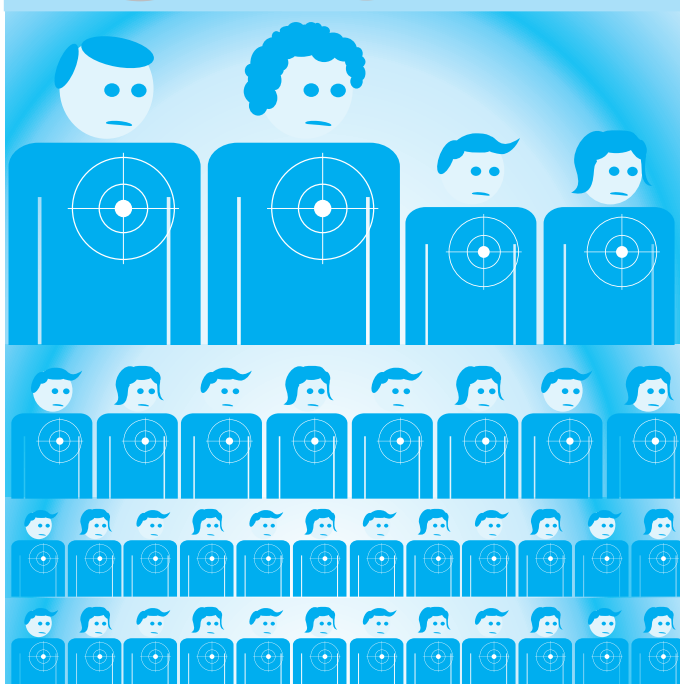


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CLUSTER MUNITIONS



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EDITOR'S NOTE

This issue of *Disarmament Forum* focuses on cluster munitions. For several years, government experts have touched upon cluster munitions in their discussions at the Convention on Certain Conventional Weapons (CCW) meetings in Geneva, mainly in the context of broader work on explosive remnants of war. While these talks have raised some useful issues, discussions have largely been restricted to technical aspects and general considerations of the adequacy of existing international humanitarian law given the effects of these weapons on civilians at the time of use and post conflict. But international concern is growing and has intensified following the recent use of cluster munitions in Lebanon. Concerned states and civil society groups are now considering different options and mechanisms to develop stronger responses to this weapon.

This issue of *Disarmament Forum* provides a survey of views of the humanitarian impacts of cluster munitions: it is intended as a resource for multilateral practitioners and the general public prior to and immediately following the crucial 2006 CCW Review Conference. Articles consider the humanitarian effects of these weapons, look at previous use and existing stocks, examine relevant international humanitarian law, offer personal reflections from a deminer and reflect upon the potential role of civil society.

Issue 1, 2007 of *Disarmament Forum* will address security, arms control, non-proliferation and disarmament issues related to missiles. It will assess the current situation and investigate any future prospects for control. Existing devices, such as the Missile Technology Control Regime and the Hague Code of Conduct, UN Security Council resolution 1540 and the Proliferation Security Initiative are all attempts to ameliorate some aspects of missile-related problems, as are the various bilateral confidence-building measures already in operation. Much remains to be done, however, as cruise missiles are largely unregulated, implementation of existing mechanisms is progressing but leaves much to be desired, and research, development, deployment and international cooperation on active anti-ballistic missile defences continue.

Following two United Nations panels of governmental experts on missiles in 2002 and 2004 (the latter of which failed to adopt a consensus report) and an expert study, which is to be conveyed by the UN Secretary-General to the General Assembly at its current session, a third panel of governmental experts is due to be convened in 2007. The next issue of *Disarmament Forum* is conceived with a view to providing food for thought both for that panel and for the journal's broader readership.

With the delivery of its Final Report, UNIDIR's two-year project "European Action on Small Arms and Light Weapons and Explosive Remnants of War" has been completed. The Final Report offers suggestions as to how the European Union might deploy the full range of its capabilities to enhance overall effectiveness in actions relating to small arms and explosive remnants of war. The project was principally funded by the European Commission at the request of the European Parliament, with

additional funding from the Government of the United Kingdom. (See UNIDIR Focus for more on the Final Report.)

The project “International Assistance for Implementing the United Nations Programme of Action on Small Arms” has also delivered its Final Report. The project mapped out the degree of multilateral assistance currently being provided to implement the UN Programme of Action on a geographic and thematic basis and categorized the different types of assistance offered. The analysis allows donors and implementing agencies to recognize and target gaps and areas of specific need, while ensuring that other issues and recipient countries are not neglected. The report will help donors and organizations to coordinate with each other to ensure the compatibility of projects, and will alert donors and implementing agencies to competing or duplicated efforts.

The Institute is pleased to announce two new projects. The two-year “Security Needs Assessment Protocol” aims to build a new system within the United Nations for the timely provision of culturally specific security-building knowledge for field managers who are designing and planning security-related projects. It aims to complement the work of UN and World Bank Joint Assessment Missions by contributing security analysis, and to assist field staff in the delivery of security, development and humanitarian assistance. This project is supported by the Governments of Sweden and of the Netherlands. (See UNIDIR Focus for details about the project.)

The second new project will focus on the humanitarian impact of cluster munitions. While there is a growing body of literature on this topic, work in this area is often limited to examples of use by a few countries or coalitions, and to only a small number of countries where information is easily obtainable. UNIDIR is undertaking an eight-month project to expand the data available on cluster munitions by looking at use by other actors and in countries where little information is currently available. The project, supported by the Governments of Canada, New Zealand and Norway, will produce a report documenting the findings, providing details of the two case studies and offering policy recommendations.

On 21 September 2006, UNIDIR hosted a seminar, with speakers David Atwood, Rebecca Johnson and Jozef Goldblat, to mark the tenth anniversary of the opening for signature of the Comprehensive Nuclear-Test-Ban Treaty (CTBT). The CTBT—negotiated at the Conference on Disarmament and opened for signature on 24 September 1996 in New York—has since been signed by 176 states and ratified by 135 states.

Kerstin Vignard

SPECIAL COMMENT

There is no longer any doubt that the use of cluster munitions causes untold human suffering. Unless progress is made in the efforts to establish an international, legally binding instrument regulating the use of cluster munitions, these heinous weapons may become an even greater humanitarian problem than anti-personnel mines used to be.

In the view of the Norwegian government, cluster munitions violate the Geneva conventions' prohibition against indiscriminate weapons and the principle of proportionality, that is to say they cause damage that is disproportionate to the military advantage gained. The Norwegian government therefore advocated an international prohibition against the use of such weapons in its inaugural address to parliament. We will actively promote a prohibition against those types of cluster munitions that cause great humanitarian suffering and pose a major obstacle to development.

Civil society, humanitarian organizations, parliamentarians and United Nations representatives are also demanding that states take responsibility for dealing with this humanitarian challenge now. It is therefore most timely and appropriate that this issue of *Disarmament Forum* is dedicated to this topic.

An international prohibition against certain types of weapons in the category of cluster munitions is urgent for at least three reasons: first, because of the immediate danger posed by such munitions to civilians due to their inaccuracy and wide dispersal pattern; second, because of the long-term danger posed by the enormous number of unexploded submunitions left behind after conflicts, which constitute de facto anti-personnel mines; and third, because of the risk that a generation of "outdated", unsophisticated cluster munitions could be dumped on the world market—as rich countries obtain better cluster munitions, today's munitions, with their high failure rate and poor accuracy, may be dumped in other countries.

Billions of cluster munitions are stockpiled around the world today. They could create a problem that surpasses that posed by landmines. Every year more than US\$ 400 million is spent on humanitarian mine clearance, including measures to reduce the humanitarian consequences of the use of cluster munitions. The only way we can prevent the huge numbers of cluster munitions stockpiled today from being used in the future, and the insuperable humanitarian challenge that this would create, is to establish an international instrument prohibiting such weapons before it is too late.

Current international efforts to regulate the use of cluster munitions have not achieved much. Little progress has been made since the issue was first put on the international agenda some years ago.

For its part, the Norwegian government has established a temporary moratorium on the use of cluster munitions. Norway will continue to play an active role in efforts to launch real negotiations on an international agreement that will effectively address both the immediate and the potential humanitarian problem we are facing; we will listen to other states and international and humanitarian

organizations. We see that there is increasing pressure to take action, and for good reason, considering recent events in the Middle East. We must take advantage of this pressure to promote broad international cooperation between states and humanitarian organizations.

Today, no serious actors advocate a total prohibition against all kinds of what might be classified as cluster munitions. We share the view that it should be possible to reconcile what is acceptable from a humanitarian point of view with what is militarily necessary and politically feasible in order to prevent the unacceptable humanitarian consequences of cluster-munition use. This will be our basis for finding a solution—as it was for our work that led to the prohibition against anti-personnel mines in the 1990s. Once again, we need to mobilize both governments and grassroots organizations in a broad campaign.

We must not allow the lack of interest in some quarters to prevent small and medium-sized countries from initiating a process to fulfil our humanitarian obligations. We will therefore continue to work toward an international prohibition against unacceptable types of cluster munitions. The time is ripe to intensify our efforts.

Jonas Gahr Støre

Minister of Foreign Affairs of Norway

The humanitarian effects of cluster munitions: why should we worry?

John BORRIE and Rosy CAVE

There is growing international concern about the humanitarian effects of cluster munitions, particularly following their use in Afghanistan, Chechnya, Iraq, Kosovo and most recently in Lebanon. Research indicates that, in the limited set of conflicts in which they have been used, submunitions from cluster weapons are a disproportionate hazard to civilians, both at the time of their use as well as post conflict.¹

This article provides a basic introduction to cluster munitions and their humanitarian effects. What is a cluster munition? What are cluster munitions for, and how have they actually been used? Why is concern about them growing among governments, United Nations agencies, humanitarian workers in the field and non-governmental organizations (NGOs)? Perhaps most importantly, why should political priority be given to addressing the problems that cluster munitions pose for civilians when there are so many other pressing problems worthy of attention at the international level?

Cluster munitions: what are they good for?

Cluster munitions and their components have been variously defined, and there is no universally agreed definition of a cluster munition. It is, however, generally accepted that a cluster munition is a container from which submunitions are scattered. Cluster munitions are often designed to be multipurpose weapons, effective against a range of targets, including armour, materiel and personnel. Although most people probably think of cluster weapons as munitions delivered by air, they can also be ground launched: besides artillery shells containing submunitions, systems are also in use that deploy from rockets and mortar shells.² When air delivered, the submunitions are known as bomblets; when ground launched, they are known as grenades. These submunitions are the dangerous parts of a cluster munition because they explode and cause damage through blast and fragmentation.

The main feature of a cluster munition is its explosive effect over a wide area: cluster munitions were originally invented to break up concentrations of armoured vehicles and infantry. They were first used in the Second World War by a number of forces, and were seen as a weapon with potential. Cluster munitions were further developed during the Cold War by both North Atlantic Treaty Organisation (NATO) and Warsaw Pact forces. Ostensibly, the weapons were for use in a “clean” military environment:

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to help settle the desperate battle widely predicted if concentrations of Warsaw Pact armour and troops flowed westward across the German plain.

In reality, matters never came to that. As a former senior British military commander recently observed:

...the last real tank battle known to the world, one in which the armoured formations of two armies manoeuvred against each other supported by artillery and air forces, one in which the tanks in formation were the deciding force, took place in the 1973 Arab–Israeli war on the Golan Heights and in the Sinai Desert ... [U]se of the tank as a machine of war organized in formation, designed to do battle and attain a definitive result, has not occurred during three decades. Nor, for that matter, is it ever likely to occur again, for the ways in which armoured formations could and should be used are no longer practical.³

Rather, almost from the very outset, the use of cluster munitions posed considerable risk to civilians. In 1943, the German air force dropped SD2 submunitions (referred to as “butterfly bombs”) on the British port of Grimsby. Only around one-quarter of the 1,000 submunitions dropped exploded on impact or within half an hour. These killed 14 people and ignited numerous fires. The rest of the bomblets lay unexploded on roads and roofs and caught in trees and hedges. Within an hour of the air raid “all clear” signal, another 31 people were killed—and many more injured—as they interacted with these bomblets. Despite immediate action by the authorities it took more than 10,000 hours of work over the next 18 days to clear the submunitions and re-open the port.⁴

Later, huge numbers of submunitions were dropped by American-led forces on civilian villages and fields and in the jungle in South-East Asia in the 1960s and 1970s to try to stem the flow of military aid to North Viet Nam. In Afghanistan, cluster munitions were widely used by the Soviets after their invasion in 1979, with many unexploded submunitions remaining a hazard in late 2001 and early 2002, when cluster munitions were again used, this time by the United States against the Taliban. Reports emerged in 2001 of a high risk of civilian casualties due to confusion between unexploded American BLU97s, which are yellow, and yellow food-aid parcels.⁵ Cluster bombs were also dropped on Kosovo in 1999, at well-documented humanitarian cost to civilians.⁶

In both conflicts with Iraq (in 1991 and 2003), American-led forces made extensive use of the ground-launched Multiple Launch Rocket System (MLRS), which is able to deploy a volley of rockets, each containing hundreds of submunitions—such as the M26 dual-purpose improved conventional munition (DPICM) with a total of 644 M77 submunitions known as “steel rain”—from the back of a truck. The M26 was also used more recently in Lebanon along with other types of cluster munitions, including the older BLU63, which had been used there 30 years previously as well. Less widely publicized has been the extensive use of cluster munitions by Russian forces in their military operations in Chechnya. Cluster bombs have also been used in a number of other conflicts, including in Sudan and in the war between Eritrea and Ethiopia, in which a refugee camp was cluster-bombed in 2000. These uses, especially in areas in which civilians are concentrated, have persistently raised questions about whether existing international humanitarian law sufficiently regulates the use of cluster munitions because of the negative, even unacceptable, impact they have on the lives and livelihoods of civilians.

What humanitarian problems do cluster munitions cause?

Cluster munitions pose a humanitarian threat to civilians both at the time of use and after conflict has ended because of their wide-area effect, and the inaccuracy and unreliability of the submunitions.

At the time of use, cluster munitions can kill and maim civilians. After use, submunitions that have failed to explode threaten civilians who come into contact with them, either accidentally or deliberately.

Many experts seem to agree that, unlike, say, anti-personnel mines, cluster munitions are not *inherently* indiscriminate. But, by their very design, cluster munitions have an indiscriminate wide-area effect that can make them difficult to target accurately. And, as has been described above, in practice, cluster munitions have often been used in the vicinity of civilians, against fixed targets, isolated vehicles or perhaps in a counter-fire role.

By their very design, cluster munitions have an indiscriminate wide-area effect.

If a submunition fails to explode as intended, it poses an explosive hazard to anyone—whether soldier or civilian—who might encounter it (and reduces the overall military effectiveness of the cluster munition). Manufacturers of cluster munitions have customarily claimed that their weapons are highly reliable. However, terrain and weather conditions, the age of the components, the explosive mixture in the submunitions, or the way the submunitions have been stored or handled can all affect reliability considerably. This means that, in practice, the reliability of submunitions is much lower than the figures proclaimed by manufacturers and recited by purchasing governments, as shown by the sheer number of so-called “duds” remaining after conflicts have ended. In Kosovo, for instance, the International Committee of the Red Cross (ICRC) reported that, based on conservative NATO estimates, “it can be assumed that around 30,000 unexploded bomblets remained after the conflict, of which less than a third are known to have been cleared in the following year”.⁷

Evidence from Afghanistan, Kosovo and elsewhere shows there is a much greater risk of being killed by a submunition than by an anti-personnel mine.⁸ This is because, unlike anti-personnel mines, cluster submunitions are designed to kill. At the time of the explosion, it is also probable that a greater number of people will be affected than if an anti-personnel mine explodes because submunitions contain more explosive power and metal fragmentation. The ICRC also observed that those killed or injured by submunitions in Kosovo were 4.9 times more likely to be under 14 years of age than victims of anti-personnel mines, and noted that “this may be due to the fact that such submunitions are often brightly coloured, lying on the ground, and assumed to be duds”.⁹

For survivors of submunition explosions, access to medical care is often limited. In Lao People’s Democratic Republic (PDR), for instance, some areas affected by unexploded submunitions are several hours’ walk from the nearest paved road, let alone the nearest medical facility.¹⁰ And hospitals that are equipped to deal with the most severe injuries may be even further away. Many people do not have their own transport. Many simply never make it. These long distances also mean that it is hard to receive the physiotherapy, psychosocial support and skill retraining needed for rehabilitation and socio-economic reintegration. Women and girls may experience even greater difficulties in accessing treatment, because the medical and rehabilitation staff are often men, who may face restrictions in treating female patients.¹¹

Those who survive a submunition explosion may suffer serious injuries such as loss of limbs, loss of sight and metal fragments in the torso and internal organs. They may also suffer psychological trauma. Many adults are unable to return to their jobs, either having to retrain or remaining unemployed. A study of the impact of unexploded ordnance (UXO) accidents on children in Lao PDR, which included cluster submunitions, found a range of disorders, including flashbacks, nightmares, poor memory, lack of concentration and behavioural changes.¹²

The threat or perceived threat of unexploded submunitions and other explosive remnants of war (ERW) can result in a persistent sense of insecurity and fear, which hampers efforts to rehabilitate people and to build confidence in peace in a post-conflict environment.¹³ The threat of UXO prevents or makes it extremely risky for people to access resources such as agricultural land and water, or to

attend schools and religious centres. Peacekeeping missions and deminers are also under threat from unexploded submunitions, and emergency relief and longer-term sustainable development programmes can also be impeded by their presence.

Some people deliberately handle unexploded submunitions in order to move them out of harm's way for other members of the community or to extract scrap metal and explosive for sale, as seen in Cambodia, Lao PDR and Viet Nam, and now in Lebanon. Economic pressure often forces people to use land that is still contaminated by unexploded submunitions. In some cases, people may change the use of the land to try to reduce the risk of making contact with subsurface submunitions that is posed by digging and ploughing. However, this usually means downgrading land use to a lower-income activity, such as switching from cash crops to hay in Kosovo.¹⁴ Contaminated land also sometimes directly affects larger scale economic development, such as proposed eco-tourism initiatives in Albania.¹⁵

The additional economic pressure of restricted land use is often combined with others: a loss in income from losing a breadwinner to a "dud" submunition, medical costs, the inability to attend school, and limited access to resources such as firewood and water. All serve to increase the economic burden on the family, the community and the local economy, often among populations that are the poorest of the poor.

Addressing the humanitarian effects of cluster munitions

INTERNATIONAL RESPONSES TO CLUSTER MUNITIONS

Humanitarian mine action programmes have been dealing with unexploded submunitions for decades. For instance, in mine clearance, *all* unexploded ordnance must be dealt with in order to return land to safe use, risk education deals with landmines and unexploded ordnance, and survivor assistance does not discriminate between those injured by landmines and those injured by other explosive remnants of war. The problem is that, until recently, there was little recognition among governments that submunitions pose a particular hazard to civilians where they have been used, and that submunitions pose particular risks for deminers.

International concern about the hazards of cluster munitions to civilians is not new, first emerging in the early 1970s in response to their use in South-East Asia. This and related concerns about four other weapon types, raised by Sweden, the ICRC and others, eventually helped lead to a new protocol to the Geneva Conventions on the protection of victims of international armed conflicts in 1977 and the 1980 Convention on Certain Conventional Weapons (CCW).

But cluster munitions were not specifically dealt with, and despite continued discussion among governments and various reports, little more happened on the issue until the late 1990s. The catalyst for change then was growing awareness of the humanitarian impact of unexploded ordnance, particularly after the use of cluster munitions in Kosovo. Cluster munitions and other forms of what would become known as explosive remnants of war had a greater impact on civilians in Kosovo than had been foreseen; it also became apparent that the ERW problem was greater than previously thought in places like Sudan, Iraq and Afghanistan.¹⁶

Pressure from NGOs and the ICRC began to build and, in late 2001, CCW states parties agreed to set up a Group of Governmental Experts to work on the issue of "ways and means to address" ERW (they also agreed a separate mandate to look at anti-vehicle mines, referred to euphemistically as "mines other than anti-personnel mines").¹⁷ No provisions were made to look at cluster munitions

specifically, however, apart from discussing “technical improvements and other means for relevant types of munitions, including submunitions, which could reduce the risk of such munitions becoming ERW”.¹⁸ In late 2003 the CCW agreed a new, legally binding protocol on ERW, Protocol V.¹⁹ This deals with the post-conflict effects of ERW and has provisions on information exchange, marking and fencing of hazardous areas, and assistance and cooperation between parties to the protocol, among other things.²⁰ While its generic measures capture some post-conflict aspects of the humanitarian problems created by unexploded submunitions, it deals with ERW generally, so there are no specific measures on cluster munitions.

The protocol will enter into force in November 2006, but it will not be applied retroactively, which means that areas already affected by unexploded submunitions and other ERW will not fall under its obligations. Parallel discussions on the implementation of and compliance with existing international humanitarian law (IHL) and on possible preventive measures regarding the design of certain types of munitions, including cluster submunitions, have been ongoing within the CCW framework, but no real progress has been made to date.

At the same time as the CCW Group of Governmental Experts was established, a number of NGOs began working in a more coordinated manner in response to the humanitarian problems caused by cluster munitions and other explosive remnants of war. In 2003, the Cluster Munition Coalition (CMC) was founded. The CMC was originally committed to campaigning on the humanitarian impacts of explosive remnants of war as a whole, but is now more focused on the specific problems of clusters munitions.²¹ As civil society momentum has built, some inroads have been made in engaging governments.²² Belgium has banned cluster munitions and Norway has put a national moratorium in place. Austria, Denmark, Holy See, Ireland, Jordan, Mexico, New Zealand, Norway, Spain and Sweden have all called for a legally binding international instrument on cluster munitions, with some of them specifically calling for a negotiating mandate to be agreed at the CCW’s Third Review Conference in late 2006. However, some other states, like the United States, have opposed this call and it seems unlikely to succeed.

REFRAMING THE ISSUE AS HUMANITARIAN ACTION

The Third Review Conference of the CCW will be an important test of whether concerns about the humanitarian impact of cluster munitions will be recognized and acted upon. However, considering its previous and ongoing failures to fully address the humanitarian aspects of weapons, be they anti-personnel mines, anti-vehicle mines or cluster munitions, a cynic might argue that it is unrealistic to expect the CCW to deal with cluster munitions successfully.

The CCW originates in international humanitarian law and its role is to look at specific weapons that cause humanitarian concerns. In practice, this weapon-specific approach has resulted in discussions being biased toward ensuring that the military utility of the weapon is retained, and away from considering *all* the aspects of the weapon and how they relate to one another.

Since 2001, issues related to cluster munitions have been divided into the negotiation of the modest post-conflict generic provisions of the ERW protocol and various discussions on preventive measures to reduce ERW (for instance, on reliability, targeting or whether existing IHL rules and principles are adequate). The emphasis has been on improving the design of the weapons and possible technical fixes to the problems, rather than comprehensive consideration of all the issues related to cluster munitions, both during time of use and afterward. As long as the CCW continues to regard cluster munitions in this fragmented way, there can be no effective response.

Technical fixes cannot eliminate the humanitarian problems created by cluster munitions. This is because reliability problems cannot be resolved purely by the design or manufacture of submunitions. As we have seen, the *actual* reliability of a submunition is dependent on the context in which it is used.²³ It is impossible to create a 100% reliable weapon, and since each cluster munition can release hundreds of submunitions, even a very low failure rate would create a high number of “duds”. This is illustrated by the newer M85 DPICM submunitions used by Israel in Lebanon: many failed to explode as intended despite being fitted with a self-destruct mechanism that is supposed to significantly reduce the failure rate.

Targeting problems could perhaps be resolved technically, by using sensor-guided submunitions that can discriminate between civilians and legitimate targets. In this case, it is possible that the improvements would mean that the weapons would no longer classify as cluster submunitions.

However, the likelihood of such a technical fix actually being implemented is not high: governments at the CCW often veto very modest technical improvement measures on grounds of costs. Very few states would be able to afford the new weapons—China and the Russian Federation have already said that they would not be able to replace all their submunitions—and even those that can afford them will be loath to “waste” their stockpiles of older-generation weapons. Despite a new standard for reliability, the United States permits use of all those older submunitions it has in stock.²⁴ In the end, the dangers of cluster munitions could be even greater, as there are simply more available.

Nonetheless, ongoing discussions at the CCW mean that governments have been able to say that they are working on cluster-munition issues—without the risk of rapid international movement toward practical action. States in favour of taking measures on cluster munitions are making little headway at the CCW because the arms control diplomats that administer the treaty usually insist on consensus, although the CCW does not require consensus decision making. Therefore, the states that are determined not to allow humanitarian concerns to trump military arguments by inhibiting the retention and use of cluster munitions are effectively able to prevent any progress.

Instead of looking through the prism of weapon-specific issues, it makes more sense to view cluster munitions in terms of their effects—effects that are beyond the capacity of designers or manufacturers to address. Continued use of cluster munitions—even with technical improvements—will result in more civilian casualties, not only causing death and injury, but also causing a longer-term socio-economic impact on individuals and communities. Consideration of these humanitarian effects would make it imperative for the international community to take action by creating new international humanitarian law, as it did for anti-personnel mines.

States have obligations under international humanitarian law to protect civilians during war. Attacks that strike military objects and civilians or civilian objects without distinction are considered indiscriminate and are prohibited.²⁵ Without going into a detailed legal analysis (which is taken up by Louis Maresca elsewhere in this issue), damage done during cluster-munition strikes raises concerns under what is known in IHL as the *proportionality test*, which balances military advantage and civilian impact. As Human Rights Watch has observed:

Certain kinds of cluster munition attacks tend to tip the scale toward being disproportionate. Strikes in or near populated areas are particularly problematic because when combatants and civilians commingle, civilian casualties are difficult to avoid. ... [A] cluster munition strike on a populated area should be considered indiscriminate under the law, unless the military, which should bear the burden of proof, could show the military advantage of a particular strike outweighed the civilian harm.²⁶

Obviously, this burden of proof would not be easy to achieve, and major users like the United Kingdom and the United States resist such a notion as unfeasible, while at the same time claiming to

meet its requirements. For their part, most governments are willing to go so far as to admit that in conflict accidents sometimes happen—a cluster bomb goes astray or military forces occasionally target civilians mistakenly. However, many are reluctant to accept the factual evidence that such cases are more than mere blips, but represent a trend stemming from the problematic nature of the weapon itself.

Governments also argue that cluster munitions are a useful—even vital—weapon from a soldier's perspective. But it is not clear that there is any consensus among soldiers that cluster munitions have attractive military benefits beyond stand-by capabilities in an extreme contingency, especially as the failure rate of such weapons means they could pose a risk to friendly troops in the area after use. In many cases of cluster-munition strikes in which civilians suffered, it is apparent that this weapon system was used because it was on the shelf or in the rocket tube, not because it was the optimum weapon for the mission. This certainly appeared to be the case in incidents involving the MLRS system in Iraq in 2003. All the same, governments argue that better compliance with existing IHL rules, and perhaps technical improvements, are all that is needed. They are not yet convinced that cluster munitions require specific international legal restrictions.

In this they part ways from the humanitarian community and—increasingly—governments also concerned about the human costs of cluster munitions. Seen in the light of their humanitarian effects and existing IHL rules, states should not use cluster munitions that have an indiscriminate area effect or that pose a foreseeable risk to civilians after use. And given the historical record of users overlooking or discounting these effects and of bending interpretation of IHL's application in specific contexts, more explicit rules are needed to ensure that states comply with IHL.

Seen in the light of their humanitarian effects and existing IHL rules, states should not use cluster munitions that have an indiscriminate area effect or that pose a foreseeable risk to civilians after use.

Why do cluster munitions have to take priority?

With so many competing international humanitarian imperatives, why should dealing with the effects of cluster munitions be a priority for government and civil society? For one thing, because of the far-reaching impacts that the use of these weapons has on lives and livelihoods in affected communities, as shown in this article. The mine action community already recognizes the impact that cluster munitions, other explosive remnants of war and landmines have on poverty reduction and sustainable development. But its responses cannot be fully effective until states take action to stem the possession and use of cluster munitions, as they did for anti-personnel mines in 1997.

In some countries, militaries and their governments have begun to recognize the limitations of cluster munitions, particularly as international condemnation of their use grows. Old and particularly unreliable cluster-munition types like the British BL755 have been withdrawn by Belgium, Germany, the Netherlands and Switzerland. The United Kingdom has decided to take the BL755 out of service by 2010 after acknowledging that it has an unacceptably high failure rate.²⁷ Yet, as we have shown, simply replacing obsolete weapon systems with more modern equivalents will not be enough to address the serious harm caused to civilians by the use of cluster munitions.

There are also emerging issues of further proliferation of cluster weapons and the inevitable increase in use. As Mark Hiznay's article in this issue reveals, billions of submunitions are already stockpiled by at least 73 states worldwide, and the number of known users is climbing. Some of the cheaper ground-launched systems, in particular, are likely to fall increasingly into the hands of states that brutalize their own populations or of violent non-state actors that have little or no regard for the safety of civilians. Indeed, there have been allegations of cluster-munition use by the Taliban before regime change came to Afghanistan in late 2001 and sightings (as yet unverified, to our knowledge) of

their appearance in the Congo conflict.²⁸ Further transfers of cluster weapons, particularly of old, unreliable and inaccurate types on the second-hand market or as military aid, will enlarge the prospect that this particularly nasty weapon will be used in violation of IHL with deadly consequences for civilians.

Doing nothing at the national level in terms of state practice and in multilateral forums like the CCW is an inadequate response, because the human costs of cluster munitions will continue to grow—creating discord that will undermine existing IHL. And that is something even the greatest users of cluster munitions presumably do not want to see.

Notes

1. For instance, see Landmine Action, 2005, *Explosive Remnants of War and Mines Other than Anti-personnel Mines: Global Survey 2003–2004*, at <www.landmineaction.org/resources/UKWGLM.pdf>; Landmine Action, 2003, *Explosive Remnants of War: A Global Survey*, London, at <[www.reliefweb.int/rw/lib.nsf/db900SID/JDAB-5S5BC6/\\$FILE/DID-ERW-jun03.pdf?OpenElement](http://www.reliefweb.int/rw/lib.nsf/db900SID/JDAB-5S5BC6/$FILE/DID-ERW-jun03.pdf?OpenElement)>; and Human Rights Watch, 2006, *Fatal Strikes: Israel's Indiscriminate Attacks Against Civilians in Lebanon*, vol. 18, no. 3(E), August, at <hrw.org/reports/2006/lebanon0806>.
2. For more detailed information see Rae McGrath, 2000, *Cluster Bombs: The Military Effectiveness and Impact on Civilians of Cluster Munitions*, London, Landmine Action, at <www.landmineaction.org/resources/Cluster_Bombs.pdf>.
3. Rupert Smith, 2005, *The Utility of Force: The Art of War in the Modern World*, London, Allen Lane, 2005, pp. 1–2.
4. See Colin King, 2000, *Explosive Remnants of War: Submunitions and Other Unexploded Ordnance*, ICRC, August, pp. 10–11.
5. Human Rights Watch, 2001, *Cluster Bombs in Afghanistan: A Human Rights Watch Backgrounder*, at <www.hrw.org/backgrounder/arms/cluster-bck1031.htm>.
6. International Committee of the Red Cross, 2000 (revised 2001), *Cluster Bombs and Landmines in Kosovo: Explosive Remnants of War*, Geneva, at <[www.icrc.org/Web/eng/siteeng0.nsf/htmlall/explosive-remnants-of-war-brochure-311201/\\$File/ICRC_002_0780.pdf](http://www.icrc.org/Web/eng/siteeng0.nsf/htmlall/explosive-remnants-of-war-brochure-311201/$File/ICRC_002_0780.pdf)>.
7. Ibid.
8. Between October 2001 and June 2002 submunitions in Herat, Afghanistan, killed 44% of their victims (compared with 21% deaths from landmine incidents). In Kosovo, the chance of being killed by a submunition was almost 2.5 times higher than that of being killed by a landmine. Human Rights Watch, 2002, *Fatally Flawed: Cluster Bombs and Their Use by the United States in Afghanistan*, vol. 14, no. 7G, at <hrw.org/reports/2002/us-afghanistan>, p. 11 and Landmine Action, 2002, *Explosive Remnants of War: Unexploded Ordnance and Post-conflict Communities*, London, March, at <www.landmineaction.org/resources/ERW_factsheet.pdf>, p. 7.
9. International Committee of the Red Cross, 2000 (revised 2001), see note 6.
10. See Rosy Cave, Anthea Lawson and Andrew Sheriff, 2006, *Cluster Munitions in Albania and Lao PDR: The Humanitarian and Socio-economic Impact*, Geneva, UNIDIR.
11. Kathleen Maes with additional research by Sheree Bailey, 2005, *Providing Appropriate Assistance to the Victims of Explosive Remnants of War*, background paper for the European Union-funded project, “European Action on Small Arms, Light Weapons and Explosive Remnants of War”, Geneva, UNIDIR.
12. Handicap International and Lao Youth Union, 2004, *Life After the Bomb: A Psychosocial Study of Child Survivors of UXO Accidents in Lao PDR*, Vientiane, pp. 12–14.
13. Explosive remnants of war refer to unexploded ordnance and abandoned explosive ordnance. See Article 2, Protocol on Explosive Remnants of War, Protocol V to the 1980 Convention on Certain Conventional Weapons, at <www.mineaction.org/docs/1850_.asp>.
14. Landmine Action, 2002, see note 8.
15. Cave et al, 2006, see note 10.
16. For instance, see Human Rights Watch, 2002 (see note 8) and Human Rights Watch, 2003, *Off Target: The Conduct of the War and Civilian Casualties in Iraq*, New York, at <www.hrw.org/reports/2003/usa1203>.
17. *Draft Report of the Meeting of the States Parties to the CCW*, UN document CCW/MSP/2002/CRP.1, 12 December 2002.
18. Ibid.
19. Protocol on Explosive Remnants of War, Protocol V to the 1980 Convention on Certain Conventional Weapons, UN document CCW/GGE/VI/2*, entry into force 12 November 2006, at <www.mineaction.org/docs/1850_.asp>.
20. For detailed analysis of CCW Protocol V see Louis Maresca, 2004, “A New Protocol on Explosive Remnants of War: The History and Negotiation of Protocol V to the 1980 Convention on Certain Conventional Weapons”, *International*

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21. See the article by Thomas Nash in this issue of *Disarmament Forum*.
 22. For analysis, see R. Cave, 2006, “Disarmament as Humanitarian Action? Comparing Negotiations on Anti-personnel Mines and Explosive Remnants of War”, in J. Borrie and V. Martin Randin (eds), *Disarmament as Humanitarian Action: From Perspective to Practice*, Geneva, UNIDIR.
 23. For further explanation see Robin Coupland, 2005, “Modelling Armed Violence: A Tool for Humanitarian Dialogue in Disarmament and Arms Control”, in J. Borrie and V. Martin Randin (eds), *Alternative Approaches in Multilateral Decision Making: Disarmament as Humanitarian Action*, Geneva, UNIDIR.
 24. Human Rights Watch, *World Report 2004: Human Rights and Armed Conflict*, New York, chapter entitled “Cluster Munitions: Toward a Global Solution”, at <hrw.org/wr2k4/download.htm>.
 25. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), Article 51 (4).
 26. Human Rights Watch, *Memorandum to CCW Delegates – Cluster Munitions and International Humanitarian Law: The Need for Better Compliance and Stronger Rules*, July 2004, at <www.hrw.org/backgrounder/arms/clusters0704/clusters0704.pdf>, pp. 2–3.
 27. Human Rights Watch, 2006, *Global Overview of Cluster Munition Use, Production, Stockpiling and Transfer*, March, at <hrw.org/arms/pdfs/munitionChart.pdf>.
 28. According to Human Rights Watch, the Taliban, as well as the Northern Alliance, used surface-delivered cluster munitions, fired from BM21 122mm multiple rocket launchers in Afghanistan. Human Rights Watch, 2001, see note 5.

Operational and technical aspects of cluster munitions

Mark HIZNAY

Many military establishments believe that cluster munitions increase the efficiency of suppressing, killing or destroying multiple targets within an area and they remain a key military equity. First used in the Second World War and used in 21 states since then, their technology has evolved and they are today perceived as a significant component in the self-defence capability of many states. However, cluster munitions have also demonstrated several limitations and liabilities, which can affect, and hinder, operations.

When cluster munitions have been used in populated areas, civilians have died, either as a direct result of the attack and its area effect or as a result of post-attack unexploded ordnance (UXO). While all types of explosive ordnance fail to function at some rate, the failure rates for cluster munitions are distinct as they are so high; they are increasingly documented, and are now accounted for in the planning of military operations.

Many types of cluster munitions were not designed to reduce or minimize UXO, as the weapons were not intended to be used in areas to which users would be returning: it was not until the Gulf War, in 1991, that the requirement for military forces to conduct operations in areas containing their own UXO was widely recognized. It took even longer to establish UXO minimization as a requirement in cluster-munition development.¹ Today, the perceived need for cluster munitions is diminishing—but has not been eliminated—with the evolution of tactics, techniques and procedures for the use of other munitions. Advances in sensor and guidance technologies that transform unitary munitions into guided weapons are creating one alternative to the earlier-generation cluster munitions. Some states have removed problematic types of cluster munitions from service due to age or reliability concerns. But there is no military or legal requirement to dispose of these cluster munitions until the end of their extended shelf-life: large quantities of cluster munitions with known accuracy problems or high failure rates remain in global stockpiles.

Types and utility of cluster munitions

Cluster munitions are weapons that open in mid-air and scatter submunitions, which usually number in the dozens or hundreds, into an area. Technical and functionally descriptive definitions of cluster munitions exist, but there is as yet no common legal understanding of the weapon among states. Germany introduced a draft definition of cluster munitions in talks within the Convention on Certain Conventional Weapons in March 2006.²

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Cluster munitions are valued as an “economy of force” because one munition can suppress, kill or destroy multiple targets within its impact area.

Cluster munitions can be delivered from the air by a variety of aircraft, including fighters, bombers, helicopters and—unusually—cargo aircraft.³ On the ground, cluster munitions can be remotely delivered by artillery, rocket and missile systems. Armed forces value cluster munitions because of their ability to create a predictable effect over an area. This area is usually larger than the one created by the effects of equivalent, unguided, unitary munitions.⁴ Cluster munitions are valued as an “economy of force” because one munition can suppress, kill or destroy multiple targets within its impact area. It requires fewer platforms (aircraft, artillery tubes, etc.) to deliver fewer munitions to attack multiple targets, thus reducing the logistic burden and the exposure of forces to hostile fire. Cluster munitions also allow an outnumbered force to engage and degrade a larger adversary.

Improved conventional munitions (ICM) were designed to increase the amount of fragmentation created by individual submunitions and to spread this effect over a wide area. The small size of the submunition meant that a large number could be deployed from simple dispensers and still exploit physical and aerodynamic forces. This accounts for the spherical, wing-like and dart-like shapes of early-generation submunitions. The physical factors used to facilitate the deployment of the submunitions also influenced the design of the fuzing system. Many relied on simple, mechanical fuzes that armed according to the rate of spin of the submunition; they were designed to explode on impact, after a time delay or by contact with a person. Some of these early submunitions incorporated other materials, like zirconium, to create a secondary, incendiary effect.

It was in the conflict in South-East Asia during the 1960s and 1970s that this early generation of cluster munitions was used in large numbers. They were last used on a large scale in the Gulf War of 1991, primarily by United States air forces. However, early-generation cluster munitions such as Rockeye and BL755 bombs, and M449 series ICM projectiles remain in the active inventory of many states, and in the case of the bombs have been used as recently as 2003 in Iraq.

Cluster munitions evolved as military requirements and munitions technology shifted from countering mass infantry attacks to attacking massed armour and vehicle formations. This new mission required enhancements in the way submunitions were delivered and changes in their terminal effects, giving rise to *dual-purpose and combined-effects munitions*. The design of these new submunitions incorporated a shaped charge to penetrate armour or materiel. The metal casing of some submunitions was also scored to produce uniform fragment sizes and patterns to enhance the anti-personnel effect. Many of these types of cluster munitions retained the capability to produce an incendiary effect. Dual-purpose and combined-effects cluster munitions constitute the bulk of cluster munitions in active stockpiles and are the most common types in use today.

While dart-like shapes remained common, spherical dual-purpose and combined effects submunitions moved to a cylindrical shape. A decelerating device was added to ensure that the charge impacted the target at the proper orientation. There are a number of common decelerating devices—ribbons, parachutes and airbags—all of which are deployed by air rushing past the submunition as it falls. The addition of decelerating devices ended reliance on mechanical spin-armed fuzes. New fuzes were incorporated, and these were designed to use the physical forces of the deployment of the decelerating device to arm, and impact to detonate, the submunition. Some manufacturers also began to incorporate a pyrotechnic or mechanical self-destruct feature into the submunition. Others added guidance packages to the dispenser to correct for winds that may intervene between the munition’s release point and the target area.

A newer generation of *sensor-fuzed weapons* is beginning to enter service with several militaries and represents the newest of munitions technology. These weapons are designed to address the multiple problems associated with cluster munitions: the inaccuracy of both the munition and the submunition,

and the large number of enduring unexploded submunitions. Sensor-fuzed weapons were first used in combat in Iraq in 2003.⁵ While they are often delivered by the same methods and containers used for earlier cluster munitions, these are quite different from improved or dual-purpose cluster munitions because the submunitions are designed to sense and destroy armoured vehicles without creating a wide-area anti-personnel effect. The new features of these submunitions include advanced sensors, autonomous guidance packages and the ability to loiter above a target area. Artillery- and rocket-delivered variants like the BONUS, SMARt 155, MOTIV and SADARM and the air-dropped CBU105 sensor-fuzed weapon are capable of independently sensing and attacking specific targets like armoured vehicles. Because of their size, the number of submunitions deployed by these munitions is starkly reduced. Instead of several hundred, these systems sometimes carry only two submunitions. If the submunition is unable to identify, characterize and engage its target type, it is typically equipped with a self-destruct or self-neutralizing capability. France considers that “it would be going too far to liken these [sensor-fuzed] munitions to genuine cluster munitions, as one shell carries only two BONUS munitions at a time. In terms of their employment concept and their specific technical features, these munitions, which are self-guided towards their target in the final stage and each incorporate a self-destruction mechanism, also present an extremely low risk of becoming explosive remnants of war.”⁶

Timeline of cluster-munition use

Cluster munitions have been used in at least 21 states, by at least 13 states. Non-state armed groups (NSAG) have also used cluster munitions in a limited number of cases. A timeline of cluster-munition use is presented below.

Table 1. Timeline of cluster-munition use^a

<i>Date</i>	<i>Location</i>	<i>Details</i>
1942 and 1943	Soviet Union	Soviet forces use air-dropped cluster munitions against German armour.
1943	United Kingdom	German aircraft drop over 1,000 SD2 “butterfly bombs” in an attack on the port of Grimsby.
[1960s–1970s] ^b	Cambodia, Lao PDR, Viet Nam	US forces make extensive use of cluster munitions in bombing campaigns. The ICRC estimates that in Lao PDR alone, 9–27 million unexploded submunitions remain, and some 11,000 people have been killed or injured, of which more than 30% have been children. Another estimate, based on US military databases, asserts that 9,500 sorties against tactical targets in Cambodia delivered up to 87,000 air-dropped cluster munitions.
1973	Syria	Israel uses air-dropped cluster munitions against NSAG training camps near Damascus.
[1975–1988]	Western Sahara	Moroccan forces use cluster munitions against NSAG.
1978	Lebanon	Israel uses cluster munitions in southern Lebanon.
[1979–1989]	Afghanistan	Soviet forces make use of air-dropped and rocket-delivered cluster munitions. NSAG also use rocket-delivered cluster munitions on a smaller scale.
1982	Lebanon	Israel uses cluster munitions against Syrian forces and NSAG during its invasion of Lebanon.
1982	Falkland Islands/ Malvinas Islas	UK aircraft drop cluster munitions on Argentine infantry positions near Port Stanley and Port Howard.

<i>Date</i>	<i>Location</i>	<i>Details</i>
1986	Chad	French air forces use air-dropped cluster munitions against a Libyan airfield at Wadi Doum.
1991	Iraq, Kuwait, Saudi Arabia	The United States and its allies (France, Saudi Arabia, United Kingdom) drop 61,000 cluster bombs, containing some 20 million submunitions. The number of cluster munitions delivered by surface-launched artillery and rocket systems during the Gulf War is not known, but one source estimates that over 30 million DPICM submunitions were used in the conflict. A total of 2,400 explosive, failed cluster munitions were detected and destroyed in Kuwait in 2002.
[1992–1995]	Bosnia and Herzegovina	Forces of Yugoslavia and NSAG use stocks of cluster munitions during civil war.
[1992–1997]	Tajikistan	Use by unknown forces in civil war.
[1994–1996]	Chechnya	Russian forces use cluster munitions against NSAG.
1995	Croatia	On 2–3 May 1995, an NSAG uses Orkan M87 multiple rocket launchers to attack civilians in Zagreb.
[1996–1999]	Sudan	Sudanese government forces use air-dropped cluster munitions in southern Sudan.
1997	Sierra Leone	Nigerian ECOMOG peacekeepers use air-dropped cluster munitions on the town of Kenema.
[1998]	Ethiopia / Eritrea	Ethiopia and Eritrea exchange aerial cluster-munition strikes, Ethiopia attacking Asmara airport and Eritrea attacking Mekele airport.
[1998–1999]	Albania	Yugoslav forces conduct cross-border rocket attacks; six NATO aerial cluster-munition strikes.
1999	Yugoslavia (including Kosovo)	The United States, United Kingdom and Netherlands drop 1,765 cluster bombs, containing about 295,000 submunitions.
2001–2002	Afghanistan	The United States drops 1,228 cluster bombs containing 248,056 submunitions.
2003	Iraq	The United States and United Kingdom use nearly 13,000 cluster munitions, containing an estimated 1.8–2 million submunitions in the three weeks of major combat.
2006	Lebanon	Israeli forces use ground-launched and air-dropped cluster munitions against NSAG in border villages.

^a In addition, unconfirmed reports cite use of cluster munitions in Angola, Colombia, Kashmir, Nagorno-Karabakh, Pakistan and Turkey.

^b Brackets indicate uncertain time of cluster munition use within the years indicated.

Production and stockpiling

Globally, 33 countries are known to have produced over 210 different types of cluster munitions, including projectiles, bombs, rockets and missiles.⁷ Cluster munitions are stockpiled by over 70 states.⁸ The total numbers of cluster munitions in stocks are only partially known. An October 2004 report by the US Department of Defense discloses a stockpile of 5.5 million cluster munitions containing about 728.5 million submunitions. According to the report, 480 million old, unreliable submunitions will still be in the inventory in 2011.⁹ The Ministry of Defense of the Republic of Korea acknowledges that it “maintains stockpiles of old types of cluster weapons with a high failure rate. There are currently no

plans to upgrade these holdings.” It adds, “equipping old types of submunitions with [self-destruct] mechanisms is not considered feasible due to technical and financial problems.”¹⁰

The figures for three types of cluster munitions that have high failure rates but are still widely stockpiled and in service with many states illustrate the scope and scale of global cluster-munition stockpiles:

M483/M483A1 DPICM (dual-purpose improved conventional munition) projectile

United States	3,336,866 active inventory
Netherlands	54,000 in service, 120,000 to be destroyed
Jordan	28,704 received
Bahrain	1,000 received

Belgium, Canada, Greece, Israel, Jordan and Republic of Korea also stockpile it.

The Netherlands, Pakistan and Turkey produced it under licence.¹¹

The United Kingdom declared it obsolete in 2001.

Each projectile contains 88 submunitions, which have a failure rate of up to 14%.

M26 MLRS rocket

United States	369,576 active inventory
Netherlands	16,000 to be destroyed

Also stockpiled by Bahrain, Egypt, France, Germany, Greece, Israel, Italy, Japan, Republic of Korea, Turkey and the United Kingdom.

France is considering replacing its rockets, with its “rather unreliable submunitions”, with a rocket with a unitary warhead.

Germany does not envisage using the rocket until it has been provided with a mechanism to limit the operational life.

UK testing indicates a 5–10% failure rate, which is largely dependant on ground conditions and range. A US report from 2005 cites a failure rate of 5%, while earlier studies cited 16–23%.¹²

Rockeye bomb

United States	58,762 active inventory
Turkey	3,304 received
Egypt	1,300 received
Morocco	800 received
Thailand	500 received
Denmark	200 received, some retained for training
Pakistan	200 received
Jordan	150 received
Honduras	130 received

Also stockpiled by Argentina, Greece, Indonesia, Israel, Oman, Republic of Korea and Spain.

Destroyed by Australia, Canada and Norway.

While no reliable estimate of the failure rate is available—the United States cites a surprisingly low 2%—clearance agencies in Kuwait encountered a very large number of failed Rockeye

submunitions in their operations. One US company reported clearing 95,799 Rockeye submunitions (Mk118) in its sector of Kuwait, which constituted 18% of the total area cleared.¹³ In 2002, 451 Rockeye submunitions were detected and destroyed by mine clearance and explosive ordnance disposal teams in Kuwait.¹⁴

At least 85 companies have historically produced cluster munitions or their key components. Many of these companies are based in Europe or the United States, but others are state-owned industries in the developing world. One Belgian bank in 2006 identified and disinvested from 18 publicly traded companies engaged in cluster-munition production.¹⁵

There is no standard industrial model for the production of cluster munitions. Some are the product of multinational research and production programmes. These partnerships can involve individual companies, teams of companies or industrial consortiums. The production of cluster munitions involves the fabrication and integration of a large number of components, including metal parts, explosives, fuzes and packaging materials. It is rare that all components are produced at one location by one entity. The culmination of the production process occurs at a facility that loads, assembles and packs the submunitions into a complete warhead assembly, which is often hermetically sealed. This warhead can then be mated with other components of the weapon system such as rocket motors and guidance systems. Once the complete weapon has been assembled, it enters service with the armed forces.

Most military contracts stipulate a required reliability rate before accepting the weapon. These can be surprisingly poor: military establishments are known to have accepted failure rates between 5% and 12%. Before a batch, or lot, of munitions is accepted a sample is tested for compliance with reliability requirements. However, lot acceptance testing rarely simulates actual operational conditions, where failure rates can increase significantly. Norway and the United Kingdom have disclosed the results of surveillance testing, which is performed on stockpiles during their time in prolonged storage over the entire lifetime of the munition.

In terms of more advanced cluster munitions, Israel is a major producer and exporter of ground-launched cluster munitions containing the M85 DPICM submunition, equipped with a back-up pyrotechnic self-destruct fuze. It was reported in 2004 that Israel Military Industries has produced over 60 million M85 DPICM submunitions.¹⁶ Israel Military Industries concluded licensing agreements in 2004 with companies in India (Indian Ordnance Factories) and the United States (Alliant Techsystems) to produce these DPICMs. Companies in Argentina (CITEFA), Germany (Rheinmetall), Romania (Romtecnica) and Switzerland (RUAG Armasuisse) have also assembled or produced these submunitions under licence.

Proliferation of problematic types

According to available information, at least 12 countries have transferred over 50 types of cluster munitions to at least 58 other countries. International arms exhibitions and marketing publications regularly include cluster-munition projectiles, bombs and rockets. But the true scope of the global trade in cluster munitions is difficult to ascertain. Notifications of arms transfers—as required by domestic law in some countries—do, however, provide some knowledge of trade patterns.

Perhaps because it allows public access to the information, the leading exporter of cluster munitions is the United States, which is known to have exported or transferred cluster munitions to 24 other states.¹⁷ The United States sold 11,095 early-generation cluster munitions (CBU52, CBU55B, CBU58, CBU71) to recipient states such as Greece, Jordan, Morocco, Saudi Arabia, Singapore and Thailand between 1970 and 1995. BL755 cluster bombs produced in the United Kingdom have been exported

to, or ended up being possessed by, 15 other countries.¹⁸ Yugoslavia was the first non-Western country to produce and export dual-purpose improved conventional munitions.¹⁹

Some countries simply inherited stockpiles of cluster munitions when an older state broke up. There is concern that stocks of early-generation cluster munitions exist in the warehouses of Soviet successor states, countries of the former Warsaw Pact and states that received Soviet military aid (cluster munitions of Soviet origin are reported to be in the stockpiles of 22 countries).²⁰ These are of particular concern because prolonged storage of these old, unreliable munitions may increase the number of hazardous, unexploded submunitions if they are used.

Some transfers have taken place as surplus munitions (excess defence articles) provided to allied governments and armed forces. As early-generation cluster munitions and their delivery systems are phased out of active service in high-technology military forces, they are often provided at little or no cost to less developed allied or friendly militaries. As an example, the United States transferred over 61,000 artillery projectiles, containing 8.1 million submunitions, to Bahrain and Jordan between 1995 and 2001 as this type of ammunition was being phased out of the US inventory.

Yet the most visible activity in the international market for cluster munitions revolves around the technically advanced sensor-fuzed weapons. The United States intends to export CBU97/105 sensor-fuzed weapon cluster bombs to Oman, Poland, Republic of Korea and the United Arab Emirates.²¹ Sensor-fuzed weapons are also being researched, produced or acquired by France, Germany, India, Kuwait, Poland, Russian Federation, Sweden, Switzerland, United Kingdom and the United States. In February 2006, India became the third export customer, buying 28 launch units for the Russian-produced 300mm Smerch multiple launch rocket system fitted with dual-purpose, sensor-fuzed submunitions.²²

Limitations and liabilities of cluster munitions

The decision to apply an area effect to a target is a deliberate act on the part of the commander to gain military advantage. The commander is compelled to ensure the effects of attacks are in proportion to the nature of the target and military necessity at the time of the attack. It is also necessary to distinguish between military objectives as targets and the non-combatants and civilian objects present at the time of the attack. Some view that an area containing a concentration of military targets becomes a valid target in itself.²³

The humanitarian effects of a cluster attack are often more serious because of the number of submunitions and their wide dispersal.

A large number of states maintain that cluster munitions are legal weapons and have great, if not indispensable, military utility. Some argue that submunitions can be accurately targeted to minimize civilian damage, implying that military targets can be isolated in populated areas.²⁴ Others, on the other hand, argue that the ability of cluster munitions to destroy targets with equal effectiveness on the whole attack area might lead to careless target selection by users, and consequently increase the risk of civilian casualties.

In deciding whether to use cluster munitions, a commander must be cognizant of their limitations and the liabilities created when they are used. Most models of cluster munitions, whether air-dropped or ground-launched, are unguided, and even the few with guidance mechanisms are not precision-guided. Unguided cluster munitions can miss their mark and hit nearby civilian objects, as can their submunitions. Although other types of unguided bombs can miss their target, the humanitarian effects of a cluster attack are often more serious because of the number of submunitions and their wide dispersal. If cluster munitions are used in an area where combatants and civilians commingle, civilian casualties are foreseeable, and almost assured.

Operational experience also exposes the significant hazard of fratricide resulting from the use of cluster munitions. During combat in the 1991 Gulf War, US forces experienced impediments to mobility and even casualties when operating in areas contaminated by UXO produced by their own cluster munitions.²⁵ The US Armed Services recorded 177 “explosion casualties” in the conflict, constituting 13% of all US military casualties; at least 80 of these were attributed to cluster-munition duds.²⁶

The UXO problem resulting from cluster-munition use is distinct, immediate and costly. According to monthly clearance reports of the Kuwaiti Ministry of Defence, from the end of the conflict in 1991 to December 2002, 108 metric tons of cluster munitions were discovered and destroyed by mine clearance and explosive ordnance disposal teams in Kuwait. The cost for the clearance operation from 1991–2002 was close to US\$ 1 billion. In 2002, 2,400 failed submunitions were detected and destroyed, including M42/M46/M77 (DPICM), Mk118 (Rockeye), BLU61A/B, BLU77B, BLU-91B (Gator anti-vehicle mine), BLU92B (Gator anti-personnel mine), BLU97 (CBU87), and BLG66 Belouga (a French cluster munition). Almost one in five of the failed submunitions found in 2002 came from Rockeye bombs.

Estimates of failure rates vary widely. Manufacturers often claim a submunition failure rate of 2–5%. Mine clearance personnel frequently report rates of 10–30%. In tests carried out in September and October 2005 of the Norwegian stockpile of modern, artillery-delivered cluster munitions equipped with self-destructing fuzes, submunition failure rates of 2.3%, 2% and 1.3% were achieved. During the same period, in-service safety and performance tests were carried out on 175 UK-owned DPICMs of the same type: 8,575 submunitions were deployed, of which 197 failed, giving a failure rate of 2.3%.

Several operational factors influence the reliability of submunitions. These include delivery technique, age of the submunition, ambient air temperature and type of impact medium. Weather and terrain factors, like landing in muddy or soft ground, can significantly affect failure rates. Parachutes, ribbons and other deceleration devices can cause submunitions to get caught in trees and vegetation or on structures. Trees and overgrowth can also slow the munitions to the point that they have insufficient energy to explode on impact. In addition, submunitions can hit each other and be damaged as they are dispersed from the spinning artillery round, or they can hit the ground in a position that fails to initiate their impact fuze.²⁷

As noted above, in recent years many countries have decided to remove from service or destroy cluster munitions with high submunition failure rates, including Argentina (Rockeye, BLG66), Australia (Rockeye), Belgium (BL755), Canada (Rockeye), Denmark (Rockeye), France (BLG66), Germany (BL755, DM602 and DM612 projectiles), Netherlands (BL755, M26 MLRS, M483A1), Norway (Rockeye), Portugal (BL755), Switzerland (BL755), and United Kingdom (M483). Cluster munitions nearing the end of their service life are more likely to be destroyed than sold for profit.

Reliability and guidance improvements as technical fixes

There are efforts to minimize the problems associated with the use of cluster munitions through technological improvements. In 2001, the US Secretary of Defense William Cohen issued a policy decision that all future submunitions must have a failure rate of less than 1%. Other countries have also disclosed maximum submunition failure rates, which govern their acquisition of cluster munitions, including Poland (2.5%), South Africa and Switzerland (both 2%), and Germany and Norway (1% or less).

Such examples of national practice provided a basis for the first step taken to address reliability rates for all types of munitions in international law. Protocol V to the 1980 Convention on Certain

Conventional Weapons, on Explosive Remnants of War, encourages states parties in Article 9 “to take generic preventive measures aimed at minimising the occurrence of explosive remnants of war, including, but not limited to, those referred to in part 3 of the Technical Annex.” The annex, which contains “suggested best practice” to be implemented on a voluntary basis, states that, among other measures, “A State should examine ways and means of improving the reliability of explosive ordnance that it intends to produce or procure, with a view to achieving the highest possible reliability.”²⁸

Self-destruct features reduce, but they do not eliminate, the UXO problem caused by cluster-munition use. A certain percentage (unknown and dependent on many factors) of failed submunitions of this type will still be hazardous if disturbed or handled. In terms of the relative safety of failed DPICM submunitions in the field, only people trained in this particular aspect of explosive ordnance disposal will be able to visually recognize the difference between a submunition that is armed or unarmed, with or without a self-destruct function, which has been either successful or unsuccessful, and a fully hazardous DPICM “dud”. Most experts are trained to treat these failed submunitions as hazardous, and to neutralize them in situ.

Most importantly, the advantage of the self-destruct feature is entirely cancelled out when known, high-failure rate cluster munitions are used in the same area. UK forces faced this dilemma in Iraq in 2003 when they were using cluster munitions with a self-destruct feature, but then US artillery fired high-failure rate cluster munitions in their support.

While technological improvements present one avenue to help remedy the cluster-munition problem, there is reason to question whether a technical “fix” is truly feasible, and whether it is a valid approach on a global scale. There is reason to question whether even the most advanced military will be able to lower the failure rate sufficiently to offset the dangers posed by the release of hundreds, or even thousands, of submunitions at a time. There is reason to question whether the low reliability rates that may be achieved in testing will ever be reproduced under battle conditions, or in operational environments. There is reason to question how accurate a weapon can be when it is designed to cover a broad area.

Aside from technical feasibility, there is very much reason to doubt that a technological solution will ever be pursued by the less advanced and less wealthy militaries, who may not have the know-how or the money to do so. Countries with major armed forces such as China, the Russian Federation and the Republic of Korea have already said they could not afford such an approach for all submunitions.

Notes

1. For example, it took the United States until January 2001 to establish a submunition reliability policy.
2. The text of the definition reads:
 1. Cluster munitions means a munition, which contains submunitions with explosives. These are deployed by means of delivery and are designed to detonate on impact with a statistical distribution in a pre-defined target area.
 2. Cluster munition delivery means include artillery shells, missiles or aircraft.
 3. The characteristics of cluster munitions are a lack of an autonomous target detection capability and a usually high number of dangerous duds that pose serious humanitarian concerns after the use.
 4. The term “cluster munitions” does not cover direct-fire munitions, flares and smoke ammunition, sensor-fused ammunition with an autonomous target detection capability, submunition without explosives and landmines.
3. The air force of Sudan demonstrated the capability to deliver cluster bombs from the back ramp of cargo aircraft.
4. Advances in sensor and fuze technology allow the air-bursting of laser- and satellite-guided unitary projectiles to create effects equivalent to cluster munitions without the attendant UXO liability.

Federal Republic of Germany, *German Understanding of Cluster Munitions*, UN document CCW/GGE/XIII/WG.1/WP.10, 8 March 2006.

5. In Iraq in 2003, the United States used air-dropped CBU105 sensor-fuzed weapons and surface-launched M898 SADARM artillery projectiles for the first time, both of which contained submunitions with self-destruct features.
6. France, *Working Paper on Submunitions*, UN document CCW/GGE/XII/WG.1/WP.9, 17 November 2005, pp. 2–3.
7. The 33 states that produce cluster munitions are Argentina, Belgium, Brazil, Bulgaria, Canada, Chile, China, Democratic People's Republic of Korea, Egypt, France, Germany, Greece, India, Iran, Iraq, Israel, Italy, Japan, Pakistan, Poland, Republic of Korea, Romania, Russian Federation, Serbia and Montenegro, Singapore, Slovakia, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States. Production in the Netherlands has ceased.
8. Algeria, Angola, Argentina, Austria, Azerbaijan, Bahrain, Belarus, Belgium, Bosnia and Herzegovina, Brazil, Bulgaria, Canada, Chile, China, Croatia, Cuba, Czech Republic, Democratic People's Republic of Korea, Denmark, Egypt, Eritrea, Ethiopia, Finland, France, Georgia, Germany, Greece, Honduras, Hungary, India, Indonesia, Iran, Iraq, Israel, Italy, Japan, Jordan, Kazakhstan, Kuwait, Libya, Moldova, Mongolia, Morocco, Netherlands, Nigeria, Norway, Oman, Pakistan, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Serbia and Montenegro, Singapore, Slovakia, South Africa, Spain, Sweden, Switzerland, Syria, Thailand, Turkey, Turkmenistan, Ukraine, United Arab Emirates, United Kingdom, United States, Uzbekistan, Yemen and Zimbabwe.
9. United States, Office of the Under Secretary of Defense (Acquisition, Technology and Logistics), *Report to Congress: Cluster Munitions*, October 2004, pp. 2–3.
10. *Official Response Received from South Korea, Ministry of National Defense through the Permanent Mission of South Korea in Geneva*, in response to the Pax Christi questionnaire, 3 June 2005.
11. The Dutch company Eurometaal NV was licensed by a US manufacturer to produce M483A1 155mm DPICM artillery projectiles at its facility in Zaandam. It also shared production from the Zaandam plant with the licensed production undertaken by the Turkish company MKEK at its production facility in Kirikkale. Production has ceased in the Netherlands. Pakistan Ordnance Factories produces and offers for export M483A1 155mm projectiles.
12. The 5% failure rate was reported in United States, Office of the Under Secretary of Defense (Acquisition, Technology and Logistics), *Report to Congress: Cluster Munitions*, October 2004, pp. 2–6. The 16% failure rates were reported in Office of the Under Secretary of Defense (Acquisition, Technology and Logistics), *Unexploded Ordnance Report*, transmitted to the US Congress 29 February 2000, Tables 2–3, p. 5. The 23% failure rate for some newly produced lots was reported in United States General Accounting Office, *Operation Desert Storm: Casualties Caused by Improper Handling of Unexploded U.S. Submunitions*, document GAO/NSIAD-92-212, August 1993, pp. 5–6.
13. US Army Armament, Munitions, and Chemical Command, *Contract DAAA21-92-M-0300 Report by CMS, Inc.*, cited in United States General Accounting Office, *Military Operations: Information on U.S. Use of Land Mines in the Persian Gulf War*, document GAO-02-1003, September 2002, at <www.gao.gov/new.items/d021003.pdf>.
14. Compiled from December 2001 to December 2002 editions of Kuwait Ministry of Defense, *Monthly Ammunition and Explosive Destroyed/Recovery Report*, Annex A.
15. KBC Bank in Belgium has disinvested in the following companies because of their involvement in the production of cluster munitions: Aerostar, Alliant Techsystems, Aselsan, BAE systems, European Aeronautic Defense and Space (EADS), Finmeccanica, GenCorp, General Dynamics, Honeywell International, L-3 Communications, Lockheed Martin, Magellan Aerospace, Northrop Grumman, Poongsan, Raytheon, Rheinmetall, Thales.
16. Mike Hiebel (Alliant TechSystems) and Ilan Glickman (Israel Military Industries), "Self Destruct Fuze for M864 Projectiles/MLRS Rockets", presentation to the Forty-eighth Annual Fuze Conference, Charlotte, NC, 27–28 April 2004, at <www.dtic.mil/ndia/2004fuze/hiebel.pdf>.
17. Recipient states include Argentina, Australia, Bahrain, Belgium, Canada, Denmark, Egypt, France, Greece, Indonesia, Israel, Italy, Japan, Jordan, Netherlands, Norway, Oman, Pakistan, Republic of Korea, Saudi Arabia, Spain, Turkey, United Arab Emirates and United Kingdom. A number have reported subsequently disposing of or are in the process of disposing of some or all of their weapons: Australia, Canada, Denmark, France, Norway and United Kingdom. The methods of export or transfer include Foreign Military Sales, Direct Commercial Sales, and Excess Defense Article programmes.
18. Belgium, Eritrea, Germany, India, Iran, Italy, Netherlands, Nigeria, Oman, Pakistan, Saudi Arabia, Switzerland, Thailand, United Arab Emirates and Yugoslavia. Belgium, Germany, Netherlands, Portugal and Switzerland have reported subsequently disposing of or are in the process of disposing of some or all the weapons.
19. US Defense Intelligence Agency, *Improved Conventional Munitions and Selected Controlled-Fragmentation Munitions (Current and Projected) DST-1160S-020-90*, 8 June 1990, partially declassified and made available under a Freedom of Information Act request.
20. Algeria, Angola, Bulgaria, Croatia, Cuba, Democratic People's Republic of Korea, Egypt, Hungary, India, Iran, Iraq, Kazakhstan, Kuwait, Libya, Moldova, Mongolia, Poland, Romania, Slovakia, Sudan, Syria and Yemen.
21. Data from the US Defense Security Cooperation Agency's *Notifications to Congress of Pending U.S. Arms Transfers, Foreign Military Sales, Direct Commercial Sales and Excess Defense Articles* databases.
22. "India, Russia Sign \$500 mn Rocket Systems Deal", *Indo-Asian News Service*, 9 February 2006.

23. For more on rules of international humanitarian law relating to the use of cluster munitions, see the article by Louis Maresca in this issue of *Disarmament Forum*.
24. Russian Federation, *Cluster Weapons: Real or Mythical Threat*, presentation to the Eleventh Session of the Group of Governmental Experts to the Convention on Certain Conventional Weapons, Geneva, 2–12 August 2005, p. 3.
25. Numerous references to this are found in official US military documents. One report states, “Battlefield experience has demonstrated that weapon systems containing submunitions present the greatest potential for creating [unexploded ordnance] UXO, since a significant percentage of these submunitions may not detonate reliably.” United States, Office of the Under Secretary of Defense (Acquisition, Technology and Logistics), *Unexploded Ordnance Report*, transmitted to the US Congress 29 February 2000, p. 2.
26. United States General Accounting Office, p. 17, Figure 2 (see note 13).
27. Impact fuzes require the submunition to hit the target or ground close to perpendicular. For example, the M77 DPICM submunition for the MLRS rocket must strike a surface at an angle of approximately 65–90 degrees to detonate.
28. The protocol will enter into force on 12 November 2006, almost three years after its adoption. As of 31 July 2006, there are 23 states parties: Albania, Bulgaria, Croatia, Czech Republic, Denmark, El Salvador, Finland, Germany, Holy See, India, Liberia, Liechtenstein, Lithuania, Luxembourg, Netherlands, Nicaragua, Norway, Sierra Leone, Slovakia, Sweden, Switzerland, Tajikistan and Ukraine.

Cluster munitions: moving toward specific regulation

Louis MARESCA

Calls for greater regulation of cluster munitions began more than 30 years ago. As early as 1976, and without intensive lobbying by international and non-governmental organizations, 13 states called for a ban on anti-personnel cluster weapons. Proposals prohibiting or restricting cluster munitions were also made by several experts during the discussions and development of the prohibition against anti-personnel mines in the early 1990s. More recently, efforts to regulate the use and design of cluster munitions have been part of the ongoing work of the states party to the Convention on Certain Conventional Weapons (CCW).¹

To date, the pace of progress has been far from overwhelming. Despite the earlier proposals, only now, in 2006, is there a sense that states are giving serious consideration to addressing the problems caused by cluster munitions. Increasing pressure by non-governmental organizations (NGOs) and international institutions has spurred debate in a number of national parliaments, forcing changes in national positions and the adoption of national regulation. There have also been regular calls at the international level to begin negotiations on a new treaty to reduce the humanitarian problems caused by these weapons.

This article hopes to contribute to the discussion on cluster munitions by outlining the current rules of international humanitarian law that relate to these weapons and describing the challenges that cluster munitions pose to implementing these laws. It also offers observations on key points that are emerging in the discussions on how best to make progress toward the development of specific rules on cluster munitions.

The concerns about cluster munitions

Before presenting the rules of international humanitarian law most directly applicable to cluster munitions, it is necessary to highlight the primary effects caused by these weapons—the effects that underlie the calls for new regulations.²

One significant concern is the number of civilians that have been killed or injured by submunitions that have failed to explode as intended after their release or dispersal by the cluster-munition canister—although a certain percentage of all explosive ordnance used in a conflict will fail, submunitions are a special concern because of the large numbers used in battle. During the war in Indochina, tens of millions of submunitions are believed to have been dropped in Lao People's Democratic Republic,

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and there are estimates that 8–25 million of them may have failed to explode as intended.³ Significant numbers of submunitions were also used and failed to explode in Afghanistan, Iraq, Kosovo and other recent conflicts. Predictably, these submunitions have caused large numbers of civilian casualties and posed serious challenges for organizations involved in the clearance of explosive remnants of war.

Even when submunitions do not fail, but explode as intended during conflict, they are cause for concern. By design, submunitions are area weapons, therefore they can pose grave risks when they are used against targets in or near populated areas. Once released from the cluster bomb, rocket or other means of delivery, up to hundreds of submunitions are dispersed over an area of up to several thousand square metres. This wide area of dispersal means that there is a substantial risk of significant numbers of civilians being caught in a submunitions attack, particularly in situations where civilians and military targets are in close quarter.

There are also concerns about the inaccuracy of submunitions, as, once released from the cluster munition, most cannot be precisely targeted and fall to the ground unguided. Moreover, their small size, braking mechanisms (normally parachutes and ribbons) and other features mean that their descent is often “guided” by environmental factors (wind, air density, etc.) and weather conditions, so they can land far from the intended target.

There are therefore various aspects to the cluster-munition problem: in addition to the consequences of submunitions failing to explode as intended, there are serious humanitarian concerns about the weapons when they function as designed. Concerns about cluster munitions have not only been raised by NGOs and international organizations but also by military personnel who have witnessed their impact in armed conflict.⁴

The current legal landscape: the relevant rules of IHL

No treaty specifically prohibits or regulates the use of cluster munitions. Like other weapons, the use of cluster munitions in armed conflict is regulated by the rules of international humanitarian law (IHL). Additional Protocol I (1977) of the Geneva Conventions (cited hereinafter as 1977 Additional Protocol I) is the most recent formulation of IHL applicable to the use of weapons in armed conflict.⁵ Many of its provisions reflect customary law and are therefore applicable to all the parties in an armed conflict, irrespective of whether or not they have formally ratified the protocol. There are four principal rules relevant to the use of cluster munitions.

- *Rule of distinction:* the parties to the conflict must at all times distinguish between civilians and combatants and between civilian objects and military objectives. Attacks may only be directed against military objectives. [Art. 48, 1977 Additional Protocol I; Rules 1 and 7, ICRC Customary Law Study.⁶]
- *Rule against indiscriminate attacks:* indiscriminate attacks are prohibited. Indiscriminate attacks are those: a) which are not directed at a specific military objective; b) which employ a method or means of combat which cannot be directed at a specific military objective; or c) which employ a method or means of combat the effects of which cannot be limited as required by IHL and, consequently, in each such case, are of a nature to strike military objectives and civilian objects without distinction. Indiscriminate attacks also include any bombardment which treats as a single military objective a number of clearly separated and distinct military objectives located in a city, town, village or other area containing a similar concentration of civilians. [Art. 51 (4) and (5)(a), 1977 Additional Protocol I; Rules 11–13, ICRC Customary Law Study.]

- *Rule of proportionality*: it is prohibited to launch an attack 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. [Art. 51 (5)(b), 1977 Additional Protocol I; Rule 14, ICRC Customary Law Study.]
- *Rule on feasible precautions*: in the conduct of military operations, constant care must be taken to spare the civilian population, civilians and civilian objects. All feasible precautions must be taken to avoid, and in any event to minimize incidental loss of civilian life, injury to civilians and damage to civilian objects. [Art. 57, 1977 Additional Protocol I; Rule 15, ICRC Customary Law Study.]

Cluster munitions raise important concerns under all of these rules. The concerns under the rule of distinction and the rule against indiscriminate attacks result from the potential for significant civilian casualties during a cluster-munition attack. As mentioned above, many cluster munitions are designed to disperse their submunitions over large areas. Organizations and some governments have said that this feature raises serious questions as to whether their use in cities, towns and other populated areas can be in compliance with the rules of IHL.⁷

In addition, the use of free-falling submunitions (mentioned above) means that the explosives often land in areas beyond the specific military objective targeted. This inaccuracy is of concern according to most of the definitions of indiscriminate attack outlined above, in particular the prohibition against attacks that employ a method or means of combat that cannot be directed at a specific military objective. These characteristics again raise the question of whether cluster munitions can be used in populated areas in accordance with IHL rules.

Then there are concerns regarding the rule of proportionality. This rule recognizes that civilian casualties and damage to civilian objects may occur during an attack against a military objective, but it requires that the military advantage anticipated outweighs the incidental impact on civilians. An attack that causes excessive incidental casualties or damage in relation to the concrete and direct military advantage anticipated would be disproportionate and prohibited. It is this rule that is most often cited when concerns are expressed about the large numbers of submunitions that fail to explode as intended and remain a danger to civilians after the attack—and in many cases after the end of the conflict.

Recent discussions have highlighted a divergence of views on whether or not military forces must take into account the long-term impact of unexploded munitions when evaluating the potential for incidental deaths and injuries to civilians, and if these will be excessive in relation to the concrete and direct military advantage anticipated. A number of government experts and at least one notable legal scholar do not believe that it is necessary to consider the long-term effects of explosive remnants of war (ERW) in applying the proportionality rule, on the basis that such risks are not reasonably foreseeable to a military commander.⁸ However, other experts and international organizations have taken a contrary position and believe that the incidental civilian casualties anticipated from an attack using cluster munitions must include a consideration of the short- and long-term effects of submunitions that fail to explode as intended.⁹ This reasoning is based on the fact that such effects are readily foreseeable today, thanks to experience gained from the use of cluster munitions in past conflicts and the work of governments and organizations to address their consequences. In short, past experience has put users on notice about the long-term dangers that cluster munitions cause to civilians.

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These concerns also mean that the rule on feasible precautions is especially important when cluster munitions are used. This rule requires, in particular, that the parties to a conflict minimize the dangers to civilians arising from military operations. It obliges the parties to do everything feasible to

verify that a target is a military objective; take all feasible precautions in the choice of means and methods of attack with a view to avoiding, and in any event minimizing, incidental loss of civilian life, injury and damage; refrain from launching an attack or cancel or suspend an attack if it may be expected to cause excessive civilian casualties in relation to the concrete and direct military advantage anticipated; provide effective advance warning to civilians, unless circumstances do not permit; and, if there are several military objectives offering a similar military advantage, select the objective for attack that may be expected to cause the least danger to civilians.¹⁰

With regard to cluster munitions, implementing this rule would require, for example, that a party consider the accuracy or inaccuracy of the targeting system, the size of the dispersal pattern, the amount of ERW likely to occur, the presence of civilians and their proximity to military objectives. It could also require that submunitions not be used in populated areas and that alternative weapons be considered. However, evidence that such measures are being taken by the users of these weapons seems scarce and continued civilian casualties prompt the calls for greater restriction of these weapons.

Moving toward new regulation

Efforts to address the problems caused by cluster munitions have led to important developments in supplementing the applicable rules of IHL in recent years. First and foremost is the adoption of the Protocol on Explosive Remnants of War, which was adopted in 2003 and will enter into force in late 2006.¹¹ This instrument is intended to reduce the threat to civilians from all forms of unexploded ordnance, and its provisions are therefore applicable to cluster munitions that become ERW.¹² In summary, the protocol requires each party to an armed conflict to clear ERW in territory it controls and to take measures to reduce the dangers to civilians until the weapons are removed or destroyed. Each party is also obliged to provide assistance to facilitate the clearance of its munitions that have become ERW outside the territory it controls. The parties must record information on the munitions used in a conflict to facilitate these activities.

Such measures, however, will only partially deal with the problems caused by cluster munitions. The protocol provides a useful framework to facilitate the post-conflict clearance of these weapons and the implementation of measures to protect civilians, but it will not reduce the potential indiscriminate effects of a cluster-munition attack, when submunitions detonate as intended. Moreover, the protocol does not contain significant requirements to prevent the occurrence of ERW in the first place.¹³ The absence of specific rules on these issues has increased calls for additional regulation that deals more comprehensively with the concerns about cluster munitions.

Second, there has been an increase in initiatives at the national level and there have been important changes in national positions. Belgium recently became the first country to adopt a national law banning cluster munitions and similar initiatives are being pursued in a number of other European countries—and in most cases, at the initiative of domestic NGOs.¹⁴ In May 2006, Norway introduced a moratorium on the use of cluster munitions while tests were being conducted on its stocks of the weapon; it also said that it would work to ban cluster munitions that cause unacceptable humanitarian problems.¹⁵ Germany has also modified its position to further limit its use of the weapons. Germany has said that it will not procure any new cluster munitions, that it will stop using at least two models because their failure rate has been shown to be greater than 1%, and that it will place an emphasis on alternatives to cluster munitions as weapons of choice against area targets.¹⁶

These developments have helped mobilize international organizations and NGOs working on the cluster-munition issue and create a growing sense that new international rules on these weapons can be achieved. They have also helped to advance the work on cluster munitions in the CCW's Group of

Governmental Experts. Several states, led by Germany, are working to develop a definition of “cluster munition”; other states have used the Group’s work on international humanitarian law to highlight specific concerns and proposals for cluster munitions.¹⁷ These are the most substantive steps that the CCW has specifically taken on cluster munitions since 2000.

One of the reasons behind the changes in national positions and the increased work within the CCW has been a clarification of what is meant by the term “cluster munition”. The lack of a clear definition was one of the problems preventing progress, as cluster munition is a term that includes many different types of munitions. There are, for example, cluster munitions that are designed to produce smoke or illumination rather than to explode. There are also new types of cluster munitions (often called “advanced munitions”) that, it is claimed, are more technically advanced than earlier models. In general, these weapons contain fewer than 10 explosive submunitions, each of which is programmed to seek out a specific target and self-destruct if it fails to detonate as intended. Neither of these categories of cluster munitions has been shown to be a significant humanitarian problem, although advanced munitions have not yet been extensively used. As a result, calls to restrict or ban the use of all cluster munitions have been perceived by many governments and militaries as too broad and as an attempt to prohibit a range of militarily important weapons.

The breakthrough, if one can call it that, has been in the form of a growing agreement that the regulations proposed are not intended to apply to smoke or illumination munitions or advanced munitions. As a result, work at the national and international levels is moving toward a focus on those cluster munitions that contain large numbers of inaccurate and unreliable explosive submunitions.

However, it may not be easy to draw distinctions between advanced munitions and cluster munitions with the features just referred to. Advanced munitions appear to have important technical features, which go far toward reducing their indiscriminate effects. Yet little is known about the characteristics of these weapons and the reliability of their improvements. A cursory examination of the features of advanced munitions raises many questions that have not been raised or discussed thus far.

A cluster munition with fewer submunitions will certainly reduce the likelihood of creating a large amount of ERW. However, recent tests in Norway have shown that self-destruct features are often not as reliable as manufacturers claim.¹⁸ The reliability of these devices is likely to decrease still further under battlefield conditions.

In addition, individual targeting capabilities may not prove particularly effective. Some advanced munitions free-fall on a parachute while searching for a target; as a result, the weapon may—like traditional submunitions—be susceptible to weather conditions and diverted from its target area.

If the advanced submunition fails to find its target, there is the question of if and how it self-destructs. Does the self-destruct mechanism initiate the full detonation of the submunition or does it prevent full explosion by initiating a smaller or partial detonation? A self-destruct mechanism may prevent the occurrence of ERW, but if the submunition fails to locate a military target and lands unexploded in a populated area, such a mechanism may nevertheless have indiscriminate consequences if it causes a full explosion.

Prospects for a new legal instrument

There is clearly a new momentum and proponents of new rules on cluster munitions are invigorated. At the end of 2005 most organizations were rather sceptical that rapid progress would be made on this issue. This was mostly due to the lack of progress in the CCW’s Group of Governmental Experts. Although the group successfully negotiated the Protocol on Explosive Remnants of War in

2003, it has thus far been unable to make significant headway in developing specific rules to regulate the use of cluster munitions and prevent them becoming ERW.

Yet midway through 2006 there is an increasing belief that positive results are possible and that new regulations on cluster munitions can be adopted. As mentioned above, national parliaments have held debates and forced changes in the national positions of a number of governments. This has in turn prompted several governments to become more proactive on the issue at the international level.

One of the main questions currently being discussed by many proponents of new rules on cluster munitions is whether international work should continue in the context of the CCW's Group of Governmental Experts or if the cluster-munition issue should be taken off its agenda and other avenues explored. The question is particularly relevant this year, as the Third Review Conference of the CCW will take place 6–17 November 2006, and Sweden has proposed that the negotiation of a new protocol on cluster munitions be placed on the agenda of the conference.

In light of recent experience, claims have been made that the CCW is unlikely to produce the strong rules that many feel are necessary to address the cluster-munition problem. It has been pointed out that the Group of Governmental Experts has struggled for nearly five years to develop new rules on anti-vehicle (AV) mines. In several areas, the regulations under consideration for AV mines parallel those proposed for cluster munitions (e.g. self-destruct requirements, prohibitions or restrictions on transfers, restrictions on use). Despite years of work on the legal, technical and military aspects of AV mine regulation, the group has been unable to agree to the start of formal negotiations on a new AV mine protocol. The CCW currently seems unable to take strong action to restrict the use and design of a weapon considered to have significant military value. It therefore seems likely that proposals on cluster munitions will meet a similar fate if left on the CCW agenda.

There is, then, the prospect of expert work and negotiations outside of the CCW, and the likelihood of this will increase if the CCW Review Conference takes no action on cluster munitions or does not renew the mandate for the Group of Governmental Experts. A productive process outside the CCW would, however, require two key ingredients: a core group of states ready to take the diplomatic lead

A productive process outside the CCW would require two key ingredients: a core group of states ready to take the diplomatic lead in such an initiative, and strong civil society involvement.

in such an initiative, and strong civil society involvement to help build support for the development of strong rules. As recent developments at the national level have shown, NGOs have become increasingly effective in placing the cluster-munition issue on the national agenda and building domestic support for new regulations, and have forced some governments to reconsider their positions.

Their influence is likely to increase as they become active in more countries. However, while countries such as Germany, Norway and Sweden have become proactive and taken a lead role on cluster munitions in the CCW, the potential for the development of a core group to lead a process outside the CCW is unclear and not likely to become apparent until after the CCW Review Conference.

There is concern that a process outside of the CCW may not include some of the international powers that are CCW states parties. There is clearly a value in having the most significant producers of cluster munitions involved in efforts to address the humanitarian problems caused by these weapons. However, as has been learned from the work on anti-personnel mines, countries with small- and medium-sized armed forces can play an important role in developing the rules of international humanitarian law. Many of these countries produce cluster munitions, and are therefore an important force in the design, marketing and trading of these weapons. Some European countries have used the weapons in recent operations, and many have significant stockpiles, which make them potential users. The norms and standards that these states apply, individually or collectively, can have a significant impact and influence, particularly on militaries that possess similar models or cluster munitions with similar characteristics.

These are just a few of the issues being considered in the discussions on how to make progress and strengthen the legal regime applicable to cluster munitions. Although the direction of future work on this issue remains unclear, 2006 is clearly a pivotal year and the prospects for a successful result look considerably more promising than they have in the past.

Notes

1. Full title: Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which May be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, adopted 20 October 1980.
2. These consequences have been highlighted in media reports following the use of cluster munitions in recent armed conflicts and explored in more detail in studies published by international and non-governmental organizations. See, for example, Rae McGrath, 2000 (revised 2001), *Cluster Bombs: The Military Effectiveness and Impact on Civilians of Cluster Munitions*, London, Landmine Action, at <www.landmineaction.org/resources/Cluster_Bombs.pdf>; International Committee of the Red Cross, 2000, *Cluster Bombs and Landmines in Kosovo: Explosive Remnants of War*, Geneva, at <[www.icrc.org/Web/eng/siteeng0.nsf/htmlall/explosive-remnants-of-war-brochure-311201/\\$File/ICRC_002_0780.pdf](http://www.icrc.org/Web/eng/siteeng0.nsf/htmlall/explosive-remnants-of-war-brochure-311201/$File/ICRC_002_0780.pdf)>; Human Rights Watch, 2002, *Fatally Flawed: Cluster Bombs and Their Use by the United States in Afghanistan*, vol. 14, no. 7G, at <hrw.org/reports/2002/us-afghanistan>; Human Rights Watch, 2003, *Off Target: The Conduct of the War and Civilian Casualties in Iraq*, New York, at <www.hrw.org/reports/2003/usa1203>.
3. Lao National Unexploded Ordnance Programme, 2004, *Turning point: UXO Lao Work Plan 2004*, Vientiane, p. 6.
4. One such example was the order of air combat commander Maj. Gen. Michael Ryan during Operation Deliberate Force in Bosnia in 1995 to prohibit the use of cluster munitions due to inherent dangers to civilians. "The problem was that the fragmentation pattern was too large to sufficiently limit collateral damage and there was also the further problem of potential unexploded ordnance." See Human Rights Watch, 1999, *Ticking Time Bombs: NATO's Use of Cluster Munitions in Yugoslavia*, vol. 11, no. 6(D), p. 3, at <www.hrw.org/reports/1999/nato2/nato995-01.htm>. See also Human Rights Watch, 2004, *World Report 2004: Human Rights and Armed Conflict*, p. 254, New York, at <hrw.org/wr2k4>, citing a US Air Force post-war study that in the context of the 1991 Gulf War, "an 'excessively high dud rate' due to the high altitude from which cluster bombs were dropped and the sand and water on which they landed."
5. Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, at <www.unhcr.ch/html/menu3/b/93.htm>.
6. "ICRC Customary Law Study" refers to Jean-Marie Henckaerts and Louise Doswald-Beck (eds), 2005, *Customary International Humanitarian Law, Vol. 1: Rules*, Cambridge, ICRC and Cambridge University Press.
7. See Timothy L.H. McCormack, Paramdeep Mtharu and Sarah Finnin, 2006, *Report on States Parties' Responses to the Questionnaire: International Humanitarian Law and Explosive Remnants of War*, Asia Pacific Centre for Military Law, March 2006, at <www.gichd.ch/fileadmin/pdf/CCW/XIIIth_Mtg_Mar06/CCW_McCormack_Report.pdf>. Also known as the McCormack report.
8. Christopher Greenwood, *Legal Issues Regarding Explosive Remnants of War*, Working Paper submitted to the CCW Group of Governmental Experts, UN document CCW/GGE/I/WP.10, 23 May 2002.
9. McCormack report, op cit., pp. 18–20.
10. See Art. 57, 1977 Additional Protocol I and Rules 16, 19–21, ICRC Customary Law Study. The parties to a conflict are also required to take feasible precautions to protect the civilian population under their control against the effects of attacks by not locating military objectives in or near densely populated areas and removing civilians from the vicinity of military objectives (to the extent feasible) [Art. 58, 1977 Additional Protocol I; Rules 22–24, ICRC Customary Law Study].
11. Protocol V to the 1980 Convention on Certain Conventional Weapons, UN document CCW/GGE/VI/2*, Annex 2, at <www.mineaction.org/docs/1850_esp>.
12. The protocol does not apply to mines, booby traps and other devices already covered by amended Protocol II of the CCW (Protocol on Prohibition or Restrictions on the Use of Mines, Booby-traps and Other Devices).
13. The protocol contains provisions encouraging states to take "generic preventive measures" (Article 9 and the Technical Annex). These provisions are, however, not legally binding nor do they contain detailed requirements.
14. These include Austria, France, Germany, Italy, Luxembourg, Sweden and Switzerland.
15. Human Rights Watch, 2006, *Survey of Cluster Munition Policy and Practice*, Memorandum for Delegates to the Fourteenth Session of the CCW Group of Governmental Experts, June, pp. 20–21.
16. Statement by Ambassador Bernhard Brasack on "Explosive Remnants of War / Cluster Munitions" to the Group of Governmental Experts of the States Parties to the CCW, 19 June 2006.

17. McCormack report, op. cit.
18. In tests carried out in Norway in late 2005, the failure rates of certain cluster munitions in the stocks of the Norwegian armed forces were double the 1% failure rate expected. See Human Rights Watch, 2006, op. cit.

Stopping cluster munitions

Thomas NASH

Cluster munitions stand out as unacceptable weapons. This view has long been held by non-governmental organizations (NGOs) campaigning against them and increasingly by military figures, parliamentarians, explosive ordnance clearance operators and academic scholars. But governments have continued to use the weapon, contributing to immediate and long-term suffering in, for example, Lao People's Democratic Republic, Cambodia, Viet Nam, Kuwait, Croatia, Chechnya, Sudan, Kosovo, Afghanistan, Iraq and now again during the latest war in Lebanon.

The humanitarian problems posed by cluster munitions have been the subject of public opposition since the Viet Nam War. After the war various factors, including military secrecy, kept public outcry from reaching the level it is moving toward in 2006.¹ But once the humanitarian response to landmines got under way in the 1990s, the issue of cluster munitions started to gain more public attention. The extensive clearance effort in Kosovo provoked media coverage, public disquiet and, eventually, attention from governments. Contamination there was so severe that those responsible for dealing with it felt that cluster munitions warranted their own response at the international level, separate from other unexploded ordnance.²

Meanwhile, however, use has continued. At the time of writing, a crisis from cluster munitions is unfolding in Lebanon. In the first month following the ceasefire in Lebanon on 14 August 2006, the United Nations had recorded 87 civilians killed or injured from "dud" cluster munitions and identified 519 individual sites contaminated by cluster munitions; bomb disposal teams had located or destroyed more than 25,000 submunitions.

Until recently, the majority of civil society opposition to cluster munitions has been focused on the Convention on Certain Conventional Weapons (CCW), but the CCW has proved ineffective, and states have done little or nothing to evaluate the unnecessary civilian suffering that has resulted from the use of these weapons. Indeed, the Third Review Conference of the CCW in November 2006 looks set to skip over the problems of cluster munitions. At the national level, however, pressure from civil society has been more successful at putting cluster munitions onto the policy agenda of governments.

This article outlines the approaches that NGOs have taken to cluster munitions and offers some reflections on how these approaches have helped shaped progress to date. With a view to the forthcoming CCW Review Conference and beyond, the article offers some perspectives on where activism on cluster munitions is heading and how the international response may take shape.

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An international campaign

The Cluster Munition Coalition (CMC) was founded in The Hague in November 2003. Part of the CMC's founding call was for states to take special responsibility for the clearance of explosive remnants of war (ERW). Indeed, there was a perception early on that the CMC was to be an international "campaign against ERW"; the argument was that the CMC should fill a gap left when the International Campaign to Ban Landmines (ICBL) decided not to add submunitions to its mandate.³

The launch of the CMC was thus timed to precede the 2003 Meeting of States Parties to the Convention on Certain Conventional Weapons—a meeting at which states parties were expected to adopt a legally binding instrument on ERW. Protocol V was duly adopted and the call for special responsibility for ERW was thus met, albeit in a diluted fashion: the text of the protocol contained numerous caveats, the key technical annexes were not legally binding, the protocol was not retroactive and cluster munitions were not specifically dealt with. The CCW had grown out of diplomatic conferences that considered the prohibition of cluster munitions as part of their agenda, but neither the convention nor Protocol V addressed the weapon fully.

Following the adoption of Protocol V, CMC's approach began to change. The fact that states were willing to acknowledge the ERW problem while still maintaining stockpiles of cluster munitions and defending the right to use them made it clear that whatever the response to ERW, a separate response to cluster munitions was necessary. Research appeared on the extent of the ERW problem and appropriate responses, which highlighted that cluster-munition contamination was qualitatively different from other unexploded ordnance contamination in terms of density and wide-area effect.⁴ Moreover, cluster munitions were not just an ERW problem that Protocol V did not fully address; as NGOs continued to emphasize, there were also distinct concerns about cluster munitions at the time of use, and Protocol V only dealt with post-conflict aspects of explosive remnants of war.

Experience from other humanitarian advocacy campaigns also suggested that a clear focus and message—such as no use of cluster munitions—would be essential if campaigning and advocacy were to have the desired effect.⁵ Thus the CMC's focus was sharpened: it would address the weapon-specific problems of cluster munitions—both their wide-area effects and ERW. The CMC's statements from the end of 2004 show this clear emphasis on the need to stop the use of cluster munitions in order to prevent further civilian harm.⁶

The CMC now has 170 members in 48 countries. Membership is increasing steadily, with for instance a dozen members signing up at the Standing Committee meetings of the Mine Ban Treaty in May 2006. The number of visitors to the web site of the Cluster Munition Coalition is consistently increasing, and since the crisis in Lebanon there has been a significant spike in daily visits.⁷ All of this will lead to greater engagement and greater pressure on governments.

How to stop cluster munitions

NGO PERSPECTIVES AND A COMMON APPROACH TO CLUSTER MUNITIONS

All NGOs engaged in activism on cluster munitions agree that the use of this weapon should be stopped immediately. All NGOs agree that the destruction of existing stockpiles of cluster munitions must be undertaken. And all NGOs agree that the existing CCW processes are not adequately addressing the humanitarian problem of cluster munitions and that new international rules are required. The

differences between NGOs on cluster munitions, where they exist, mainly relate to the most effective way to stop the use of the weapon: by prohibiting it or by placing strict requirements on its use? The answer to this depends partly on one's assessment of whether governments will (or can) abide by strict regulations relating to cluster munitions. In the case of landmines, the detailed rules outlined in the CCW's Amended Protocol II on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices did not inspire confidence among campaigners that landmines would not continue to be used in a way that would lead to further humanitarian harm.

Human Rights Watch (HRW) has been advocating a moratorium on cluster munitions since 1999, when evidence from its research directly following the bombings in Kosovo and Serbia highlighted numerous problems with the use of cluster munitions.⁸ As well as the moratorium, HRW advocates a series of reforms that should be instituted should the moratorium be broken. Chiefly, these relate to no use in or near populated areas and no use of cluster munitions not equipped with self-destruct or self-neutralization mechanisms. The organization recently called for the prohibition of inaccurate and unreliable cluster munitions,⁹ but overall its position tacitly accepts that the use of some kinds of weapons currently referred to as cluster munitions may be legal. HRW's view is based on a rigorous reading of international humanitarian law (IHL), a framework that underpins the work of the organization.

Handicap International's view stems not from IHL but from the experience of its staff working in areas affected by cluster munitions. Handicap International (HI) decided that the most effective way to deal with the clear humanitarian problems its staff faced because of cluster munitions was to prohibit the use of this weapon. Stan Brabant, Head of Handicap International's Policy Unit in Belgium, has stated that some field staff threatened to resign if the organization adopted any policy on cluster munitions short of a ban.¹⁰ Of course, HI's policy position was the result of more than the prospect of staff resignations: there was a detailed and lengthy analysis of the issues related to cluster munitions. In HI's view, a series of limited reforms would not be enough to prevent more deaths and injuries. In essence, HI gave preference to preventing humanitarian harm over trust in governments to adhere to (or even to ever negotiate) new rules on cluster munitions.

This position has also been taken for many years by the Mennonite Central Committee. It came about through its advocacy work on the situation in Lao People's Democratic Republic, where deaths and injuries from unexploded cluster munitions are still a regular occurrence, and where work by UK landmine clearance organization Mines Advisory Group and others is turning up significant numbers of submunitions.

Some NGOs have altered their positions since the Belgian legislation banning cluster munitions,¹¹ which entered into force on 9 June 2006 and which has changed the terms of the debate on how governments should respond to the cluster-munition problem. Landmine Action, in the United Kingdom, had previously advocated a moratorium similar to that demanded by Human Rights Watch. Recently, however, in a letter to UK parliamentarians, Landmine Action highlighted the Belgian ban and called for a UK ban on cluster munitions.¹²

Like Landmine Action, Norwegian People's Aid is calling for a ban. Its call is somewhat different, though, because (like Human Rights Watch) it accepts that a definition of cluster munitions may exclude some types of submunition-based weapon systems if they do not pose a humanitarian concern, thus it accepts restrictions on the ban it seeks.¹³ After recruiting a full-time cluster munitions policy officer in 2006, Norwegian People's Aid joined the CMC Steering Committee. Together with the change in other NGOs' stance, this has culminated in a shift among the active members of the CMC, adding weight to the group of NGOs advocating a total ban of cluster munitions.

Opponents to new rules on cluster munitions have attempted to emphasize the differences between NGOs within the CMC as a reason for delaying national action or for not launching international negotiations.¹⁴ However, this is a cynical tactic and could be seen as characteristic of stockpiling

All members of the CMC are calling for a comprehensive and specific new international instrument that will prohibit all those weapons that pose the immediate and post-conflict humanitarian problems associated with cluster munitions.

governments that are finding themselves on the back foot against a campaign that is marshalling more and more evidence of the consistent pattern of humanitarian harm from cluster munitions and more and more public support.¹⁵ As Brian Rappert of the University of Exeter has pointed out, the “distinction [between a total prohibition or a regulation] is in many respects a false and unnecessary one. What is called a ‘ban’ from one perspective might be labelled ‘regulation’ from another. ... The key question is not so much whether a certain prohibition amounts to a ban or mere regulation, but whether it adequately addresses the persistent humanitarian concerns associated with cluster munitions.”¹⁶ Whatever the case, whether their positions are formulated as a total ban or as a regulation regime, all members of the CMC are calling for a comprehensive and specific new international instrument that will prohibit all those weapons that pose the immediate and post-conflict humanitarian problems associated with cluster munitions.

Defining cluster munitions

The choice between prohibition and restriction depends in part on the definition of what is to be prohibited or restricted. Before there can be agreement on what to do about cluster munitions, there needs to be agreement on what cluster munitions are, on the class of weapons that is posing the humanitarian problems. Some governments, such as Germany, are taking a first step in beginning efforts to define cluster munitions.¹⁷

In civil society, all members of the CMC understand the need to ban weapons that spread large numbers of submunitions over wide areas and create problems of dense and widespread unexploded ordnance. NGOs within the CMC are developing a common understanding of cluster munitions as weapons that scatter submunitions over wide areas or pose an excessive threat from ordnance contamination. It therefore looks likely that with this increased understanding of the definition of cluster munitions and in the face of a continuing lack of progress within the CCW, calls for a prohibition will become the basis for activism. The campaign against cluster munitions will continue to put pressure on states to take the step that will make the most difference to civilian protection: officially forswearing the use of all cluster munitions.

BEYOND NGOs: THE UN, ICRC AND GOVERNMENTS

A number of United Nations agencies have engaged in work on cluster munitions. A working paper by the United Nations Mine Action Service (UNMAS) on ERW in July 2002 singled out cluster munitions as a cause for concern that should be considered separately from other types of ERW.¹⁸ In 2003, several UN agencies, including the United Nations Children’s Fund (UNICEF), UNMAS, the United Nations Development Programme and the Office for the Coordination of Humanitarian Affairs (OCHA), delivered a statement echoing the CMC’s call for a moratorium on the use of cluster munitions.¹⁹ The efforts of a UN working group on cluster munitions in 2005 culminated in the first statement by the UN Secretary-General on cluster munitions—a statement that highlighted the humanitarian problem and called for states to add the issue to the agenda of the Third Review Conference of the CCW.²⁰

For its part, the International Committee of the Red Cross has consistently highlighted the humanitarian concerns over cluster munitions since its report on Kosovo in 2000. In a statement to the

CCW in June 2006 it stressed the validity under IHL for new rules on cluster munitions,²¹ and also recently called for the elimination of inaccurate and unreliable cluster munitions.²² In its support for new rules on cluster munitions, the ICRC has sounded a word of caution over excluding certain types of submunition-based weapons systems from international deliberations on cluster munitions.²³

Having been understood by most states as just one component of the ERW agenda, the issue of cluster munitions as a specific weapon of concern is now on the policy agenda of a number of states. The group of countries that have recognized cluster munitions as a specific humanitarian concern either through their parliaments or their governments is growing and includes Austria, Australia, Belgium, Canada, Denmark, France, Germany, Holy See, Ireland, Jordan, Mexico, New Zealand, Norway, Sweden and Switzerland. Several states at the CCW now regularly acknowledge the humanitarian problems posed by cluster munitions.²⁴

However, once one has acknowledged the humanitarian problem, the question then becomes what is the appropriate response. States committed to international action on cluster munitions have a choice between limited reform and a comprehensive prohibition against the weapon. So far the only state to have advocated a prohibition on cluster munitions (or certain kinds) is Norway.²⁵ (Despite its recent legislation, Belgium is not advocating a prohibition at the CCW.)

It seems that this lack of public support for prohibition is leading toward a regulation regime, restricting use in populated areas and the use of high failure-rate munitions. But it is not clear that such a regime would provide the same protection to civilians as a comprehensive ban on cluster munitions. Key user states have failed in the past to use cluster munitions in a manner fully consistent with IHL; they could do so again. Regulations may not be followed in the heat of combat, and compliance would be difficult to verify. (Violations of a ban, on the other hand, would be much clearer and more easily addressed.)

If states are to inspire any remaining faith in a regulation regime, they must implement consistent national policies immediately. Simply muddling along in the CCW will only give increasing justification to the mounting calls for a total prohibition on cluster munitions.

The future of international action on cluster munitions

NGOs INFLUENCING NATIONAL POLICY

Current civil society efforts are moving in the direction of national action on cluster munitions, because little has been achieved at the CCW despite the efforts of NGOs. A range of approaches are now coalescing into a coherent international movement active outside the CCW, and the influence of NGOs has been significant in achieving concrete measures on cluster munitions at the national level.

Norwegian People's Aid has been instrumental in advocating improved Norwegian policy on cluster munitions and has provided a counterweight to the influence of the military and defence sectors. This advocacy bore fruit in June 2006 when Norway announced a time-limited moratorium on cluster munitions.

Through hosting the Cluster Munition Coalition and its continuing production of comprehensive and varied research material on cluster munitions, Landmine Action has continued to apply pressure both in the United Kingdom and internationally. A two-day seminar on cluster munitions hosted by Landmine Action and the Diana, Princess of Wales Memorial Fund in March 2006 in London helped foster the growing movement within progressive states to address cluster munitions in an effective manner.

In the clearest example yet of successful NGO advocacy at the national level, Handicap International brought about a ban on cluster munitions in Belgium in 2006. Buoyed by frequent and positive media support, Handicap International put the issue on the agenda of the national Senate, leading to a legislative process that culminated in the law banning cluster munitions.

Large-scale public advocacy activities specifically directed against cluster munitions have not yet been undertaken in more than a small number of European countries, but there are signs that activity is set to increase, as more resources are devoted to the issue: CMC member organizations are recruiting more staff dedicated to cluster munitions, and more research reports on cluster munitions have been published in 2006.²⁶

The CMC is broadening its membership, too: from mainly ICBL members to peace, human rights and humanitarian groups. It is also engaging with more NGOs from affected countries. The CMC has developed a common strategy for international efforts. This focuses on greater public understanding of the problem and increased engagement with national decision makers, primarily parliaments, to force measures at the national level.

To increase public understanding, CMC member organizations are stepping up their campaigning work, with events and activities to be held in the build-up to the CCW Review Conference and beyond, such as Handicap International's pyramid of shoes in September 2006 and Landmine Action's campaign week in November 2006. Resources are also being made available from within the coalition to assist the work of smaller member organizations. A focus on the period following the Review Conference will ensure that the issue receives the attention it deserves regardless of the state of the CCW.

CMC members' work with national decision makers has this year taken the form of draft legislation, resolutions, motions and parliamentary questions, all of which are increasing the pressure on governments.²⁷ Without doubt, parliaments are showing the way ahead and have had a hand in the significant progress that has been made over the past year: several resolutions within the European Parliament; the Belgian parliament's ban; the Norwegian announcement of a moratorium; the French Senate's information-gathering mission; the Austrian resolution on cluster munitions; and increasingly frequent parliamentary questions within the House of Commons and plans for action within the House of Lords in the United Kingdom. Many of these actions have been prompted by meetings organized by CMC members: seminars to brief parliamentarians have already been held in Copenhagen in March 2004, Rome in October 2004, Paris in October 2005, Stockholm in May 2006 and Vienna in July 2006. More will be held around Europe as part of the international strategy to accelerate national action on cluster munitions.

THE CCW AND NGOS

In recent years, humanitarian organizations have played an important role in shaping progress on conventional weapons issues. Many NGOs that observe the CCW have taken on the task of monitoring state practice and ensuring that broader societal values are reflected in government policy toward the protection of civilians in armed conflict. The example of civil society influence on the Mine Ban Treaty has been well documented.²⁸ More recently, organizations like the ICRC, Landmine Action, UNMAS and HRW were responsible for putting the issue of ERW on the agenda of the CCW and were active during the negotiation of Protocol V. Sadly, the outcome ultimately fell short of what the organizations were calling for.²⁹

Recent government statements have recognized the importance of NGO work on cluster munitions, and have acknowledged that state work on the issue within the CCW is being closely watched from outside. Through its consistent international advocacy on cluster munitions, and provision of key

research conducted directly after the cessation of hostilities in Kosovo, Afghanistan and Iraq, Human Rights Watch has given the issue increased legitimacy and institutional weight.³⁰ Regular participation by the Cluster Munition Coalition at the CCW has helped maintain cluster munitions as a matter for international discussion and has raised the voices of those affected by the weapon, people for whom the representatives of states rarely speak.

It is clear that NGOs can and have influenced the agenda of the CCW. What has been more difficult, however, has been the translation of this influence to concrete measures that improve the lives of those at risk from unacceptable weapons.

THE THIRD REVIEW CONFERENCE OF THE CCW

The forthcoming Third Review Conference of the CCW will be an important focal point for international action as it is the most logical framework for states to launch multilateral action on cluster munitions. It will also offer a platform for international media coverage and exposure of the cluster-munition issue and the NGO activism surrounding it. Ultimately, the Third Review Conference will test the effectiveness of the CCW as a multilateral body capable of responding to the key weapon-specific issues of the day.

At the discussions in the CCW Group of Governmental Experts there has been a noticeable increase in engagement with regard to cluster munitions and, among the broader group of states that acknowledge the problem of cluster munitions, a small but growing number are consistently voicing their commitment to further action.

At the Review Conference itself, there appear to be various options available to this group of states. One approach is to pursue a negotiating mandate for an instrument on cluster munitions. This course of action has been advocated by Sweden and Norway. The CMC and key members such as Human Rights Watch and Handicap International have consistently called for a clear negotiating mandate: meaning, from the NGO perspective, a mandate to swiftly conclude a legally binding instrument prohibiting cluster munitions, understood as a class of weapon that has caused consistent humanitarian harm because of its indiscriminate and unreliable nature (as a measure of democratic accountability, any exceptions to the prohibition would have to be justified by users and manufacturers, not simply assumed). As the CMC has stated, a prohibition is the safest and surest way to protect civilians from cluster munitions; it can be justified under the precautionary principle of IHL.

Another option would be to launch a specific discussion or study group on cluster munitions, an approach that states settled on for anti-vehicle mines and that, despite five years of talks, has so far failed to achieve new rules to alleviate the serious humanitarian threat posed by anti-vehicle mines. This has undermined confidence in the capacity of the CCW to generate meaningful and effective rules to protect civilians. A discussion mandate on cluster munitions would seal delegations in to a similar cycle while the weapon could continue to be used and civilians could continue to be killed and injured.

Eschewing specific negotiations or discussions on cluster munitions, a further possibility would be to continue obliquely to address cluster munitions through ongoing efforts to achieve best practices on certain technical measures that could be taken to prevent munitions from becoming ERW. This course of action (or inaction) invites the systematic sidelining of cluster munitions and belies the urgency of the problem. All the same, this appears to be the approach currently favoured by Switzerland, a state that, like Norway and others, has recognized the problematic nature of cluster munitions.

Realistically though, in light of the strong and clear markers put down in statements by several states at the CCW in June and August 2006,³¹ negotiations, even specific discussions, all seem unlikely.

A continuing nod to “munitions including submunitions” within the ERW working group is certainly the most likely of the three possible outcomes, but even this is not guaranteed, given the reluctance among some major military powers to continue any discussion on ERW beyond Protocol V.

Succeeding through failure

Any observer can see that the group of states flatly opposed to any specific work on cluster munitions can hold the entire body of states party to the CCW hostage. Faced with the tyranny of the consensus rule, states that are truly committed to national and multilateral progress on cluster munitions must think beyond the CCW. If they do not, then they will fuel perceptions that they are using the blockage at the CCW as an alibi for their own unjustifiable inaction.

So perhaps the optimum outcome of the Third Review Conference—short of a mandate to negotiate an instrument on cluster munitions—would be a clear failure to launch new work on cluster munitions, a failure that would resonate outside the United Nations’ conference halls. Such a failure would leave those states that have recognized the humanitarian problem and advocated new work on cluster munitions with little credible option but to step up their own national measures and to embark on a new multilateral process to develop international rules on this weapon.

While it may be argued that working toward middle-ground compromise positions primarily based on technical improvements and restrictions on use would initially gather more adherents among states, this limited approach risks proving ineffectual in humanitarian terms. A small group of countries moving forward with comprehensive national and collective measures to prohibit cluster munitions will stigmatize the weapon and provide the ground for building an international norm.

In order for such a norm to take root, early engagement from affected and developing countries will be key. Preparation on this front is already under way. Motivated by the problems cluster munitions have caused in its region, Jordan made a strong statement in June 2006 calling for specific action on cluster munitions. Advocacy in Lebanon is ongoing and it is hoped that the country will ratify Protocol V and become active in the campaign against the weapon, particularly given the serious fresh contamination from cluster munitions. Efforts are also being undertaken to engage Afghanistan, Cambodia and other affected states.

A new process to eliminate cluster munitions will not only prevent future civilian deaths and injuries from the weapon both during and after attacks, it will strengthen the broader norm on the protection of civilians in armed conflict; it will revitalize multilateral activity on disarmament and humanitarian action; and it will further reinforce the interface between civil society values and state use of violence.

Notes

1. Eric Prokosch notes the secrecy over use of cluster munitions during the Viet Nam War in his *Technology of Killing: A Military and Political History of Antipersonnel Weapons*, London, Zed Books, 1995. Use of cluster munitions has been confirmed in 21 countries, according to Human Rights Watch. The full extent of the deaths and injuries from cluster munitions is not known and is growing daily as unexploded cluster munitions continue to kill in almost every country where they have been used.
2. John Flanagan for UNMAS, *Explosive Remnants of War – Experience from Field Operations*, UN document CCW/GGE/II/WP.13, 15 July 2002; International Committee of the Red Cross, 2000 (revised 2001), *Cluster Bombs and Landmines in Kosovo: Explosive Remnants of War*, Geneva, at <[www.icrc.org/Web/eng/siteeng0.nsf/htmlall/explosive-remnants-of-war-brochure-311201/\\$File/ICRC_002_0780.pdf](http://www.icrc.org/Web/eng/siteeng0.nsf/htmlall/explosive-remnants-of-war-brochure-311201/$File/ICRC_002_0780.pdf)>.

3. See Robin Collins, 2006, "Tied Campaigns: Cluster Munitions, Explosive Remnants of War and Anti-personnel Landmines", *Journal of Mine Action*, issue 10.1, August, at <maic.jmu.edu/JOURNAL/10.1/feature/collins/collins.htm>, which discusses the ICBL statement at the Second Preparatory Committee for the Second Review Conference of the CCW, 6 April 2001.
4. Landmine Action, 2005, *Explosive Remnants of War and Mines Other than Anti-personnel Mines: Global Survey 2003–2004*, London, at <www.landmineaction.org/resources/UKWGLM.pdf>; R. Moyes, 2004, *Tampering: Deliberate Handling and Use of Live Ordnance in Cambodia*, Handicap International, Mines Advisory Group and Norwegian People's Aid, at <www.thememorybank.co.uk/members/richard/Tampering%20-%20deliberate%20handling%20of%20live%20ordnance%20in%20Cambodia.pdf>.
5. Don Hubert notes that "clear campaign messaging (advocating stringent provisions within an explicitly humanitarian discourse)" is one of three key dimensions in a possible model for humanitarian advocacy. Don Hubert, 2000, *The Landmine Ban: A Case Study in Humanitarian Advocacy*, Occasional Paper no. 42, Providence, RI, Thomas J. Watson Jr Institute for International Studies.
6. See Cluster Munition Coalition, *Closing Statement: CCW November 2004*, at <www.stopclustermunitions.org/files/CMC%20closing%20statement%20November%202005.doc>.
7. See <www.stopclustermunitions.org>.
8. See Human Rights Watch, 1999, *Ticking Time Bombs: NATO's Use of Cluster Munitions in Yugoslavia*, vol. 11, no. 6(D), at <www.hrw.org/reports/1999/nato2/nato995-01.htm>, p. 3, and Human Rights Watch, 2000, *Civilian Deaths in the NATO Air Campaign*, vol.12, no. 1(D), at <www.hrw.org/reports/2000/nato>.
9. Human Rights Watch, *Convention on Conventional Weapons (CCW): Re-focus on Cluster Munitions for 2006*, Statement to the Group of Governmental Experts of the CCW, March 2006, at <hrw.org/english/docs/2006/03/06/global12768.htm>.
10. This point was made by Stan Brabant during a lunchtime side event at the CCW Group of Governmental Experts in August 2005.
11. The ban allows two exceptions, which can broadly be described as weapons that contain non-explosive submunitions and weapons that contain individually guided, target-seeking submunitions that cannot leave unexploded ordnance.
12. Letter from Landmine Action to UK parliamentarians, 17 February 2006.
13. Letter from Norwegian People's Aid to Norwegian parliamentarians, 17 February 2006.
14. During the Belgian legislative process, Handicap International reported that a representative of the arms industry sought to highlight the position of Human Rights Watch as being divergent from that of Handicap International in an attempt to undermine Handicap International's position in favour of a ban.
15. Landmine Action's report *Out of Balance: The UK Government's Efforts to Understand Cluster Munitions and International Humanitarian Law* (London, 2005, at <www.landmineaction.org/resources/Out%20of%20Balance.pdf>), makes the case that the UK government has failed to provide any evidence that it is implementing IHL with regard to cluster munitions, but instead seeks to discredit available information from NGOs and cites selectively from data to back claims that its use of the weapon has been in compliance with IHL.
16. Correspondence with Brian Rappert, July 2006.
17. Federal Republic of Germany, *German Understanding of Cluster Munitions*, UN document CCW/GGE/XIII/WG.1/WP.10, 8 March 2006.
18. John Flanagan, see note 2.
19. Ross Mountain, OCHA, Statement by the Inter Agency Standing Committee, *A Call for a Freeze on the Use of Cluster Munitions*, Meeting of States Parties to the CCW, Geneva, 27 November 2003.
20. United Nations Secretary-General, Statement to the Meeting of States Parties to the Convention on Certain Conventional Weapons, Geneva, 24 November 2005, at <www.un.org/apps/sg/sgstats.asp?nid=1798>.
21. For more on cluster munitions and their relation to IHL, see the article by Louis Maresca in this issue of *Disarmament Forum*.
22. ICRC, *Comments on the "Report on States Parties' Responses to the Questionnaire" on International Humanitarian Law and Explosive Remnants of War*, Thirteenth Session of the Group of Governmental Experts to the CCW, UN document CCW/GGE/XIII/WG.1/WP.15, 24 March 2006.
23. See ICRC statement to the Group of Governmental Experts of the CCW, 19 June 2006, and ICRC, *Preparing a Review of the CCW and its Protocols, Discussion Paper*, Fourteenth Session of the Group of Governmental Experts of the CCW, 18–23 June 2006.
24. See statements by Denmark, Holy See, Ireland, Jordan, New Zealand, Norway, Sweden to the Fourteenth Session of the Group of Governmental Experts of the CCW, 18–23 June 2006.
25. Statement by Norway on ERW to the Group of Governmental Experts of the CCW, 20 June 2006.
26. Landmine Action, 2006, *Failure to Protect: A Case for the Prohibition of Cluster Munitions*, London, August, at <www.landmineaction.org/resources/Failure_to_Protect.pdf>; Landmine Action, CMC and Oxfam GB,

- forthcoming, *Cluster Munitions in Lebanon*, London; Handicap International, forthcoming, *Global Human Impact of Cluster Munitions*, Brussels.
27. This engagement is taking place mainly in European countries and other advanced democracies. Clearly, different strategies and structures will need to be employed in different contexts.
 28. Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction, entry into force 1 March 1999. Also known as the Ottawa Convention.
 29. R. Cave, 2006, "Disarmament as Humanitarian Action? Comparing Negotiations on Anti-personnel Mines and Explosive Remnants of War", in J. Borrie and V. Martin Randin (eds), *Disarmament as Humanitarian Action: From Perspective to Practice*, Geneva, UNIDIR.
 30. See Human Rights Watch, 1999, op. cit.; Human Rights Watch, 2002, *Fatally Flawed: Cluster Bombs and Their Use by the United States in Afghanistan*, vol. 14, no. 7G, at <hrw.org/reports/2002/us-afghanistan>; Human Rights Watch, 2003, *Off Target: The Conduct of the War and Civilian Casualties in Iraq*, New York, at <www.hrw.org/reports/2003/usa1203>.
 31. See statements by Pakistan, the Russian Federation and the United States.

Cluster munitions and their submunitions—a personal view

Kevin BRYANT

In 1975, a few months after the Viet Nam War ended, and two years after the last bomb fell on the Lao People's Democratic Republic (PDR), I joined the British Army. Not that I understood much of events in South-East Asia; it was thousands of miles away with very little British involvement. As for many 16-year-olds brought up in a socially deprived area, the army was a good option for me: reasonable wages, career opportunities, travel and adventure. I began training and at first it was quite mundane; learning to be a soldier in the mornings and education every afternoon. But after six months we began to train as combat engineers: bridge building, water supply, demolition, field defences, as well as airfield, road and camp construction.

We also learned the art of mine warfare, where we practised laying and breaching minefields as well as setting and clearing booby traps. There was no mention of cluster munitions, even though they had been used in Europe during the Second World War and more recently in South-East Asia. The SD2 "Butterfly Bombs" that fell on Belgium, France and the United Kingdom in the 1940s had been forgotten, even though the effect of these weapons on civilian populations had been widely reported: a British newspaper stated that on 13 June 1942 over 3,000 such submunitions had fallen on Grimsby and Cleethorpes, resulting in the deaths of 74 people and injuries to a further 88. The article said that "the wings are coloured black and yellow which makes them attractive to children". In contrast, the humanitarian impact of the use of cluster munitions in South-East Asia went unreported. Cambodia, Lao PDR and Viet Nam were under communist rule; the problems caused by these weapons were kept firmly behind closed borders.

My first real introduction to cluster munitions was during combat engineer training in the early 1980s. Only they were not referred to as cluster munitions, but as "area denial" or "runway denial" scatterable munitions systems. We were taught how to recognize the munitions and how to carry out rapid clearance of affected areas. This would generally employ some very bizarre techniques, such as shooting them from a distance with a large-calibre weapon, or moving them to one side using an armoured bulldozer or high-powered water hose.

Meanwhile, war was being fought in the Falkland Islands. The United Kingdom's Royal Air Force dropped BL755 cluster munitions on tactical targets. Argentine casualties from these attacks are not known; what is known is that there were no civilian casualties or humanitarian problems in the areas

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where the weapons were used. After the conflict, bomb disposal units quickly cleared (or in some cases fenced) unexploded submunitions so again no real lessons about these weapons were learned.

That was all to change in the late 1980s, as information became available from Afghanistan and South-East Asia. It was obvious that there was a real crisis in Afghanistan, Cambodia and Viet Nam—landmines were claiming hundreds of victims a year and the dangers of unexploded submunitions were becoming all too apparent, particularly in Afghanistan and Lao PDR. In the early 1990s, in the aftermath of the first Gulf War, the danger of unexploded submunitions would be confirmed once and for all. In Kuwait and Iraq, soldiers of all nationalities, as well as personnel from commercial and non-governmental organizations, were involved in post-conflict clearance, and all learned harsh lessons regarding the dangers of cluster munitions: the submunitions released by these weapons created both civilian and military casualties. It was apparent that failure rates were not always as predicted and unexploded submunitions were causing a real humanitarian problem. These findings were reinforced as conflict spread in Yugoslavia.

Training was adapted to encompass clearance techniques that were safe and effective for dealing with submunitions. And we were no longer referring to the weapons as “area denial” or “runway denial” scatterable munitions systems, but correctly calling them cluster munitions that release submunitions over an area. It was obvious that the weapons did not simply deny the enemy an area, they could also be used for area attack, and not just on aircraft runways, but on any military target.

It also became apparent that only *after* an attack could accuracy or failure rates be established. Often, when released by aircraft, the cluster-munition strike could be some distance from the intended target, and unexploded submunitions could total in excess of 50% of the payload. This could be down to any number of reasons, though flying at night, in bad weather, and over hostile territory were the most common.

As British soldiers we were told that these weapon systems were the best and most effective way of engaging an enemy whose assets were dispersed over an area. But as military Explosive Ordnance Disposal (EOD) Operators we were beginning to understand that the so-called “collateral damage”

We were beginning to understand that the so-called “collateral damage” caused by unexploded submunitions was in fact a serious humanitarian problem.

caused by unexploded submunitions was in fact a serious humanitarian problem—not to mention a significant personal danger to those of us responsible for post-conflict clearance.

In 1999, I left the army and began to work for a commercial clearance company in Kosovo, where I had my first experience clearing submunitions. By November, when I arrived, there had already been plenty of casualties from unexploded submunitions. During the short conflict in Kosovo 1,765 cluster munitions containing more than 295,000 submunitions were used. Assuming failure rates of 5–30%, this left between 14,750 and 88,500 unexploded submunitions in the province. I was an EOD/Survey Team Leader with a clearance organization and my responsibilities included disposal of unexploded ordnance and survey of cluster-munition strike areas—though regular accidents involving submunitions meant that our small teams were instructed not just to mark strike areas but also to destroy visible submunitions to prevent further accidents.

I remember my team being sent to a site south of Pristina in early 2000. A cluster-munition strike had occurred on an isolated farm several kilometres away from where the nearest Serbian military unit had been positioned. We met with the farmer, who sadly explained that his 13-year-old son had died after an accident with a “Serbian mine” a month earlier. On hearing an explosion the farmer had run from the house to the field where his son lay. The boy died in his father’s arms before any help could arrive. When I asked about the mine the farmer went into an outbuilding and brought out some shrapnel that he had collected from the scene. I saw immediately that the boy had not been killed by

a mine, but by a US-made BLU97 submunition. The farmer probably knew what the shrapnel came from but could not bring himself to believe that the forces who had come to liberate his people had also brought about the terrible death of his son ... it was better to blame the enemy. After two months of hard work his land was cleared and other children were safe.

On 23 April 2002, when I was working in southern Lebanon, there had been an accident in the small village of At Tiri, resulting in the death of one young boy, serious injuries to another and minor injuries to a third. The boys were all brothers. I went to the village to conduct a survey and report on the accident. The boys' uncle told me that the three brothers had been playing about 100m from the family home. The rest of the family was sitting outside drinking tea when an explosion rocked the house. They all raced to the scene to find the oldest boy seriously hurt and the youngest bleeding from small fragmentation wounds; the middle child had been torn apart and was already dead. After the accident, the younger boy told his uncle that they had found a metal "ball". Noticing that it was two spheres joined together, the brothers decided to open it. The dead boy had taken the "ball" from his brother and struck it quite hard against a rock. Nothing happened so he struck it again, and this time it exploded. It was, of course, a submunition, and from the fragmentation most likely a BLU63. We later found out that the village had been bombed in 1978 by the Israeli Air Force, and that since then over 300 submunitions had been found. Incredibly, many had been thrown down an old well to prevent the children from playing with them. These submunitions, dropped 24 years previously, had found a new generation of unwitting victims.

The dangers of unexploded submunitions are not only faced by civilians. There have been many soldier and deminer casualties worldwide, especially during post-conflict clearance. In Kosovo, two British Gurkha soldiers were blown to pieces on 21 June 1999 while trying to remove submunitions from a school in the village of Orlate; and on 6 April 2001, during the clearance of a site in the town of Grebnik, a BLU97 detonated, killing one deminer instantly and disabling another for life.

The problem with submunitions

The difficulties of clearing unexploded submunitions are associated with the inherent problems of the weapon. Comparisons have been made between landmines and submunitions and there are indeed similarities. But there are also fundamental differences. Landmines are primarily "area defence" weapons: they are usually laid deliberately and hidden. This "hidden hazard" promotes fear, as we are naturally afraid of what we do not see. Generally, people will avoid areas where they know landmines to be hidden (although this is usually only after an accident). Submunitions, on the other hand, are delivered remotely in an indiscriminate manner and often fail to explode. They are usually visible and remain on the surface, but in certain conditions, such as soft, wet or sandy soil, some will be buried. They thus present an "exposed hazard", which generally promotes curiosity. The unusual shapes, sizes and colours of the submunitions simply heighten this curiosity—particularly in children. (It is strange that this phenomenon, reported as long ago as 1942, never altered subsequent submunition designs.) Unlike landmines, people will not avoid an area even after an accident involving a submunition, because they can see the hazard and therefore believe they understand how to avoid the danger. Unfortunately, however, they may not understand that submunitions may have been buried, posing a hazard when ploughing, excavating, hunting, collecting firewood and undertaking many other normal activities.

Despite their inherent problems, in future, more cluster munitions are likely to be used more often. In recent conflicts, cluster munitions have more frequently been delivered to their targets by artillery or rocket than by aircraft: it is less risky (and less expensive) than committing an aircraft to fly over a battlefield, and means the munitions can be delivered more quickly from a distance. For

example, UK artillery fired approximately 2,000 L20 cluster munitions during the battle of Basra from a distance of around 30km. They released 98,000 M85 submunitions. During the same battle, British aircraft dropped only 66 BL755 cluster munitions containing 9,702 submunitions. As the artillery-fired cluster-munition weapon system is known to suffer a 2% failure rate, at the very minimum there would have been close to 2,000 unexploded M85 submunitions remaining after the attack.

The countries that possess these weapons claim that they are necessary for the military to carry out effective and decisive operations. This is not strictly true, however, as recent conflicts, particularly in Kosovo, demonstrate that the weapons are not entirely effective in suppressing a well-disciplined enemy force. Cluster munitions are not target-specific and are neither aimed nor guided. They are in fact a “dumb weapon” that can only be aimed “in the general direction” of the enemy, and once the submunitions are released it is a matter of luck whether they hit a target or not. Their use is similar to carpet bombing, which is inefficient and very often ineffective.

There have been efforts to improve submunitions: later models of submunition are more effective, with a failure rate of just 1% (again, this failure rate is determined during trials rather than “live” operations). This has been achieved by increasing the sensitivity of the fuzes: meaning that the 1% of failed submunitions have more sensitive fuzes and therefore present even more of a hazard than the 5–30% of older-generation weapons. This “improvement” clearly does not reduce the danger posed by unexploded submunitions.

Even newer submunitions can be fitted with self-neutralization or self-destruct mechanisms. But these are subject to failure during manufacture, storage or use—submunitions hit the ground at high velocity from a considerable height, so if they do not explode they are likely to be damaged. Only an expert would know if the self-neutralizing mechanism was damaged; an untrained individual could easily pick up such a munition in the belief that it was neutralized. Thus, an unexploded submunition of this type could have two mechanisms that would cause it to detonate when handled.

The BLU97 was also an “improved” submunition: it was fitted with an “always acting” fuze, which would function no matter how the munition landed. We now know that this “always acting” submunition fails between 5 to 30 times per hundred, but we only found out the hard way—after it had been used on live targets.

The challenge of clearance

Most deminers have a healthy respect for all unexploded ordnance, but especially for those with sensitive fuzes. As we know, manual landmine clearance is a time-consuming and expensive activity. But we back up the clearance using the “toolbox approach”, deploying machines and dogs either to supplement manual clearance or reduce the size of the area to be cleared. Most mines that we encounter are laid by hand and concealed under the ground. Very few are delivered remotely. This can make the survey of suspect mined areas simpler in that we can think “tactically” and sometimes determine what the layer of the mines wanted to achieve and therefore have a good idea of where the mines will be. Mined areas are cleared systematically, employing well-practised and accepted procedures. When mines are found they are carefully excavated and either made safe and removed, or destroyed by placing an explosive charge next to them, which is then detonated from a safe distance.

When clearing cluster-munition strike areas we cannot think tactically; we can react to intelligence received from the military (if they are inclined to give it and if it is accurate) or to local information. Surveys can usually be carried out far more easily than for a mined area as there is generally more evidence above ground. This evidence includes such things as remnants of the container, packaging, craters and even “surface” unexploded submunitions. The survey is also safer—although care needs to

be taken not to disturb any unexploded submunitions—because any “subsurface” unexploded submunitions will not normally detonate by the pressure exerted by a footstep, allowing the survey team to move around the area more freely. Of course there are exceptions, and the survey can be extremely hazardous. In Kosovo, surveys were often carried out on steep, wooded terrain with dense foliage cover and leaf debris; slipping down a wet slope in a wood is no fun when there is a possibility of disturbing a concealed, armed BLU97 or BL755.

A cluster-munition strike area can also be marked out fairly safely. This is carried out in much the same way as for a minefield: the area is divided into boxes and each box is systematically searched by deminers working in lanes. This is achieved more quickly than for a mined area as there is usually no trip-wire threat (depending on the submunitions present) and, due to their high metal content, unexploded submunitions are easy to find with a detector or locator. Many will be found quickly as they will either be on the surface or only partially buried.

There is no making safe of unexploded submunitions, however. They are marked and then destroyed by placing an explosive charge next to them. The main problem comes with subsurface munitions, as these need to be very carefully excavated. This is most hazardous when excavating in hardened soil or clay, as the sensitivity of the munition is such that it is likely to detonate if it moves even slightly. Accidentally striking it with the excavation tool could also cause detonation. Due to the deminer’s body position during excavation, any detonation will usually have serious, if not fatal, consequences. In addition, unexploded submunitions will be found damaged or in dangerous conditions. Apart from those on or under the surface, others may be found caught up in trees and vegetation or on buildings and structures. Some are prone to problems related to weather conditions and it is possible that, as the day warms up, these may unexpectedly detonate while deminers are searching.

There is no making safe of unexploded submunitions.

In my experience, the clearance of unexploded submunitions is far more hazardous than clearing mines, although others consider that clearing submunitions is no more hazardous than clearing other items of unexploded ordnance (UXO). Indeed, some very sensitive fuze systems do exist, particularly on certain rifle and rocket grenades, air-delivered rockets, missiles and large bombs. But these are never found in large concentrations in small areas and, because of their small numbers, they are generally dealt with by small, highly qualified EOD teams with specialist training.

My views on the challenges of clearing unexploded submunitions may not be shared by all deminers, either; some will say that they prefer clearing these munitions to mines. In fact, some deminers might even consider that the clearance of submunitions is safer. But my opinion is based on reflection post-accident. There can be no worse experience for an EOD technician or deminer than to suddenly discover that he is not “bomb proof”. I spent much time in my hospital bed considering the past, and my work in Kosovo and Lebanon. I carried out some pretty deep analysis of what I had done, and there was no retrospective fear regarding the hundreds of mines I had made safe or destroyed, even though one had just taken my lower leg. Nor was there fear of the multitude of UXO or sophisticated booby traps cleared. But memories of clearing unexploded submunitions left me thinking how lucky I had been; remembering losing my footing and sliding down a wet, leaf-strewn slope and coming to a halt with a BL755 submunition between my legs; or digging in rock-hard soil and hearing the trowel strike the fuze end of a fully armed BLU97.

I was once told by a colleague: “If you have an accident with a landmine you would hope to live ... if you have an accident with a submunition and survive, you will probably wish you hadn’t”. It took me many years to realize the truth of this statement and I consider myself fortunate that I still have hands, my sight, a mind that works and a heart that beats.

NEW ACTIVITY

The Security Needs Assessment Protocol

The Security Needs Assessment Protocol now being developed at UNIDIR is a system for the timely provision of culturally specific security-building knowledge. The system will assist field managers in the design and planning of security-related development and humanitarian activities. It is intended to complement the work of Joint Assessment Missions conducted by the United Nations and World Bank, and may potentially be of use to the United Nations Peacebuilding Commission. The project is undertaken as both a security and development project in line with the March 2005 Official Development Assistance guidelines of the OECD's Development Assistance Committee.

Following a 24-month period of conceptual development, inter-agency cooperation and field testing, the final protocol will be employed to generate community-level knowledge about security needs as they are understood by community members themselves; to create a transparent means of interpreting that knowledge for the benefit of project design and planning; and to negotiate the knowledge with standing agency practices and programmes and provide vital information on which to build security-related projects. The information it creates will be publicly available, and will be used—over time—to create a body of culturally specific knowledge about community-level security practices around the world.

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In each issue of *Disarmament Forum*, UNIDIR Focus highlights one activity of the Institute, outlining the project's methodology, recent research developments or its outcomes. UNIDIR Focus also describes a new UNIDIR publication. You can find summaries and contact information for all of the Institute's present and past activities, as well as sample chapters of publications and ordering information, online at <www.unidir.org>.

NEW PUBLICATION***European Action on Small Arms and Light Weapons and Explosive Remnants of War:
Final Report***

The illicit trade, accumulation and use of small arms and light weapons, and the presence of explosive remnants of war (ERW), exacerbate conflict, threaten human life, undermine development and hamper the recovery of war-torn societies. The spread of small arms and their misuse are often related to the vicious circle of poverty, insecurity and underdevelopment. This, in turn, threatens the achievement of the Millennium Development Goals—a major European Union priority. By consolidating its action against small arms and explosive remnants of war, the EU could make an even greater contribution to the attainment of these goals.

This report aims to provide the European Union with an overview of small arms and ERW problems and current responses, as well as an analysis of selected European actions in these areas and an assessment of their effectiveness. It provides evidence-based recommendations for future European action, highlighting the added value achievable by the EU. Options are presented for the enhanced integration of small arms and explosive remnants of war into relevant EU policies, improved internal coordination in the EU and enhanced cooperation with external partners.

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