rules*, ICRC, 2005, rules 9, 10 (footnotes omitted).

319 ICTY, *The Prosecutor v. Dragomir Milošević*, Trial Chamber III, Judgement, case IT-98-29/1-T, 12 December 2007, paras. 10 and 896; *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, art. 50(3): “The 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”.

the ICTY assessed the legality of shelling attacks on an important open-air market located in Sarajevo. The Trial Chamber in *Galić* (2003) pointed out that “the market drew large numbers of people”, and in *Perišić*, it stressed “the location and the function played by the Markale market as a civilian public place”.³²⁰ In the *Strugar* case (2005), the ICTY examined the shelling of “residential blocks, public places and shops” in Dubrovnik, and pointed out that “damage to these would have entailed grave consequences for the residents or the owners”.³²¹ In *Blaškić* (2000), the ICTY stressed the high number of people frequenting the affected area. Discussing the shelling of Zenica it found that “the shells hit very busy parts of town, such as the shopping district and the municipal market moreover, at a peak time. In fact, it seems that at this exact time of day, commercial traffic was considerable and there were between two to three thousand people in the geographical area bombarded”.³²² In *Galić*, the Trial Chamber was struck by the fact that civilians were hit while shopping, while gathered in a square or during sportive festivities organized on a public holiday. The Tribunal specifically noted that children were harmed in schools, or while playing outside, riding a bicycle, near their home, or in the street.³²³

In sum, although attacks with explosive weapons have to comply with the prohibitions on indiscriminate and disproportionate attacks, precautionary obligations, as well as the prohibition on extensive destruction not justified by military necessity, these rules are not weapon-specific, and, hence, do not provide detailed guidance about how to assess blast and fragmentation effects and the risk of civilian harm from these effects in or near places containing concentrations of civilians. This constitutes an important challenge for the effective protection of civilians against dangers arising from military operations.

320 ICTY, *The Prosecutor v. Stanislav Galić*, Trial Chamber, Judgement, case IT-98-29-T, 5 December 2003, para. 495; ICTY, *The Prosecutor v. Momčilo Perišić*, Trial Chamber I, Judgement, IT-04-81-T, 6 September 2011, para. 357.

321 ICTY, *The Prosecutor v. Pavle Strugar*, Trial Chamber II, Judgement, case IT-01-42-T, 31 January 2005, para. 320.

322 ICTY, *The Prosecutor v. Tihomir Blaškić*, Judgement, Trial Chamber, case IT-95-14-T, 3 March 2000, para. 662.

323 ICTY, *The Prosecutor v. Stanislav Galić*, Trial Chamber, Judgement, case IT-98-29-T, 5 December 2003, para. 584.

3.4.3. THE PROHIBITION ON AREA BOMBARDMENT IN CITIES, TOWNS OR VILLAGES

In contrast to other rules on the conduct of hostilities, the prohibition on area bombardment is specific to the use of explosive weapons in populated areas. Historically, the growing role of explosive weapons in land, sea and air warfare was accompanied by the elaboration of legal constraints to protect civilians in populated areas against the effects of bombardments. The 1899 and 1907 Hague Conventions reflect the beginning of concern about attacks on population centres with explosive weapons from a long distance, especially from the air. The Regulations annexed to the 1907 Hague Convention IV prohibited the bombardment of towns, villages, dwellings, or buildings “which are undefended”.³²⁴ More permissive, the 1907 Hague Convention IX forbids the bombardment by naval forces “of undefended ports, towns, villages, dwellings, or buildings”, but allows for exceptions, for example, if the port in question declines to comply with requisitions for supplies.³²⁵ These rules proved unable to prevent grave civilian suffering from unprecedented attacks with explosive weapons on population centres during the First World War. Under the 1922/1923 Hague Rules of Air Warfare drafted after the war, the bombardment of cities, towns, villages, habitations and buildings in the immediate vicinity of the operations of land forces was considered legitimate if “there was a reasonable presumption that the military concentration is important enough to justify the bombardment” as long as “the danger to which the civil population will thus be exposed” would be taken into account.³²⁶ The Hague Rules were never adopted in legally binding form, and had no significant restraining effect in the armed conflicts of the 1930s.

In 1938, the League of Nations adopted a resolution “on the protection of civilian populations against bombing from the air in case of war”.

324 *Hague Convention (IV) respecting the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land*, 18 October 1907, arts. 25–27. See also *Project of an International Declaration concerning the Laws and Customs of War*, 27 August 1874, arts. 15–18; Institute of International Law, *The Laws of War on Land*, 9 September 1880, arts. 32–34.

325 *Hague Convention (IX) concerning Bombardment by Naval Forces in Time of War*, 18 October 1907, art. 3.

326 *Rules concerning the Control of Wireless Telegraphy in Time of War and Air Warfare*, 1922/1923, art. 24(4).

The League of Nations Assembly recognized as a necessary basis for any subsequent regulations the principle that “Any attack on legitimate military objectives must be carried out in such a way that civilian populations in the neighbourhood are not bombed through negligence”.³²⁷ No such regulations were adopted before the outbreak of the Second World War, which was marked by the destruction, with explosive and incendiary weapons, of entire cities.³²⁸ Over the two following decades, “aerial bombardment of civilian targets was sufficiently common that this practice had largely been removed from the purview of international legal regulation”.³²⁹

The prohibition on area bombardment which was finally included in Additional Protocol I clearly evolved in response to carpet and saturation bombing campaigns carried out during the Second World War and subsequently in South-East Asia and other places. The Protocol defines “area bombardment” as “an attack by bombardment by any methods or means which treats as a single military objective a number of clearly separated and distinct military objectives located in a city, town, village or other area containing a similar concentration of civilians or civilian objects”.³³⁰

Reference to “bombardment” clearly refers to the launching of multiple explosive weapons.³³¹ According to one commentary, “the expression

327 League of Nations Assembly, *Protection of Civilian Populations against Bombing from the Air in Case of War*, resolution, 30 September 1938.

328 For a discussion, see for example Charles S. Maier, “Targeting the City: Debates and Silences about the Aerial Bombing of World War II”, *International Review of the Red Cross*, vol. 87, no. 859, pp. 429–444, 2005.

329 Mathew Lippman, “Aerial Attacks on Civilians and the Humanitarian Law of War: Technology and Terror from World War I to Afghanistan”, *California Western International Law Journal*, vol. 33, no. 1, Fall 2002, p. 34.

330 *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, art. 51(5). This rule applies to bombardment of targets on land, irrespective of whether the weapons are ship, air or ground launched. See, Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law, Volume I: Rules*, ICRC, 2005, rule 13. On the evolution of this provision, see Hans Blix, “Area Bombardment: Rules and Reasons”, *British Yearbook of International Law*, vol. 49, no. 1, pp. 31–69, 1978.

331 “Bombing” and “high altitude bombing” are given as examples of “methods of warfare” and a “bomb” is listed as a type of “weapon”, that is, a “means of warfare” used in combat operations in Program on Humanitarian Policy

‘bombardment by any method or means’ means all attacks by fire-arms or projectiles (except for direct fire by small arms) and the use of any type of projectile”.³³² Although, the prohibition on area bombardment emerged out of concern about bombardment from the air, it is of broader application today. The British Manual on the Law of Armed Conflict, for example, notes that “attack by bombardment” includes “aerial bombing as well as bombardment by artillery, rocket, or missile”.³³³

It is, however, doubtful that the focus on bombardment retains legal significance today. As mentioned before, the ICTY and the ICC Statutes contain provisions, based on language from the 1907 Hague Regulations, that distinguish between “bombardment” and “attacks”.³³⁴ But since the adoption of the Additional Protocol, bombardment is subsumed under the broader notion of attack, defined by the Protocol as any “acts of violence against the adversary, whether in offence or in defence”. In spite of the specific reference to “bombarding” in the ICC Statute, the Elements of Crimes merely require that the perpetrator *attack* one or more towns or villages. It does not specify whether by bombardment or by any other method.³³⁵ It is also noteworthy that, in spite of dealing with air warfare where explosive weapons play a dominant role, the Air and Missile

and Conflict Research at Harvard University, *Manual on International Law Applicable to Air and Missile Warfare*, 15 May 2009, secs. A(1)(b)(v), A(1)(b)(ff).

- 332 Claude Pilloud et al. (eds), *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949*, ICRC/Martinus Nijhoff, 1987, p. 642, para. 1968.
- 333 UK Ministry of Defence, *The Joint Service Manual of the Law of Armed Conflict*, document JSP 383, 2004, fn 96 to para. 5.23.2(a). Hans Blix, “Area Bombardment: Rules and Reasons”, *British Yearbook of International Law*, vol. 49, no. 1, 1978, pp. 33, 65.
- 334 Security Council, [On establishment of the international tribunal for prosecution of persons responsible for serious violations of international humanitarian law committed in the territory of the former Yugoslavia since 1991], UN document S/RES/827, 25 May 1993, art. 3(c), lists “attack, or bombardment, by whatever means, of undefended towns, villages, dwellings, or buildings” as a crime the Tribunal has competence to prosecute; *Rome Statute of the International Criminal Court*, 1998, art. 8(2)(b)(v): “Attacking or bombarding, by whatever means, towns, villages, dwellings or buildings which are undefended and which are not military objectives”.
- 335 Assembly of States Parties to the Rome Statute of the International Criminal Court, *Elements of Crimes*, UN document ICC-ASP/1/3, 25 September 2002, p. 132. See also Otto Triffterer and Kai Ambos, *Commentary on the Rome*

Warfare Manual by the Program on Humanitarian Policy and Conflict Research at Harvard University does not contain any rules specific to explosive weapon types or to “bombing” or “bombardment”. It merely recalls that the “use of any weapon ... is subject to the general rules and principles of customary and treaty law of international armed conflict”.³³⁶

3.4.4. USE, IN POPULATED AREAS, OF EXPLOSIVE WEAPONS WITH WIDE AREA EFFECTS

Despite existing legal standards specific to the use of explosive weapons in populated areas, such use continues to have profound negative humanitarian impacts. In 2009, for example, tens of thousands of civilians died in the crowded Vanni region, many of them through shelling by Sri Lankan forces.³³⁷ In the same year, Israeli airstrikes on the Gaza Strip, “one of the most densely populated territories in the world”, caused widespread destruction to public infrastructure and private property.³³⁸

Under the existing regulatory framework this humanitarian concern tends to be framed in terms of the prohibition on indiscriminate attacks. “The legal concept of ‘indiscriminate attacks’ has evolved with particular reference to explosive weapons and populated areas”.³³⁹ Area bombardment is listed in Protocol I as one form of indiscriminate, and hence forbidden, attack. But since “bombardment” has lost significance as a legal concept, use of explosive weapons is assessed with reference to the broader notion of indiscriminate attacks, defined as those attacks that are not directed at a specific military objective, that employ a method or means of combat that cannot be so directed, or that employ a method or means of combat the

Statute of the International Criminal Court : Observers’ Notes, Article by Article, 2nd ed., C.H. Beck, Hart, Nomos, 2008, p. 342.

336 Program on Humanitarian Policy and Conflict Research at Harvard University, *Manual on International Law Applicable to Air and Missile Warfare*, 15 May 2009, sec. C(7).

337 United Nations Secretary-General, *Report of the Secretary-General’s Panel of Experts on Accountability in Sri Lanka*, 31 March 2011, pp. 23–36.

338 European Network of Implementing Development Agencies, *Final Report: Damage Assessment and Needs Identification in the Gaza Strip*, March 2009; United Nations Environment Programme, *Environmental Assessment of the Gaza Strip following the Escalation of Hostilities in December 2008–January 2009*, September 2009.

339 Richard Moyes, *Explosive Violence, The Problem of Explosive Weapons, Landmine Action*, 2009, p. 58.

effects of which cannot be limited as required by IHL.³⁴⁰ Beyond inviting assessment of individual instances of explosive weapon use (attacks), this prohibition should also be expected to “limit the use of certain weapons in situations where the civilian population will be affected”.³⁴¹

Certain explosive weapon types have been banned and the use of others restricted, in part, on the basis of the rule that the use of weapons that *cannot* be directed at a specific military objective, or the effects of which *cannot* be limited as required under IHL, is prohibited.³⁴² This would apply to area bombardment of populated areas as a method of warfare, and to victim-activated explosive weapons triggered by civilians and combatants alike. The Mine Ban Convention bans anti-personnel landmines in part on this basis.³⁴³ But a range of means and methods of combat involving

340 *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I)*, 8 June 1977, art. 51(4).

341 United Nations Human Rights Council, *Report of the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions, Philip Alston; the Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health, Paul Hunt; the Representative of the Secretary-General on Human Rights of Internally Displaced Persons, Walter Kälin; and the Special Rapporteur on Adequate Housing as a Component of the Right to an Adequate Standard of Living, Miloon Kothari, Mission to Lebanon and Israel, (7–14 September 2006)*, UN document A/HRC/2/7, 2 October 2006, para. 26. In the words of the International Court of Justice, “States must never make civilians the object of attack and must consequently never use weapons that are incapable of distinguishing between civilian and military targets”. International Court of Justice, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 8 July 1996, para. 79.

342 Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law, Volume I: Rules*, ICRC, 2005, rules 11–13, 71.

343 On the same basis, *Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices as amended on 3 May 1996 (Amended Protocol II to the CCW)*, 3 May 1996, art. 7(3), creates a strong presumption against the use of booby-traps and other devices “in any city, town, village or other area containing a similar concentration of civilians”. Although less explicit, restrictions on the placing of mines at sea, off the coast or ports or near artificial islands, installations, structures and safety zones can be interpreted as measures to protect civilians in particular locations. *Convention (VIII) relative to the Laying of Automatic Submarine Contact Mines*, 18 October 1907, art. 2; International Institute of Humanitarian Law, *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, 12 June 1994, arts. 34–35. Compare,

explosive weapons are not, at present, subject to specific regulation under IHL. Whether their use would, in some or all circumstances, violate the prohibition on indiscriminate attacks remains disputed. No agreement has so far been reached on how to address the humanitarian impacts of anti-vehicle mines, for example.³⁴⁴

Interestingly, though, a 1987 commentary on the Additional Protocols specifically mentions “certain blast and fragmentation weapons” in connection with the controversy about weapons that may have an indiscriminate effect.³⁴⁵ Use of such explosive weapons, in populated areas, raises concerns under the prohibition on indiscriminate attacks, in particular when it has wide area effects. This can be due to several factors (or a combination thereof).

First, insufficient precision in the delivery of explosive weapons exposes a high number of civilians to the risk of harm. Use, in populated areas, of “blind” weapons, “unguided” and “indirect fire” weapons raises this concern. The question of precision tends to be approached from the perspective of the accuracy with which a weapon can be delivered to the target—among other factors, a function of the launching distance and guidance systems.³⁴⁶ Factors pertaining to precision play a role in several ICTY cases involving the use of explosive weapons in populated areas. In the case of *Gotovina et. al.* (2011), the Trial Chamber noted that firing

however, International Institute of Humanitarian Law, *Rules of Engagement Handbook*, November 2009, pp. 49–50. Noting that “treaty law and national policies, which go beyond the requirements of customary international law, have placed limitations on the use of these weapon systems by some nations”, the Handbook proposes a set of ROE on the use of anti-personnel mines, anti-vehicle mines and command-detonated mines. One ROE explicitly permits “Use of land mines (including anti-personnel mines)”.

344 ICRC, *Rules of International Humanitarian Law Applicable to Anti-Vehicle Mines, Background Paper Prepared by the International Committee of the Red Cross for the Convention on Certain Conventional Weapons Meeting of Experts on Mines Other than Anti-personnel Mines, 2–4 April 2012*, 2012.

345 Claude Pilloud et al. (eds), *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949*, ICRC/Martinus Nijhoff, 1987, p. 406, para. 1424, <www.icrc.org/ihl.nsf/COM/470-750044?OpenDocument>.

346 For a discussion of the difference between precision and accuracy, see Michael N. Schmitt, “Precision Attack and International Humanitarian Law”, *International Review of the Red Cross*, vol. 87, no. 859, pp. 445–466, September 2005.

shells at a civilian apartment building in a civilian residential area “from a distance of approximately 25 kilometres, created a significant risk of a high number of civilian casualties and injuries, as well as of damage to civilian objects”.³⁴⁷ In the case of *Dragomir Milošević*, the Tribunal described “modified air bombs” as a weapon that was “highly inaccurate” and “uncontrollable”. On the basis of expert testimony to the effect that the “The modified air bombs could only be directed at a general area, making it impossible to predict where they would strike”, the regular use of this “highly inaccurate weapon with great explosive power” was an aggravating circumstance in this case.³⁴⁸

Many states acknowledge that inaccurately delivered explosive weapons are problematic in populated areas, notably in relation to the use of “indirect fire” weapons.³⁴⁹ It is telling that one acknowledged limitation of the US CDM relates to “rocket assisted projectiles” or “enhanced/extended range artillery, mortar, and naval gun munitions”. The limitation is based on the “considerable increase in ballistic errors” associated with these explosive weapons and “the significant increase in risk associated with their use in urban areas”.³⁵⁰ As was noted earlier, the San Remo ROE Handbook proposes special rules on “indirect fire”, particularly “unobserved indirect fire”, in relation to populated areas.³⁵¹ In the past, the African Union Mission in Somalia (AMISOM) regularly shelled the main market of Somalia’s capital, Mogadishu, with artillery and mortar rounds. The practice was severely criticized as having indiscriminate effects on

347 ICTY, *The Prosecutor v. Ante Gotovina, Ivan Čermak, Mladen Markač*, Trial Chamber I, Judgement, case IT-06-90-T, 15 April 2011, para. 1910.

348 ICTY, *The Prosecutor v. Dragomir Milošević*, Trial Chamber III, Judgement, case IT-98-29/1-T, 12 December 2007, paras. 97, 1001; ICTY, *The Prosecutor v. Dragomir Milošević*, Appeal Chamber, Judgement, case IT-98-29/1-A, 12 November 2009, paras. 116, 273. See also ICTY, *The Prosecutor v. Milan Martić*, Trial Chamber, Judgement, case IT-95-11-T, 12 June 2007, para. 463.

349 Note also the special mention of “missiles and projectiles with over-the-horizon capabilities” in International Institute of Humanitarian Law, *San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, 12 June 1994, para. 78.

350 US Chairman of the Joint Chiefs of Staff, *No-Strike and the Collateral Damage Estimation Methodology*, document CJCSI 3160.01, 13 February 2009, sec. D-5.

351 See p. 84.

civilians in this densely populated area and of placing them at a high risk of death, injury and property damage.³⁵²

The commentary to the Program on Humanitarian Policy and Conflict Research's Manual, discussing compliance of weapons used in air and missile warfare with the rule of distinction, argues, for instance, that "uncontrolled balloon-borne bombs" launched by Japan against the US and Canada during the Second World War are "blind weapons" falling foul of that rule.³⁵³ On these grounds, V-1 and V-2 rockets, cluster bombs, Scud missiles and Katyusha rockets have also been cited as inherently indiscriminate weapons.³⁵⁴ However, the authors of the Manual's commentary affirm that "unguided bombs are not as *such* indiscriminate

352 Human Rights Watch, *Harsh War, Harsh Peace—Abuses by al-Shabaab, the Transitional Federal Government, and AMISOM in Somalia*, April 2010; Amnesty International, "No End in Sight: The Ongoing Suffering of Somalia's Civilians", 6 March 2010; United Nations Human Rights Council, *Report of the Independent Expert on the Situation of Human Rights in Somalia, Shamsul Bari**, UN document A/HRC/13/65, 23 March 2010. AMISOM eventually took steps to implement a new "indirect fire policy", discussed further on p. 156.

353 Program on Humanitarian Policy and Conflict Research at Harvard University, *Commentary on the HPCR Manual on International Law Applicable to Air and Missile Warfare*, 2010, p. 64. See also Institute of International Law, *The Distinction between Military Objectives and Non-Military Objectives in General and Particularly the Problems Associated with Weapons of Mass Destruction*, 9 September 1969, para. 7, which mentions "blind" weapons in relation to indiscriminate effects.

354 For example, see Jean-Marie Henckaerts and Louise Doswald-Beck, *Customary International Humanitarian Law, Volume I: Rules*, ICRC, 2005, rule 71. The joint mission of special rapporteurs to Lebanon and Israel in 2006 noted that the 122mm Katyusha rockets and the 220mm mobile rockets fired by Hezbollah "have an accuracy of 300–400 m when used at maximum range". When they hit a village, the rapporteurs concluded, their use was necessarily illegal, either because the village was targeted or because their use was indiscriminate. United Nations Human Rights Council, *Report of the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions, Philip Alston; the Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health, Paul Hunt; the Representative of the Secretary-General on Human Rights of Internally Displaced Persons, Walter Kälin; and the Special Rapporteur on Adequate Housing as a Component of the Right to an Adequate Standard of Living, Miloon Kothari, Mission to Lebanon and Israel, (7–14 September 2006)*, UN document A/HRC/2/7, 2 October 2006, para. 73.

by nature". In their view, the legality of the release of "unguided bombs" over an area inhabited by civilians depends on the "accuracy" of these bombs, in turn related to "their methods of delivery". The commentary concludes that "the release of unguided bombs over an area inhabited by civilians, *without any effort* to direct them against military objectives in that area, is an indiscriminate (and therefore unlawful) use of an otherwise discriminate weapon".³⁵⁵ Launching an attack without any effort to direct it at a military objective is undisputedly in violation of IHL, but this leaves unaddressed the rather more pertinent question of what effort would be required under IHL for an attack with unguided bombs, in an area inhabited by civilians, to comply with IHL.

Second, as discussed in relation to area bombardment, the launching of multiple explosive weapons at an area also raises humanitarian concerns. Cluster munitions were banned by an international treaty in 2008, specifically with a view to the prevention of "indiscriminate area effect".³⁵⁶ Aside from problems related to inaccurate delivery and grave post-use risks from unexploded submunitions, the ban was motivated by the "serious risks to civilians" that cluster munitions pose "owing to their typically large lethal footprint".³⁵⁷ Concerns about the wide area effects of cluster munitions were voiced long before their specific legal prohibition, particularly in relation to their use in populated areas.³⁵⁸ For

355 Program on Humanitarian Policy and Conflict Research at Harvard University, *Commentary on the HPCR Manual on International Law Applicable to Air and Missile Warfare*, 2010, p. 64 (emphasis added).

356 *Convention on Cluster Munitions*, 30 May 2008, art. 2(2)(c).

357 European Parliament, *Banning cluster munitions*, document P7_TA-PROV(2011)0512, 17 November 2011.

358 Note that proposed ROE on cluster munitions in the San Remo Handbook reflect a presumption of non-use. Permitted use is limited to specified objectives or in specified areas. One of the acknowledged limitations of US Chairman of the Joint Chiefs of Staff, *No-Strike and the Collateral Damage Estimation Methodology*, document CJCSI 3160.01, 13 February 2009, sec. D-5, relates to the use of "cluster or improved conventional munitions ... because of the greater risk of unexploded ordnance and the limited weaponeering options available to mitigate the risk of collateral damage with these munitions". See also Ministry of Foreign Affairs of the Russian Federation, *Response by Anatoly Antonov, Director, Department for Security Affairs and Disarmament, Foreign Ministry of the Russian Federation, to a Media Question Regarding the Adoption by the Dublin Diplomatic Conference of a Convention on Cluster Munitions*, 2008, seeing "the main causes of [cluster munition]-

example, in 2006, United Nations special rapporteurs in a joint mission report condemned the use of cluster munitions by Israel in Southern Lebanon, including in villages and other populated areas, as “inconsistent with principles of distinction and proportionality”. In their view, Israeli forces had taken a decision to “blanket an area occupied by large numbers of civilians with small and volatile explosives”, the impact of which would “obviously be indiscriminate and the incidental effects on civilians would almost certainly be disproportionate”. “The mere fact that cluster munitions are not a banned weapon”, the rapporteurs remarked at the time, “should not have led Israel to overlook other requirements of international humanitarian law”.³⁵⁹ Shortly afterwards, a number of states issued a “Declaration on cluster munitions” in the framework of the CCW, which called for an agreement that would “prohibit the use of cluster munitions within concentrations of civilians”.³⁶⁰ The ICTY discussed the use of a cluster munition type, the M-87 Orkan rocket, in relation to attacks on the city of Zagreb in the *Martić* case (2007). It noted that “the area of dispersion” of the rocket’s submunitions on the ground was about two hectares. The Tribunal called the rocket a “high dispersion weapon” incapable of hitting specific targets and concluded that “the M-87 Orkan is an indiscriminate weapon, the use of which in densely populated civilian areas, such as Zagreb, will result in the infliction of severe casualties”.³⁶¹

related humanitarian problems” in their use “in places where large numbers of civilians congregate”.

- 359 United Nations Human Rights Council, *Report of the Special Rapporteur on Extrajudicial, Summary or Arbitrary Executions, Philip Alston; the Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health, Paul Hunt; the Representative of the Secretary-General on Human Rights of Internally Displaced Persons, Walter Kälin; and the Special Rapporteur on Adequate Housing as a Component of the Right to an Adequate Standard of Living, Miloon Kothari, Mission to Lebanon and Israel, (7–14 September 2006)*, UN document A/HRC/2/7, 2 October 2006, para. 56. Consider also ICTY, *The Prosecutor v. Milan Martić*, Trial Chamber, Judgement, case IT-95-11-T, 12 June 2007, para. 472, where the Trial Chamber considers that a direct attack on civilians may be inferred from the indiscriminate character of the weapon used, in that case, a cluster munition.
- 360 Third Review Conference of the States Parties, *Declaration on Cluster Munitions*, UN document CCW/CONF.III/WP.18, 20 November 2006.
- 361 ICTY, *The Prosecutor v. Milan Martić*, Trial Chamber, Judgement, case IT-95-11-T, 12 June 2007, para. 463.

Humanitarian concerns in relation to wide area effects also arise in relation to the dispersal of other explosive munitions across a populated area.³⁶² In *Gotovina et al.*, the ICTY considered that “even a small number of artillery projectiles can have great effects on nearby civilians.”³⁶³ In the *Galić* case (2003), the Tribunal dealt with the use of multiple launch rocket systems (MLRS) in attacks against the city of Sarajevo. An expert witness informed the Tribunal that “It is not possible to fire the weapon and have the shells land in a very small area. They spread out in flight and then land over literally up to a kilometer square”. The use of this “area weapon” was considered inappropriate “in an urban setting” where there are civilians and military together as it was impossible to predict where the rockets would land.³⁶⁴

Third, the use of explosive weapons may affect a wide area due to an individual explosive weapon having a large blast or fragmentation radius.³⁶⁵ In *Gotovina et al.* (2011) the ICTY Trial Chamber closely examined the characteristics of artillery shells used in attacks on the city of Knin and other towns. According to expert testimony heard in that case “fragments from a 120-millimetre projectile can disperse to a range of 1,600 square meters if burst at the height of the target, within which area anybody present will have a fair chance of getting hit by flying shrapnel, or up to 2,100 square meters if burst at a height of three meters above the ground, by using a variable time fuse”. The fragmentation of a 155mm howitzer projectile was

362 Richard Moyes, *Explosive Violence, The Problem of Explosive Weapons, Landmine Action*, 2009, p. 62 and fn 188, stressing that cluster munitions raise concerns similar to those raised by other explosive weapons.

363 ICTY, *The Prosecutor v. Ante Gotovina, Ivan Čermak, Mladen Markač*, Trial Chamber I, Judgement, case IT-06-90-T, 15 April 2011, para. 1909.

364 ICTY, *The Prosecutor v. Stanislav Galić*, Trial Chamber, Judgement, case IT-98-29-T, 5 December 2003, paras. 644–645.

365 In military parlance and literature, a variety of notions describe a weapon’s ability to inflict damage, death or injury within a certain radius around the impact point. These include “collateral hazard area”, “kill radius” and “lethal radius”, terms that have also made inroads into human rights literature. Not all of these are equivalent to the zones within which blast or fragment projection present a risk of death or injury to civilians or damage to civilian structures. Note also the reference to “weapons the destructive effect of which is so great that it cannot be limited to specific military objectives” in Institute of International Law, *The Distinction between Military Objectives and Non-Military Objectives in General and Particularly the Problems Associated with Weapons of Mass Destruction*, 9 September 1969, para. 7.

said to “kill everybody within a radius of 50 meters around the point of explosion, which is known as the absolute lethal distance, beyond which the fragments may still cause damage and injuries”.³⁶⁶ Within the zones of blast and fragmentation, no distinction is possible between civilians and combatants, and structures, whether military or civilian, are equally affected. A Swedish working group report of 1973 noted that “Weapons based on fragmentation effects ... do have indiscriminate effects if deployed against an area which is also, and perhaps primarily, occupied by civilians”, and that “If weapons based on blast effects are used in operations against areas where civilians may be present, weapon effects can be indiscriminate”.³⁶⁷

The use, in a populated area, of explosive weapons with wide area effects can cause civilian harm tantamount to a direct attack on civilians. This is the view taken by the Trial Chamber in the *Gotovina* case before the ICTY. The case has been described as “the first—and likely the only—case assessing complex targeting decisions involving the use of artillery against a range of military objectives in populated areas”, having “the potential to become a highly persuasive source of authority regarding future understanding and implementation of IHL”.³⁶⁸ The judges considered that the artillery shelling of Knin created an excessive risk of civilian harm. With reference to the inaccuracy and the “blast and fragmentation effect of artillery shells”, as well as the “significant number of artillery projectiles” landing in civilian areas spread across the town, the Trial Chamber found that these areas were deliberately targeted, treating the town of Knin itself as a target for artillery fire. This, the Tribunal found, constituted an indiscriminate attack on the town and thus an unlawful attack on civilians and civilian objects in Knin.

366 ICTY, *The Prosecutor v. Ante Gotovina, Ivan Čermak, Mladen Markač*, Trial Chamber I, Judgement, case IT-06-90-T, 15 April 2011, para. 1168. Considerations about powerful blast effects also bore weight in ICTY, *The Prosecutor v. Dragomir Milošević*, Trial Chamber III, Judgement, case IT-98-29/1-T, 12 December 2007, paras. 94, 98–99.

367 Torgil Wulff et al., *Conventional Weapons, their Deployment and Effects from a Humanitarian Aspect: Recommendations for the Modernization of International Law*, 1973, pp. 154, 156.

368 International Humanitarian Law Clinic at Emory University School of Law, *Operational Law Experts Roundtable on the Gotovina Judgment: Military Operations, Battlefield Reality and the Judgment’s Impact on Effective Implementation and Enforcement of International Humanitarian Law*, expert meeting report, 2012, p. 2.

This line of argumentation has been challenged, and the case is on appeal.³⁶⁹ Given the lack of weapon- and context-specific guidance, the constraining effect of the prohibition on area bombardment, and the prohibition on indiscriminate attacks more broadly, hinges on the interpretation given to the phrase “which treats as a single military objective a number of clearly separated and distinct military objectives”, on the understanding of what constitutes a military objective,³⁷⁰ and on the question of whether bombing and shelling populated areas can ever be “discriminate”. With a view to the devastation and incidental deaths that airstrikes and artillery shelling continue to cause in populated areas, one wonders whether the appeal of distinguishing between discriminate

369 ICTY, *The Prosecutor v. Ante Gotovina, Ivan Čermak, Mladen Markač*, Trial Chamber I, Judgement, case IT-06-90-T, 15 April 2011, paras. 1903–1913. The *inference* of intent to attack has been criticized by some “operational law” experts. They consider that the Trial Chamber placed “an overwhelming emphasis on post-attack effects, and draws an objectively irrational inference from those effects”. The experts consider that the judgement assessed “targeting decisions based on unreasonable and incorrect standards” and express concern that the judgement “encourages a determination of criminality based almost exclusively on effects, without any grasp of what the alleged perpetrator knew or intended at the time of the attack”. International Humanitarian Law Clinic at Emory University School of Law, *Operational Law Experts Roundtable on the Gotovina Judgment: Military Operations, Battlefield Reality and the Judgment’s Impact on Effective Implementation and Enforcement of International Humanitarian Law*, expert meeting report, 2012, p. 6. However, issues arising in relation to international criminal law standards should not detract from the finding that, under the rules on the conduct of hostilities, a direct attack on civilians may be inferred from the use of explosive weapons with wide area effects in locations containing civilian concentrations. See also Louise Arimatsu, “Democratic Republic of the Congo 1993–2010”, in Elizabeth Wilmshurst (ed.), *International Law and the Classification of Conflicts*, Oxford University Press, 2012. “The widespread shelling of the refugee camps was not only disproportionate but amounted to an indiscriminate attack. ... this indicates not simply a breach of the obligation to take precautions against the effects of attacks, but almost certainly that civilians were the direct target of attacks”.

370 Blix pointed out that this raises the “vitaly important questions of what constitutes military objectives and protected objects and of what is permissible incidental damage”—questions that continue to be subject to much discussion today. Let us recall that, under IHL, an entire area can be considered a legitimate military objective. Hans Blix, “Area Bombardment: Rules and Reasons”, *British Yearbook of International Law*, vol. 49, no. 1, 1978, p. 68.

and indiscriminate bombing “lies ... with the idealism of the technology—that targets could be discriminated between holds hope that a morality of war is no veneer to support naked aggression, but is in effect a sincere attempt to reduce or to eliminate collateral casualties in wars, particularly those that affect civilian populations”.³⁷¹

3.4.4.1 Use of heavy weapons in population centers

The same humanitarian concerns that led international policymakers to submit the use in populated areas of explosive weapons with wide area effects to increasing scrutiny, drive criticism about the use of “heavy weapons” in population centres.³⁷² The term “heavy weapon” or variants thereof appears in texts across several issue areas and its meaning may differ depending on the context.

In connection with arms control, the term evokes the divide between SALW and major conventional weapons. United Nations Security Council resolution 937 (1994), for example, mandates the United Nations Observer Mission in Georgia to verify “that heavy military equipment does not remain or is not reintroduced in the security zone or the restricted weapons zone” established in Abkhazia.³⁷³ Security Council resolution 1021 (1995) concerning the conflicts in the former Yugoslavia imposes special conditions on the termination of an embargo in relation to the “delivery of heavy weapons ... , ammunition therefor, mines, military aircraft and helicopters”.³⁷⁴ In that context “Heavy weapons refers to all tanks and armored vehicles, all artillery 75mm and above, all mortars 81mm and above, and all anti-aircraft weapons 20mm and above”.³⁷⁵

371 Alexander Moseley, “Aerial Bombing”, *Encyclopedia of Military Ethics*, 25 February 2011, <<http://militaryethics.org/Aerial-Bombing/1/>>

372 Richard Moyes, Maya Brehm and Thomas Nash, “Heavy Weapons and Civilian Protection”, Article 36, 9 August 2012, <<http://explosiveweapons.info/wp-content/uploads/2012/08/Moyes-Brehm-Nash-Heavy-weapons-Aug-2012.pdf>>

373 Security Council, [*On expansion and extension of the mandate of the UN Observer Mission in Georgia and its cooperation with the CIS Peace-Keeping Force*], UN document S/RES/937(1994), 21 July 1994, operative paras. 6(c) and (d).

374 Security Council, [*On termination of the embargo on deliveries of weapons and military equipment imposed by Resolution 713 (1991)*], UN document S/RES/1021, 22 November 1995, operative para. 1(b).

375 *The General Framework Agreement for Peace in Bosnia and Herzegovina*, 14 December 1995, annex 1B, art. III(b). *The Treaty on Conventional Armed*

With respect to the issue area “protection of civilians/conduct of hostilities”, concern about the use of “heavy weapons” relates to civilian harm from the use of heavy *explosive* weapons. Although the term does not appear in international HRL or IHL treaties, it is frequently used in relation to the protection of civilians in armed conflict. ICRC President Jakob Kellenberger noted, for instance, that a growing number of military operations were conducted “in densely populated urban areas, often using heavy or highly explosive weapons, which have devastating humanitarian consequences for civilian populations”. In another statement, he referred to the use of “explosive force delivered by heavy weapons”.³⁷⁶ The term “heavy weapons” is also frequently used in this sense in United Nations documents relating to the protection of civilians³⁷⁷—recently, in Security Council resolution 2042 (2012) and the annexed Six-Point Proposal of the Joint Special Envoy of the United Nations and the League of Arab States, which calls on the Syrian government to end the use of heavy weapons in population centres.³⁷⁸ The connection between heavy and explosive weapons is also apparent from the latest report of the United Nations

Forces in Europe, 19 November 1990, uses the terms “heavy firepower” and “heavy armament combat vehicle” to describe types of battle tanks, armoured combat vehicles, pieces of artillery, combat aircraft and attack helicopters within its scope. Here too, “heavy” relates to large calibre and a certain weight.

- 376 ICRC, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts*, document 31IC/11/5.1.2, October 2011, p. 40. See also ICRC, *Sixty Years of the Geneva Conventions and the Decades Ahead*, statement by Jakob Kellenberger, president of the ICRC, to the conference on the challenges for IHL posed by new threats, new actors and new means and methods of war, organized by the Swiss Federal Department of Foreign Affairs in cooperation with the ICRC, Geneva, 9–10 November 2009. See also Pierre Ruetschi, “Jakob Kellenberger «Combien de morts faudra-t-il encore à Gaza!»”, *24heures*, 2 February 2009. ICRC, “Geneva Conventions Still Going Strong at 60”, ICRC, 7 August 2009; ICRC, *Annual Report 2009*, May 2010, p. 8; Security Council, UN document S/PV.6427, 22 November 2010, statement by ICRC Director General Yves Daccord, p. 10.
- 377 Security Council, UN document S/2007/643, 28 October 2007, para. 23: “Government and Ethiopian troops on occasion used heavy force and heavy weapons in civilian areas”.
- 378 Security Council, *[On authorization of the deployment of an advance team of up to 30 unarmed military observers to the Syrian Arab Republic]*, UN document S/RES/2042, 14 April 2012, operative paras. 2–3 and annex. See United Nations Human Rights Council, *Report of the Independent International Commission of*

Secretary-General on the protection of civilians in armed conflict. With reference to Security Council resolution 1975 (2011) calling for an end to the use of *heavy weapons* against the civilian population in Côte d'Ivoire, the report notes that the Security Council "responded decisively to the ... use of *explosive weapons in populated areas*".³⁷⁹

Cases and statements in the human rights field, which identify particular weapon types, support the view that concern about the use of "heavy" weapons in populated areas essentially relates to the wide area effects of such use. Pending before the African Court on Human and Peoples' Rights, for example, is the application of *African Court on Human and Peoples' Rights v. Great Socialist People's Libyan Arab Jamahiriya*, concerning allegations of "excessive use of heavy weapons and machine guns against the population, including targeted aerial bombardment and all types of attacks" by Libyan security forces.³⁸⁰ In the case of *Isayeva v. Russia*, the ECtHR speaks of "heavy aviation bombs", in *Isayeva et al. v. Russia* of "heavy combat weapons".³⁸¹ United Nations High Commissioner for Human Rights Pillay in April 2011 condemned the use of "imprecise weaponry such as cluster munitions, multiple rocket launchers and mortars, and other forms of heavy weaponry, in crowded urban areas" by the Libyan government, and in December 2012 she called on Yemen's government to "immediately ensure that lethal force and heavy weapons are not used against peaceful demonstrators".³⁸² Security Council resolution 1975 (2011) recalls the authorization to use all necessary means

Inquiry on the Syrian Arab Republic, UN document A/HRC/19/69, 22 February 2012, para. 46.

379 Security Council, UN document S/2012/376, 22 May 2012, para. 18 (emphasis added).

380 African Court on Human and Peoples' Rights, *African Commission on Human and Peoples' Rights v. Great Socialist People's Libyan Arab Jamahiriya*, Order for Provisional Measures, Application No. 004/2011, 25 March 2011, paras. 2, 20, 25.

381 ECtHR, *Isayeva v. Russia*, Judgement, Application no. 57950/00, 24 February 2005, para. 165; ECtHR, *Isayeva, Yusupova and Bazayeva v. Russia*, Judgement, Applications nos. 57947/00, 57948/00 and 57949/00, 24 February 2005, para. 176.

382 Office of the High Commissioner for Human Rights, "Libya's Indiscriminate Attacks on Civilians in Misrata May Be International Crimes—Pillay", press release, 2011; Office of the High Commissioner for Human Rights, "Yemen: Pillay Condemns Renewed Escalation of Violence in Taiz, Urges Protection of Unarmed Civilians", press release, 2011.

to prevent the use of “heavy weapons against the civilian population” in Côte d’Ivoire.³⁸³

In view of this, the term “heavy explosive weapons” can be used as shorthand for “explosive weapons with wide area effects”. It is important to note, however, that “heavy” directs attention to calibre, weight and portability, which can “only really serve as a rough proxy for concern” regarding the scale of blast and fragmentation effects, and the related humanitarian impacts. Reference to the explosive nature of weapons is important because it brings into focus factors more immediately associated with the causes of humanitarian harm.³⁸⁴

383 Security Council, *[On targeted sanctions against individuals meeting the criteria set out in resolution 1572 (2004) on arms embargo against Côte d’Ivoire]*, UN document S/RES/1975, 30 March 2011, para. 6. The term is also used by states. See for example Sri Lankan Commission of Inquiry on Lessons Learnt and Reconciliation, *Report*, November 2011, paras. 3.17, 4.114, 4.350.

384 AOVAV notes in this regard: “Unlike the ill-defined boundary between ‘heavy’ and ‘light’ weapons, the category of ‘explosive weapons’ provides a clear basis for humanitarian concern and response”. Action on Armed Violence, *Explosive Weapons Update: Côte d’Ivoire*, 10 August 2011.

4. CONCLUSION: PLACING GREATER CONSTRAINTS ON THE USE OF EXPLOSIVE WEAPONS IN POPULATED AREAS

The humanitarian impacts of explosive weapons could be reduced, among other means, through the elaboration of standards that place greater constraints on the use of explosive weapons in populated areas. Austria, for example, noted in June 2012 that whereas the use in populated areas of explosive weapons with wide area effects was not prohibited under IHL as such, “the heightened risk of indiscriminate harm and the appalling civilian suffering they inflict when used in such areas should be reason enough for us to consider this issue more in depth, including the possibility of developing stronger international standards”.³⁸⁵ In the same vein, the President of the ICRC questioned whether “applicable IHL rules are sufficient to identify under which circumstances explosive force delivered by heavy weapons might be used in densely populated areas”. “Perhaps”, he wondered, “further legal development is required”.³⁸⁶ INEW sees in this development the opportunity for the elaboration of standards that provide a stronger barrier to the use of heavy explosive weapons in populated areas.³⁸⁷ Drawing on existing legal and policy standards discussed in this study, the last section outlines how the protection of civilians from the effects of explosive weapons could be enhanced.

4.1. CATEGORICAL AND SPECIFIC RULES ON EXPLOSIVE WEAPONS

The first part of this study shows that explosive weapons are regulated in an incoherent and fragmentary manner in international law and policy. Existing regulatory categories and notions are at times vague, ill-defined and overlapping and do not formally recognize the common functioning of explosive weapons through blast and fragmentation. Standards built

385 Security Council, UN document S/PV.6790 (Resumption 1), 25 June 2012, statement by Ms. Juen (Austria), p. 16.

386 ICRC, *International Humanitarian Law and the Challenges of Contemporary Armed Conflicts*, document 31IC/11/5.1.2, October 2011, p. 41.

387 INEW, “INEW Advocacy Ahead of Security Council Debate on Protection of Civilians”, 14 May 2012, <www.inew.org/news/inew-advocacy-ahead-of-security-council-debate-on-protection-of-civilians>

around “explosive weapons” would bring greater clarity and coherence and allow for a categorical treatment of this weapon technology.³⁸⁸

Making the explosive effects of weapons *explicit* in standards governing the use of weapons and in standards on the protection of civilians would provide more focused attention to this *specific* humanitarian issue. Existing standards on the protection of civilians from the *use* of explosive weapons inadequately recognize the risks to civilians from blast and fragmentation. Under half of the 49 international texts analysed for this study that reflect a standard on the protection of civilians from explosive (and other) weapons contain an *explicit* reference to explosive characteristics of weapons.³⁸⁹ In the issue areas “law enforcement/human rights” and “protection of civilians/conduct of hostilities” over two thirds do not contain an explicit reference.³⁹⁰ All of these texts also reflect a standard on the *use* of weapons.³⁹¹ How can standards that do not explicitly acknowledge the explosive characteristics of weapons effectively protect civilians against blast and fragmentation effects?

In relation to law enforcement, acknowledging the blast and fragmentation effects of explosive weapons would demarcate this weapon technology as generally incompatible with human rights standards on the use of force, particularly with regard to the rights of bystanders. Their explicit and categorical exclusion from law enforcement would reinforce the sense that state use of explosive weapons, particularly in populated areas, marks the crossing of an important boundary. Implicit in the transition from “normal” law enforcement to a situation where the population is exposed to this increased risk of harm is a change in the relationship between the state and

388 “The GICHD [Geneva International Centre for Humanitarian Demining] hopes that one day an overall treaty will be feasible which includes all explosive weapons. It could be based on the work of the International Network on Explosive Weapons (INEW), a collective of NGOs which is calling for stricter rules about bombing in inhabited areas”. Luigi Jorio, “Landmines: The Legacy of War that Goes on Killing”, *swissinfo.ch*, 14 August 2012, <www.swissinfo.ch/eng/politics/foreign_affairs/Landmines:_the_legacy_of_war_that_goes_on_killing.html?cid=33298876>

389 Only eight of 49 texts do *not* refer to such characteristics, nor can a distinction be inferred.

390 Eighteen of 26 texts (69 %) dealing with the protection of civilians and/or the conduct of hostilities.

391 See p. 88 on a similar finding regarding standards on the use of weapons.

the population among which force is used.³⁹² Particularly the use of heavy explosive weapons heralds a humanitarian protection crisis, characterized by potentially large numbers of civilians killed or severely injured, of public infrastructure being damaged or destroyed, populations displaced, and land contaminated with UXO. It also signals that the violence may be of an intensity associated with armed conflict.

In relation to armed conflicts, making the explosive characteristics of weapons explicit could further a categorical approach to protecting civilians from their effects, both in terms of direct death and injury, and with regard to indirect or longer-term impacts. Under existing IHL, the standards on the protection of civilians are generally not weapon-specific and focus on the direct impacts of individual attacks. The use of explosive weapons in populated areas does not attract a uniform applicable set of consequences. Whereas area bombardment is prohibited under customary law and cluster munitions are banned under treaty law, the use, in populated areas, of other heavy explosive weapons is not specially regulated. States' views on which explosive weapons may be used in such a context vary. Consider in this respect, the report issued by the Swiss federal government in support of ratifying the CCM. The government stressed that given the rapid progress of urbanization in Switzerland future combat operations would mainly be carried out in built-up areas. Accuracy and precision, the government argued, were of the utmost importance in such a context and cluster munitions did not fulfil these requirements. At the same time, however, the government reassured that Switzerland's *indirect artillery fire* capabilities would be fully retained, without discussing the disastrous humanitarian consequences that such use in built-up urban areas—even if accurately delivered—would undoubtedly entail.³⁹³ Focus on the notion

392 For a detailed elaboration of this argument, see Richard Moyes, *Explosive Violence, The Problem of Explosive Weapons*, Landmine Action, 2009, pp. 46–50.

393 Swiss Federal Council, *Message relatif à l'approbation de la Convention sur les armes à sous-munitions ainsi qu'à la modification de la loi sur le matériel de guerre*, 11.036, 6 June 2011, pp. 5935–5936. A parliamentary postulate raises the point that artillery is used from a long distance of up to 20km and hence causes the munitions to disperse in all directions. In inhabited areas, the parliamentarians caution, artillery fire would cause grave damage to buildings, persons and infrastructure. The Swiss government is expected to report on the future of artillery by the end of 2013. Security Policy Committee of the Swiss Council of States, *Avenir de l'artillerie*, Curia Vista 11.3752, 4 July 2011. Along similar lines, UK Ministry of Defence, *The Joint Service Manual of the*

of explosive weapons with wide area effects would further a coherent way of addressing humanitarian harm and could constitute an important boundary in efforts to find leverage towards reductions in civilian harm from explosive weapons.³⁹⁴

4.2. RECOGNIZING THE PARTICULAR PROTECTION CONCERNS IN POPULATED AREAS

Recognizing the specific concerns that arise in the context of populated areas would enhance the protecting of civilians and reduce humanitarian harm. Existing standards already reflect concern about locations containing crowds or which are densely populated. Of 49 texts that reflect a standard on the protection of civilians only 10 make *no* reference to locations containing concentrations of civilians. Surprisingly, though, only 26 of the 39 texts that mention populated areas also clearly apply a standard of protection to such places that differs from the standards applicable in other contexts. Under IHL, not all places likely to contain concentrations of civilians enjoy equally specific protection, and civilians in populated areas remain at risk of harm from attacks on military objectives in their vicinity.

Law of Armed Conflict, document JSP 383, 2004, para. 5.23.3, discussing the prohibition on indiscriminate attacks by area bombing of cities, towns or villages, notes that: “There is nothing to prevent the use of artillery covering fire” in such a context, although of course, precautionary measures would have to be taken. Note also that despite the adoption of a new indirect fire policy by AMISOM, commentators recently identified “ongoing use of indirect fire ... in civilian areas” as a remaining key challenge to the protection of civilians in that context. Walter Lotze and Yvonne Kasumba, “AMISOM and the Protection of Civilians in Somalia”, *Conflict Trends*, no. 2, 2012, p. 24.

394 INEW, “UN Security Council Response to Violence in Syria”, 28 May 2012, <http://www.inew.org/news/un-security-council-response-to-violence-in-syria>. See also John Borrie and Maya Brehm, “Enhancing Civilian Protection from Use of Explosive Weapons in Populated Areas: Building a Policy and Research Agenda”, *International Review of the Red Cross*, vol. 93, no. 883, September 2011, p. 28, which underlines the risk that, without informed understanding of the effects of explosive weapons as a category and in the absence of rigorous examination of user claims about these weapons, military interventions authorized by the United Nations Security Council involving the use of explosive weapons for the purposes of protecting civilian populations against the use of explosive weapons may breed cynicism.

Descriptions of populated areas in regulatory texts vary across issue areas, but broadly speaking they identify places where civilians live, work or gather, and places or objects that fulfil an important social function. The descriptions highlight different factors that affect the likelihood and severity of civilian harm, and which standards on the protection of civilians should be taken into account.

The characterizations of populated areas shown in table 4 indicate that civilian harm is often a function of population density. References to population or traffic density, gatherings or assemblies, stress that an explosion in the presence of a high number of civilians increases the likelihood of civilian harm. But reference to markets, farming land, health or other public infrastructure, and places of public use, also point to the function these places fulfil in a society.³⁹⁵ Damage to infrastructure in such places bears a high risk of causing *indirect* civilian harm, potentially over a long time, through the denial of access to services essential to the survival and well-being of the civilian population.

395 Consider the IATG's description of "vulnerable buildings" as large educational facilities, hospitals, multi-story apartment buildings, major transport centres, major public utilities facilities for mass meetings and built-up areas. United Nations, *IATG 05.20:2011(E)*, p. 13.

Table 4. Frequency of formulation used to refer to populated areas in texts which reflect a standard on the protection of civilians, by issue area³⁹⁶

	Human rights (12 texts)	Humanitarian law (26 texts)	Safety (DG) (2 texts)	Safety (EO) (5 texts)	Terrorism (explosives) (4 texts)
Populated area, area containing a concentration of civilians, built-up area (or similar)	4	11	1	3	0
City, town, village, dwelling, camp or similar places where civilians live (or similar)	5	17	1	3	0
Crowd, assembly, gathering or similar location/zone where civilians are present in large numbers (or similar)	2	9	0	2	0
Market, commercial premises, farm, or similar place where civilians work (or similar)	3	3	1	1	2
Transport, health, government facilities or similar public infrastructure or place of public use (or similar)	2	12	0	3	4

³⁹⁶ A text can include more than one description. In relation to judicial decisions, only descriptions used by the court were counted.

Expressions used in texts of the issue area “protection of civilians/ conduct of hostilities” convey the sense that protection hinges on the presence of civilians at the time of attack. 1980 CCW Protocol III describes “concentration of civilians” as “permanent or temporary, such as in *inhabited* parts of cities, or *inhabited* towns or villages, or as in camps or columns of refugees or evacuees, or groups of nomads”.³⁹⁷ The term “populated” area reinforces this impression. But considering the importance of shelter, livelihoods and public services for the survival and well-being of communities in the short and long term, the protection of objects and infrastructure should not end if the civilian population has fled, been evacuated, or has been forcibly removed. Note, for example that the prohibition on area bombardment in Additional Protocol I refers to areas containing a concentration of civilians or *civilian objects*.³⁹⁸ The definition of “public place” in the Terrorist Bombings Convention refers to a place being *accessible* or open to the public, rather than to the presence of a high number of civilians in that place.³⁹⁹ The question is not merely academic, as the example of the Afghan villages Tarok Kolache, Khosrow Sofla and Lower Babur dramatically illustrates. The US Air Force dropped 49,200lbs of rockets and bombs on them instead of clearing IEDs they suspected to have been placed there. No casualties were reported, but the villages were completely flattened and erased from the map.⁴⁰⁰

Care should be taken not to reduce humanitarian concerns around the use of explosive weapons in populated areas to the issue of “urban warfare”. Explosive violence in cities presents certain particularities that should be recognized, but the use of explosive weapons raises concerns in urban and in rural settings alike. The capacity of heavy explosive weapons to reduce the built environment to rubble profoundly affects communities.

397 *Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III to the CCW)*, 10 October 1980, art. 1(2) (emphasis added).

398 Consider also ICRC, *Draft Rules for the Limitation of the Dangers Incurred by the Civilian Population in Time of War*, September 1956, art. 10, one of the sources for Additional Protocol I’s prohibition on area bombardment, which refers to “elements of the civilian population, or dwellings”.

399 *International Convention for the Suppression of Terrorist Bombings*, 1997, art. 1(5).

400 Spencer Ackerman, “25 Tons of Bombs Wipe Afghan Town Off Map [Updated]”, *Danger Room*, 19 January 2011, <www.wired.com/dangerroom/2011/01/25-tons-of-bombs-wipes-afghan-town-off-the-map/>; Spencer Ackerman, “Why I Flattened Three Afghan Villages”, *Danger Room*, 1 February 2011, <www.wired.com/dangerroom/2011/02/i-flattened-afghan-villages/>.

Beyond direct and indirect death or injury, such use constitutes an assault on shared or public spatiality, an attack on the possibility of being-with-others, and is part of a process of erasing the memory of collective life as a community.⁴⁰¹

4.3. ESTABLISHING A STRONG BARRIER TO THIS PATTERN OF VIOLENCE

Humanitarian harm could be reduced and the protection of civilians in populated areas could be enhanced by preventing certain uses of explosive weapons in these contexts. In terms of legal and policy standards, this could involve moving towards a prohibition on the use, in populated areas, of explosive weapons with wide area effects.

This report shows that there are stark differences in how risk of civilian harm is dealt with and what level of civilian harm is deemed acceptable across issue areas. Variations in how texts concerned with the use of weapons, compared to texts concerned with *unplanned explosive events*, approach the protection of civilians evoke the difference between *restricting* or otherwise regulating the use of explosive weapons so as to *reduce* the likelihood and/or the severity of civilian harm, on the one hand, and *prohibiting* the use of explosive weapons to *prevent* explosions, on the other hand. Not surprisingly, texts in the issue area “safety” seek, first and foremost, to prevent explosions.⁴⁰² In respect to issue areas that deal with the use of weapons, figure 8 likely reflects differences in how states perceive the legitimacy of the use of force.⁴⁰³ Only texts assigned to the issue area “protection of civilians/conduct of hostilities” (essentially, IHL

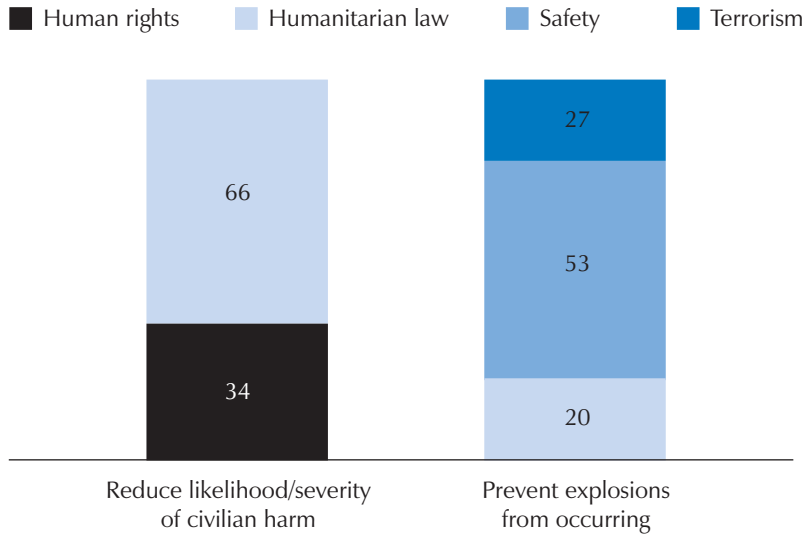
401 For a detailed discussion of this form of violence in the urban context, see Martin Coward, *Urbicide: The Politics of Urban Destruction*, Routledge, 2009; Stephen Graham, *Cities, War, and Terrorism: Towards an Urban Geopolitics*, Blackwell Publishing, 2004. Jo Beall, “Cities, Terrorism and Urban wars of the 21st Century”, Working Papers no. 9, Crisis States Research Centre, Development Studies Institute, London School of Economics, February 2007. For an articulation of the issue under IHL, see “Urban Violence”, *International Review of the Red Cross*, vol. 92, no. 878, 2010.

402 An exception would be controlled explosions for the purposes of mine clearance or destruction of munitions or ERW.

403 Instruments on terrorist bombings (violence, presumed illegitimate) aim to prevent civilian harm altogether, whereas texts relating to the use of force by law enforcement officials (presumed legitimate) primarily aim to reduce the impact of the use of force on civilians.

texts) reflect both approaches to a significant degree, perhaps because the legitimacy of the use of force by parties to an armed conflict is inherently contested.

Figure 8. Percentage of texts by approach to risk of civilian harm from explosive effects, by issue area



Among texts regulating the use of weapons by states, HRL standards exclusively and IHL standards predominantly seek to *reduce* civilian harm, rather than prevent it. At the same time, HRL and even location-specific IHL standards provide very little guidance on *how* risk of civilian harm from blast and fragmentation is to be reduced.⁴⁰⁴ Safety standards suggest that it is possible to reach broad agreement at the international level about fairly detailed rules (widely considered best practice) to manage the risks

⁴⁰⁴ Human rights jurisprudence and standards on the prevention of extrajudicial killings can, over time, contribute to the evolution of a shared understanding of how impacts of weapons on civilians are to be assessed. With respect to IHL, it is mostly situations representing the most egregious violations of the law that are subject to judicial review. It seems difficult to elaborate procedural rules on the basis of this jurisprudence.

of explosions and the impacts of blast and fragmentation on persons and structures, with due recognition of the particular context of populated areas. The paucity of detailed rules in respect of the use of weapons has something to do with the lack of transparency, on the part of states, in how they apply the relatively abstract and open-textured rules of IHL to the use of particular weapon technologies in specific environments. Under the current regulatory framework the permissibility of the use of explosive weapons consequently has to be determined on a case-by-case basis, which is not conducive to responding to a *pattern* of civilian harm.⁴⁰⁵

A more effective response would probably entail *preventing* at least some uses of explosive weapons. There is clearly space in this issue area for standards that combine both approaches. Standards that *prevent* civilian harm from explosive weapon types are contained in the Mine Ban Treaty, the Cluster Munitions Convention, and the Declaration of 1907 Prohibiting the Discharge of Projectiles and Explosives from Balloons.

Policies of AMISOM and NATO's International Security Assistance Force in Afghanistan (ISAF), respectively, suggest that a shift towards excluding the use of heavy explosive weapons in populated areas is possible and promising in terms of reducing humanitarian harm. AMISOM's steps towards the implementation of a new indirect-fire policy⁴⁰⁶ were reportedly beginning to take effect by the end of 2011: "Both the UN and non-governmental organisations reported that the Indirect Fire Policy was showing results with instances of indiscriminate shelling in Mogadishu diminishing".⁴⁰⁷ Whereas the policy entails a range of measures, many aimed at reducing civilian harm from the use of mortars in Mogadishu, it also entails the establishment of "no-fire zones" in "public places" where

405 On this question, see John Borrie and Maya Brehm, "Enhancing Civilian Protection from Use of Explosive Weapons in Populated Areas: Building a Policy and Research Agenda", *International Review of the Red Cross*, vol. 93, no. 883, September 2011, pp. 12–17. For a more general discussion, see Brian Rappert, *How to Look Good in a War, Justifying and Challenging State Violence*, Pluto Press, 2012, chp. 6.

406 Security Council, UN document S/2011/549, 30 August 2011, para. 63; Security Council, UN document S/RES/2036, 22 February 2012, para. 18. For a discussion, see Nikolaus Grubeck, *Civilian Harm in Somalia: Creating an Appropriate Response*, Campaign for Innocent Victims in Conflict (CIVIC), United Nations High Commissioner for Refugees, 2011.

407 Walter Lotze and Yvonne Kasumba, "AMISOM and the Protection of Civilians in Somalia", *Conflict Trends*, no. 2, 2012, p. 23.

civilians are known to be present.⁴⁰⁸ This effectively excludes the use of mortars in places like Mogadishu's Bakara market, thereby preventing civilian harm in these locations.

Whereas the indirect-fire debate in this context turns mainly around problems with accurate delivery, the evolution of policies on the use of heavy explosive weapons in populated areas by ISAF suggests growing recognition that even accurately delivered munitions can cause unacceptable civilian harm in populated areas. ISAF's use of explosive weapons, especially airstrikes in or near populated areas, has drawn severe criticism. Recent reports on civilian casualties indicate that policies curtailing such strikes may have a positive effect.⁴⁰⁹ With the proclaimed strategic and operational aim to protect civilians, the tactical directive issued by General Stanley McChrystal in July 2009 instructed commanders to "scrutinize and limit the use of force like close air support ... against residential compounds and other locations likely to produce civilian casualties". Pursuant to the directive, "use of air-to-ground munitions and indirect fires against residential compounds is only authorized under very limited and prescribed conditions"—conditions that were not made publically available.⁴¹⁰ A tactical directive issued subsequently by General Petraeus in August 2010 required that "Prior to the use of fires" commanders approving the strike "must determine that no civilians are present". If the commanders were unable to assess the risk of civilian presence, they were prohibited from authorizing the strike, except under two—again unpublished—conditions.⁴¹¹ Under General John R. Allen's

408 Ibid., p. 22; "For the Record: Maj. Gen. Nathan Mugisha Discusses Civilian Casualties", *AMISOM News Bulletin*, 30 November 2010.

409 See for example United Nations Assistance Mission in Afghanistan and United Nations Office of the High Commissioner for Human Rights, *Afghanistan, Mid-Year Report on Protection of Civilians in Armed Conflict 2012*, August 2012, p. 1. It is not entirely clear whether the reduction in civilian casualties is due to increased restraint on the part of ISAF or whether simply less airstrikes were called in. Sadly, overall civilian harm from explosive weapons remains high mainly due the use of IEDs by opposition forces.

410 ISAF, *Tactical Directive* [referring to General Stanley McChrystal's Tactical Directive of 2 July 2009], 6 July 2009.

411 ISAF, *General Petraeus Issues Updated Tactical Directive, Emphasizes "Disciplined Use of Force"*, 4 August 2010. The Directive also expresses the General's expectation that commanders "use force judiciously, especially in situations where civilians may be present", but it does not impose weapon- or location-specific limitations. "Fires" means the use of weapon systems to

tactical directive of November 2011, issued with the goal to “eliminate ISAF-caused civilian casualties across Afghanistan”, civilians are *presumed* to be present “in every location where there is evidence of human habitation”.⁴¹² According to an order, reportedly given by Allen in June 2012, the forces are to *refrain* from releasing “air-delivered munitions” on targets “within civilian dwellings”. In combination, these instructions appear to exclude the use of airstrikes on civilian populated areas.⁴¹³ According to a spokesperson of Afghanistan’s President Karzai, this amounts to a promise that ISAF would no longer bombard homes and villages. Based on an email exchange with ISAF, the United Nations Assistance Mission in Afghanistan (UNAMA) reported that the “new fragmentary order” amends the tactical directive on aerial operations and “limits the use of aerial-delivered munitions on civilian dwellings to situations involving the right of self-defence”.⁴¹⁴ What this entails in practice remains contested.⁴¹⁵

create a specific lethal or non-lethal effect on a target (Joint Chiefs of Staff, *Department of Defense Dictionary of Military and Associated Terms*, 12 April 2001 (as amended through 4 March 2008)).

412 ISAF, *COMISAF’s Tactical Directive* [referring to General John R. Allen’s Tactical Directive], 30 November 2011.

413 “Given our commitment to protect Afghan civilians, restricting the use of air-delivered munitions against insurgents within civilian dwellings is a prudent and logical step in the progression in the campaign”. Jamie Graybeal, NATO spokesman in Afghanistan, cited in Eric Schmitt, “Allies Restrict Airstrikes on Taliban in Civilian Homes”, *New York Times*, 10 June 2012, <www.nytimes.com/2012/06/11/world/asia/allies-restrict-airstrikes-against-taliban-in-homes.html?_r=2>.

414 UNAMA and United Nations Office of the High Commissioner for Human Rights, *Afghanistan, Mid-Year Report on Protection of Civilians in Armed Conflict 2012*, August 2012, p. 38. UNAMA, evaluating these bombardments within an IHL framework, notes that “A tactical airstrike targeting a residential compound has a high potential to cause incidental loss of civilian life and harm to civilians which could be excessive in relation to the concrete and direct military advantage”. But references by ISAF to the release of “aerial-delivered munitions on civilian dwellings” as “last resort” only, and in response to a direct threat to the lives of ISAF/Afghan National Security Forces soldiers, evoke a HRL framework. As explained earlier, it is almost inconceivable that airstrikes in the vicinity of civilians would be in conformity with human rights standards on the use of force.

415 “NATO Agrees to Halt Aerial Strikes on Afghan Residential Buildings”, *Los Angeles Times*, 10 June 2012, <http://latimesblogs.latimes.com/world_now/2012/06/kabul-afghanistan-stung-by-furious-afghan-criticism-of-an-airstrike-that-killed-18-civilians-last-week-most-of-them-wom.html>;

In conclusion, the dominant legal and policy discourse fails to adequately articulate the serious risk of harm inherent in the use of explosive weapons, especially of heavy explosive weapons, in populated areas.⁴¹⁶ There is great potential for characterizing the context of explosive weapon use in ways that focus upon the lack of complete control, or in ways which emphasize the salience of the small amount of control over the consequences of that use. And the choice to expose others to the risk of harm tends to be evaluated with focus on its consequences. But it is in the nature of risk “that we cannot guarantee the results of the action, ... this is reason to place *less or none rather than all of the weight* on an evaluation of these results when seeking to form a moral judgement of the risk-taking act”. Rather, the important considerations take place at the time of making the decision to risk, at the time when risk and the steps that will be taken to manage it are chosen. For, this choice is within the control of users of explosive force, and judgements of responsibility for how this control is exercised are, hence, appropriate.⁴¹⁷

Harm could be reduced and the protection of civilians enhanced through categorical and specific regulations, including movement towards a prohibition on the use, in populated areas, of explosive weapons with wide area effects. Although “No set of legal rules can replace human judgment, eliminate human error, or prevent armed conflict from claiming civilian lives”, if progress towards greater protection of civilians, as well as superior guidance to those using force is possible, then it must be pursued.⁴¹⁸

Maya Brehm, “UN Secretary-General: Halt Use of Explosive Weapons with a Wide-Area Impact in Densely Populated Areas”, *ExplosiveWeapons.info*, 12 June 2012, <<http://explosiveweapons.info/2012/06/12/un-secretary-general-halt-use-of-explosive-weapons-with-a-wide-area-impact-in-densely-populated-areas/>>.

416 John Borrie and Maya Brehm, “Enhancing Civilian Protection from Use of Explosive Weapons in Populated Areas: Building a Policy and Research Agenda”, *International Review of the Red Cross*, vol. 93, no. 883, September 2011, pp. 12–17.

417 Adapted from Nafsika Athanassoulis and Allison Ross, “A Virtue Ethical Account of Making Decisions about Risk”, *Journal of Risk Research*, vol. 13, no. 2, 2010, p. 222 (emphasis in the original).

418 Adil Ahmad Haque, “Killing in the Fog of War”, *Southern California Law Review*, vol. 86, no. 1, February 2012, p. 7.

ANNEX

INTERNATIONAL TEXTS BY ISSUE AREA

ARMS CONTROL

Arms control (General)

1. European Union, *Common Military List of the European Union*, Official Journal C 86, 18 March 2011, pp. 1–36.
2. European Union, *Council Common Position 2008/944/CFSP Defining Common Rules Governing the Control of Exports of Military Technology and Equipment*, Official Journal L 335, 13 December 2008, pp. 99–103.
3. General Assembly, *United Nations Register of Conventional Arms, Report of the Secretary-General*, UN document A/66/127, 12 July 2011.
4. Security Council, [*On termination of the embargo on deliveries of weapons and military equipment imposed by resolution 713 (1991)*], UN document S/RES/1021, 22 November 1995.
5. Security Council, [*On measures against the sale or supply to Eritrea and Ethiopia of arms and related materiel of all types*], UN document S/RES/1298, 17 May 2000.
6. Security Council, [*On arms embargo against Côte d'Ivoire*], UN document S/RES/1572, 15 November 2004.
7. Security Council, [*On measures against the Islamic Republic of Iran in connection with its enrichment-related and reprocessing activities, including research and development*], UN document S/RES/1929, 9 June 2010.
8. Security Council, [*On expansion and extension of the mandate of the UN Observer Mission in Georgia and its cooperation with the CIS Peace-Keeping Force*], UN document S/RES/937, 21 July 1994.

9. Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, *Guidelines & Procedures, Including the Initial Elements*, December 1996 (as amended in 2011).
10. Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, *List of Dual-Use Goods and Technologies and Munitions List*, 14 December 1995 (as of 14 December 2011).

Arms control (SALW)

11. League of Arab States, *Arab Model Law on Weapons, Ammunitions, Explosives and Hazardous Material*, 2002 (unofficial translation).
12. Economic Community of Central African States, *Central African Convention for the Control of Small Arms and Light Weapons, Their Ammunition and All Parts and Components that Can be Used for Their Manufacture, Repair and Assembly*, 2010.
13. European Union, *Council Directive 91/477/EEC of 18 June 1991 on Control of the Acquisition and Possession of Weapons*, Official Journal L 256, 13 September 1991, pp. 51–58 (as amended 28 July 2008).
14. European Union, *Council Joint Action 2002/589/CFSP of 12 July 2002 on the European Union's Contribution to Combating the Destabilising Accumulation and Spread of Small Arms and Light Weapons and Repealing Joint Action 1999/34/CFSP*, Official Journal L 191, 19 July 2002, pp. 1–4.
15. Economic Community of West African States, *Convention on Small Arms and Light Weapons, Their Ammunition and Other Related Materials*, 2006.
16. Organization of American States, *Inter-American Convention against the Illicit Manufacturing of and Trafficking in Firearms, Ammunition, Explosives, and Other Related Materials*, 1997.
17. *International Instrument to Enable States to Identify and Trace, in a Timely and Reliable Manner, Illicit Small Arms and Light Weapons*, annex to UN document A/60/88, 27 June 2005.
18. Organization for Security and Co-operation in Europe, *OSCE Document on Small Arms and Light Weapons*, FSC.DOC/1/00, 24 November 2000.

19. General Assembly, *Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition, supplementing the United Nations Convention against Transnational Organized Crime*, UN document A/RES/55/255, 8 June 2001.
20. Southern African Development Community, *Protocol on the Control of Firearms, Ammunition and Other Related Materials in the Southern African Development Community (SADC) Region*, 2001.
21. East African Community, *The Nairobi Protocol for the Prevention, Control and Reduction of Small Arms and Light Weapons in the Great Lakes Region and the Horn of Africa*, 2004.
22. *Programme of Action to Prevent, Combat and Eradicate the Illicit Trade in Small Arms and Light Weapons in All Its Aspects*, UN document A/CONF.192/15, 2001.
23. Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, *Best Practice Guidelines for Exports of Small Arms and Light Weapons (SALW)*, 11–12 December 2002 (as amended in 2007).

Law enforcement/human rights

24. African Commission on Human and Peoples' Rights, *Sudan Human Rights Organisation & Centre on Housing Rights and Evictions (COHRE) v. Sudan*, Decision, case no. 279/03-296/05, 13 and 27 May 2009.
25. Eighth United Nations Congress on the Prevention of Crime and the Treatment of Offenders, *Basic Principles on the Use of Force and Firearms by Law Enforcement Officials*, UN document A/CONF.144/28/Rev.1, 27 August–7 September 1990.
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ABBREVIATIONS

ADR	1957 European Agreement concerning the International Carriage of Dangerous Goods by Road
AfComHR	African Commission on Human and People's Rights
AMISOM	African Union Mission in Somalia
AOAV	Action on Armed Violence
AXO	abandoned explosive ordnance
BPUFF	1990 Basic Principles on the Use of Force and Firearms by Law Enforcement Officials
CCM	2008 Convention on Cluster Munitions
CCW	1980 Convention on Certain Conventional Weapons
CDM	collateral damage estimation methodology
CIA	United States Central Intelligence Agency
CIFTA	1997 Inter-American Convention against the Illicit Manufacturing of and Trafficking in Firearms, Ammunition, Explosives, and Other Related Materials
DOD	United States Department of Defense
ECHR	1950 European Convention on Human Rights
ECtHR	European Court of Human Rights
ERW	explosive remnants of war
EU	European Union
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
HRL	international human rights law
IACtHR	Inter-American Court of Human Rights

IAmComHR	Inter-American Commission on Human Rights
IATG	International Ammunition Technical Guidelines
ICC	International Criminal Court
ICRC	International Committee of the Red Cross
ICTY	International Criminal Tribunal for the Former Yugoslavia
IED	improvised explosive device
IHL	international humanitarian law
IMAS	International Mine Action Standards
INEW	International Network on Explosive Weapons
ISACS	International Small Arms Control Standards
ISAF	International Security Assistance Force in Afghanistan
MANPADS	man-portable air defence system
MARPLEX Convention	1991 Convention on the Marking of Plastic Explosive for the Purpose of Detection
NATO	North Atlantic Treaty Organization
OSCE	Organization for Security and Co-operation in Europe
ROE	rules of engagement
SALW	small arms and light weapons
SUA Convention	1988 Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation
UNAMA	United Nations Assistance Mission to Afghanistan
UXO	unexploded ordnance

IR

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The use of explosive weapons (shells, bombs, etc.) in populated areas causes grave humanitarian harm. This study analyses how explosive weapons are regulated in international law and policy, what constraints are placed on the use of explosive weapons, and how civilians are protected against the effects of explosive weapons. It concludes that the dominant legal and policy discourse fails to articulate the serious risk of harm associated with the use of explosive weapons in populated areas in a manner that adequately protects civilians. Systematic characterization of the humanitarian harm, and a detailed assessment of the risk of harm and the measures taken to reduce that risk, could further the elaboration of legal and policy standards that enhance the protection of civilians.