# I. The Convention on Certain Conventional Weapons

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## Humanitarian arms control

Many arms control and disarmament regimes are underpinned by humanitarian norms and principles.[1] Much of the focus on conventional technologies in the recent past (1990–2010) was on cluster munitions and landmines, as well as efforts to restrict the proliferation of small arms. These efforts included steps to improve standards in the production, trade and use of weaponry as well as bans on an entire class of weaponry. The 1981 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 Convention) takes both approaches. The 1997 Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction (APM Convention) and the 2008 Convention on Cluster Munitions (CCM)—which are discussed in sections II and III, respectively—both ban an entire class of weapon, albeit relatively narrow ones. This section reviews the negotiations that took place within the CCW Convention. It also examines ongoing efforts to expand the scope of the CCW Convention, especially the discussions on lethal autonomous weapon systems (LAWS), the use of explosive weapons in populated areas (EWIPA) and incendiary weapons, which have been the main focus of negotiations on conventional technologies in recent years.

## Scope of the convention

The CCW Convention and its five protocols ban or restrict the use of specific types of weapon that are considered to cause unnecessary or unjustifiable suffering to combatants or to affect civilians indiscriminately.[2] It is a so-called umbrella treaty, under which specific agreements can be concluded in the form of protocols. As of the end of December 2017 there were 125 states parties to the original convention and its protocols. Afghanistan and Leba-

[1] The body of international humanitarian disarmament law was further expanded in 2017 with the adoption on 7 July of the Treaty on the Prohibition of Nuclear Weapons. See the discussion in chapter 7, section I, in this volume. On the broader application of humanitarian norms and principles to arms control see Anthony, I., 'International humanitarian law: ICRC guidance and its application in urban warfare', *SIPRI Yearbook 2017*, pp. 545–53. For a critical, and historically informed, reading of the humanitarian arms control agenda see Cooper, N., 'Humanitarian arms control and processes of securitization: Moving weapons along the security continuum', *Contemporary Security Policy*, vol. 32, no. 1 (2011), pp. 134–58; and Docherty, B., 'Ending civilian suffering: The purpose, provisions, and promise of humanitarian disarmament law', *Austrian Review of International and European Law*, vol. 15 (2010), pp. 7–44.

[2] For a summary of the CCW Convention see annex A, section I, in this volume.

non joined the CCW in 2017. However, not all the states parties have ratified all the amended or additional protocols.

The CCW Convention is also important for addressing the challenges posed by the development or use of new weapons and their systems with respect to international humanitarian law (IHL). The convention originally contained three protocols: prohibiting the use of weapons that employ fragments not detectable in the human body by X-ray (Protocol I); regulating the use of landmines, booby traps and similar devices (Protocol II); and limiting the use of incendiary weapons (Protocol III). In subsequent years states added two protocols: Protocol IV prohibiting the use and transfer of blinding laser weapons was added in 1996; and Protocol V on explosive remnants of war in 2003. In addition, amendments have expanded and strengthened the convention. Its scope was expanded in 2001, for instance, to situations of intra-state armed conflict.

These developments demonstrated that the CCW Convention could—despite often having to tread a careful path between humanitarian and strategic military needs—be a dynamic instrument for responding to advances in weapons technology and developments in the nature and conduct of armed conflict. In recent years, however, it has become increasingly difficult to reconcile humanitarian demands with strategic military needs—in part, because of differing interpretations of 'strategic military needs' and the exploitation of the convention's consensus-based methods of working—with the result that many of the discussions within the convention have become deadlocked. Nonetheless, all CCW states parties meet regularly either at an annual meeting of the high contracting parties (states parties) or at a review conference (every fifth year), in which they also consider the work done by the Group of Governmental Experts (GGE) established in 2001 and convened in various formats since then.

At the Fifth Review Conference in 2016, states were divided between those that supported either new measures or reviews of some of the existing protocols to address the humanitarian harm arising from the use of EWIPA, incendiary weapons and new technologies, and those that argued that existing law is sufficient but that compliance needs to be improved. The net result was that the 2016 Review Conference failed to make any progress in addressing these issues.[3]

In the run-up to the Meeting of the High Contracting Parties to the Convention in Geneva on 22–24 November 2017, a number of CCW meetings took place in the city in November 2017: (*a*) the Group of Governmental Experts on LAWS, on 13–17 November 2017; (*b*) the Eleventh Conference of the High Contracting Parties on Protocol V, on 20 November 2017; and

[3] See the discussion on the 2016 CCW Review Conference in Davis, I. et al., 'Humanitarian arms control regimes: Key developments in 2016', *SIPRI Yearbook 2017*, pp. 554–61.

(*c*) the Nineteenth Annual Conference of the High Contracting Parties on Amended Protocol II, on 21 November 2017. However, the GGE meetings on LAWS planned for April and August, as well as Experts Meetings to prepare for the Protocol V and Amended Protocol II conferences, did not take place for financial reasons. Proposals to address the poor financial situation of the convention were circulated by the 2017 Chair, Ambassador Matthew Rowland of the United Kingdom, in July.[4] The underfunding of the convention was due to a combination of outstanding debts by certain member states that had not paid their assessed contributions and the implementation of a complex UN financial management system that requires all money relating to a particular meeting to be paid in advance of the meeting itself.

## Group of Governmental Experts on Lethal Autonomous Weapons Systems

The CCW was again the centre of diplomatic discussion on the risks posed by LAWS.[5] Despite several years of ongoing expert discussions, LAWS still lack a generally agreed definition, but they are commonly described by civil society as weapons that are capable of selecting and attacking targets, including human targets, without the direct involvement of a human operator.[6]

LAWS have been taken up for international intergovernmental discussion under the framework of the CCW since 2014, and between 2014–16 they were discussed in the context of informal Meetings of Experts. During the Fifth Review Conference of the CCW in December 2016 it was decided that the issue of LAWS would be taken up within a GGE, as recommended by the Meeting of Experts. The Fifth Review Conference also adopted its recommendations on the subjects to discuss. These were first and foremost the identification of characteristics of LAWS and the elaboration of a working definition of LAWS, as well as the application of the relevant principles and rules of international law, in particular IHL. It was also recommended that the GGE examine (*a*) compliance with international human rights law when applicable; (*b*) legal and political responsibility and accountability; (*c*) ethical and moral questions; (*d*) the effects on regional and global security and stability; (*e*) the effects on the threshold for armed conflicts; (*f*) the risk of an arms race; (*g*) proliferation risks, including to and by non-state actors; (*h*) and related risks posed by cyber operations.[7] It was decided that the GGE

[4] Letter of the Chairperson, Ambassador Matthew Rowland of the United Kingdom, dated 6 July 2017, containing the Non-paper on the financial issue.

[5] See *SIPRI Yearbook 2014* and *SIPRI Yearbook 2017* for earlier accounts of the discussion on the regulation of LAWS: Anthony, I. and Holland, C., 'The governance of autonomous weapons', *SIPRI Yearbook 2014*; and Davis et al. (note 3).

[6] For a detailed overview of what LAWS are and how they function see Boulanin, V. and Verbruggen, M., *Mapping the Development of Autonomy in Weapon Systems* (SIPRI: Stockholm, 2017).

[7] Davis et al. (note 3), p. 560.

would meet for 10 days in 2017, with a first session on 24–28 April 2017 or 21–25 August 2017, and a second session on 13–17 November 2017. However, due to the above-mentioned budgetary difficulties, only the second session took place. The GGE was chaired by India's Ambassador to the Conference of Disarmament, Amandeep Singh Gill.[8]

There are no agreed definitions of LAWS and many previous diplomatic discussions on the issue have floundered in attempting to reach a working definition. To avoid this deadlock Chair Singh Gill steered the GGE away from discussions on defining LAWS, and instead aimed to develop a better shared understanding of the underlying issues.[9] The main body of the programme of work was made up of three panels on the technological, military, and legal and ethical dimensions of emerging technologies in the area of LAWS. It also featured panels on the cross-cutting dimensions of emerging technologies in the area of LAWS, an interactive discussion on the Chair's food-for-thought paper and a discussion on the way ahead.[10]

Both the expert presentations and the general debates showed a wide range of views in all three subject areas. The first panel focused on the technical dimensions and assessed issues such as the existence of Artificial General Intelligence (or superintelligence), the speed of development of artificial intelligence (AI) and the challenges in developing reliable and safe AI. While the analyses of and predictions on these technological developments varied, the panellists all agreed that a ban on LAWS would be unlikely to interfere with peaceful uses of AI.[11]

The second panel centred on the military dimensions and reviewed the impact of autonomy in warfare, such as where it would be most likely to be deployed and have the greatest impact, and how it would fit in with existing command and control systems. It was widely agreed by experts and states alike that a form of human control must be maintained over the weapon systems, especially over the selection and engagement of targets. However, there was no consensus on exactly what meaningful human control entails, and some states maintain that there are other risks associated with LAWS that would not be adequately addressed by only ensuring meaningful human control.

The third panel dealt with the legal and ethical dimensions, but agreement was only reached on the most basic of issues. First, while most states agreed that Article 36 reviews can serve as an excellent tool for ensuring compliance

[8] United Nations, 'Final Document of the Fifth Review Conference', CCW/CONF.V/10, 23 Dec. 2016.

[9] Singh Gill, A., Chairperson of the Group of Governmental Experts on LAWS, United Nations, Food-for-thought Paper, CCW/GGE.1/2017/WP.1, 4 Sep. 2017.

[10] Singh Gill, A., Chairperson of the Group of Governmental Experts on LAWS, United Nations, 'Provisional Programme of Work', CCW/GGE.1/2017/2/Rev.1, 8 Nov. 2017.

[11] Reaching Critical Will, 'CCW Report', vol. 5, no. 2 (14 Nov. 2017), p. 5.

with IHL, there was no consensus that they are sufficient on their own to deal with the challenges that LAWS raise.[12] Second, while all states agreed on the applicability of IHL to LAWS, opinions varied on whether international human rights law applies to LAWS, for instance the rights to life, a fair trial, peaceful assembly and human dignity.[13]

In his summary of the debates, Chair Singh Gill referred to the need to improve the shared understanding of LAWS. Many states proposed adopting a working definition, but once again this approach was not successful. Chair Singh Gill stated that this was the result of disagreement over scope. Significant items of contention were whether the definition should include already deployed systems, and apply only to offensive or also to defensive systems, and whether to distinguish between fully and semi-autonomous systems. While some states consider that fully autonomous weapon systems do not yet exist, others highlighted precursor technologies or the deployment of increasingly autonomous technologies to show how difficult it is to make this distinction. Certain states also considered working definitions premature at this stage of the debate. Aside from the issue of working definitions, Chair Singh Gill noted that it was regrettable that 18 months had passed without a formal discussion on LAWS. A majority of states have expressed their interest in transitioning to a new phase and starting to develop concrete political and legal responses, but consensus is required to do so, which has not yet been achieved. The states therefore affirmed their intention to undertake more frequent discussion of the subject in 2018.[14]

A number of different solutions were proposed to move the discussions forward. The civil society coalition Campaign to Stop Killer Robots, which has put the issue on the agenda of the CCW, advocates a prohibition on the use and development of LAWS. Brazil, Iraq and Uganda are the latest states to express support for a ban and 22 states now favour this approach.[15] The two other most discussed options in 2017 were a new legally binding instrument to regulate LAWS, as proposed by the Non-Aligned Movement; and a political declaration on LAWS, as suggested by France and Germany. In addition, the possibility of a moratorium on the development and use of LAWS

[12] Article 36 reviews are legal reviews to test whether new weapons, means or methods of warfare comply with a country's obligations under international law. For more information on Article 36 reviews see Boulanin V., and Verbruggen, M., *Article 36 Reviews: Dealing with the Challenges Posed by Emerging Technologies* (SIPRI: Stockholm, 2017).

[13] Reaching Critical Will, 'CCW Report', vol. 5, no. 3, 15 Nov. 2017.

[14] United Nations, Group of Governmental Experts of the High Contracting Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, Report of the 2017 Group of Governmental Experts on Lethal Autonomous Weapons Systems (LAWS), CCW/GGE.1/2017/CRP.1, Geneva, 20 Nov. 2017, Annex II: Chair's Summary of the discussion.

[15] The other 19 states are Algeria, Argentina, Bolivia, Chile, Costa Rica, Cuba, Ecuador, Egypt, Ghana, Guatemala, Holy See, Mexico, Nicaragua, Pakistan, Panama, Peru, Palestine, Venezuela and Zimbabwe. See Campaign to Stop Killer robots, 'Country views on killer robots', 16 Nov. 2016.

was discussed. However, a small number of states, most notably the United States and Russia, considered it too early to move the discussion forward and focus on tangible outcomes.[16] The GGE concluded by recommending that the group meet for 10 days in 2018 to resume discussions. The Final Report of the GGE suggested that there would be merit in focusing discussions on the characterization of the systems under consideration to promote a common understanding and further assess human-machine interaction.[17]

There were some noteworthy developments in the discussion on LAWS outside of the CCW. In Australia, Belgium and Canada, scientists signed a call to ban LAWS and presented it to their national governments.[18] In addition, 116 experts from industry called for renewed efforts on the discussions on LAWS in August 2017, when it became clear that the first session at the CCW would not take place.[19]

## Protocol V and Amended Protocol II meetings

### *Protocol V Meeting: Explosive remnants of war*

The Eleventh Annual Conference of the High Contracting Parties to Protocol V was presided over by Ambassador Andre Pung of Estonia. The Protocol recognizes the serious post-conflict humanitarian problems caused by explosive remnants of war (ERW)—landmines, unexploded ordnance and abandoned explosive ordnance—and addresses remedial measures to minimize their occurrence, effects and risks. The conference focused on the practical implementation of Article 4 of the CCW, on the recording, retaining and transmission of information, which can have a significant impact on the clearance of ERW and ultimately the protection of civilians.[20] A proposal for a new national reporting assistance mechanism to improve the rate and quality of reporting was discussed and adopted.[21] Finally, the conference

[16] Reaching Critical Will (note 13).

[17] United Nations, Report of the 2017 Group of Governmental Experts on Lethal Autonomous Weapons Systems (LAWS) (note 14).

[18] Members of the Australian AI research community, Letter to Australian Prime Minister Malcolm Turnbull, Re: An international ban on the weaponization of artificial intelligence, 2 Nov. 2017; Members of the Belgian artificial intelligence (AI) and robotics research community, 'Autonomous weapon systems: An open letter from Belgian scientists', 6 Dec. 2017; and Members of the Canadian AI research community, Letter to Canadian Prime Minister Justin Trudeau, Re: An international ban on the weaponization of artificial intelligence, 2 Nov. 2017.

[19] 'An open letter to the Convention on Certain Conventional Weapons', The Future of Life Institute, 21 Aug. 2017.

[20] UNODA, Joint Letter by the Presidents-designate of the Conferences of the High Contracting Parties to Amended Protocol II and to Protocol V, 2 Nov. 2017.

[21] Proposal on the Provision of Expert Assistance for National Reporting under Protocol V on Explosive Remnants for War (ERW), CCW/P.V/CONF/2017/2, 26 Sep. 2017; and Eleventh Conference of the High Contracting Parties to Protocol V on Explosive Remnants of War to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be

agreed to focus work under Protocol V in 2018 on the clearance of explosive remnants of war and to continue efforts on national reporting.

*Amended Protocol II Meeting: Landmines and improvised explosive devices*

The Nineteenth Annual Conference of the High Contracting Parties to Amended Protocol II was presided over by Beatriz Londono Soto, Ambassador of Colombia. The conference reviewed the status and operation of the protocol and considered matters arising from the national reports by states parties. These reports contained information on a range of protocol-related matters, such as: (*a*) dissemination of information on the protocol to armed forces and civilian populations; (*b*) mine clearance and rehabilitation programmes; (*c*) the steps taken to meet the technical requirements of the protocol; (*d*) legislation related to the protocol; (*e*) and measures taken on international technical information exchange, international cooperation on mine clearance and technical cooperation and assistance, as well as the development of technologies to protect civilians against the indiscriminate effects of mines.[22]

The meeting also considered the issue of improvised explosive devices (IEDs), with a focus on information exchange on national measures and best practices with regard to the general features of IEDs and new types of IED; methods of humanitarian clearance of IEDs; and methods to protect civilians from IEDs.[23] The latter issue has become increasingly salient in recent years. More than 109 000 deaths or injuries linked to IEDs were recorded from 2011 until 2016, of which over 81 per cent were civilian. This represents around 57 per cent of all civilian casualties from explosive weapons during this period.[24] Non-state armed groups use IEDs in a variety of forms, such as remote detonation, with timer devices or in suicide attacks, and sometimes use commercial unmanned aerial vehicles to deliver IEDs.[25]

While there is clear scope for action in the CCW on IEDs, given that it is both a humanitarian and a military strategic concern, the key difficulties are more practical: What would a CCW protocol on IEDs look like? How can states control materials that can be used in IEDs that are invariably dual-use and so diffuse in society? The Conference reached no concrete conclusions on this issue, although states parties agreed to discuss IEDs further in 2018,

Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, 'Final Report', CCW/P.V/CONF/2017/5, 4 Dec. 2017.

[22] UNODA (note 20); and Nineteenth Annual Conference of the High Contracting Parties to Amended Protocol II 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, 'Final Document', Advance version, 1 Dec. 2017.

[23] UNODA (note 20). See also the discussion on IEDs in Davis et al. (note 3), p. 554.

[24] Action on Armed Violence, *Improvised Explosive Device (IED) Monitor 2017*, Oct. 2017.

[25] Davies, R., 'Drones and the IED threat', *Action on Armed Violence*, 26 July 2017.

and to continue to review the operation and status of the protocol more generally.

Other efforts to address the IED threat in 2017 were the adoption of UN Security Council Resolution 2370 of 2 August 2017, which calls for more stringent national measures to prevent the supply of weapons and explosive precursors to terrorists, and a UN General Assembly First Committee Resolution on the issue in October.[26]

## Meeting of the High Contracting Parties

The 2017 CCW Meeting of the High Contracting Parties was held in Geneva on 22–24 November 2017, chaired by Ambassador Matthew Rowland of the UK. The meeting reviewed progress towards the universalization of, and compliance with, the convention. It tasked the GGE on LAWS to meet for 10 days in 2018 under the continuing chair of India (as discussed above); and agreed to place on the agenda of its next meeting 'Emerging issues in the context of the objectives and purposes of the Convention', with an open invitation to states parties to submit working papers on the issues they intend to raise. The meeting also agreed a number of measures to improve the financial situation of the convention.[27] The three substantive issues discussed were incendiary weapons, EWIPA and mines other than anti-personnel mines (MOTAPM).

### *Incendiary weapons*

Protocol III to the CCW Convention prohibits certain uses of incendiary weapons but its restrictions have failed to stop the civilian harm from their use in recent years in Syria, Ukraine, Yemen and elsewhere. The protocol has two major loopholes: weaker regulation of ground-launched incendiary weapons in comparison with air-dropped models; and inadequate wording on multipurpose munitions, such as white phosphorus, which can be used for several purposes on the battlefield—as an obscurant or smoke screen, for signalling and marking, and as an incendiary weapon.

In 2017, according to Human Rights Watch (HRW) and other reports, the Syrian Government and Russian forces used incendiary weapons in populated areas in Syria.[28] More specifically, HRW documented 22 attacks with incendiary weapons in Syria in 2017, which represented about a quarter of

[26] UN Security Council Resolution 2370, 2 Aug. 2017; and UN General Assembly, First Committee, Countering the threat posed by improvised explosive devices, A/C.1/72/L.15/Rev.1, 24 Oct. 2017.

[27] Meeting of the High Contracting Parties to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, Geneva, 22–24 Nov. 2017, Final Report, Advance version, 29 Nov. 2017.

[28] Human Rights Watch and Harvard Law School International Human Rights Clinic, *An Overdue Review: Addressing Incendiary Weapons in the Contemporary Context, Memorandum to Delegates at the Meeting of States Parties to the Convention on Conventional Weapons*, Nov. 2017, pp. 14–19.

the total number it had documented over the past five years of armed conflict in Syria. For example, an online video from 16 March showed the use of incendiary weapons in the town of Om al-Krameel, close to Aleppo.[29]

Syria is not a state party to Protocol III and is therefore not bound by its restrictions, and has been using Russian-made or Soviet-era incendiary weapons since 2012. Russia, however, has ratified the protocol and is prohibited from using air-dropped incendiary weapons in areas with concentrations of civilians. Despite evidence to the contrary, Russia has denied using incendiary or other forbidden weapons or ammunition in Syria.[30]

In addition, the US-led coalition used white phosphorus munitions while fighting the Islamic State group in Raqqah, Syria, and Mosul, Iraq, in 2017.[31] After incidents documented in March and June 2017, a spokesman for the US-led coalition stated that 'white phosphorous rounds are used for screening, obscuring and marking in a way that fully considers the possible incidental effects on civilians and civilian structures'.[32] With regard to the incident in Mosul, Iraqi Security Forces stated that they used the munitions to create a smokescreen, and the US-led coalition issued a statement explaining it 'used smoke and precision munitions to suppress the enemy and provide cover for fleeing civilians'.[33]

Several states, along with the International Committee of the Red Cross (ICRC), the UN Secretary-General and many non-governmental organizations (NGOs), have condemned recent incendiary weapon attacks and called for Protocol III to be revisited and strengthened.[34] While little progress was made at the Fifth Review Conference in 2016, it was anticipated that, given that the protocol was appearing as a separate item on the agenda of a meeting of states parties for the first time since the CCW was adopted in 1980, this would be an opportunity for a robust discussion on the harm caused by incendiary weapons and the adequacy of the protocol. However, outcomes were limited to states parties collectively condemning the use of incendiary weapons, reaffirming the importance of the protocol and calling for its universalization and full implementation. There was no commitment to a future strengthening of the protocol, although the states parties did decide to retain the issue as a separate agenda item for the 2018 meeting.[35]

[29] Broomfield, M., 'New footage shows Russia using "white phosphorous" in Syria, activists claim', *The Independent*, 16 Mar. 2017.

[30] See e.g. Broomfield (note 29); and Human Rights Watch, 'Syria/Russia: Incendiary weapons burn in Aleppo, Idlib', 16 Aug. 2016.

[31] Barnard, A., 'US-led forces said to have used white phosphorus in Syria', *New York Times*, 10 June 2017.

[32] Barnard (note 31); Gibbons-Neff, T., 'US-led forces appear to be using white phosphorous in populated areas in Iraq and Syria', *Washington Post*, 9 June 2017; and Human Rights Watch, 'Iraq/Syria: Danger from US White Phosphorus', 14 June 2017.

[33] Human Rights Watch (note 32).

[34] See the discussion on incendiary weapons in Davis et al. (note 3), pp. 556–57.

[35] Meeting of the High Contracting Parties, Final Report (note 27).

*Explosive weapons in populated areas*

According to the ICRC, 'Armed conflicts are increasingly fought in population centres, but often with weapon systems that were originally designed for use in open battlefields. When used in populated areas, explosive weapons that have wide-area effects are very likely to have indiscriminate effects. They are a major cause of harm to civilians and of disruption of services essential for their survival'.[36] In particular, the use of explosive weapons with a large destructive radius, an inaccurate delivery system, or the capacity to deliver multiple munitions over a wide area is likely to have an enormous humanitarian impact in urban areas. This is due to both the direct blast and the fragmentation effects, but also to the related destruction of civilian housing and essential civilian infrastructure, which may result in subsequent civilian death, injury and displacement that outweighs the immediate civilian casualties caused by an attack.[37] Where explosive weapons are used in populated areas, it is not unusual for over 90 per cent of the casualties to be civilian.[38]

In the first 11 months of 2017 at least 15 399 civilians were reported killed by explosive weapons—an increase of 42 per cent on the same period in 2016, when the total was 10 877. The majority of civilian deaths (8932) were caused by air-launched weapons. This was an increase of 82 per cent from 4902 in 2016 and an increase of 1169 per cent compared to 2011, when 704 civilian deaths were caused by airstrikes.[39] The use of IEDs by non-state armed groups killed 3874 civilians in the first 11 months of 2017, a similar number to those killed in 2016. The worst single explosive weapon incident of 2017 globally saw at least 512 people killed by a truck bomb in Mogadishu, Somalia, in October 2017.[40]

Conflicts in Afghanistan, Iraq, Syria, Ukraine, Yemen and elsewhere have provided clear evidence of this persistent pattern of destruction. In Yemen, for example, the indiscriminate and disproportionate use of explosive weapons by all parties, including airstrikes by a Saudi-led coalition, has caused many civilian casualties. At least 10 000 people have been killed since the start of the war in March 2015.[41] Even when precision-guided munitions

[36] ICRC, 'Explosive weapons in populated areas', Fact sheet, 14 June 2016. See also 'Areas of harm: Understanding explosive weapons with wide area effects', PAX and Article 36, Oct. 2016.

[37] On the impact of the destruction of civilian infrastructure see e.g. ICRC, 'Diary: ICRC president on the ground in Yemen', 25 July 2017.

[38] ICRC (note 36); and International Network on Explosive Weapons (INEW) website.

[39] 'First 11 months of 2017 sees 42% increase in civilian deaths from explosive weapons compared to 2016', Action on Armed Violence, 8 Jan. 2018; and McVeigh, K., '"Crazy numbers": Civilian deaths from airstrikes almost double in a year', *The Guardian*, 8 Jan. 2018.

[40] 'Death toll from Somalia truck bomb in October now at 512: Probe committee', Reuters, 30 Nov. 2017. On the conflict in Somalia see chapter 2, section VI, in this volume.

[41] Wintour, P., 'Saudi-led airstrikes kill 68 civilians in one day of Yemen's "absurd" war', *The Guardian*, 28 Dec. 2017. On the conflict in Yemen see chapter 2, section V, in this volume.

(PGMs) are used in populated areas the civilian casualties can be unacceptably high.

In the fight against the Islamic State in Iraq and Syria, for example, the US-led coalition has conducted more than 27 500 airstrikes since August 2014. The coalition claims to have a meticulous target-selection process and often uses PGMs to minimize civilian casualties. However, an independent assessment of coalition airstrikes carried out in Iraq over an 18-month period found that one in five of the airstrikes resulted in civilian deaths—a rate more than 31 times that acknowledged by the coalition.[42] Four problems have been identified that may have contributed to this lack of precision: (*a*) a decrease in the strategic military incentives that come with protecting civilians; (*b*) new shifts in targeting tactics, techniques and procedures; (*c*) a 'guilt by association' approach to targeting—whereby people killed in close proximity to the intended target are counted as non-civilians; (*d*) and a reduction in the military's investigative resources for monitoring civilian casualties.[43]

Since current IHL does not draw clear boundaries on the use of EWIPA, some states and NGOs see the need for a specific treaty-based restriction that would provide clear and universal guidance on the application of IHL to the use of EWIPA. Discussions aimed at developing a political instrument to address this humanitarian problem are being led by Austria with the support of the leading civil society coalition on this issue, the International Network on Explosive Weapons. Some states, led by Germany, have sought to bring the use of EWIPA within the framework of the CCW Convention. The 2016 Review Conference agreed that the 2017 meeting should explore the 'challenges presented by the use of conventional weapons in armed conflicts and their impact on civilians, particularly in areas where there are concentrations of civilians'.[44]

In his first report to the UN Security Council on the protection of civilians in armed conflict in May 2017, UN Secretary-General António Guterres underlined the destructive impacts for civilians when explosive weapons with wide-area effect are used in populated areas during conflict, and called on states to engage constructively in the process being led by Austria.[45] His predecessor, Ban Ki-moon, as well as the ICRC, had consistently called on states to refrain from using EWIPA. Both Austria and Germany submitted working papers on EWIPA to the November CCW meeting.[46] However,

[42] Khan, A. and Gopal, A., 'The Uncounted', *New York Times Magazine*, 16 Nov. 2017.
[43] Garlasco, M., 'How to fix the US Military's broken targeting system', Just Security, 12 Dec. 2017.
[44] See the discussion on EWIPA in Davis et al. (note 3), pp. 557–58.
[45] United Nations, Security Council, Report of the Secretary-General on the protection of civilians in armed conflict, S/2017/414, 10 May 2017.
[46] Convention on Certain Conventional Weapons, Meeting of High Contracting Parties, Emerging issues of relevance to the Convention, Submitted by Austria, CCW/MSP/2017/WP.1, 19 Oct.

at the meeting the issue was relegated to 'other matters' after objections from Turkey, one of the five countries Austria cited as having the highest number of civilian deaths and injuries linked to explosive weapons (alongside Afghanistan, Iran, Syria and Yemen).[47] The lack of consensus on how to address the problem of EWIPA meant that no concrete proposals emerged from the meeting and there was no mention of the issue in the final report document.

Representatives of 19 African countries, the United Nations Office for the Coordination of Humanitarian Affairs, the ICRC and civil society organizations met in Maputo, Mozambique, on 27–28 November 2017 for a regional conference on the protection of civilians from the use of EWIPA.[48]

*Mines other than anti-personnel mines*

Discussions on MOTAPM are focused on anti-vehicle mines, which include anti-tank mines. It is a topic that has been discussed several times within the CCW for over a decade, but without any agreed consensus among states parties on how to move the debate forward. The UN Office of Disarmament Affairs, the UN Mine Action Service and the Geneva International Centre for Humanitarian Demining held an informal meeting on MOTAPM on 29 August 2017.[49] At the November meeting of the CCW, however, progress was again stymied, although in the final report the chairperson-elect was tasked with holding an informal open consultation on how best to address the continuing differences of view on MOTAPM and reporting back to the 2018 meeting.[50]

2017; and Use of Explosive Weapons in Populated Areas (EWIPA), Submission by Germany, CCW/MSP/2017/WP.2, 25 Oct. 2017.

[47] See the Tweet by the Austrian Ambassador, Thomas Hajnoczi. @ThomasHajnoczi, Twitter, 22 Nov. 2017.

[48] Communique from Maputo regional conference on the protection of civilians from the use of explosive weapons in populated areas, 28 Nov. 2017.

[49] The presentations are available at UN Office at Geneva, 'MOTAPM: Latest news!'.

[50] Meeting of the High Contracting Parties, Final report (note 27).