CENTRE DELÀS D'ESTUDIS PER LA PAU

CENTRE DELÀS REPORT 57

THE NEED AND POSSIBILITY OF BANNING EXPLOSIVE WEAPONS

International Humanitarian Law and precision in old and new explosive weapons

Authors: Andrea Farrés, Pere Brunet, Camino Simarro, Virginia D'Arienzo, Jordi Calvo

Published by:

Centre Delàs d'Estudis per la Pau
Bisbe Laguarda, 4
08001 Barcelona
T. 93 441 19 47
www.centredelas.org
info@centredelas.org

Authors: Andrea Farrés, Pere Brunet, Camino Simarro, Virginia D'Arienzo, Jordi Calvo

This report has been made within the framework of the project "Impulsem el desarmament humanitari, aturem les armes explosives, nuclears i autònomes letals" funded by the Sant Cugat del Vallès City Council.

Centre Delàs is a member of the International Network on Explosive Weapons (INEW)

Barcelona, November 2022

Design and layout: Esteva&Estêvão

Cover photo: Ales Ustinov; p. 5, 14, 21: US Air Force; p. 7: David Peinado; p. 9: Art Guzman; p. 29: Roberto Cornacchia

ISBN: 978-84-09-45934-6

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The use of explosive weapons in populated areas exposes civilians to a high risk of death or injury and to the accidental or deliberate destruction of the infrastructure on which they depend. This report addresses the significant challenges this poses to compliance with international humanitarian law (IHL) and human rights in general; argues that explosive weapons, because of their technical and military characteristics, can in no case, however advanced they may be, guarantee discrimination between civilians and combatants; and advocates, accordingly, for their prohibition.

According to IHL, the parties to an armed conflict have the obligation to ensure that their attacks do not affect the civilian population or civilian objects. They even have to make every effort to foresee whether an attack may cause damage to the civilian population which would be excessive in relation to the concrete military advantage anticipated to be gained by such an attack. IHL prohibits both direct attacks against civilians, including those intended to strike military objectives and civilians or civilian objects without distinction, and attacks that may cause incidental civilian harm that is excessive in relation to the specific objective of the attack. The former are referred to as indiscriminate attacks while the latter are known as disproportionate attacks. Through the principle prohibiting weapons from causing superfluous injury or unnecessary suffering, the use of various conventional weapons and weapons of mass destruction, for example, has been prohibited and restricted. This means that in addition to the weapons, means or methods prohibited by the Geneva Conventions and their Additional Protocols, there are other weapons that are illegal or whose use is restricted by international law through other international treaties and which are therefore binding only on the states party to them.

Although IHL has managed to restrict and prohibit the use of various types of weapons, indiscriminate and/or disproportionate attacks in ur-

ban areas are widespread, mainly through the use of explosive weapons. These types of attacks tend to occur increasingly in contexts of armed conflict in populated areas, indiscriminately affecting those in the vicinity of the explosions. It is estimated that when explosive weapons are used in urban areas, 9 out of 10 victims are civilians. The effect of certain weapons of this type can also impede the production and distribution of goods and services essential to the well-being of the civilian population. Conflicts in Iraq, Syria, Yemen and, more recently, Ukraine have demonstrated these severe impacts on basic infrastructure and the environment on which people depend, which also generate great suffering and vulnerability, as well as long-term effects on the socio-economic and human development of the region or country in question. It is also well documented how in these conflicts the use of explosive weapons in populated areas is one of the main causes of displacement, both internally and abroad.

We can conclude from all this that when armies choose to use explosive weapons in populated areas they generate unacceptable harm to the civilian population, not only to their physical integrity, but also to the coverage of their basic needs and fundamental rights.

In this sense, the myth of the precision of new weapons, used by governments and armies to justify certain military operations on the grounds that they respect IHL and do not affect the civilian population, must be dismantled. The main objective of these weapons is, rather, to replace human combatants in theaters of operations, thus creating asymmetrical wars with a much lower number of own casualties. These new weapons are indeed designed to reduce casualties of soldiers in combat but, for various reasons and biases, this does not mean that they are anywhere near ready to reduce the number of civilian casualties. In fact, with the use of new robotic weapons and the proliferation of low-cost, low-risk armed conflicts for the attacking party, it is quite possible that more civilians will die than in conventional weapons attacks. This is partly because these types of weapons interpose a great physical distance between the military operator, the weapon itself and the effects of its use, which can lead to psychological and moral distancing, along with a diminished awareness of responsibility for the attacks carried out and an even more improbable accountability. With technologies such as precision bombs or armed drones, wars are easier to start and moral and legal barriers are even more diluted. The perceived prospect of risk-free attacks may make military solutions prevail over political ones, lowering the thresholds for initiating military action. On the other hand, new technologies such as artificial intelligence will make it easier to think in more abstract remote wars, which may lead to more military actions and uncontrolled escalation of conflicts, in which the civilian population is always the main victim.

Policies aimed at stopping the use of explosive weapons with wide-area effects in populated areas and the adoption of humanitarian and civilian protection measures are therefore essential, as well as a more robust and comprehensive development and implementation of international regulations. As with anti-personnel mines and cluster bombs, there seems to be only one possible solution to the problem of the use of explosive weapons in populated areas, and that is to ban them, stigmatize them and eliminate them from warfare, whether they are old or new, obsolete or of recent and advanced technology.

1. INTRODUCTION

The war in Ukraine launched in February 2022 has focused attention on the widespread use of weapons with a specific set of characteristics to bomb military and civilian targets. It is no coincidence that many analyses of this conflict use International Humanitarian Law (IHL) to qualify the legitimacy of both side's warfare. Many of the weapons identified in the news and expert analyses can be classified as explosive weapons, and many of these are considered obsolete, old, traditional, outdated, and lacking the technological characteristics necessary to be able to discriminate between civilians and combatants. Meanwhile, many other explosive weapons are described as fantastic technological advances that make the side using them seem like a clean player, capable of waging war in complete respect of IHL.

This report aims to build understanding of the fact that war is not and will never be inherently different through the use of 'old' or 'new' weapons, and also that precision remains a myth aimed at legitimising military responses to conflicts between nations or states. This is not a hurdle to eliminating explosive weapons that are particularly controversial because of their limited or zero ability to discriminate between civilians and military personnel from military arsenals, as urged by the International Network on Explosive Weapons (INEW) campaign, in order to reduce the humanitarian damage caused by bombs and their consequent IHL violations.

This report is therefore structured into three chapters. The first covers how the use of explosives and weapons with similar characteristics and effects are addressed in IHL, in order to demonstrate the need to ban many of the weapons currently being used in warfare. Chapter two explains some of the characteristics of traditional explosive weapons, the reasons for their prohibition and provides a few examples of the

banning of weapons that cause unacceptable humanitarian damage, such as cluster bombs and anti-personnel mines. The third chapter includes analysis of the new weapons that aim to make war look like a clean, just and clinical practice; but that in fact present no real change in terms of its future and humanitarian impact, as their alleged precision and efficiency is nothing but a myth warmongers and military organizations and companies embrace to legitimise arms races.

2. HUMANITARIAN DISARMAMENT

2.1 INTRODUCTION

This chapter analyses the nature of arms banned under international law, specifically by International Humanitarian Law (IHL). The first three sections examine the principles that restrict or ban the use of various weapons, which are universally applicable irrespective of whether or not the conflict in question is international. The analysis then specifies the restrictions arising from Additional Protocol I to the 1977 Geneva Conventions (AP I), followed by a description of the various treaties banning or restricting the use of specific arms: both conventional weapons and weapons of mass destruction. Finally, this chapter examines the relationship between IHL and arms control.

It is important to remember that although this chapter focuses on the legality of various weapons under IHL, even if a specific weapon is not banned, the way in which it is used must comply with other IHL standards, especially those that refer to the means and methods of warfare, such as the principle of proportionality[1] and the obligation to take precautions.[2]

2.2 BANNING WEAPONS THAT CAUSE SUPERFLUOUS INJURY OR UNNECESSARY SUFFERING

Historically, bans and limitations on weapons and the means and methods[3] allowed in armed conflict were designed to protect combatants.[4] The principle that prohibits the use of weapons, means and methods of

1. See ICRC, *Explosive Weapons with Wide Area Effects: A Deadly Choice in Populated Areas*, ICRC, Geneva, January 2022, pp. 96-101, available at: https://www.icrc.org/en/event/explosive-weapons-wide-area-effects-deadly-choice-populated-areas (accessed 4 November 2022)
2. On the use of explosive weapons and the obligation to take precautions, see ICRC, *Explosive Weapons with Wide Area Effects: A Deadly Choice in Populated Areas*, ICRC, Geneva, January 2022, pp. 102-108, available at: https://www.icrc.org/en/event/explosive-weapons-wide-area-effects-deadly-choice-populated-areas (accessed 4 November 2022)
3. The term 'weapon' refers to the 'means' of warfare, 'methods' are the way in which arms are used in war. In other words the term 'weapon' (or means) may refer to munitions, while the word 'method' would refer to the way in which said munition is used in a specific attack. It is important to note that while a weapon may not be inherently illegal, the way in which it is used may make it illegal.
4. The Saint Petersburg Declaration of 1868 banned explosive projectiles under 400 grammes weight, or projectiles charged with fulminating or inflammable materials. It is the first international treaty designed to restrict the use of arms.

warfare from causing superfluous injury or unnecessary suffering was born out of this objective.[5]

Determining whether a weapon causes superfluous injury or unnecessary suffering involves finding a balance between the principle of humanity and military necessity. This means that any damage without a military end is not justified. The International Court of Justice (ICJ) defined unnecessary suffering as "harm greater than that unavoidable to achieve legitimate military objectives."[6]

Application of this principle has led to the banning of different types of specific weapons, such as expanding bullets, which cause very serious injuries because they explode or are deformed on entering the body, almost always leading to death.[7]

2.3 BANNING WEAPONS WITH INDISCRIMINATE EFFECTS

As well as protecting and limiting the injury permissible to combatants, Additional Protocol I of the Geneva Conventions (1977) sets out the principles and standards that apply to the methods and means of warfare, which are designed to protect civilian persons and objects, and include the ban on indiscriminate attacks, which is notable for its fundamental nature (as a Basic Rule).[8]

Indiscriminate attacks are defined as:

> "*a*) those which are not directed at a specific military objective;
> *b*) those which employ a method or means of combat which cannot be directed at a specific military objective; or
> *c*) those which employ a method or means of combat the effects of which cannot be limited as required by this Protocol;
>
> and consequently, in each such case, are of a nature to strike military objectives and civilians or civilian objects without distinction."[9]

The principle of distinction, fundamental to IHL, gives rise to this ban on combatants carrying out attacks that target the civilian population or civilian objects.

This principle requires weapons to make this distinction. Therefore, any inherently indiscriminate weapons are illegal.[10] This means that the use of weapons that do not by their nature distinguish military from civilian targets, either because they cannot be targeted at a specific military objective, or because their impact cannot be limited in line with the restrictions imposed by IHL, is not permitted in normal or military circumstances. It is difficult to define a particular type of weapon as intrinsically indiscriminate, as this requires proving that it could never be used discriminately. As a result, very few weapons are considered intrinsically indiscriminate under international law. This is partly due to the fact that nations do not wish to renounce their ability to use such weapons, for example: nuclear weapons.[11]

It is therefore important to distinguish between inherently indiscriminate weapons (such as biological weapons), and arms that can be used indiscriminately (i.e. weapons whose design allows for the respect of the principle of distinction, but that can also be used indiscriminately). For example, precision-guided missiles are not inherently indiscriminate, but could be used in an indiscriminate way. As a result, their use would be illegal in urban warfare, where the civilian population would be disproportionately affected in comparison to the military advantage obtained.

Note that this ban does not imply that the warring parties must only use precision weapons, when these are available in their arsenals, as this goes against the principle of equality between the warring parties.[12]

2.4 LIMITING THE METHODS AND MEANS OF WARFARE

A fundamental principle of IHL is the restriction of the right of the parties to choose the means and methods of warfare, from which the bans on using weapons that cause superfluous injury or unnecessary suffering, and weapons with indiscriminate effect derive.

5. The first references to 'superfluous injury' and 'unnecessary suffering' are found respectively in the Hague Conventions of 1899 and 1907. This restriction was subsequently enshrined in Article 35(2) of Additional Protocol I to the Geneva Conventions (1977).
6. International Court of Justice, *Nuclear Weapons case*, advisory opinion on the legality of the threat or use of nuclear weapons, 8 July 1996, para. 78. For more information on the interpretation of this principle, see Henri Meyrowitz, The principle of superfluous injury or unnecessary suffering: From the Declaration of St. Petersburg of 1868 to Additional Protocol 1 of 1977, International Review of the Red Cross nº 122, 04-1994, pp., 103-126.
7. To see which weapons have been cited as causing unnecessary suffering, see ICRC, Customary International Humanitarian Law, Vol. 1, Rule 70, available at: https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule70
8. Article 51(4) AP I.
9. ICRC, Customary International Humanitarian Law, Vol. 1, Rules 11 and 12; Additional Protocol I, Article 51(4)
10. For additional information see ICRC, Customary International Humanitarian Law, Vol. 1, Rule 71
11. United Nations Office for the Coordination of Humanitarian Affairs (OCHA) "Indiscriminate Attacks and

Indiscriminate Weapons in International Humanitarian Law" March 2016, p.4 available at: https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/indiscriminate_weapons_legal_note_-_final_format_-_en_3.pdf (accessed 4 November 2022)
12. Ronzitti, Natalino, 'Modern Means of Warfare: The Need to Rely upon International Humanitarian Law, Disarmament, and Non-Proliferation Law to Achieve a Decent Regulation of Weapons', in The Late Antonio Cassese (ed.), Realizing Utopia: The Future of International Law (Oxford, 2012; online edn, Oxford Academic, 20 Sept. 2012), p. 556.

This principle, known as the Martens Clause, has been implemented and developed in various international treaties, notably Article 35 of Additional Protocol I which states that "in any armed conflict, the right of the Parties to the conflict to choose methods or means of warfare is not unlimited."

This clause safeguards the principle of humanity and the requirements of public conscience. It means that any use of a weapon, or choice of combat method, must comply with IHL. The limitation bans indiscriminate or disproportionate attacks, and obliges all parties to the armed conflict to take all possible precautions to avoid, or at least minimise, the damage to the civilian population.

This clause is particularly relevant in the context of the development of new technologies. Although the use of such technologies, for example autonomous weapons systems (popularly known as killer robots), is not regulated by any international treaty, there are various initiatives campaigning for them to be banned based on the Martens Clause.[13]

2.5 RESTRICTIONS ARISING FROM ADDITIONAL PROTOCOL I TO THE GENEVA CONVENTIONS

Additional Protocol I also bans the use of methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.[14] It requires states to examine whether a particular weapon will cause said destruction prior to its use, and to refrain from using said weapon if it will.

Although this ban is a step towards protecting the environment, its formulation has been criticised for the lack of consensus on the meaning of "widespread, long-term and severe" damage. The three conditions are cumulative and the 'long-term' has been interpreted as meaning "decades".

States who are Parties to the Additional Protocol I must also determine whether the use of a new weapon or means or method of warfare in some conditions or in all circumstances, would be prohibited by said Protocol or any other applicable rule of international law . This analysis must be carried out during "the study, development, acquisition or adoption of a new weapon, means or method of warfare," not just when the arms are to be used. The International Committee of the Red Cross (ICRC) understands this obligation to cover all states, not only the High Contracting Parties to the Protocol, as this is a logical consequence of the ban on the use of illegal weapons or of using weapons in a way that contravenes IHL.[15]

This article is particularly relevant to the development of new technologies that can be used in armaments. However, it is not easy to verify whether this obligation is met, as states generally carry out such studies in a confidential manner.[16] Another complication in applying this article, is that the protocol does not specify how such analyses should be performed. In this regard, in 2006, the ICRC published guidelines including recommendations on the scope of application of this article (for example, the type of weapons to be reviewed), in addition to practical considerations on how to fulfil this obligation (for example, who should be part of the analysis team).[17]

2.6 BANS AND RESTRICTIONS ON WEAPONS BEYOND THE GENEVA CONVENTIONS

The principle prohibiting the use of weapons that cause superfluous injury or unnecessary suffering has led to the ban on and restriction of the use of various conventional weapons and weapons of mass destruction. This means that other weapons than the weapons, means or methods prohibited by the Geneva Conventions and their Additional Protocols, are also illegal or restricted under international law, through other international treaties that only are only binding upon their signatories.

2.6.1 BANS AND/OR RESTRICTIONS ON THE USE OF CONVENTIONAL WEAPONS

Weapons banned by treaty include incendiary missiles or explosives that weigh less than 400 grams used against combatants,[18] bullets that expand or flatten

13. See for example the initiative led (among others) by Human Rights Watch: *Heed the Call. A Moral and Legal Imperative to Ban Killer Robots*, 21 August 2018, available at: https://www.hrw.org/report/2018/08/21/heed-call/moral-and-legal-imperative-ban-killer-robots (accessed on 4 November 2022)
14. The ICRC study on Customary International Humanitarian Law identifies the ban employing "methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment," as a customary rule. "Destruction of the natural environment may not be used as a weapon." This rule (number 45) has a few persistent objectors (states). For more information, see https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule45
15. ICRC, "A Guide to the Legal Review of New Weapons, Means and Methods of Warfare: Measures to Implement Article 36 of Additional Protocol I of 1977", International Review of the Red Cross nº 864, May-December 2006, p. 933, available at: https://www.icrc.org/en/doc/assets/files/other/irrc_864_icrc_geneva.pdf (accessed 4 November, 2022)
16. Ronzitti, Natalino, 'Modern Means of Warfare: The Need to Rely upon International Humanitarian Law, Disarmament, and Non-Proliferation Law to Achieve a Decent Regulation of Weapons', in The Late Antonio Cassese (ed.), Realizing Utopia: The Future of International Law (Oxford, 2012; online edn, Oxford Academic, 20 Sept. 2012), p. 556.
17. ICRC, "A Guide to the Legal Review of New Weapons, Means and Methods of Warfare: Measures to Implement Article 36 of Additional Protocol I of 1977", International Review of the Red Cross, nº 864, May-December 2006, pp., 931-956, available at: https://www.icrc.org/en/doc/assets/files/other/irrc_864_icrc_geneva.pdf (accessed 4 November 2022)
18. The Saint Petersburg Declaration of 1868

easily in the human body (also known as dumdum bullets),[19] and poison or poisoned weapons.[20]

More recently, in 1980, the Convention on Certain Conventional Weapons came into force. Together with its protocols, this convention bans the use of mines,[21] incendiary weapons[22] and blinding laser weapons,[23] and is the main legal instrument regulating the use of conventional weapons.[24] The periodic review conferences for this convention are currently of particular importance as they are the international forum where states discuss the possibility of banning autonomous weapons systems, popularly known as killer robots.[25]

The Ottawa Convention on the prohibition of anti-personnel mines was signed in 1997. This treaty is based on the ban on superfluous injury and unnecessary suffering, as well as the ban on the use of indiscriminate weapons. It establishes the prohibition of the use, stockpiling, production and transfer of anti-personnel mines and on their destruction.[26]

In 2008, the Oslo Convention prohibited all use, stockpiling, production and transfer of cluster munitions, highlighting that these weapons cause "unacceptable suffering" to civilians and have catastrophic long-term consequences.[27]

Finally, it is important to emphasize that the bans established by these treaties are only binding on their signatories, except for those bans with the status of customary law, such as the ban on expanding bullets.[28]

2.6.2 BANS AND/OR RESTRICTIONS ON THE USE OF WEAPONS OF MASS DESTRUCTION

There are three types of weapons of mass destruction: biological, chemical and nuclear. Biological and chemical weapons are prohibited by international treaties, which make it illegal to produce, acquire, stockpile or preserve such weapons. While the Chemical Weapons Convention explicitly prohibits the use of such weapons, the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction also implicitly makes the use of such weapons illegal. Both international treaties also require the destruction of such weapons, and that the states enact national laws that reinforce said bans.[29] It is important to emphasize that although these conventions have not been signed by every country, the ban on the use of biological and chemical weapons in armed conflict has the status of a customary rule, which means that it applies universally.[30]

Two treaties govern the use of nuclear weapons. The first to be adopted (in 1968) was the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) It only establishes bans in specific areas and limits the development of nuclear weapons, as well as obliging states with nuclear weapons to progressive disarmament, starting from their ratification of this treaty.

The second treaty, known as the Treaty on the Prohibition of Nuclear Weapons (TPNW), came into force in 2021, and bans the Parties from using, threatening to use, developing, producing, manufacturing, acquiring, possessing, developing, stockpiling, transferring, storing or installing nuclear weapons. This treaty was born, among other reasons, out of the frustration of several states who noticed that the Parties to the NPT were not fulfilling their obligation to progressively disarm this kind of weapon of mass destruction.

Some NPT signatories, including Russia, the United States of America, the United Kingdom and France are very critical of the actual effectiveness of this instrument, and question the ability of any nuclear-weapon state to rectify this situation. They also argue that this treaty fails to reflect current international security challenges, and undermines existing tools for disarmament.[31]

Currently, there is no consensus on whether nuclear weapons are prohibited by customary international

19. Hague Convention of 1899 (Declaration 3)
20. Article 23(a) of Hague Convention of 1907 (IV) Laws of War: Laws and Customs of War on Land
21. Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices (Protocol II)
22. Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III).
23. Protocol on Blinding Laser Weapons (Protocol IV)
24. ICRC, "Conventional weapons," ICRC, 29 October 2010, available at: https://www.icrc.org/es/doc/war-and-law/weapons/conventional-weapons/overview-conventional-weapons.htm (accessed 4 November 2022)
25. Human Rights Watch, Killer Robots: Military Powers Stymie Ban 19 December 2021, available at: https://www.hrw.org/news/2021/12/19/killer-robots-military-powers-stymie-ban (accessed 4 November 2022)
26. For more information, see ICRC Advisory Service on International Humanitarian Law "1997 Convention on the Prohibition of Anti-Personnel Mines and on their Destruction" https://www.icrc.org/en/doc/assets/files/other/1997_ap_mines.pdf (accessed 4 November 2022)
27. For more information, see ICRC, "Cluster munitions: For civilians, consequences are severe and long-lasting" 2 September 2019, available at: https://www.icrc.org/en/document/cluster-munitions-civilians-consequences-are-severe-and-long-lasting (accessed 4 November 2022)
28. Law Explorer, "Regimes prohibiting the use in war of poison gas and dum dum bullets", 5 October 2015, available at: https://lawexplores.com/regimes-prohibiting-the-use-in-war-of-poison-gas-and-dum-dum-bullets/ (4 November 2022)
29. ICRC, Chemical and Biological Weapons, 8 April 2013, available at: https://www.icrc.org/en/document/chemical-biological-weapons (accessed 4 November 2022)
30. For additional information see ICRC, Customary International Humanitarian Law, Vol. 1, Rules 73 and 74.
31. https://www.nato.int/cps/en/natohq/news_180087.htm for more information on the reaction of several European states to TPNW, see Andrea Farrés Jiménez and Michal Onderco, "A comparison of national reviews of the Treaty on the Prohibition of Nuclear Weapons," EU Non-Proliferation and Disarmament papers, no. 76, June 2021, available at: https://www.nonproliferation.eu/wp-content/uploads/2021/06/EUNPDC_no-76.pdf

law (irrespective of the existence of the TPNW). While in 1996 the ICJ did not conclude that the use of nuclear weapons was illegal in any circumstances, especially once the TPNW entered into force, the view that there should be a universal ban on such weapons is increasingly widespread, although it is unlikely that nuclear powers voluntarily disarm, at least in the short term.[32]

2.7 THE RELATIONSHIP BETWEEN INTERNATIONAL HUMANITARIAN LAW AND ARMS CONTROL

As we have seen, International Humanitarian Law (IHL) has managed to restrict and ban the use of various types of weapons. It is also important to consider the role of arms control in relation to disarmament. IHL focuses on regulating the use of weapons, while arms control, like disarmament, aims to ban the development and stockpiling of weapons. Nevertheless, IHL is part of the process of arms control. This is because the objectives of arms control are not only compatible with IHL, they also contribute to compliance with these laws.

The primary objective of arms control is to reduce the likelihood of armed conflicts by banning or restricting different types of destabilizing weapons. We have seen how IHL has banned weapons of mass destruction, which have a clearly destabilizing impact. Arms control can reinforce IHL by imposing limits on the evolution of weapons that can destabilise strategic relations.

The second objective of arms control is the reduction of suffering and injury during armed conflicts. Here, especially through the Martens Clause, IHL plays a fundamental role.

In terms of reducing arms expenditure - the third objective of arms control, it can also be argued that in reducing the means, methods and military objectives used in armed conflicts, IHL reduces military spending on defensive measures against such acts, as such investments are subsequently seen as unnecessary.

Finally, and by definition, IHL complements the ultimate objective of arms control, which is to assist conflict resolution by providing a framework for negotiations. IHL rules provide a starting point for conflict resolution, as they apply to all parties involved.

In conclusion, International Humanitarian Law and arms control should be seen as mutually reinforcing, multiply interconnected, lines of action.[33]

32. Lythgoe, Gail, "Nuclear Weapons and International Law: The Impact of the Treaty on the Prohibition of Nuclear Weapons", EJIL:Talk!, 2 December 2020, available at: https://www.ejiltalk.org/nuclear-weapons-and-international-law-the-impact-of-the-treaty-on-the-prohibition-of-nuclear-weapons/ (accessed 4 November 2022)

33. For more information on IHL and arms control, see Daniel Frei, International Humanitarian Law and Arms Control, International Review of the Red Cross, number 90, December 1988, pp. 519-533 available at: https://international-review.icrc.org/articles/international-humanitarian-law-and-arms-control

3. EXPLOSIVE WEAPONS AND INTERNATIONAL HUMANITARIAN LAW

3.1 INTRODUCTION

At the start of the 20th century, naval artillery's growing range and the arrival of air warfare increasingly expanded the use of explosive weapons into domestic areas.[34] Notable examples include the bombing of London, Paris and other major cities during the Second World War, followed by the bombing of the Korean peninsula, Vietnam and other Southeast Asian countries, all of which had dreadful consequences for civilian population.

In recent decades, war has become even more urban, leading to the use of means and methods of warfare originally designed for open areas in cities. Bombs, missiles and firearms are not a source of concern when used against military targets on open battlefields, but they can be extremely devastating to civilians if used in populated areas.[35] For example, many urban areas of Afghanistan, Iraq, Libya, Pakistan, and Yemen were attacked with explosives in recent years. Current wars in Syria and Ukraine are no exception - it has become normal to launch explosives in densely populated areas.

Various Action On Armed Violence (AOAV) studies have shown that indiscriminate attacks are the order of the day. They tend to be frequently used in theatres of armed conflict,[36] which are increasingly fought in urban centres, and affect everyone near the explosion, including non-combatants. As a result, some 50 million people worldwide are suffering the effects of urban warfare: some run the risk of being injured by bullets and explosions, while others may end up with a permanent mental or physical disability, or even lose their life. These people require medical care, but healthcare services are often interrupted by bomb damage to infrastructure. The impact of some

34. UNIDIR, "Protecting Civilians from the Effects of Explosive Weapons: An Analysis of International Legal and Policy Standards", 2012, p.2, available at: https: //unidir.org/sites/default/files/publication/pdfs//protecting-civilians-from-the-effects-of-explosive-weapons-en-293.pdf (accessed October 11, 2022)

35. ICRC, "Explosive Weapons with Wide Area Effects: a Deadly Choice in Populated Areas", January 2022, available at: https://www.icrc.org/en/event/explosive-weapons-wide-area-effects-deadly-choice-populated-areas (accessed October 11, 2022)

36. Moyes, Richard, "Explosive Violence, the Problem of Explosive Weapons", Landmine Action, August 2009, pp. 22–25, available at: https://www.academia.edu/7343922/Explosive_violence_the_problem_of_explosive_weapons (accessed October 11, 2022)

explosive weapons can also prevent the production and distribution of food and other goods and services essential for civilian well-being. The use of explosive weapons in populated areas is one of the main causes of displacement in many conflicts. Explosive weapons may also have long-term impact on socio-economic and human development.[37,38]

The relevance of the relationship between the use of explosive weapons and IHL has increased since 2009, when the United Nations Secretary General identified the use of explosive weapons in populated areas as a fundamental challenge for civilian protection in armed conflict. The UN has subsequently called on states to avoid the use of high impact explosive weapons in populated areas and to prepare a political declaration that will commit them to developing policies against such use.[39] In March 2011, several civil society organizations came together to form the International Network on Explosive Weapons (INEW), raise greater awareness of the problem and find measures to solve it. The International Committee of the Red Cross (ICRC) publicly expressed its concern about the use of certain explosive weapons in densely populated areas, which it considers a major challenge to civilian protection under international humanitarian law (IHL).

Recently, the debate around the relationship between protecting civilians and the types of weapons used has led states, international organizations and NGOs to discuss the humanitarian consequences of the use of explosive weapons in populated areas.[40] More and more states are becoming interested in this humanitarian issue and call for measures to protect the civilian population that will avoid the use of explosive weapons in populated areas. Germany, Austria and Ireland are some of the countries that have made a political commitment to reinforcing the respect of IHL in urban warfare.[41]

This chapter examines explosive weapons from the perspective of IHL, covering their technical functions, and expanding on one of the main military arguments for maintaining these weapons in their arsenals and strategies - the wide area effect. In our view, the characteristics of explosive weapons that make discrimination between civilians and combatants impossible, make it impossible for them to respect IHL. Finally, this chapter introduces the campaign to ban these weapons in line with the principles of IHL, using the campaign to ban anti-personnel mines and cluster munitions, whose demands were met in binding treaties signed respectively in 1998 and 2008, as an example.

3.2 THE FUNCTION OF EXPLOSIVE WEAPONS

International experts discussed the indiscriminate impact of cluster munitions and other weapons scattered over wide areas as early as the 1970s.[42] Their debates on applying IHL to establish weapons restrictions or bans for humanitarian reasons led to the identification of "explosive weapons" as one of the categories of weapons likely to contravene IHL.

In 1973, explosive weapons were defined as those "which act through blast and fragmentation", and in the same debate, "blast weapons" were distinguished from "fragmentation weapons" according to their different degrees of explosion and fragmentation.[43] Explosive weapons are ammunition triggered by the detonation of an inbuilt, highly explosive substance that creates a blast and fragmentation.[44]

Explosions generally create a shockwave in the air produced by a highly explosive compound used to fill the weapon for detonation. These waves travel faster than the speed of sound,[45] so anyone in its way is unable to flee before the blast. Shockwaves are also characterized by overpressure, which can cause amputations and the destruction of infrastructure. Shockwaves can even accelerate objects near the site of the explosion, with obvious human consequences.

Explosive weapons are usually defined as materials with explosive characteristics produced for military purposes, as distinct from explosive substances with

37. ICRC, "Urban Services during Protracted Armed Conflict: A Call for a Better Approach to Assisting Affected People," 2015, p.7 available at: https://www.icrc.org/sites/default/files/topic/file_plus_list/4249_urban_services_during_protracted_armed_conflict.pdf (accessed October 11, 2022)
38. 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
39. 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
40. ICRC, "Explosive Weapons with Wide Area Effects: a Deadly Choice in Populated Areas", January 2022, available at: https://www.icrc.org/en/event/explosive-weapons-wide-area-effects-deadly-choice-populated-areas (accessed October 11, 2022)
41. Government of Ireland, Ministry of Foreign Affairs, "Protecting Civilians in Urban Warfare", 2021: https://www.dfa.ie/our-role-policies/international-priorities/peace-and-security/ewipa-consultations/ (accessed October 11, 2022)
42. UNIDIR, "Protecting Civilians from the Effects of Explosive Weapons: An Analysis of International Legal and Policy Standards", 2012, available at: https://unidir.org/sites/default/files/publication/pdfs//protecting-civilians-from-the-effects-of-explosive-weapons-en-293.pdf (accessed October 11, 2022)
43. ICRC, "Weapons that May Cause Unnecessary Suffering or Have Indiscriminate Effects, Report on the Work of Experts", 1973, pp. 19, 39–40, 45–46, available at: https://library.icrc.org/library/docs/DOC/DOC_00165.pdf (accessed on October 11, 2022)
44. ICRC, "Explosive Weapons with Wide Area Effects: a Deadly Choice in Populated Areas", January 2022, available at: https://www.icrc.org/en/event/explosive-weapons-wide-area-effects-deadly-choice-populated-areas (accessed October 11, 2022)
45. Krehl, Peter O.K, "History of Shock Waves, Explosions and Impact, A Chronological and Biographical Reference", 2009, pp. 29, 35, available at: https://beckassets.blob.core.windows.net/product/readingsample/146784/9783540206781_excerpt_001.pdf (accessed October 11, 2022)

civilian applications (for example, in agriculture). This is perhaps why a universal ban on blast and fragmentation weapons has never been proposed, and why experts have focused their work on explosive weapons with severe humanitarian repercussions and those with a military use or purpose.

3.3 THE WIDE AREA EFFECT

An explosive weapon's design, method of use and the circumstances of its use determine the size of its impact area.[46] Explosive weapons' imprecision and their simultaneous launch of multiple ammunition means they can produce numerous effects in a wide area. From a technical point of view, as well as causing injury and damage by blast and fragmentation, explosive weapons also harm by heat (thermal energy). The energy transmitted by these three mechanisms can cause death or injury to people and damage structures and other objects inside the impact area.[47]

Most conventional indirect fire weapons (such as bombs and rockets) are wide area explosive weapons, because of their lack of precision and wide destruction radius. This makes them unsuitable for use against specific targets in populated areas. Wide-area impacts are more noticeable in such areas due the proximity between military objectives and the civilian population.[48]

Although the area effects of explosive weapons in populated areas are reduced by modifying certain technical variables, such as type, size and launch system,[49] some such arms also have a wide impact area, due to their design and/or range.

Explosive weapons' predictably wide area effect raises serious questions about the desirability their use in populated areas, especially against specific targets.[50]

Safety guidelines for weapons arsenals mention notions such as "impact zone" and "safety distance" to underline that it is not easy to contain or localise explosions, and that both the blast and fragmentation risk injuring people and damaging buildings located a long way from the explosion. Human impact can be foreseen and calculated even for unforeseen explosive events in munitions arsenals.

Civilian damage increases with proximity to the blast: the greater the distance from the explosion, the safer people are. The International Ammunition Technical Guidelines (IATG) further confirm that the risk of civilian injury is directly related to proximity. "Separation distance" is the minimum permissible distance between a potential explosion site and an exposed site, where the risks of an explosive event are tolerable. To protect the civilian population, certain rules apply to places where people live, work or gather, or where there is major urban infrastructure. Here, very little civilian damage is tolerated: direct injury by explosion and the collapse of structures near inhabited buildings are not permitted. Finally, the use of "quantity-distance regulations" on the type and quantity of explosives and the distance from the site of the explosion are fundamental to determining the risk to people and buildings.

3.4 THE IMPOSSIBILITY OF PROTECTING THE CIVILIAN POPULATION

Civilians in populated areas receive inadequate protection against the effects of explosive weapons.[51] The harmful effects of explosive weapons and their socio-economic consequences are a particular human rights concern, because explosive violence can affect aspects including the right to family life and to not be subjected to inhuman treatment, to freedom of movement and residence, and the right to an adequate standard of living.[52]

It is also worth remembering something obvious: the right to life, which is essential to be able to exercise all other rights,[53] and is the right most affected by the

46. Cross, Kenneth et al., "Explosive Weapons in Populated Areas: Technical Considerations Relevant to their Use and Effects", May 2016, p.48
47. Cross, Kenneth et al., "Explosive Weapons in Populated Areas: Technical Considerations Relevant to their Use and Effects", May 2016, pp. 13, 16, 17, 49; Geneva International Centre for Humanitarian Demining (GICHD), "Explosive Weapons Effects: Final Report", February 2017, pp. 42–4, available at: https://www.gichd.org/fileadmin/GICHD-resources/rec-documents/Explosive_weapon_effects_web.pdf (accessed October 11, 2022)
48. ICRC, "Explosive Weapons with Wide Area Effects: a Deadly Choice in Populated Areas", January 2022, available at: https://www.icrc.org/en/event/explosive-weapons-wide-area-effects-deadly-choice-populated-areas (accessed October 11, 2022)
49. ICRC, "Explosive Weapons in Populated Areas: Humanitarian, Legal, Technical and Military Aspects, Expert Meeting", February 2015, pp. 5–6, 24–25, available at: https://reliefweb.int/report/world/expert-meeting-explosive-weapons-populated-areas-humanitarian-legal-technical-and (accessed October 11, 2022); ICRC, "International Humanitarian Law and the Challenges of Contemporary Armed Conflicts", 2015, pp. 50-51
50. ICRC, "Explosive Weapons with Wide Area Effects: a Deadly Choice in Populated Areas", January 2022, available at: https://www.icrc.org/en/event/explosive-weapons-wide-area-effects-deadly-choice-populated-areas (accessed October 11, 2022)
51. UNIDIR, "Protecting Civilians from the Effects of Explosive Weapons: An Analysis of International Legal and Policy Standards", 2012, p.2, available at: https://unidir.org/sites/default/files/publication/pdfs//protecting-civilians-from-the-effects-of-explosive-weapons-en-293.pdf (accessed October 11, 2022)
52. International Covenant on Economic, Social and Cultural Rights, UN document A/RES/2200A(XXI), 16 de diciembre de 1966, arts. 11–13, available at:https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-economic-social-and-cultural-rights (accessed October 11, 2022); Council of Europe, European Convention on Human Rights, 4 November 1950, arts. 3, 8, 11, and Protocol I, art. 1., available at: https://www.echr.coe.int/documents/convention_eng.pdf (accessed October 11, 2022)
53. Human Rights Committee, CCPR General Comment No. 6: Article 6 (Right to Life), 30 April 1982, available at: https://www.refworld.org/docid/45388400a.html (accessed October 11, 2022)

use of explosive weapons.[54] According to the ICRC, "the use of explosive weapons in densely populated areas exposes the civilian population and infrastructure to a greater and even extreme risk of death, injury or accidental or indiscriminate destruction", and this use poses major challenges for respecting IHL rules.[55]

IHL states that civilians "enjoy general protection against the dangers arising from military operations." To this end, IHL prohibits attacks which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated. The former are referred to as indiscriminate attacks, while the latter are known as disproportionate attacks.[56]

The parties to an armed conflict are obliged to check constantly that attacks do not affect the civilian population and civilian property. They are also obliged to make every possible effort to predict whether the attack will cause excessive damage to the civilian population in relation to the planned specific military advantage.[57] Nevertheless, there is a degree of vagueness as these rules say nothing about the required degree of diligence or level of precaution.[58]

Indeed, IHL rules include no agreement on the conditions in which arms may cause damage to civilians, or any description of the humanitarian consequences. States are responsible for regulating these and other issues at national level.

3.5 CAMPAIGNS TO BAN WEAPONS WITH INDISCRIMINATE EFFECTS APPLICABLE TO EXPLOSIVES

3.5.1 THE INTERNATIONAL CAMPAIGN TO BAN LANDMINES (ICBL)

For decades, anti-personnel mines have caused tens of thousands of accidents a year. They have a severe physical and psychological effect on inhabitants of "contaminated" areas, sometimes even causing death. They also prevent safe access to communities, homes and infrastructure, growing fields and water sources. Mines do not distinguish between a civilian or combatant, and the risk of explosion remains high until detonation by someone or something. Their indiscriminate humanitarian impact has been shown to affect the civilian population to a greater extent than soldiers or combatants, violating a basic principle of international humanitarian law.

Anti-personnel mines are explosive weapons designed to be detonated by human presence, proximity or contact. Once deployed on the surface, or hidden in the ground, they can remain active for years or decades, even after the armed conflict. These weapons' military objective is not to kill those who step on them, but to weaken the "enemy side" who have to deal with a wounded combatant. However, these weapons cause unacceptable harm, mostly to the civilian population. They often cause amputations, burns, blindness, deafness and even death, together with the psychological damage and trauma of a constant "silent threat," even when there is no active armed conflict. Perhaps their most reprehensible feature is, that they often affect children, partly because of their attention-grabbing design.

In response to the humanitarian disaster caused by these weapons, civil society organisations created the International Campaign to Ban Landmines (ICBL) in 1992. They conducted extensive work documenting testimonies of survivors of anti-personnel mine accidents worldwide and gathering the forces necessary to push the ban process at international level. The ICBL sent a clear message: there was only one possible solution to the problem of anti-personnel mines - a complete ban on these weapons.

Together with a few states, the ICRC, and the United Nations, the ICBL promoted what became known as the "Ottawa Process", which led to the adoption of the Anti-Personnel Mine Ban treaty in September 1997 in Oslo. The treaty was opened for signature in Ottawa, Canada, on 3 December that year. This Convention included the prohibition of the use, stockpiling, production, and transfer of anti-personnel mines, including

54. International Covenant on Civil and Political Rights, UN document A/RES/2200A(XXI), 16 December 1966, Art. 6, available at: https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-civil-and-political-rights (accessed October 11, 2022); Council of Europe, European Convention on Human Rights, 4 November 1950, art. 2
55. ICRC, International Humanitarian Law and the Challenges of Contemporary Armed Conflicts, document 31IC/11/5.1.2, October 2011, pp. 40–42, available at: https://www.icrc.org/en/doc/resources/documents/report/31-international-conference-ihl-challenges-report-2011-10-31.htm (accessed October 11, 2022)
56. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts (Protocol I), 8 June 1977, Art. 51(4–5), available at: https: //www.ohchr.org/en/instruments-mechanisms/instruments/protocol-additional-geneva-conventions-12-august-1949-and-0 (accessed October 11, 2022); Henckaerts, Jean-Marie and Doswald-Beck, Louise, Customary International Humanitarian Law, Volume I: Rules, ICRC, 2005, rules 11–14, available at: https://www.icrc.org/en/doc/assets/files/other/customary-international-humanitarian-law-i-icrc-eng.pdf (accessed October 11, 2022)
57. Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol II), 8 June 1977, Art. 57(1) and (2), available at: https://www.ohchr.org/en/instruments-mechanisms/instruments/protocol-additional-geneva-conventions-12-august-1949-and-0 (accessed October 11, 2022); Henckaerts, Jean-Marie and Doswald-Beck, Louise, Customary International Humanitarian Law, Volume I: Rules, ICRC, 2005
58. UNIDIR, "Protecting Civilians from the Effects of Explosive Weapons: An Analysis of International Legal and Policy Standards", 2012, available at: https://unidir.org/sites/default/files/publication/pdfs//protecting-civilians-from-the-effects-of-explosive-weapons-en-293.pdf (accessed October 11, 2022)

indications for their destruction and the necessary assistance to survivors – a demand submitted in person by those affected by these weapons.

Today, over 80% of the world's states have signed the treaty. According to the ICRC, "the legitimate trade in antipersonnel mines has virtually ceased to exist, and more than fifty-five million stockpiled mines have been destroyed, resulting in thirty-one State Parties having completely cleared their territory". Ottawa could therefore be said to be one of the most successful and accepted treaties in the field of humanitarian disarmament. One of the greatest achievements of this international campaign was to stigmatise landmines. This is reflected not only in the achievement of a ban treaty and the near disappearance of the trade in these weapons but also, and perhaps most importantly, by the fact that certain states engaged in armed conflicts have stockpiles of antipersonnel mines, but are not using them.

This campaign is still very active, and recently called on the international community to "finish the job" (*Completion challenge calling*, *Finish the Job*) before a decade from the Third Review Conference of the Treaty in 2014 has passed. The objective has always been to make the treaty universal: to ensure that it applies to every state and territory in the world; and that the Parties to the treaty fully comply with its principal obligations: to clear existing mines, destroy stockpiles and provide the necessary assistance to survivors.

3.5.2 THE CAMPAIGN TO BAN CLUSTER MUNITIONS (CLUSTER MUNITIONS CONVENTION - CMC)

Cluster bombs or *cluster munitions* are weapons that contain hundreds of smaller bombs – or submunitions. The parent bombs can be dropped from the air or fired from the ground, simultaneously affecting wide areas (the size of several football fields). Obviously therefore, they do not distinguish between combatants or civilians, and severely damage everything in the affected area. This feature is what makes them "indiscriminate" weapons.

Cluster bombs have caused and continue to cause unacceptable harm to civilians as they continue to injure, maim, and kill people in affected areas for decades. This affects livelihoods and causes suffering even long after the conflict has ended. Another problem with this type of weapon is their poor reliability: a high proportion of the submunitions remain unexploded on the ground, either due to technical failure or environmental issues.

Following the example of the ICBL, the Cluster Munition Coalition (CMC) international campaign was created in 2003. It aimed to eradicate cluster bombs, prevent their future use, end the suffering they cause and ensure respect for and compliance with victims' rights.[59] This civil society led campaign, promoted through humanitarian and non-governmental organizations, is active in some 100 countries and unites a network that carries out advocacy and public awareness-raising actions worldwide. It is worth noting significant participation by survivors of these weapons' explosions or accidents in the advocacy campaign. They are present not only as "beneficiaries" but also as actors and engines of these actions and the international process towards banning scatter munitions.

The path to the ban on cluster bombs is known as the "Oslo Process." It was initiated by Norway with the Oslo Conference on Cluster Munitions in February 2007. However, it could be seen as a continuation of the process initiated by the Ottawa Treaty and achieved by grassroots social organisations that culminated with the ban on anti-personnel mines.

Numerous civil society organisations under the Cluster Munition Coalition (CMC) umbrella, humanitarian organisations such as the International Committee of the Red Cross, the United Nations and the sponsoring states participated in the Oslo Conference negotiations. The Conference resulted in the signature of the "Oslo Declaration", according to which the 46 signatory states committed to achieve the signature of a binding international treaty banning the use, production, transfer and stockpiling of cluster bombs that cause "unacceptable suffering" to civilians by the end of 2008, that would in turn establish a frame of reference for the cooperation and assistance needed to ensure the provision of necessary medical care and rehabilitation to survivors and their communities, as well as to clear the affected areas, to destroy national cluster munitions stockpiles and to educate people in the dangers of these weapons.

The Oslo process concluded by approving the Convention on Cluster Munitions text, which was adopted in Dublin on 30 May 2008 and effectively opened for signature in Oslo on 3 December of that year, where 107 states signed it. This international treaty became effective in August 2010, as ratification by at least 30 states was required. To date, 110 states have ratified it, and 13 are signatories.

Again, it was thanks to the efforts of civil society organisations, this time under the international 'Stop Explosive Investments' campaign, that the treaty's

59. Cluster Munition Coalition, "About us", available at: http://www.stopclustermunitions.org/en-gb/about-us.aspx (accessed October 11, 2022)

signatory states included a ban on financing cluster munitions in their legislation and in some cases even prohibited their advertising. The Spanish government was the tenth state to extend the treaty's scope into its national legislation with the approval of Law 27/2015 of July 28, amending Law 33/1998 on the total prohibition of anti-personnel mines and weapons of similar effect, including the prohibition on financing.

However, cluster munitions are still used by countries such as the United States, Israel, Russia and Ukraine (after the start of the war in 2022). Their use continues to affect virtually all civilians, particularly children with an average age of 10 years.[60]

3.5.3 THE CAMPAIGN TO BAN EXPLOSIVE WEAPONS (INTERNATIONAL NETWORK ON EXPLOSIVE WEAPONS - INEW)

As we have seen, explosive weapons are a common form of violence against civilians. Every year, this type of weapon causes tens of thousands of victims, most of whom are civilians. A 2019 report by Action On Armed Violence showed that when these weapons are used in urban areas, 9 out of 10 victims are civilians and quantified the number of deaths and injuries caused by explosive weapons in the world that year as in 29,485. This investigation identified that 92% of all civilian victims were in urban areas, demonstrating how cities have increasingly become battlefields. At the same time, the conflicts in Iraq, Syria, Ukraine, and Yemen have shown the serious impacts of armed violence on infrastructure and the environment on which people depend, and how this generates great suffering and vulnerability.

The International Explosive Weapons Network (INEW) was created to address this situation at a meeting in Geneva, Switzerland, in 2011. This NGOs network demands immediate action to prevent the human suffering caused by the use of explosive weapons in populated areas, and works towards a global political commitment in this regard.

INEW members engage in research, advocacy and activism to promote greater understanding of the problems caused by the use of explosive weapons in populated areas and to find concrete measures to solve them. INEW members have documented the devastating impact of explosive weapons on civilians since the network was created. Many members work in countries affected by explosive weapons violence, providing development assistance, documenting the impact of violence, and assisting explosion victims.

To prevent the human suffering caused by the use of explosive weapons in populated areas, INEW primarily appeals to international political will to achieve: policies aimed at stopping the use of explosive weapons with wide-area effects in populated areas, the adoption of humanitarian and protective measures, and the development of stronger international standards.[61]

The INEW network is led by a Steering Committee whose members are: Action on Armed Violence, Article 36, Center for Civilians in Conflict, Handicap International, Human Rights Watch, Norwegian People's Aid, Oxfam, PAX, Save the Children, SEHLAC and Women's International League for Peace and Freedom.

Action on Armed Violence (AOAV) and Article 36, play prominent roles in the campaign. Both NGOs investigate the impact of armed violence on the world. They argue that explosive weapons should not be used in populated areas and therefore aim to change how they are used and introduce stricter rules to prevent damage to civilian populations in populated areas. As drafting international laws and standards takes time, and agreements require effective post-signature support, both entities provide leadership and expertise.[62] Their objectives therefore include strengthening collaboration within this civil society advocacy platform.[63]

Both the United Nations and the ICRC have recognised the damage caused by explosive weapons and have called for action on this urgent humanitarian problem, both in public statements and in official reports.[64] Over one hundred states and several multilateral organisations have expressed their concern about this situation. They have insisted on political declarations at high-level international conferences on strengthening the protection of civilians against the use of explosive weapons in populated areas, for example the declaration signed in Dublin in November 2022.[65] Under Ireland's leadership, INEW network work resulted in this Political Declaration on Strengthening the

60. Cluster Munitions Coalition, "Cluster Munitions Monitor 2022", August 2022, available at: http://www.icbl.org/media/3348469/CMM2022_Embargoed-copy.pdf (accessed October 11, 2022)

61. INEW, "About INEW," available at: https://www.inew.org/about-inew/ (accessed October 11, 2022)
62. Article 36, "What we do", available at: What we do - Article36 (accessed October 11, 2022)
63. Action on Armed Violence, "Explosive Weapons in Populated Areas: AOAV's policy explained", 13 November 2014, available at: Explosive WEAPONS IN POPULATED AREAS: AOAV's policy explained - AOAV (accessed October 11, 2022)
64. INEW, "Political Response," available at: https://www.inew.org/political-response/ (accessed October 11, 2022)
65. INEW, "Dublin International Conference to Adopt the Political Declaration on Strengthening the Protection of Civilians from the Humanitarian Consequences arising from the Use of Explosive Weapons in Populated Areas," available at:

https://www.inew.org/events/dublin-international-conference-to-adopt-the-political-declaration-on-strengthening-the-protection-of-civilians-from-the-humanitarian-consequences-arising-from-the-use-of-explosive-weapons-in-populate/ (accessed October 11, 2022)

Protection of Civilians From the Humanitarian Consequences Arising From the Use of Explosive Weapons in Populated Areas (see Annex 1). In particular, States are called upon to commit to national policies and military practices that do not harm civilians, to refrain from using wide-area explosive weapons in populated areas, and to collect and share data on the effects of explosive weapons. A total of 112 states and territories and 6 national groups (including the African states that agreed to the Maputo Communiqué and the Latin American and Caribbean states that agreed to the Santiago Communiqué) publicly acknowledged the damage caused by explosive weapons in populated areas in declarations. Although not legally binding, political declarations such as this carry significant weight in that they can help clarify the applicability of existing international law to a particular situation or outline rules of conduct beyond existing law. In this way, political declarations can positively influence state behaviour and contribute to the achievement of common objectives.[66]

66. Action on Armed Violence, "INEW Turns Ten - a decline of progress and challenges," March 31, 2021, available at: INEW turns ten – a decline of progress and challenges - AOAV (accessed October 11, 2022)

4. MYTHS ABOUT NEW WEAPONS' PRECISION AND LAWFULNESS UNDER INTERNATIONAL LAW

4.1 INTRODUCTION

Robots will define the wars of the future. They will change military strategies, combat plans, and operations. The use of robots in combat opens a debate on the political and social trivialisation of warfare, raising a double standard on the sacrifices that can be accepted by a society that demands military interventions for the attack and domination of *others* without human sacrifice and political risk on the part of the attackers.

Robotic weapons have varying degrees of autonomy in critical functions such as capturing and recognizing the environment, detecting and tracking potential targets, and selecting and identifying specific targets to attack or the attack itself. Their main goal is to replace human combatants in theatres of operations, which establishes the possibility of asymmetric wars with a much smaller number of own casualties.[67]

The perception of the possibility of wars without risk can allow military solutions to prevail over policies, lowering the thresholds for initiating military action. On the other hand, new techniques like artificial intelligence will make it easier to consider more abstract, distant wars, which can lead to increased military action and uncontrolled conflict escalation.

This chapter discusses military explosive detection and air defence systems, sentry weapons, guided bombs, and weaponized drones. It analyses the accuracy and ability of both remotely controlled/activated weapons and those using artificial intelligence systems to discriminate. This analysis is based on an inclusive definition of precision which we call *aggregate precision*, which includes aspects derived from the technological systems themselves and all aspects which may affect the harm to innocent civilians.

4.2 MILITARY ROBOTIC SYSTEMS

4.2.1 ROBOTS TO DETECT AND DISABLE MINES AND EXPLOSIVES

Robots play a key role in preventing the dangers potential detonations pose to human operators in the processes of detection, mapping and disabling of explosives and mines. However, the development of new demining technologies is a complex task, due to both the enormous diversity of land and environmental conditions mined and to the wide variety of

67. Ulgen, Ozlem, "World Community Interest Approach to Interim Measures on 'Robot Weapons': Revisiting the Nuclear Test Cases," New Zealand Yearbook of International Law, Vol 14, 2016, available at: http://www.open-access.bcu.ac.uk/5580/ (accessed 25 September 2022)

landmines.[68] These range from serially manufactured devices to plastic soft drink bottles and other hard-to-detect containers.[69]

In the case of robotic demining systems, effectiveness is more relevant than precision. But when the goal is to detect and remove 100% of the mines in a territory, effectiveness depends on multiple local factors and is not predictable. Manjula Udayanga Hemapala presents an interesting analysis of these systems' current effectiveness,[70] showing that they will require significant improvements.

4.2.2 AIR DEFENCE SYSTEMS

These systems are specifically designed to cancel or reduce the effectiveness of attacks from the air. They include missile defence systems and anti-aircraft systems. Air defence systems use radar to detect threats (missiles, rockets, or enemy aircraft) and a computer-controlled attack system that can automatically prioritise, select, and attack them. Automatic, autonomous, computer control is considered essential since the response speeds required are higher than that which human operators are capable of. Active protection systems are armed systems designed to protect weaponised vehicles against missiles or anti-tank rockets. They use the same basic principles as air defence systems.

Air defence and active protection systems are now deployed in many countries and are generally based on artificial intelligence techniques. Ethical analysis of their use should consider whether the system attacked is an uncrewed object or a crewed military aircraft. In the latter case, the considerations in the section on artificial intelligence apply.

4.2.3 ROBOTIC SENTRY WEAPONS

These surveillance and attack weapons can automatically detect, track and attack targets (people) at borders. They can be used as stationary weapons or mounted on several border security vehicles to fire at people seeking to cross "no go" areas. SIPRI identified three different models: Samsung's SGR-A1 (South Korea), SentryTech (Raphael, Israel) and Do-DAAM's Super Aegis II (South Korea).[71] The SGR-A1 can fire (under and without human supervision, depending on the users' choice) based on a heuristic system that processes images captured by its infrared sensors. However, its operation and precision are classified.[72]

4.2.4 GUIDED BOMBS

Also known as smart bombs, guided bombs find their target using a dedicated guidance system to increase accuracy and reliability. Besides radar-driven systems such as the Boeing AH-64D Apache Longbow Hellfire II, laser-guided, satellite-guided and hybrid bombs are most widely used. Laser-guided bombs can change course during their trajectory and are guided to their objective. An operator simultaneously uses a laser to illuminate the target from the ground or air. However, this system loses reliability in adverse visibility conditions. Satellite-guided bombs are guided by GPS signals and target pre-programmed geographic location targets. In some cases, the bombs carry a pre-programmed list of alternative geographical positions, allowing operators to switch from one to the other during the flight towards target. In the event of loss of the GPS signal or interference, some JDAM (*Joint Direct Attack Munition*) hybrid pumps can switch to inertial navigation, resulting in loss of accuracy but allowing their missions to continue. Finally, LJDAM (*Laser Joint Direct Attack Munitions)* hybrid bombs can become laser-guided when the GPS signal is problematic.

Guided bombs' circular error probable[73] range from 6 to 30 metres. In any case, their precision depends on the accuracy of their trajectory and the accuracy of the measurement system used to determine the location and any errors in establishing the target coordinates. And the latter relies heavily on intelligence, which is only sometimes accurate.

68. Ebada, Ahmed; Elmogy, Mohammed y El-Bakry, Hazem, "Landmines Detection Using Autonomous Robots: A Survey", 2014, International Journal of Emerging Trends & Technology in Computer Science (IJETTCS), Vol. 3, pp. 183-187: https://www.researchgate.net/publication/267638934_Landmines_Detection_Using_Autonomous_Robots_A_Survey (accessed 25 September 2022)
69. Wade, Lizzie, "Cleaning up the Killing Fields," 2018, Science, Vol. 360, no. 6387, on unconventional mines in Colombia and robot vehicles for demining, available at: https://www.science.org/doi/10.1126/science.360.6387.371?utm_source=TrendMD&utm_medium=cpc&utm_campaign=TrendMD_1 - See also: Bogue, Robert, "Detecting mines and IEDs: what are the prospects for robots?", 2011, Industrial Robot, Vol. 38 No. 5, pp. 456-460. See: https://doi.org/10.1108/01439911111153992 (pages accessed September 25, 2022)
70. Udayanga Hemapala, Manjula, "Robots for Humanitarian Demining", 2017, INTECH: https://www.intechopen.com/chapters/56656 (accessed September 25, 2022)
71. Boulanin, Vincent and Verbruggen, Maaike, "Mapping the Development of Autonomy in Weapon Systems", 2017, Stockholm, SIPRI, available at: https://www.sipri.org/sites/default/files/2017-11/siprireport_mapping_the_development_of_autonomy_in_weapon_systems_1117_1.pdf (accessed 25 September 2022)
72. Shayotovich, Eli, "Everything We Know About Samsung's Machine Gun Robots", 2022, Slash Gear, available at: https://www.slashgear.com/825074/everything-we-know-about-samsungs-machine-gun-robots/(accessed September 25, 2022)
73. The circular error probable (CEP) is a circle around the target such that the probability that the pump will hit within the target is 50%. In other words, 50 out of every 100 projectiles will strike inside the CEP.

4.3 WEAPONIZED DRONES

4.3.1 REMOTE CONTROL WEAPONIZED DRONES

Drones are flying robots. These programmable or autonomous objects have sensors and actuators and can perform complex tasks. They need a propulsion system, an energy store, various control systems, and remote communication with the base and people who operate them.

Remote-controlled drones are guided from hundreds or thousands of miles away by operators who see what the drones' cameras and sensors capture on their computer screens. They have been used in multiple war operations and targeted or extrajudicial killings by the United States and other countries in Afghanistan, Libya, Pakistan, Somalia, Syria, Ukraine, Yemen, and many other countries.

Using these weapons is presented as a way of waging a "clean" or "smart war" and as more acceptable for society as it produces no military casualties of its own. The drones are controlled from an office by military operators who study the situation and issue attack orders in a way not hugely different from that of computer games.[74] These soldiers wage war in shifts before returning to their daily tasks when their shift is over. All this generates serious psychological and moral distancing from their actions.

In technological terms, drones have the same precision as guided bombs. However, this type of weapon places great physical distances between the military operator, the weapon and their impact(s). This physical distancing can lead to moral distancing, with a diminished sense and awareness of responsibility. As Medea Benjamin points out,[75] when military operations are conducted through a distant video camera filter, the possibility of visual contact with the enemy disappears, diminishing the perception of damage. Markus Wagner explains[9] that disconnection and distance create an environment in which it is easier to commit atrocities.

All these technical aspects plus remote operation lead to much lower levels of accuracy than those claimed. Azmat Khan's research presents an overwhelming amount of data and evidence proving that the messages sent from wars waged with intelligent drones and precision bombs are simply a myth.[76] The documents Khan collected show flawed intelligence, erroneous targets, years of civilian deaths, and poor accountability. In more than half of the cases considered credible by the military, one or two civilians who entered the target area after the shooting was ordered were killed. But the military often describes these cases as inevitable accidents.

Table 1 shows some of the cases collected by Khan. It highlights the effects of considering the added precision, which includes both aspects derived from the technological systems themselves and the errors derived from their use (errors of sensorization, previous information, context and discrimination).

74. Rodriguez, Joaquin; Mojal, Xavi; Font, Tica and Brunet, Pere, "Nuevas armas contra la ética y las personas. Drones armados y drones autónomos" [New Weapons Against Ethics and People. Weaponized Drones and Autonomous Drones], 2019, Informe 39, Centro Delàs de Estudios para la Paz, pág. 23, available in Spanish at: http://centredelas.org/wp-content/uploads/2019/11/informe39_DronesArmados_RE_CAST_web_DEF-1.pdf (accessed 25 September 2022)
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76. Khan, Azmat, "Hidden Pentagon Records Reveal Patterns of Failure in Deadly Airstrikes," 2021, New York Times, December 18, 2021, available at: https://www.nytimes.com/interactive/2021/12/18/us/airstrikes-pentagon-records-civilian-deaths.html (accessed September 25, 2022)

Table 1. Detail of some lethal actions with an indication of their errors of added precision

Date	Place	Cause of errors	Civilian deaths	Description	Enlace
Jun 2015	Hawija, Iraq	Secondary explosions	70	Secondary explosions in attack on car bomb preparation workshop	https://www.nytimes.com/interactive/2021/us/c-6-2-15-iraq.html
Nov 2015	Ramadi, Iraq	Human - Video interpretation	2	Attack on a man carrying an "unknown heavy object" that turned out to be a child	https://www.nytimes.com/interactive/2021/us/c-11-12-15-iraq.html
Apr 2016	Mosul, Iraq	Location error	4	Civilian deaths in the alleged death of Neil Prakash, who was elsewhere	https://www.nytimes.com/interactive/2021/us/c-4-29-16-iraq.html
Jun 2016	Mosul, Iraq	Human - Video interpretation	4	The cameras did not detect people sitting, in the market or in the garden of their house	https://www.nytimes.com/interactive/2021/us/c-6-15-16-iraq.html
Jul 2016	Tokhar, Syria	Identification failed	120	Attack on a group of civilian dwellings, falsely identified as ISIS housing	https://www.nytimes.com/interactive/2021/us/c-7-18-16-syria.html
Nov 2016	Raqqah, Syria	Misinterpretation of sensors	9	Attack on an alleged explosives workshop, which was actually a cotton spinning workshop	https://www.nytimes.com/interactive/2021/us/c-11-21-16-syria.html
Jan 2017	Mosul, Iraq	Weapon technological error	8	Attack on a building supposedly housing ISIS fighters	https://www.nytimes.com/interactive/2021/us/c-1-13-17-iraq.html
Jan 2017	Mosul, Iraq	Identification failed	16	Attack on a supposed ISIS headquarters; in fact, they were three civilian houses	https://www.nytimes.com/interactive/2021/us/nc-1-6-17-iraq.html
Feb 2017	Mosul, Iraq	Identification failed	7	DoD video showing civilians wrongly identified as ISIS	https://www.nytimes.com/interactive/2021/us/c-2-25-17-iraq.html
Mar 2017	Tabqa, Syria	Incorrect intelligence information	10	Attack based on invalid intelligence reports, issued two months earlier	https://www.nytimes.com/interactive/2021/us/c-3-21-17-syria.html
Jun 2017	Raqqah, Syria	Misinterpretation of sensors	4	Civilians on motorcycles who were identified as motorcyclists in training	https://www.nytimes.com/interactive/2021/us/c-6-4-17-syria.html
Aug 2017	Kabul, Afghanistan	Misinterpretation of sensors	10	Instead of attacking a vehicle allegedly carrying bombs, a civilian vehicle was attacked with a family of 10 people	https://www.nytimes.com/2021/11/13/us/us-airstrikes-civilian-deaths.html

Source: Own elaboration from the work of Azmat Khan (see note 76)

4.3.2 DRONES AND WEAPONS BASED ON ARTIFICIAL INTELLIGENCE TECHNIQUES

Artificial intelligence is a very broad concept that includes a wide variety of techniques and algorithms. In more clear terms, AI is the intelligence that machines can have to perform tasks that typically require intelligent human capabilities. Artificial intelligence uses the ability to act like humans in the framework of specific tasks. It is a "skill" that allows machines to perform and solve tasks, to capture reality with sensors and to act. In this sense, it does not include the ability to reason or think. After the initial surge of knowledge-based algorithms, artificial intelligence (AI) has given rise to new algorithms called deep learning (DL) in recent decades. These deep learning AI systems (DL) must first learn from a vast amount of data before they can begin to act. They need a lot of information to learn.

But the level of failures and errors in algorithms and artificial intelligence systems is much higher and qualitatively different from that of classic algorithms. The data supplied to AI systems for learning is often skewed, which means these systems inherit bias from those involved in the data business and processes. As a result, AI systems reproduce these biases, reducing their degree of reliability. Moreover, their massively heuristic structure and a necessarily suboptimal learning process means that they suffer from intrinsically limited reliability. This limitation is inherent in their structure and implies a non-negligible probability of error.[77]

77. Brunet, Pere; Font, Tica; Rodriguez, Joaquin, "Robots asesinos: 18 preguntas y respuestas" [Killer Robots: 18 Questions and Answers], 2022, Working Paper, Centre Delas d'Estudis per la Pau, available at: http://centredelas.org/publicacions/robots-asesinos-18-preguntas-y-respuestas/?lang=es (accessed 26 September 2022)

Moreover, when deep learning based AI systems get the right result, we cannot know why they worked. But we need to find out why they fail when they are wrong. It is impossible for both users and designers of these systems to know the answer. This "black box problem" makes it virtually impossible to explain the decisions made by these systems. This lack of explainability is related to the opacity of the "black boxes" and the inability to detect internal failures that led to erroneous results. All this prevents them from being repaired, makes it impossible for us to avoid similar errors in the future, and severely limits accountability in the event of error.

Weapons systems, particularly weaponized drones, are incorporating analysis systems and decision-making based on artificial intelligence. This is said to be due to their precision, reliability, and suitability to military objectives. But this is all a myth. Experts know that the current algorithms are still prone to catastrophic errors, that they lack the capacity for reasoning and contextualization, and that they possess nothing remotely like human common sense.[78]

Unlike guided bombs, weaponized systems with artificial intelligence techniques cannot be characterized by a "circle of probable error" (with Gaussian probability distribution) because their errors are indiscriminate and not necessarily finite. They are in another dimension, another level in which their "decisions" may be incomprehensibly absurd. Their "circle of probable error" must include cases of indiscriminate error, and cease following the statistical laws of normal distribution, becoming highly populated with outliers. Therefore, using artificial intelligence to manufacture new weapons is dangerous, and machines that may have the power and ability to kill people are politically unacceptable and morally repugnant.[79]

4.3.3 SURVEILLANCE AND SWARM DRONES

Surveillance military drones, known as "*loitering drones*" or "*loitering munition*", are uncrewed aerial vehicles designed to attack ground targets with an explosive charge. They are equipped with high-resolution optical and infrared cameras to locate, monitor, and guide the vehicle to the target. One of the defining characteristics of loitering drones is their ability to "roam" in the air and over a previously defined area for a prolonged period before attacking, which allows for a decision on when and what to attack. They are not programmed to attack a specific target, but to seek (and, if necessary, attack) targets within an assigned geographical area.

For example, the Harop loitering drone can act under human control or in autonomous mode, depending on the activated software.

Swarms of military drones fly together in groups of tens, hundreds or thousands of mini-drones thanks to a specific communication system that allows them to interact. They are inspired by flocks of birds. They are extraordinarily resistant to accidents and adversity because any subset in the swarm can continue to carry out the assigned tasks in the case of problems.

Drone swarms and loitering drones are some of the attack systems most likely to incorporate autonomous decision-making elements based on artificial intelligence.

78. Lopez de Mantaras, Ramon, "El traje nuevo de la inteligencia artificial" [The New Costume of Artificial Intelligence], 2020, Research and Science, July 2020, available at: https://www.investigacionyciencia.es/revistas/investigacion-y-ciencia/una-nueva-era-para-el-alzhimer-803/el-traje-nuevo-de-la-inteligencia-artificial-18746 (accessed September 26, 2022)

79. Antonio Guterres, "The weaponization of artificial intelligence is a serious danger, and the prospect of machines that have the capacity by themselves to select and destroy targets is creating enormous difficulties, or will create enormous difficulties, to avoid the escalation in conflict and to guarantee that international humanitarian law and human rights law are respected in the battlefields. For me there is a message that is very clear – machines that have the power and the discretion to take human lives are politically unacceptable, are morally repugnant, and should be banned by international law." 2018, Address at the 100 Years of the End of World War I, November 2018.

4.4 SUMMARY OF NEW ROBOTIC WEAPONS

Leaving aside robotic mine and explosives deactivation systems, new robotic weapons can be grouped into the following types:

- Weapons with sensors designed to automatically attack unmanned military systems, such as air defence and active defence systems.
- Sensor-enabled weapons that automatically attack people and other targets using heuristic algorithms, such as sentry weapons and air defences against manned military aircraft.
- Weapons guided or pre-programmed by operators, such as laser-guided, satellite-guided, JDAM and LJDAM bombs.
- Remote-control weaponized drones.
- Weaponized drones with AI-based autonomy in critical functions such as capturing and recognising the environment, detecting and tracking potential targets, and selecting and identifying specific targets to attack, and with human supervision before the attack itself.
- Weaponized drones with AI-based autonomy in all critical functions: environment capture and recognition, potential target detection and tracking, selection and identification of specific targets, and the attack itself.
- Loitering weaponized drones and AI-based drone swarms where the location or duration of operation may be limited and changed by the operator during an operation
- Loitering weaponized drones and AI-based drones swarms in which the location or duration of operation cannot be limited, or weapons systems in which the parameters of the mission (time and space of operation, type of objective, etc.) could change during an operation without human approval.

Table 2 shows the components of added precision.

This table, which is corroborated by the examples shown in Table 1, shows that actual errors by new weapons are aggregates of various effects and deficiencies, including technological errors of the systems themselves, modelled in their circle probable errors, and also location errors, errors in the identification of specific targets, errors due to faulty prior information or insufficient or biased information fed to AI-based systems, errors of discrimination between civilians and non-civilians, or errors arising from false or poor understanding of the context in the target area. It also shows how AI based systems based are not explainable, and cannot account for cases of harm to innocent civilians (so-called collateral damage). In cases involving limited human supervision, automation bias[11] appears as a consequence of our unconscious tendency to value and accept the information and proposals that come to us from machines and computers.

Table 2. The components of aggregate accuracy in various new weapons

Type of weapon	Example	Technological systems errors	Location errors	Do they have a circle error probable?	Identification errors	Errors due to prior faulty information (including biases in the learning data)	Discrimination errors	Context errors	Explainable result?	Information for accountability?
Weapons with sensors ready to automatically attack unmanned military systems	Air defense and active defense	Low	Low	Yes	Low	—	—	—	Generally, yes	Generally, yes
Sensor-equipped weapons ready to attack people and other targets automatically and with heuristic algorithms	Sentryl weapons and air defense weapons against manned military aircraft	Low	Low	Yes	Yes	Yes	Yes	Yes	Generally, yes	Generally, yes
Operator guided or pre-programmed weapons	Laser-guided bombs, satellite-guided bombs, JDAMs and LJDAMs	Low	Low	Yes	Low	Yes	Yes	Low	Generally, yes	Generally, yes
Remote controlled weaponized drones	Attack drones operated by long-distance military personnel	Low	Low	Yes	Yes	Yes	Yes	Yes	Generally, yes	Generally, yes
Weaponized drones with AI-based autonomy in critical functions, with human supervision prior to actual attack	Drones with AI-based autonomy in critical functions such as environmental sensing and reconnaissance, detection of potential targets, tracking, and selection and identification of specific targets to be attacked	Unpredictable but avoidable	Low	No	Potential automation biases	Yes	Yes	Yes	No	No

Type of weapon	Example	Technological systems errors	Location errors	Do they have a circle error probable?	Identification errors	Errors due to prior faulty information (including biases in the learning data)	Discrimination errors	Context errors	Explainable result?	Information for accountability?
Armed drones with AI-based autonomy in critical functions, without human supervision of the attack itself	Drones with AI-based autonomy in all critical functions: environmental sensing and recognition, detection of potential targets, tracking, selection and identification of specific targets to attack, and the attack itself.	Unpredictable	Unpredictable	No	Unpredictable	Yes	Yes	Yes	No	No
Loitering weaponized drones and drone swarms with human limitation.	AI-based systems in which the location or duration of their operation can be limited and changed by their operator during an operation	Unpredictable but avoidable	Unpredictable	No	Unpredictable, but partially compensated by automation bias	Yes	Yes	Yes	No	No
Loitering weaponized drones and drone swarms without human limitation.	AI-based systems where the location or duration of operation cannot be limited, or weapon systems where mission parameters (time and space of operation, type of objective, etc.) could change during an operation without human approval	Unpredictable	Unpredictable	No	Unpredictable	Yes	Yes	Yes	No	No

Source: Own work.
The "—" symbol indicates that the concept is not applicable.

5. CONCLUSIONS

Banning weapons is a common and necessary practice encouraged by IHL and implemented by international and national bodies. This is especially true for weapons that conduct indiscriminate attacks, which cause superfluous damage or unnecessary suffering. The Martens Clause, which states that "in any armed conflict, the right of the Parties to the conflict to choose the methods or means of waging war is not unlimited", must apply to both conventional and new weapons with varying degrees of artificial intelligence.

There are countless limitations on the means and methods of warfare from the Geneva Conventions and many other rules, which seek to mitigate the unacceptable humanitarian damage caused by war. Weapons of mass destruction, cluster bombs and anti-personnel mines are examples of decisions taken in this direction. But there is still a long way to go, and the main victims of the war are civilians; indiscriminate attacks are common and violations of IHL are the norm.

Of all the weapons likely to be banned, the use of explosive weapons (glaring examples of which have been seen in the countless, terrible bombardments of recent wars that have ravaged, Afghanistan, Iraq, Libya, Syria, Ukraine, and Yemen,) is increasingly seen as in need of prohibition in international circles. The INEW campaign proposes a ban and has already paved the long way towards positioning the international community face to face with an undeniable decision to eliminate explosive weapons from arsenals, thereby reducing the use of devastating bombing as a military strategy.

It is clear that machines will play a decisive role in the future development of all war strategies. But physical distancing can lead to psychological and moral distancing and diminished awareness of responsibility for actions and attacks. Robotic weapons make wars easier to start and weaken moral, ethical, and psychological hurdles. And political representatives may wish to become more easily involved in the development of wars, as they will be under less pressure of social rejection from their citizens.

New weapons are designed to reduce the death of soldiers in combat. But this does not mean that fewer civilians die in wars. Unfortunately, new robotic weapons and the proliferation of low-cost and minimal-risk armed conflicts for attackers make it more likely that more people will die than in attacks using conventional weapons.

The war in Ukraine also proves that bombing civilians is the norm, including through the widespread use of robotic weapons converted into instrument of direct bombing. In 2022, war is carried out by bombing military and civilian targets because warfare involving

great violence implies a lack of distinction between civilians and combatants. Banning, stigmatising, and eliminating the use of explosive weapons in warfare, be these weapons old or new, obsolete or cutting edge, would be a major step forward in the struggle for peace and disarmament. Such a ban would also make it more difficult for any government to decide to wage war in order to achieve their political goals.

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ANNEX

Final Rev

Political Declaration on Strengthening the Protection of Civilians from the Humanitarian Consequences arising from the use of Explosive Weapons in Populated Areas

Part A: Preamble

Section 1

1.1 As armed conflicts become more protracted, complex, and urbanised, the risks to civilians have increased. These risks are a source of major concern and they must be addressed. The causes of these risks involve a range of factors, including the use of explosive weapons in populated areas, and pose complex challenges for the protection of civilians.

1.2 The use of explosive weapons in populated areas can have a devastating impact on civilians and civilian objects. The risks increase depending on a range of factors, including the weapon's explosive power, its level of accuracy, and the number of munitions used.

1.3 Blast and fragmentation effects, and resulting debris, cause deaths and injuries, including lifelong disabilities. Beyond these direct effects, civilian populations, particularly children, are exposed to severe and long-lasting indirect effects – often referred to as reverberating effects. Many of these effects stem from damage to or destruction of critical civilian infrastructure.

1.4 When critical civilian infrastructure, such as energy, food, water and sanitation systems, are damaged or destroyed the provision of basic needs and essential services, such as healthcare and education are disrupted. These services are often interconnected and, as a result, damage to one component or service can negatively affect services elsewhere, causing harm to civilians that can extend far beyond a weapon's impact area.

1.5 The damage and destruction of housing, schools, hospitals, places of worship and cultural heritage sites further aggravates civilian suffering. The environment can also be impacted by the use of explosive weapons, through the contamination of air, soil, water, and other resources.

1.6 The use of explosive weapons in populated areas can also result in psychological and psychosocial harm to civilians. The direct and indirect effects often result in the displacement of people within and across borders, and have a severe impact on progress towards the Sustainable Development Goals. Unexploded ordnance impedes humanitarian access, the return of displaced persons and reconstruction efforts, and causes casualties long after hostilities have ended.

1.7 Many armed forces already implement policies and practices designed to avoid, and in any event minimise, civilian harm during hostilities. These can help armed forces to better understand the anticipated effects of explosive weapons on a military target and its surrounding areas, as well as the associated risk to civilians in populated areas. However, there is scope for practical improvements to achieve the full and universal implementation of, and compliance with, obligations under International Humanitarian Law, and the application and sharing of good policies and practices. Broadening and strengthening initiatives designed to share policies and practices on protecting civilians can support the promotion and better implementation of International Humanitarian Law.

1.8 We recognise the importance of efforts to record and track civilian casualties, and the use of all practicable measures to ensure appropriate data collection. This includes, where feasible, data disaggregated by sex and age. When possible, this data should be shared and made publicly available. Improved data on civilian harm would help to inform policies designed to avoid, and in any event minimise, civilian harm; aid efforts to investigate harm to civilians; support efforts to determine or establish accountability, and enhance lessons learned processes in armed forces.

1.9 We stress the imperative of addressing the short and long-term humanitarian consequences resulting from armed conflict involving the use of explosive weapons in populated areas. We welcome the on-going work of the United Nations, the International Committee of the Red Cross (ICRC), and civil society on the impacts and humanitarian consequences arising from the use of explosive weapons in populated areas.

1.10 We also welcome work to empower, amplify, and integrate the voices of all those affected, including women and girls, and we encourage further research into the gendered impacts of the use of explosive weapons.

Section 2

2.1 We reaffirm our obligations under applicable international law, including International Humanitarian Law and International Human Rights Law, and related commitments. These include our obligations to hold accountable those responsible for violations, and our commitment to end impunity.

2.2 Existing International Humanitarian Law provides the legal framework to regulate the conduct of armed conflict. It is applicable to the use of explosive weapons in all situations of armed conflict, and to all parties to an armed conflict, including both State and non-State armed groups. We stress the importance of full compliance with International Humanitarian Law as a means to protect civilians and civilian objects and to avoid, and in any event minimise, civilian harm when conducting military operations, in particular within populated areas.

2.3 We recall the obligations on all parties to armed conflict to comply with International Humanitarian Law under all circumstances, including when conducting military operations in populated areas. We recall in particular the obligation to distinguish between combatants and civilians as well as between civilian objects and military objectives at all times in the conduct of military operations, and to direct attacks only against military objectives. We recall further the prohibitions against indiscriminate and disproportionate attacks, and the obligation to take all feasible precautions in attack and against the effects of attacks. We also recall the obligations under International Humanitarian Law related to the general protection of civilians against dangers arising from military operations, and allowing and facilitating rapid and unimpeded passage of humanitarian relief for civilians in need.

2.4 We condemn tactics designed to exploit the proximity of civilians or civilian objects to military objectives in populated areas, as well as the use of improvised explosive devices directed against civilians or civilian objects, and other violations of International Humanitarian Law, including by non-State armed groups, which further exacerbate the risks to civilians and are of grave concern.

2.5 While there is no general prohibition against the use of explosive weapons, any use of explosive weapons must comply with International Humanitarian Law.

2.6 We strongly condemn any attacks directed against civilians, other protected persons and civilian objects, including civilian evacuation convoys, as well as indiscriminate shelling and the indiscriminate use of explosive weapons.

2.7 We welcome the work of the United Nations Security Council and the General Assembly to strengthen the protection of civilians during armed conflict and to strengthen compliance with International Humanitarian Law. In this regard, we recall UNSC and UNGA Resolutions dealing with the protection of civilians in armed conflicts.

Part B: Operative Section

Committed to strengthening the protection of civilians and civilian objects during and after armed conflict, addressing the humanitarian consequences arising from armed conflict involving the use of explosive weapons in populated areas, and strengthening compliance with and improving the implementation of applicable International Humanitarian Law, we will:

Section 3

3.1 Implement, and, where necessary, review, develop or improve national policy and practice with regard to the protection of civilians during armed conflict involving the use of explosive weapons in populated areas.

3.2 Ensure comprehensive training of our armed forces on the application of International Humanitarian Law and on the policies and good practices to be applied during the conduct of hostilities in populated areas to protect civilians and civilian objects.

3.3 Ensure that our armed forces adopt and implement a range of policies and practices to help avoid civilian harm, including by restricting or refraining as appropriate from the use of explosive weapons in populated areas, when their use may be expected to cause harm to civilians or civilian objects.

3.4 Ensure that our armed forces, including in their policies and practices, take into account the direct and indirect effects on civilians and civilian objects which can reasonably be foreseen in the planning of military operations and the execution of attacks in populated areas, and conduct damage assessments, to the degree feasible, and identify lessons learned.

3.5 Ensure the marking, clearance, and removal or destruction of explosive remnants of war as soon as feasible after the end of active hostilities in accordance with our obligations under applicable international law, and support the provision of risk education.

3.6 Facilitate the dissemination and understanding of International Humanitarian Law and promote its respect and implementation by all parties to armed conflict, including by non-State armed groups.

Section 4

4.1 Strengthen international cooperation and assistance among armed forces, and other relevant stakeholders, including in the context of partnered military operations, with respect to exchanges of technical and tactical expertise, and humanitarian impact assessments, in order to develop good policies and practices to enhance the protection of civilians, particularly with regard to the use of explosive weapons in populated areas.

4.2 Collect, share, and make publicly available disaggregated data on the direct and indirect effects on civilians and civilian objects of military operations involving the use of explosive weapons in populated areas, where feasible and appropriate.

4.3 Facilitate the work of the United Nations, the ICRC and relevant civil society organisations collecting data on the impact on civilians of military operations involving the use of explosive weapons in populated areas, as appropriate.

4.4 Facilitate rapid, safe, and unhindered humanitarian access to those in need in situations of armed conflict in accordance with applicable international law, including International Humanitarian Law.

4.5 Provide, facilitate, or support assistance to victims - people injured, survivors, families of people killed or injured - as well as communities affected by armed conflict. Adopt a holistic, integrated, gender-sensitive, and non-discriminatory approach to such assistance, taking into account the rights of persons with disabilities, and supporting post-conflict recovery and durable solutions.

4.6 Facilitate the work of the United Nations, the ICRC, other relevant international organisations and civil society organisations aimed at protecting and assisting civilian populations and addressing the direct and indirect humanitarian impact arising from the use of explosive weapons in populated areas, as appropriate.

4.7 Meet on a regular basis to review in a collaborative spirit the implementation of this Declaration and identify any relevant additional measures that may need to be taken. These meetings could include the exchange and compilation of good policies and practices and an exchange of views on emerging concepts and terminology. The United Nations, the ICRC, other relevant international organisations and civil society organisations may participate in these meetings. We encourage further work, including structured intergovernmental and military-to-military exchanges, which may help to inform meetings on this Declaration.

4.8 Actively promote this Declaration, distribute it to all relevant stakeholders, pursue its adoption and effective implementation by the greatest possible number of States, and seek adherence to its commitments by all parties to armed conflict, including non-State armed groups.

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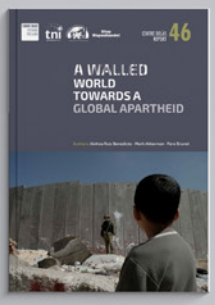

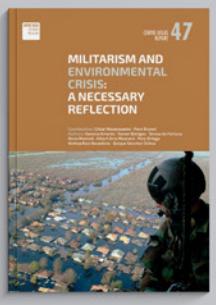

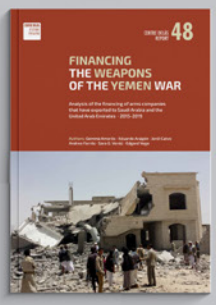

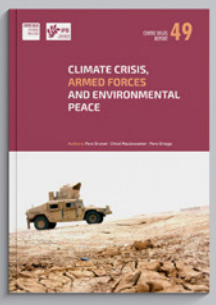

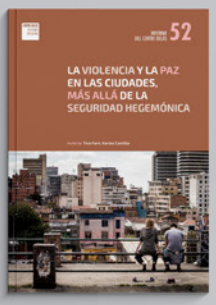

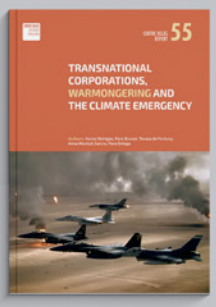

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