landmine action

Ambiguity in practice

Benchmarks for the implemetation of CCW Protocol V

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Introduction

Protocol V on Explosive Remnants of War to the 1980 Convention on Certain Conventional Weapons (CCW) affirms that States that are contaminated with unexploded or abandoned ordnance have a responsibility to protect their populations through the removal or destruction of these threats. Very significantly, Protocol V also establishes that the users of explosive weapons have a special responsibility to protect civilians from the persistent threat that these weapons create, a responsibility that extends to civilians in States that have been adversaries in armed conflict. Furthermore, States have obligations to take preventive measures to reduce the level of ongoing risk that their explosive weapons will present to civilians.

While Protocol V is important in the broad principles it establishes or reinforces, there are also serious challenges to making it an effective humanitarian instrument. First and foremost, its specific rules are often ambiguous, making it difficult to know what form of practice is sufficient to fulfil its legal obligations. Secondly, with the adoption in 2008 of the Convention on Cluster Munitions it has become clear that the CCW will not provide the framework for addressing cluster munitions, which in their humanitarian impact did much to precipitate the negotiation of Protocol V on ERW. This has bearing on the perceived relevance of the Protocol. Thirdly, Protocol V is not providing a meeting point for practitioners engaged across the wide range of activities that it covers.

In such a context, the potential strength and humanitarian value of Protocol V's broad themes is disconnected from structures of implementation. In recent years, ongoing meetings of the Group of Governmental Experts on Protocol V have focused on such issues as the development of the templates that High Contracting Parties (States that have formally adopted Protocol V) will use to submit their national reports; electronic templates for recording explosive ordnance use; checklists for generic preventive measures being undertaken; and, probably most successfully, the delineation of a non-binding 'plan of action' on victim assistance. While the intent behind these endeavors is laudable, it often remains uncertain to what extent discussions in Geneva are making any difference to practices and policies in national capitals, or perhaps more distant still, in the policies and practices of national armed forces. Yet for an instrument that is drafted in ambiguous terms, the practices of States are of particular importance to understanding the normative significance of the instrument.

This report considers some of the key articles of Protocol V, examines elements of past practice that might cast light on their provisions, and attempts to make recommendations for positive action that would strengthen those key elements that could make Protocol V relevant to civilian protection. The articles covered in this analysis are:

- Article 3: Clearance, removal or destruction of explosive remnants of war
- Article 4: Recording, retaining and transmission of information
- Article 7: Assistance with respect to existing explosive remnants of war
- Article 8: Cooperation and assistance
- Article 9: Generic preventive measures.

The report also considers elements of "best practice" delineated in Protocol V's Technical Annex where this is relevant to individual articles.

The report is structured to look at each of these articles in turn. The focus on these particular articles is directed by a belief that it is in these sections of the Protocol that the progressive humanitarian significance of Protocol V should lie.

The report is further structured to consider the articles on a paragraph by paragraph basis. Treatment of paragraphs has also been subject to a degree of selectivity. Within the articles that are discussed, this report does not concern itself in any detail with issues of mine action practice. The mine action sector has generated extensive literature on all elements of mine action implementation, management, and coordination and this report does not seek to add to that or to engage in a cursory way in what are often complex debates.

The report attempts to identify points where the ambiguous or qualified language of Protocol V opens up space for diverse interpretations and in such situations the report makes recommendations regarding interpretations that favor humanitarian protection. Where possible, the report draws on examples of practice that are pertinent to specific rules or obligations. These examples do not generally relate to practice in the implementation of Protocol V by High Contracting Parties but rather practice that casts light upon approaches and behaviour pertinent to such rules either before Protocol V was drafted or where Protocol V was not yet formally in effect.

Given that Protocol V is a humanitarian instrument determined to address, as stated in its preamble, "the serious post-conflict humanitarian problems caused by explosive remnants of war," it would be reasonable to expect State practice under the formal obligations of Protocol V to further improve upon these pre-existing standards.

Given the challenges outlined earlier, this report urges States to focus on concrete elements of practice under the framework of Protocol V that might make a significant difference in the future. Such a focus needs to occur not in Geneva, but in other places, in discussion with the actual people responsible for recording and transmitting data on ordnance use, in setting policies within military alliances, or in developing partnerships to improve the safety and security of ammunition storage in fragile states or post-conflict environments. Protocol V could provide a framework of considerable utility if it were a forum for practitioners in these specific areas.

Finally, a significant long-term humanitarian benefit from Protocol V may yet come from its role in establishing a stronger basis for engagement, in policy and law, with explosive weapons as a broad category. Protocol V establishes a special responsibility on the users of explosive weapons. This responsibility derives from a recognition that explosive weapons are prone to causing patterns of post-conflict civilian harm that require a categorical response. Such a categorical approach should be extended to consideration of consistent problems of civilian harm resulting from explosive weapons at the time of use, in particular in populated areas. While Protocol V does not engage with such issues, through its categorical approach to explosive weapons, it provides support to such an engagement in the future.

Summary of conclusions and recommendations

Article 3

Article 3 contains obligations for Parties to mark, clear, remove or destroy all ERW after the end of active hostilities in areas under their control. It also obliges past-users of ERW to provide assistance to clear affected territories not under their control. In this respect, Article 3 substantially extends and reinforces the principle that munitions with post-conflict effects must be located, cleared and destroyed.

Recommendations

- Where control over territory is fragmented or contested, responsibilities for addressing ordnance contamination should be apportioned so as to achieve the most effective immediate practical action, while the foundations for long-term management are also being built.
- Multi-national operations likely to exert effective control over territory should be mandated to uphold responsibilities established in Protocol V for clearance, removal or destruction of ERW.
- It will be a critical test of Protocol V to overcome the differential levels of ERW-related support offered to affected former adversaries and non-adversaries, and to see timely and substantial assistance provided to address ERW contamination by the users of explosive ordnance to those areas still under the control of former adversaries.
- It is critical that Parties put in place systems and policies so that they are in a position to meet obligations to address ERW contamination as soon as possible. Necessary funding streams, administrative arrangements, and management oversight for post-conflict ERW eradication, including in areas not under the control of the party, should be planned for, budgeted, and tested in exercises.
- Parties should be prepared to subdivide 'territory' affected by ERW so as to facilitate the early implementation of ERW eradication in areas where the cessation of hostilities allows, even if some level of hostilities is ongoing elsewhere in the affected State.

Article 4

Article 4 establishes obligations for recording and sharing information on explosive weapons that have been used or abandoned, recognizing the importance of this information in order to enable effective and efficient clearance and risk education. Evidence from Kosovo, Afghanistan, Iraq, and Lebanon indicates that certain States are capable of generating, retaining, and providing detailed data on the use of certain munitions. While some evidence regarding this practice is encouraging, there are some serious reservations about how indicative these examples are of wider State practice:

- These examples all relate to relatively wealthy States with well resourced militaries. There is no evidence regarding practices for recording, retaining, and providing data on ordnance use amongst less well resourced States.
- These examples were primarily generated out of concern regarding the particularly high levels of UXO contamination created by cluster munitions. Although there is evidence that the same data is being generated and retained for certain other types of ordnance the extent of this is uncertain. Amongst these examples, good practice is better evidenced for air-dropped ordnance, with very limited evidence regarding ground-launched munitions.

- Where data on ground-launched munitions has been provided this has related to large computerised weapon systems (artillery and multiple launch rocket systems) with no indications being available of practice regarding land-service ammunition.

Recommendations

- States should appoint and announce specific contact points that will be responsible for the planning and enactment of policies and practice regarding the retention and hand-over of data on explosive ordnance use.
- As soon as possible, and before engagement in active hostilities, States should confirm that they have in place specific policies regarding:
  - What information must be retained on all forms of explosive ordnance;
  - Who is responsible for the collation of this information;
  - What information will be handed over to other parties on cessation of active hostilities; and
  - To whom information will be handed over.
- States should retain and hand over as much information as possible. However, this does not mean undertaking additional work to plot strikes on maps or estimate contamination based on failure rates in specific areas, for example; such work can be undertaken as required by ordnance disposal teams in the field.
- Speed of data handover is critical. Having policies and procedures in place before active hostilities is necessary to ensure an effective response afterwards.
- To ensure speed of hand-over, States should adopt an interpretation of Protocol V that users of explosive ordnance have an obligation to actively provide data, rather than waiting until data is requested.
- States should test their policies and practices in exercises.

Recommendations for the international community

- Provisions in line with a strong interpretation of Protocol V should be incorporated into ceasefire and technical agreements. This will provide a humanitarian benefit by strengthening practice, as well as working for the universalisation of the Protocol's norms.
- Coalitions and military alliances should adopt policies and procedures that reflect a strong interpretation of Protocol V. Coalitions and military alliances should agree on policies and procedures for retention and hand-over of data on explosive ordnance use, including explicit determinations as to whether there will be collective management and responsibility for this work. Constraints resulting from operations in coalitions should not be allowed to justify failure to implement Protocol V obligations to the highest humanitarian standard.

Article 7

Article 7 further codifies what is already a widely accepted international practice – the provision of assistance and cooperation to address problems of ERW contamination. However, the framework of Protocol V does not yet seem to have given any particular additional impetus or improved coherence to the ongoing practice of States seeking and receiving assistance to tackle existing ERW contamination.

The pre-existing strength of mine action practice (including funding), organized primarily under the more widely-adopted and humanitarian focused framework of the 1997 Mine Ban Treaty, makes that the dominant organizing framework for engagement and communication between affected countries, donors, and implementing agencies.

- There is a lack of clarity in State practice regarding the overlap between assistance to address explosive remnants of war and assistance to address problems caused by anti-personnel landmines – this makes it very difficult to assess what, if any, impact Protocol V is having on donor practice.
- There is little evidence of an increase in funding to address problems of existing explosive remnants of war as a result of the advent of Protocol V. The confusing nature of State reporting across different instruments related to post-conflict explosive weapon contamination makes it very difficult to determine what, if any, specific additional donor actions are motivated by Protocol V (rather than being actions that would have occurred in any case but might be linked to Protocol V so as to try to be supportive of that instrument – i.e. practice being used to try to give strength to the legal framework rather than the legal framework driving practice.)

Recommendations

- States should move towards a standardized system of reporting across different legal instruments. The current system of confused, overlapping reports makes it impossible to readily determine the real extent of State practice and must also waste time within the States undertaking this reporting.
- Rather than expecting donors to make distinctions between types of contamination, Mine Action Coordination Centres should be able to provide basic representations and estimates of the balance of work being conducted to address the specific threats of anti-personnel mines, anti-vehicle mines, cluster munition remnants, and other ERW. Such representations could then be used to understand how donor funding by country is likely being spread across these particular threats.
- States not "in a position" to provide assistance should report explicitly why this is the reason they are not providing assistance.
- Protocol V should not try to replicate or import the community of humanitarian practice of the Mine Ban Treaty into its framework of meetings. Rather, Protocol V should explore ways in which it can provide an overarching legal framework for wider issues of safe ammunition storage and management.

Article 8

Article 8 is supposed to provide an additional level of obligation to provide assistance to tackle ERW contamination where it occurs on the territory of a State that has become a High Contracting Party to Protocol V – however, such a situation has not yet arisen.

There is evidence of some confusion amongst Parties to Protocol V regarding the distinctions between Article 7, on existing ERW prior to the entry into force of Protocol V for each High Contracting Party, and Article 8, on ERW occurring after the entry into force of the Protocol for the High Contracting Party on whose territory the ERW is present. It will be an important test of Protocol V to see the level of cooperation and assistance extended to address new contamination of ERW. There is evidence that certain obligations of Article 8, such as the commitment to provide information to databases, are not being given significant attention by Parties because they are not considered particularly relevant either to increasing humanitarian protection or furthering the interests of individual States or the Protocol as a whole.

Recommendations

- At the time of writing, Article 8 has yet to be tested. While there is a long history of States providing cooperation and assistance to each other to address problems caused by ERW, it has yet to be seen whether Article 8 will result in an improvement or significant expansion of that assistance.
- Linked to the conclusions drawn regarding Article 7, States should expand the scope of what is traditionally considered cooperation and assistance in relation to Protocol V so as to support a strengthening of measures aimed at the prevention of ERW and improvements in the safety of ammunition throughout its lifecycle.

Article 9

States have a special responsibility for the management of explosive weapons throughout their production, storage, use, or disposal. Many of these responsibilities are delineated in Technical Annex 3 relevant to the implementation of Article 9. Approaches taken towards the prevention of risk from explosive weapons should serve as an important indicator of States' wider orientation to civilian protection.

Protocol V could provide an important framework to address stockpile security and provide a mechanism for cooperation and assistance between High Contracting Parties. High Contracting Parties to Protocol V can make important steps forward in addressing stockpile management and security and the interrelationship between improperly stored munitions and abandoned munitions as a primary source of material for the creation of improvised explosive devices. However, this can only happen if engagement with Protocol V extends beyond discussions and exerts some influence on wider practices.

- Protocol V can provide a platform for States to discuss appropriate standards and training protocols that can enable States to improve stockpile management processes and reduce the risk of accidents.

Recommendations

- States need to develop mechanisms for testing the reliability and wider risks to civilians of ordnance that better reflect the likely combat performance of these munitions. Data on the performance of munitions in combat should be gathered and transparently assessed against testing data to provide an indication of the validity of such tests.
- Information on munition testing practices and data should be made publicly available so as to allow assessment and comparison of State practices and orientation to civilian risks.
- In addition to periodic testing of munition reliability, States should adopt clear policies that they will immediately take out of service and rapidly destroy munitions that are beyond their shelf-life. Policies should be enacted to ensure that munitions beyond their shelf life cannot be sold or transferred to other parties.
- States should implement the provisions of the Technical Annex on responsibility in the transfer of explosive weapons and should report on their policies and practices in this regard.

Article 3. Clearance, removal and destruction of explosive remnants of war

1. Each High Contracting Party and party to an armed conflict shall bear the responsibilities set out in this Article with respect to all explosive remnants of war in territory under its control. In cases where a user of explosive ordnance which has become explosive remnants of war, does not exercise control of the territory, the user shall, after the cessation of active hostilities, provide where feasible, inter alia technical, financial, material or human resources assistance, bilaterally or through a mutually agreed third party, including inter alia through the United Nations system or other relevant organisations, to facilitate the marking and clearance, removal or destruction of such explosive remnants of war.

2. After the cessation of active hostilities and as soon as feasible, each High Contracting Party and party to an armed conflict shall mark and clear, remove or destroy explosive remnants of war in affected territories under its control. Areas affected by explosive remnants of war which are assessed pursuant to paragraph 3 of this Article as posing a serious humanitarian risk shall be accorded priority status for clearance, removal or destruction.

3. After the cessation of active hostilities and as soon as feasible, each High Contracting Party and party to an armed conflict shall take the following measures in affected territories under its control, to reduce the risks posed by explosive remnants of war:

   (a) survey and assess the threat posed by explosive remnants of war;
   (b) assess and prioritise needs and practicability in terms of marking and clearance, removal or destruction;
   (c) mark and clear, remove or destroy explosive remnants of war;
   (d) take steps to mobilise resources to carry out these activities.

4. In conducting the above activities High Contracting Parties and parties to an armed conflict shall take into account international standards, including the International Mine Action Standards.

5. High Contracting Parties shall co-operate, where appropriate, both among themselves and with other states, relevant regional and international organisations and non-governmental organisations on the provision of inter alia technical, financial, material and human resources assistance including, in appropriate circumstances, the undertaking of joint operations necessary to fulfil the provisions of this Article.

Overview of Article 3

Article 3 obliges parties to mark, clear, remove or destroy all ERW after the end of 'active hostilities' in areas under their control. It also obliges past-users of explosive ordnance to provide assistance to clear affected territories not under their control.[1] Thereafter, Article 3 provides guidance on how this work is to be conducted, noting the need for prioritization of work based on humanitarian risk, different forms of work required, the relevance of 'international standards' to the conduct of this work and the need for cooperation between States and other organizations. In its broad principles, Article 3 represents a major advancement of international humanitarian law relevant to post-conflict situations.[2] It substantially reinforces – and extends – the principle that practical action must be taken to protect civilian populations from munitions with post-conflict effects.[3] It also reinforces and strengthens a basic principle of user responsibility regarding the ongoing effects of weapons in general.

Article 3, Paragraph 1

Article 3(1) establishes a primary responsibility on the party controlling the territory in which ERW is present and presenting a risk. It articulates the broad responsibility of States to protect their populations from threats in areas over which they assert or exert control. It further places a special responsibility on the users of ordnance to provide assistance to facilitate the removal of the resulting ERW threat where it occurs on territory the user does not control.

When the obligations on the users of explosive ordnance in Article 3(1) are combined with the provisions of CCW Amended Protocol II, Article 3(2), which establishes long-term user responsibility for mines, booby-traps and other devices, a broad and coherent level of elevated responsibility is established for the use of explosive weapons as a category. Taken together, these instruments relate to all forms of conventional explosive weapons. This 'special responsibility' for the use of explosive weapons is significant as it establishes for the first time in international humanitarian law the basis of a categorical approach to explosive weapons.

The following components of Article 3(1) require more detailed analysis:

- The term "party to an armed conflict" extends the scope of Protocol V beyond States alone, also to engage non-state armed groups.
- The scope of the term "territory under its control" can be contested in the post-conflict environment and should not be interpreted so as to leave no State in control for the purposes of this legal obligation.
- The term "cessation of active hostilities" should be interpreted so as to provide assistance as rapidly as possible in order to maximize humanitarian benefit. This phrase appears again under Art 3. Paragraph 2 and will be examined in more detail there.
- Where a user of explosive ordnance causes ERW outside territory under its control, the user has a responsibility to provide defined forms of assistance. Performance in this area of extra-territorial responsibility has been varied in the past. Higher standards of future assistance in such cases will be a major test of Protocol V.
- "Where feasible" is one of a number of phrases included across the articles of Protocol V, providing interpretative latitude. Such modifiers should be interpreted according to a reasonable understanding of the language, with best practice examples forming the basis of more standardized customary practice with regard to obligations set out in Protocol V.

"Party to an armed conflict"

Many of Protocol V's provisions apply not only to a High Contracting Party (HCP) but also to a "party to an armed conflict." The insertion of this term serves to emphasize, as is established in Article 1, that the provisions of Protocol V apply in both international and non-international armed conflicts. The inclusion of this term also reinforces the applicability of international humanitarian law to non-state groups that engage in armed conflict and an expectation that such groups should be required to meet standards of civilian protection both during and after conflict.

"Territory under its control"

The primary obligations of Article 3 fall on parties in "control" of ERW-affected territory. However, in conflict-affected and post-conflict settings, the legal and practical realities of "control" can be vague, contested, or otherwise problematic. "Control" alone, as opposed to "jurisdiction or control," as used in other instruments of International Humanitarian Law[4] suggests effective coercive authority within the area in question, which could exclude areas over which a party is ascribed or asserts jurisdictional control, but over which it lacks practical control. This raises questions about how these responsibilities fall upon HCPs encountering domestic political or regional secession, and on occupying forces, peace-keeping forces, and the like.[5]

"CONTROL" IN IRAQ, 2003–2008

The history of Iraq immediately following the 2003 conflict provides a good example of the challenges in the interpretation of "control."

At one level control was exerted by the UN-mandated U.S. – led coalition force, dividing Iraq into five major areas of military responsibility maintained by forces from six countries. At another level, instability in the Iraqi national government contributed to an inability to exert effective control over processes of mine action and ERW clearance, which in turn affected the support provided by the wider international community. Between 2003 and 2008 responsibility for ERW eradication in Iraq was transferred from a National Mine Action Authority set up under the Coalition Provisional Authority to the Government of Iraq. Such a transfer may serve to construct as well as to reflect the concept of "control" at a local level.

Concepts of territorial control and sub-divisions are political, dynamic, and often ambiguous. In such situations, guiding principles in relation to Article 3(1) would seem to support taking responsibility for action at a local level, but support coordination and management at a wider level, in line with expectations for and support to institutions liable to take on longer term jurisdiction and control.

MANDATE LIMITATIONS IN KOSOVO

After the invasion of Kosovo in 1999, the NATO-led Kosovo Force (KFOR) troops were criticized for failing effectively to address unexploded cluster munition contamination in Kosovo, despite having the resources to do so.[7] KFOR argued that its mandate was limited to clearance of areas that directly impeded its mission or directly threatened civilians—meaning mainly major roads or areas near KFOR bases and buildings.[8]

The ICRC recommended that KFOR's policy "should be revised and broadened as a matter of urgency."[9] Examples such as this raise critical questions for the future about how the humanitarian imperative embodied in Protocol V can be adequately enacted where forces in control of an area are under a multinational authority.

The special responsibility on the users of explosive ordnance

Under Article 3(1), States that have used explosive weapons that have become ERW in territory that they do not control have a responsibility to provide assistance to facilitate marking, removal, or destruction of these ERW.

Past practice by States in this area has been mixed. Practice has been particularly poor where the regimes presiding respectively over explosive ordnance use and affected territory were adversaries, and better where the affected territory has been subject to invasion or an effective change of control. However, past political relationships do not have a direct bearing on the legal obligations of Protocol V.

Article 3(1) contains qualifiers that might be used to limit the extent of parties' obligations:

- That assistance should be provided "after the cessation of active hostilities" (as discussed in more detail below) could be interpreted so as to delay the point at which assistance is necessary, when the humanitarian imperative is to undertake this work as soon as possible.
- The phrase "where feasible" is open to wide interpretation. This should be interpreted as being what is practically possible[10] in light of the capacity of the user-State rather than as having bearing on whether assistance is deemed politically expedient or suitable.

USER STATES PROVIDING ASSISTANCE TO AREAS NOT UNDER THEIR CONTROL

Article 3(1) provides no grounds for discrimination on the basis of the identity of the party that controls the ERW contaminated territory other than in so far as it affects the feasibility of providing assistance either directly or through third parties. However, past practice in relation to the principles of this obligation has been strongly affected by whether or not the regime in control of the affected territory and the regime that used the ordnance had an adversarial relationship.

There are clear examples of ordnance users providing assistance to areas not directly under their control where the territory is under the control of a regime with which they have not had an adversarial relationship. Thus, for example, the UK and U.S. governments (amongst others) provided technical and material assistance for the clearance of munitions in Kosovo (1999–), Afghanistan (2001–) and Iraq (2003–) where the party effectively in control of the territory was not the party against which they had fought during the conflict.

In a sampling of 19 armed conflicts occurring from 1999 to 2006, 63 percent (12) were internal conflicts between a State and armed non-State actor or rebel group.[11] For the four primarily interstate conflicts occurring in that period resulting in a State creating ERW in a territory not under its control, it appears that assistance was provided to a former adversary in only one instance (the U.S. to Serbia/Yugoslavia).

- **India – Pakistan (Kargil Conflict 1999):** According to Landmine Monitor, both India and Pakistan provide in-kind assistance to international mine action programs, but neither provided assistance to each other.[12]
- **Israel – Hezbollah (2006):** According to Landmine Monitor, it does not appear that Israel has provided any international assistance for mine action to Lebanon, although it was responsible for the ERW contamination there.[13]
- **Indonesia – East Timor (2002):** Landmine Monitor reported that Indonesia has not made any international contributions to mine action since 1998.[14]
- **Ethiopia – Eritrea (2000):** Neither side was reported to have provided assistance to the other, according to Landmine Monitor.[15]

Beyond this sample, there is a pattern of limited or substantially delayed assistance to former adversaries. For example, in Vietnam, Lao PDR and Cambodia, although the U.S. has provided over $140 million to help clear ERW since 1993, this assistance began only decades after U.S. military engagement had ceased.[16] Similarly, U.S. financial assistance to Serbia in the aftermath of the Balkans Conflict of the early 1990s appears to demonstrate less positive practice with regard to the provision of assistance to a former adversary. The financial assistance provided by the U.S. to Serbia, its former adversary in the conflict, was much less and was provided much later, in comparison to assistance the U.S. provided to Bosnia-Herzegovina, Croatia, Albania, and Kosovo.[17] It is important to note, however, that there are many factors that may have contributed to this pattern, including attitudes on the part of the affected parties.

Article 3, Paragraph 2

Article 3(2) establishes the main operative requirements of the article as a whole; the practical steps of marking, clearing, removing, and destroying ERW. More specifically, though, it further states that steps must be taken as soon as possible and, based on an assessment of needs, that the work should be prioritized so as most effectively to reduce the humanitarian risk.

"After the cessation of active hostilities and as soon as feasible"

Interpretation of the phrase "cessation of active hostilities" can significantly effect to what extent action will meet the humanitarian requirements of the Protocol. Critical to the interpretation of the phrase is a recognition that "active hostilities" can be assessed at a local rather than national level – so that even prior to the end of formal hostilities,[18] areas at relative peace can be considered for intervention. In any case, substantial preparation work can be done to facilitate effective assistance in advance of a cessation of active hostilities. The understanding of what is "feasible" should require that policies and systems are put in place in advance as part of this preparation.

There is a danger that resumptions of violence will result in ineffective implementation of humanitarian operations,[19] but this risk is offset by the critical benefits of early implementation. Clearance contributes to improved humanitarian conditions, to post-conflict economic recovery and, in some contexts, practical engagement in the work of mine action has been proposed as a way of promoting the cessation of active hostilities and further peacebuilding.[20]

EXAMPLES OF RAPID ACTION

There are a number of examples that suggest the "cessation of active hostilities" can be interpreted so as to provide an early and effective humanitarian response.[21]

- **Iraq**
  Based in northern Iraq, Mines Advisory Group (MAG) maintained a level of operational activity throughout the 2003 conflict – this was possible because "active hostilities" were taking place in other geographic areas. Immediately following the end of "major combat operations" in May 2003 other mine action operations resumed work and even extended into new areas.[22] This was made possible because of plans put in place by institutions within the U.S. Government and the United Nations system.[23]

- **Sri Lanka**
  All internationally supported mine action activities halted in 2000 due to an escalation of fighting and donor concerns regarding continued mine-laying. However, between that point and the 2002 ceasefire,[24] extensive clearance work was undertaken in both Government and Liberation Tigers of Tamil Eelam (LTTE) controlled areas by local actors.[25] Following the 2002 ceasefire, mine and ERW clearance became better systematized, planned, and followed better standards of safety.[26] During this period, although the ultimate control and jurisdiction of territory remained contested, both parties prioritized the humanitarian requirement to tackle mines and ERW.[27]

- **Lebanon**
  The Lebanese government acted straight away to undertake ERW clearance in the aftermath of the Israel-Hezbollah conflict in 2006.[28] In July, when hostilities commenced, a multi-agency Mine Action Planning Group was created by the UN Mine Action Service (UNMAS) to develop a concept of operations and contingency plans according to the Framework for Mine Action Planning and Rapid Response.[29] The group developed a plan for operations in cooperation with the National Demining Office, preparing for the deployment of EOD and BAC teams and risk education programming.[30] In early August, contracts were prepared for teams to be ready to assist the Government of Lebanon immediately after active hostilities ceased.[31]

"Serious humanitarian risk shall be accorded priority status"

Article 3(2) requires parties to assess and prioritize needs for clearance of ERW-contaminated areas, recognizing that resources may be limited in comparison to the overall scale and distribution of contamination. It stipulates that once surveys and assessments have been carried out, areas that are determined to pose a "serious humanitarian risk" must be cleared as a priority. Identifying "serious humanitarian risk"[32] should be clearly based on the risk presented by the ERW to the civilian population rather than, for example, military considerations. High priority areas may be those that are heavily populated by civilians or of high importance to civilian activities. Effective prioritization will normally be assisted by involving local communities in the priority-setting process,[33] ensuring that a representative spectrum of community perspectives and needs is included.[34]

"Clearance, removal or destruction"

Article 3(2) requires parties to mark and clear, remove or destroy ERW in affected territories under their control. This phrasing seems to try to capture the comprehensive circumstances of contamination of a broad variety of explosive weapons – including, for example, areas that may be marked off and then cleared, isolated items or 'spot tasks', and abandoned ordnance which may be destroyed *in situ* or removed either for destruction elsewhere or for safe storage. The primary requirement, whether the ordnance is destroyed *in situ* or removed,[35] is that the threat the civilian population is effectively addressed.

Article 3, Paragraph 3

Article 3(3) provides basic direction on the practical steps necessary to address an ERW threat effectively. It requires an initial process of survey and assessment. This in turn provides a basis for prioritization of needs and practicalities by which to plan the processes of marking, clearance, removal, and destruction. It also asserts that parties have a positive obligation to mobilize the resources necessary to undertake this work.

These processes of work have been extensively discussed elsewhere in mine action literature and the comments below are no more than indicative.[36]

"Survey and assess the threat"

Survey and assessment are vital to gaining an understanding of the nature and scope of the ERW threat and for building effective and efficient clearance programs. The "threat posed" by ERW is more than the physically bounded areas of contamination. It encompasses also the risk of accidents, which in turn is linked to the types and locations of munitions, levels of contamination, and social and economic pressures towards risk-taking on the part of local individuals and communities.

Although Article 3(3) allows flexibility in permitting States to select methods to facilitate the best outcomes, it must be stressed that the motivation should always be the protection of civilians and the facilitation of clearance. Surveys should not be approached as an end in themselves.

"Take steps to mobilise resources"

Parties must "take steps to mobilise resources to carry out these activities." While the paragraph does not explicitly stipulate that any resources should be provided by the affected party itself, it is implicit in the obligation to undertake the post-conflict remedial measures required by Article 3. Thus steps to mobilize resources means securing necessary internal budgets and organizing local human resources and equipment as well as seeking assistance from external partners to address any shortfalls in these budgets (see also Article 8). While post-conflict States may be presented with numerous internal resource demands, addressing problems of ERW contamination may be a priority, because it will advance humanitarian protection, support wider economic recovery, and can provide a socially valuable role for military units at a time when these forces need renewed direction.[37]

EVIDENCE OF NATIONAL COMMITMENTS TO FUNDING MINE ACTION

According to the Landmine Monitor, national contributions to mine action programs are increasing. In 2007, at least 28 mine/ERW affected States contributed $117.4 million to their own mine action programs (including in-kind contributions), compared to the $430 million provided by the international donor community.[38] National contributions increased in 2007, in comparison to the $84 million contributed in 2006, although Landmine Monitor notes that the significant increase is also in part due to better reporting by States on their own funding contributions.

Conclusions regarding Article 3

In addition to affirming the responsibility of States to mark, clear, remove or destroy ERW after the end of hostilities in areas under their control, Article 3 affirms a special responsibility on the users of explosive weapons. The responsibilities established in Protocol V, in conjunction with those in CCW Amended Protocol II with respect to mines and improvised explosive devices, support a "categorical" approach to explosive weapons, i.e. a recognition that explosive weapons are a distinct technological category that should be subject to distinct categorical controls.

Article 3: Recommendations

- Where control over territory is fragmented or contested, responsibilities for addressing ordnance contamination should be apportioned so as to achieve the most effective immediate practical action, while the foundations for long-term management are also being built.
- Multi-national operations likely to exert effective control over territory should be mandated to uphold responsibilities established in Protocol V for clearance, removal, or destruction of ERW.
- It will be a critical test of Protocol V to overcome the differential levels of ERW-related support offered to affected former adversaries and non-adversaries, and to see timely and substantial assistance provided to address ERW contamination from the users of explosive ordnance to those areas still under the control of former adversaries.
- It is critical that parties put in place systems and policies so that they are in a position to meet obligations to address ERW contamination as soon as possible. Necessary funding streams, administrative arrangements, and management oversight for post-conflict ERW eradication, including in areas not under the control of the party, should be planned for, budgeted, and tested in exercises.
- Parties should be prepared to subdivide 'territory' affected by ERW so as to facilitate the early implementation of ERW eradication in areas where the cessation of hostilities allows, even if some level of hostilities is ongoing elsewhere in the affected state.

Article 4. Recording, retaining and transmission of information

1. High Contracting Parties and parties to an armed conflict shall to the maximum extent possible and as far as practicable record and retain information on the use of explosive ordnance or abandonment of explosive ordnance, to facilitate the rapid marking and clearance, removal or destruction of explosive remnants of war, risk education and the provision of relevant information to the party in control of the territory and to civilian populations in that territory.

2. High Contracting Parties and parties to an armed conflict which have used or abandoned explosive ordnance which may have become explosive remnants of war shall, without delay after the cessation of active hostilities and as far as practicable, subject to these parties' legitimate security interests, make available such information to the party or parties in control of the affected area, bilaterally or through a mutually agreed third party including inter alia the United Nations or, upon request, to other relevant organisations which the party providing the information is satisfied are or will be undertaking risk education and the marking and clearance, removal or destruction of explosive remnants of war in the affected area.

3. In recording, retaining and transmitting such information, the High Contracting Parties should have regard to part 1 of the Technical Annex.

Overview of Article 4

Article 4 is a key achievement of Protocol V and represents an important advancement in International Humanitarian Law. It establishes obligations for recording and sharing information on explosive weapons that have been used or abandoned, recognizing the importance of this information in order to enable effective and efficient clearance and risk education. While some precedent for such a provision had been widely accepted by High Contracting Parties (HCPs) to Amended Protocol II and broadly reflected in most military doctrines regarding landmines, it had not been previously established for explosive weapons more broadly prior to the advent of Protocol V.[39] As a result, Article 4 establishes a distinct set of responsibilities with respect to the use of explosive weapons which further reinforce the special responsibilities established in Article 3.

Rapid provision of accurate and comprehensive data on target coordinates, type, amount, and nature of explosive ordnance used or abandoned should facilitate the implementation of the main obligations of the Protocol (such as contained in Articles 3, 5, and 6, on clearance, the provision of warnings and risk education, and protection of civilian populations and humanitarian missions).[40]

Article 4 is supported by sections of the voluntary Technical Annex, which provides examples of specific practices that should be undertaken, and also illustrates how elements of Article 4 should be understood.

Article 4, Paragraph 1 and Technical Annex

Article 4(1) requires parties to record and retain information on the use and abandonment of explosive ordnance, "to the maximum extent possible" and "as far as practicable." The information that must be retained under Article 4(1) should then form part of the information made available under the terms of Article 4(2) in order to meet the humanitarian purpose of the article.

Recent practice amongst some States reflects a growing understanding of the need for data provision on use of explosive ordnance. For explosive weapons other than mines, recording of data on use and provision of information after conflicts have ended is a developing international practice. Article 4 builds on and extends practices that have developed with respect to mines (and to a lesser extent unexploded and abandoned ordnance) and have been acknowledged in one form or another in a number of ceasefire agreements.

"Record and retain information"

The voluntary technical annex of Protocol V provides at 1 (a & b) an indication of information that should be retained in the fulfilment of Article 4(1):

TECHNICAL ANNEX

1. **Recording, storage and release of information for Unexploded Ordnance (UXO) and Abandoned Explosive Ordnance (AXO)**

   (a) Recording of information: Regarding explosive ordnance which may have become UXO a State should endeavour to record the following information as accurately as possible:

   (i) the location of areas targeted using explosive ordnance;
   (ii) the approximate number of explosive ordnance used in the areas under (i);
   (iii) the type and nature of explosive ordnance used in areas under (i);
   (iv) the general location of known and probable UXO;

Although publicly available examples of data that has been retained by military forces on ordnance use are very limited (data on use of air-dropped ordnance is more readily available than data the use of ground-based ordnance and land-service ammunition) the following examples do provide a precedent regarding the level of detail that can be captured.

The examples are somewhat biased towards the provision of data on cluster munitions (because of the predictable post-conflict 'footprint' of contamination that these weapons cause). Moreover, while the precedent the examples of data on cluster munitions delineate may be relevant for air-dropped and ground based systems (such as artillery) it remains to be determined how such precedents might relate to the use of land service ammunition (for example, hand grenades, rocket propelled grenades, mortars etc).

Also note that this analysis did not look at practices for retention of data on stockpiled ordnance that may become abandoned explosive ordnance at the cessation of hostilities.

PRACTICE: LAO, CAMBODIA, AND VIETNAM

Data on the use of air-delivered explosive ordnance by the U.S. Air Force in Lao PDR, Cambodia, and Vietnam from 1965–1975 suggests that, for some armed forces, much information on use has been generated and maintained as a matter of course (and not for the purposes of facilitating ERW clearance).[44]

Southeast Asia Database (SEADAB)

The Southeast Asia Database (SEADAB) was created by the U.S. Department of Defense Office of the Joint Chiefs of Staff. The files were used to create daily, weekly, monthly, and 'as-required' reports.[45] The SEADAB database contains files with records of air combat missions carried out by the U.S. Air Force, Army, Navy, Marine Corps, along with some very limited information about missions flown by the South Vietnam Air Forces, Royal Laotian Air Force, South Korean Air Force, and Royal Australian Air Force. Records include information about fixed-wing aircraft and helicopters, and includes categories such as unit designation, mission call sign, aircraft type, model, series, mission flying time, time on target, ordnance, ordnance expended, and bomb damage assessment.[46]

Combat Air Activities File (CACTA)

The Combat Air Activities File (CACTA) covers the period from October 1965 to December 1970[47] and was also created by the U.S. Department of Defense Joint Chiefs of Staff to collect information on air combat activities. Information was provided monthly by the Commander-in-Chief, Pacific, and the Commander-in-Chief, Strategic Air Command, based on daily information contained in squadron de-briefing reports. Data in the series consists of information on air combat missions conducted in Southeast Asia by the U.S. Air Force, Army, Navy, Marine Corps, South Vietnam Air Force, Royal Laotian Air Force, Korean Air Force and Royal Australian Air Force during the Vietnamese Conflict.[48] The records are divided into groups of fields or "sets," which each include the following information: "control set data with the date, mission and unit identifier; fixed set data with the branch of U.S. service or country of Air Force, country of origin, mission name, target location, type and number of military aircraft, war damage, and target terrain and weather; and up to six periodic sets of repeatable data including enemy defense data and mission altitudes; formation of aircraft, military tactics and enemy attacks; ordnance type and tonnage; results of the attack; aircraft lost or diverted, and flight crew status; and comments."[49]

An updated version of the U.S. Air Force bombing database was provided to the Swiss Foundation for Mine Action (FSD) by the U.S. Embassy in Vientiane in April 2006.[50] Strike data records the following information:[52]

The location of areas targeted using explosive ordnance

- Latitude and longitude in Decimal Degree format for WGS 1984 horizontal datum and Indian 1960 horizontal datum
- Target of mission. e.g. Motor Vehicle, Bridge, etc
- Bomb Damage Assessment e.g. Destroyed, No Damage, Unobserved.

The approximate number of explosive ordnance used in specific areas

- Quantity of aircraft involved in the mission [numeric]
- Type of aircraft involved in the mission. e.g. F-4, A-4
- Quantity of ordnance expended / jettisoned [numeric]
- Weight of ordnance expended [numeric].

The type and nature of explosive ordnance used in specific areas

- Specific ordnance type, e.g. MK-82 HDGP
- Less specific ordnance class, e.g. 500 LB Bomb
- General ordnance category, e.g. General Purpose.

PRACTICE: NATO BOMBING OF SERBIA AND KOSOVO

While NATO was criticized for being slow initially to provide data and concerns were raised over the accuracy of information provided, the data that was handed over by NATO sets a strong precedent regarding the detail and comprehensiveness of information on air-delivered weapons deployed during conflict. The data provided is analyzed below under headings taken from the technical annex.

The location of areas targeted using explosive ordnance

Locations of areas targeted using explosive ordnance by NATO aircraft were recorded in a variety of different forms and at different levels of detail. Altogether, these documents provide a valuable insight into the level of detail and types of data on target locations that might be recorded and retained to assist future clearance.

Geographic coordinates

Coordinates were recorded for the 'aim point' of the ordnance used (including those referring to 'DMPI' or Desired Mean Point of Impact) and for the location of the aircraft at the time of the attack. Geographic coordinates were provided variously in the UTM (Universal Transverse Mercator) grid referencing system and in latitude and longitude.[53]

Aircraft flight details at time of attack

Data was recorded on the height, speed, direction of travel and angle of the aircraft at the time of the attack. These factors can have a bearing on where unexploded ordnance is likely to be found relative to the point being targeted. For example, the likely variation of UXO location along the direction of travel will be greater than perpendicular to the direction of travel.

Descriptions of targets

Written descriptions of targets allow for orientation and triangulation (checking) of geographic information by operators on the ground.[54]

More detailed notes of weapon performance

Additional fields provided details that might indicate particular risks of UXO or may help to identify the location of contamination after attacks. These included indications of whether ordnance had hit or missed the target, had been observed to have failed to function, and further narrative comments.[55]

The approximate number of explosive ordnance used in the specific areas

The NATO bombing data recorded the number of weapons deployed against specific targets and munitions "jettisoned." The NATO data also contained information on ammunition expended by A-10 ground attack aircraft.[56] This ammunition was not explosive ordnance but is relevant here as it illustrates a willingness to provide data on the number of rounds expended.[57]

The type and nature of explosive ordnance used in specific areas

Although the bulk of data handed over was focused on cluster munition use (because of the particular problems associated with these weapons), NATO retained data on a wide range of explosive ordnance, with each record stating the specific munition type that had been employed. In addition to cluster munitions, these records included cruise missiles (TLAM), air-to-ground missiles (AGM), guided bomb units (GBU) and general-purpose bombs.[58]

Conclusions regarding data retained by NATO from Operation Allied Force

The data retained by NATO on its use of ordnance in Operation Allied Force sets a strong precedent for the level of detail that Article 4(1) obligations will require.

PRACTICE: AFGHANISTAN 2001, IRAQ 2003, AND LEBANON 2006

It has not been possible to obtain full evidence on the level of detail of information retained by NATO Forces in Afghanistan in 2001, by U.S. and Allied Forces in Iraq in 2001, or by Israeli Forces in Lebanon in 2006. However, based on information handed over to assist clearance of ERW, the following can be noted:

Afghanistan 2001

Information provided to assist clearance of ERW in Afghanistan shows that for air-launched cluster munitions, data was retained on the type of ordnance, the number of bombs deployed, the name of the target location, the geographic coordinates of the target, and the heading of the aircraft. Additional data may have been generated and retained but not made available to assist clearance.

Iraq 2003

Information provided to assist clearance of ERW in Iraq during and after the conflict in 2003 shows that for air-dropped cluster munitions data was generated and retained on the weapon type, number of bombs deployed, geographic coordinates of the target, and target description. In response to specific requests, data was also made available on other types of ordnance used. Additional data may have been generated and retained but not made available to assist clearance.

Lebanon 2006

Israel eventually made data available to support ERW clearance in southern Lebanon, indicating that for certain ground-launched and air-dropped cluster munitions, it had generated and retained, at a minimum, data on the specific type of munition used, the number used, and the geographic coordinates that were targeted.[59]

Article 4, Paragraph 2 and Technical Annex

The voluntary technical annex of Protocol V provides at 1 (c) an indication of information that should be released in fulfilment of Article 4(2):

TECHNICAL ANNEX

1. **Recording, storage and release of information for Unexploded Ordnance (UXO) and Abandoned Explosive Ordnance (AXO) [...]**

    (c) Release of information: Information recorded and stored by a State in accordance with paragraphs (a) and (b) should, taking into account the security interests and other obligations of the State providing the information, be released in accordance with the following provisions:

(i) Content:
On UXO the released information should contain details on:

(1) the general location of known and probable UXO;
(2) the types and approximate number of explosive ordnance used in the targeted areas;
(3) the method of identifying the explosive ordnance including colour, size and shape and other relevant markings;
(4) the method for safe disposal of the explosive ordnance.

While Article 4(1) requires parties to record and retain information on ERW, Article 4(2) contains obligations for parties to share that information in order to facilitate the clearance of ERW and related activities. It contains obligations for parties "to make available" information on explosive munitions which they have used or abandoned, "without delay after the cessation of active hostilities and as far as practicable, subject to these parties' legitimate security interests."

"Legitimate security interests"

The requirement to provide data is limited by the qualifying phrase "as far as practicable, subject to these parties' legitimate security interests." "Legitimate security interests" are not defined in Protocol V. It is of utmost importance that this clause is not used to assert a blanket exemption from the article's obligations.

In most post-conflict contexts, items of unexploded ordnance will be found one way or another (albeit more slowly and possibly after greater loss of civilian life than if data were provided). Withholding information due to concerns that it would reveal the use of specific items of explosive ordnance cannot therefore be justified. Sensitivity regarding weapon performance data, such as the discrepancy between firing data and location and frequency of UXO items on the ground, should not be considered a basis for withholding information, since it would create a sufficiently broad blanket of exemptions (already widely rejected in State practice) as to make the article unworkable. Rather, the better determination of accuracy and reliability of munitions should be considered a legal imperative to allow effective adherence to rules governing the protection of civilian populations from attacks.

"To make available"

The obligation in Article 2(4) is for parties "to make available" information regarding explosive ordnance which they have used or abandoned. This could be ambiguous as it is not explicitly stated that parties shall proactively give or hand-over information. However, other articles under the Protocol refer explicitly to the obligation to "provide" and ensure "provision," implying the positive obligation for parties to share information rather than simply hold it in a form that could be transmitted.[60]

For example, following the 1999 conflict NATO and Government officials in the UK and the Netherlands were criticized for failing to provide data to the Serbian Government about the locations of cluster munitions strikes on Serbian territory. In response, they suggested that fault lay with the Serbian Government for not having requested the data sooner. Clearly, the question of whether the obligation "to make [data] available" is an active or passive one may be contested. Considering this obligation to require active efforts on the part of the ordnance user will have the most positive humanitarian impact.

Practice

This section presents a number of examples where data on ordnance use has been handed over to facilitate clearance of ERW and civilian protection. Although criticism is directed at some of these practices, it is important to note that in many other contexts the users of explosive ordnance have not made any such efforts.

PRACTICE: LAO, CAMBODIA, VIETNAM – 1960s & 1970s

From 1998–2000, four databases, including the SEADAB and CACTA files (see analysis of Article 4[1]), were provided to UXO LAO, the national mine action agency. Another database, the Strategic Air Command's Combat Activities report (SACCOACT), covering the period June 1965 through August 1973, and database files on the use of herbicides in Southeast Asia were also provided. Information on the use of herbicides was obtained from the U.S. Armed Services Center for Research of Unit Records.[61] The data on the use of herbicides by the U.S. was finally provided to UXO Lao in 1999, after several unsuccessful request by the American Friends Service Committee's field office in Lao (in the 1980s) to the U.S. Embassy.[62]

This data was made available, however, decades after the bombing. Notwithstanding, the provision of such data enabled a more detailed calculation of the extent of the contamination in Lao, such that 36.8% of the surface areas of the country was considered affected by UXO, and that 12,427 square kilometres, or 5.2% of the country classified as high risk.[63] Also importantly, the data also revealed that considerable contamination fell outside of areas targeted by clearance operations, based on the work of a socio-economic survey carried out by Handicap International Belgium before these records were available.[64] According to a Geneva Centre of Humanitarian Demining (GICHD) report, the value of such data was limited by the fact that it related to ordnance used, not actual UXO; that in the period since the bombing large quantities of UXO had been removed; that it contained inaccuracies; and that it did not represent UXO originating from ground battles (such as mortars, rockets and artillery).[65] In large part, such comments point to inadequacies in any data on ordnance use as a solution to extensive UXO contamination.

Information on U.S. strikes in Vietnam was provided from the database to the Vietnamese government during President Clinton's visit to the country in November 2000. The data was provided as a "humanitarian gesture."[66] Information was also provided to Cambodia during the same period, which revealed that the U.S. dropped more ordnance on the country than previously thought.[67]

PRACTICE: OPERATION ALLIED FORCE

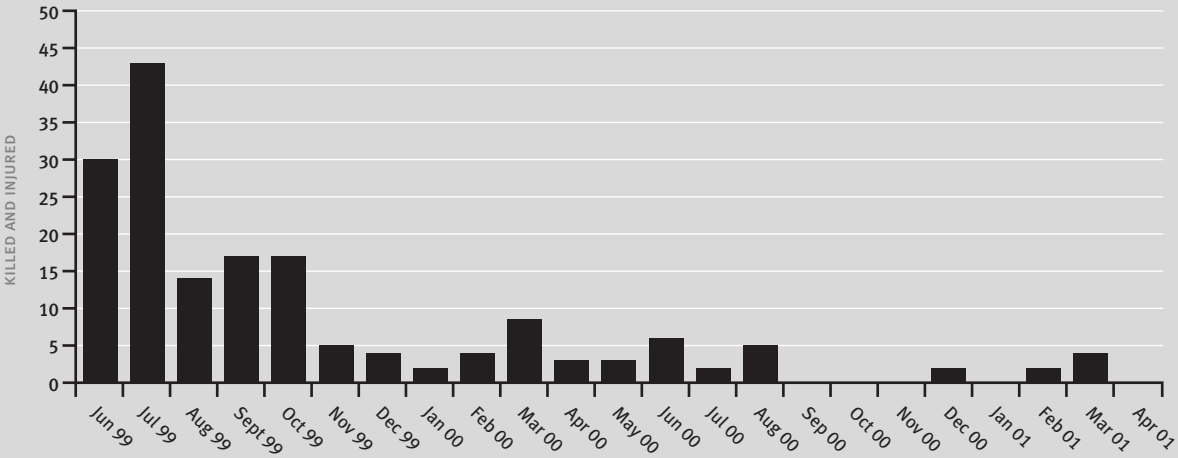
Kosovo

As noted earlier, data recorded by NATO regarding its use of ordnance in Kosovo was very detailed. However, the data handed over was primarily that which related to cluster munitions, as opposed to other air-dropped bombs, and the process of data provision was long-winded and somewhat chaotic.

At the commencement of the NATO bombing campaign, in March of 1999, UNMAS contacted NATO requesting that the Information Management System for Mine Action (IMSMA)[68] be used by KFOR forces in the interim period before a centralized Mine Action Coordination Centre (MACC) could be established in Kosovo.[69] The IMSMA system was initially housed in the KFOR headquarters and overseen by UK KFOR military engineers.[70]

Despite this early contact between UNMAS and NATO, upon the cessation of hostilities NATO was reportedly reluctant to hand over bombing records to MACC.[71] It appears that the first sets of NATO bombing data were handed over in June and July 1999, which would have been within two months of the end of the air-campaign. However, as can be seen in the chart overleaf, it was in these first two months that just over 40% of UXO casualties occurred.

UXO deaths and injuries by month in Kosovo



Criticisms regarding initial data

The data provided to MACC from KFOR in June/July of 1999 was used to map "Dangerous Areas" of cluster munition contamination.[72] The quality of the data was initially criticized and both MACC and KFOR personnel requested access to more detailed information. Criticisms of the data included:

- That some of the data contained only the intended target coordinates of cluster munition strikes, not the actual location of impact.[73]
- That the information often did not correspond to contaminated areas on the ground, suggesting either significant inaccuracy in the weapons' delivery systems or limitations in the mechanisms of data capture.[74]
- That potentially useful information for locating unexploded cluster munitions (and narrowing down inaccuracy in the geographic data), such as the direction the aircraft was heading at the time of the attack and the release altitude of munitions, was not initially provided to MACC.
- That initial records did not accurately reflect all the types of munitions used during the conflict. For example, the cluster bomb CBU 99, containing "Rockeye II" (Mk 118) submunitions, was not included by NATO in the list of munitions reported to have been used in the early data handed over.[75]
- That some of the data was misleading in how it purported to represent cluster munition 'footprint' areas on the ground.[76]

In the face of these perceived shortcomings, and with a specific concern regarding the humanitarian risk from cluster munitions, MACC requested that NATO release more information regarding the precise location of ordnance use and the direction and speed of attack of the aircraft.[77]

Communications between MACC, KFOR, and individual military branches of coalition members between 1999 and 2000 appear to have been somewhat confused. KFOR units reported having inadequate information to address the UXO threat.[78] Repeated requests for information by MACC were met with multiple responses which were still in many cases incomplete or at odds with information previously provided.[79] While NATO provided basic information on the cluster munitions used, it is not clear that this included methods for the safe disposal of ordnance.

Serbia

While NATO provided information to the UN MACC in Kosovo, it did not provide similar data on its use of air-delivered munitions during the 1999 Balkan conflict to the Serbian government until 8 years after the conflict. On 13 February 2007, the Serbian government sent a letter requesting bombing coordinates from NATO.[80]

In September 2007, NATO officially handed over data on its cluster munition strikes to Ambassador Milinkovic, the Serbian representative to the Organization for Security and Cooperation in Europe (OSCE). The data consisted of 218 sets of coordinates for cluster munitions, 155 of which were targeted on areas in Kosovo.[81] It is not clear if NATO provided coordinates only for cluster munitions or for other munitions dropped during the 1999 campaign.[82] NATO stated that the delay in provision of this data (in comparison with provision of data for Kosovo) was due to Serbia not requesting the data before February 2007 and because of the "difficult process" of data collation.[83]

The data was used by Norwegian People's Aid (NPA) to carry out the first comprehensive survey of cluster munition contamination in Serbia. NPA's report on its survey work stated that the data from NATO "proved incomplete, containing only the coordinates of the deployment locations and the number of ordnances deployed, without any particulars as to which type(s) of ordnance had been used."[84]

Conclusion

According to the MACC in Kosovo, NATO did not provide the necessary detailed data until nearly a year after the conflict had ended. Coalition forces recorded information such as direction of the flight of the aircraft and whether bombs were dropped long or short of intended targets, but did not provide this information immediately after cessation of active hostilities. Furthermore, duplicate and unreliable reports put the credibility of all information provided into question.[85] The MACC faulted NATO and KFOR's structure for the delay in providing information, along with a lack of familiarity with the information required. Others have noted that provision of such information was not considered an automatic element of practice.[86] The weaknesses in this process of data provision can be contrasted with NATO's own assertion of its detailed strike assessment methodology.[87]

The example of NATO in Kosovo, however, demonstrates one of the most comprehensive examples of good practice with regard to retention and provision of data on use of explosive weapons.[88] At the same time, a detailed analysis of structures and processes shows that there is considerably further to go – in understanding the types of data needed for effective humanitarian ERW action, in developing integrated systems for data transfer and interpretation, and in establishing the general role of data as a standard element of military, multinational, and coalition practice – in order for States individually and in alliances to comply adequately with Protocol V's Article 4.

The example of data provision to Serbia raises concerns regarding State practice where the party in control of the territory was an adversary during the conflict (as opposed to where territory has changed hands or been put under interim administration). It also raises questions about whether the burden should be on the user of ordnance to hand over data, or should be on the affected party to request data.

If, as appears reasonable, Articles 3 and 4 of Protocol V should be understood as recognizing that the users of explosive ordnance have a special responsibility to protect civilian populations from the post-conflict risks of that use, then the obligation should be on the users of explosive ordnance to actively provide relevant information to support critical humanitarian action. Such an interpretation is the one most likely to reduce the risk to the civilian population in a timely manner. Both examples raise issues regarding the collective responsibility of military alliances for the hand-over of data on explosive ordnance use. Under Protocol V, this is a responsibility of parties to the conflict. As such, it is a responsibility that cannot be transferred to another body.

PRACTICE: AFGHANISTAN 2002

The U.S. reported that it handed over strike data on its use of air-delivered ordnance, including cluster munitions, to the United Nations within three months of the cessation of active hostilities against the Taliban in 2002.[89] The initial strike data provided by the Department of Defense contained information on the name of the location targeted, geographic coordinates, the estimated number of unexploded ordnance (apparently based on a 5% failure rate calculation), and the radius of dispersal.[90]

According to the HALO Trust, a humanitarian demining organization operating in Afghanistan, the U.S. provided data directly to HALO as well as to the UN, containing the geographic coordinates of BLU cluster munition strikes; the heading of the aircraft; and the type of submunition dropped. HALO Trust said the data was "very good" and provided the basis for the initial deployment of its Battle Area Clearance (BAC) teams.[91]

Deminers also reported, however, that the utility of the data was diminished by the fact that it existed in several, inconsistent versions. In 2002, Human Rights Watch researchers visiting Afghanistan reported encountering three versions of the data, dated from November 2001, January 2002, and March 2002, which contained contradictory and inaccurate information in places.[92]

Human Rights Watch concluded that "the ostensible precision of the data reported by the United States, latitudes and longitudes down to the second, leads to an expectation of accuracy when, in fact, the list is largely estimated." U.S. Air Force personnel indicated to Human Rights Watch that the lists were "extracted, inexpertly, from mission reports and air tasking orders."[93] Further problems were reported in transmitting updated information through to teams working in the field.[94]

This example reinforces the conclusion that multiple releases of inconsistent data can reduce the credibility of the overall practice of data provision. 'Worked up' information, such as estimated numbers of unexploded submunitions based on testing failure rates or estimated areas of contamination, can build unrealistic expectations and erode confidence. There are limitations to the utility of even relatively good data. While such information can serve as a tool for understanding the likely extent of contamination and guide teams to target areas, the expectation that strike data could function in much the same way minefield maps appears to be unrealistic.

PRACTICE: IRAQ 2003

As compared to previous conflicts, the speed of the provision of strike data improved in the context of Iraq in 2003. The U.S. reported that strike data was provided to the UN, "often in as little as 72 hours after a particular attack while hostilities were ongoing."[95] Information sharing between the coalition forces and the UN also appeared to improve. A UN Mine Action Coordination Team for Iraq stated that, "Coalition forces have been very cooperative. We started getting data [on unexploded ordnance] within a couple days of the war's start… Now it's a given we will get information. We get it earlier and earlier."[96]

Information on ordnance use was provided through the Humanitarian Operations Centre (HOC), based in Kuwait, and included a list of explosive ordnance used, geographic coordinates, the location, type of ordnance, and who reported it. Human Rights Watch researchers in Iraq reported that "such coordination is a significant improvement from Afghanistan."[97] Coalition forces also shared information with humanitarian aid organizations and human rights NGOs, in order to ensure their safety in Iraq.

In the north of Iraq some clearance NGOs received data directly from the U.S. Military, including through a Civil Military Operations Centre (CMOC) established after the conflict. Although detailed lists of airstrikes were provided, the U.S. was also reported to have been supportive in response to individual information requests, providing details of weapons used including fuze-type information for specific strikes being addressed by humanitarian teams on the ground.[98] Again, the strike data provided the geographic coordinates of intended targets, although there could be variance with where ordnance contamination was actually found. However, it was noted that where this data was one component of operations using survey teams and community liaison practices, the overall process produced an effective response.[99]

While cooperation on information sharing improved, problems were still reported in relation to the availability of the data provided by the U.S., Interviews with U.S. Army and Marine Corps EOD personnel involved with clearance of submunitions suggests clearance personnel were not working from firing records for cluster munitions.[100] In addition, as noted in other case studies, data was not released (in this instance by the U.S. Army and Marines) for ground-launched submunitions.[101]

PRACTICE: DATA PROVISION BY ISRAEL AND HEZBOLLAH, 2006

Israel's failure to provide timely and detailed information on explosive ordnance used in southern Lebanon in 2006 (in particular information on cluster munition use) suggests that the basic principles of Protocol V, Article 4(2) are still far from being universally accepted, even amongst States with the technical capacity to implement these provisions. The handover of minefield records relating to southern Lebanon has been a longstanding point of contention and information on UXO resulting from cluster munition use was initially entangled with that issue.[102]

Early data of very limited value

The UN Secretary-General reported that during the period of 11–17 August 2006, Israel "provided information marked on a map of the areas occupied by its forces north of the Blue Line, encompassing 16 pockets/sectors… [the] IDF has provided maps showing mines and unexploded ordnance in the sectors from which it is withdrawing."[103] On 12 September 2006, the UN Secretary-General noted that the "IDF has been handing over some maps to UNIFIL as it withdraws from particular locations," and stated that, "The Israeli authorities have assured UNIFIL that all relevant maps of landmines and unexploded ordnance in their possession will be handed over on the completion of [their] withdrawal."[104] The report notes that "while the IDF has provided some maps to UNIFIL regarding cluster strikes, they are not specific enough to be of use to operators on the ground."[105] The UN Secretary-General called on Israel to provide further detailed information on the exact location, quantity, and type of cluster munitions used during the conflict.[106]

On 21 November 2006, the Israeli Ministry of Foreign Affairs reported, "Following the conflict, Israel supplied maps to UNIFIL identifying areas suspected of containing unexploded ordnance, including cluster munitions. These maps assist UNIFIL and the Lebanese government in removing the unexploded ordnance and have significantly reduced the risk of unnecessary harm to the civilian population."[107] However, the Mine Action Coordination Centre for Southern Lebanon (MACC SL) judged the maps to be of little use since they showed little more than circles indicating "dangerous places."[108] More specifically the data was criticized for lacking coordinates or legend.[109] A spokesperson from the MACC SL stated that Israeli data provided in the form of maps did not distinguish between cluster munitions and other bombs.[110]

Despite repeated calls from MACC SL and UN officials after the conflict, in a letter dated 1 December 2006, the UN Secretary-General reported that, "Israel has yet to provide UNIFIL with the detailed firing data on its use of cluster munitions…The provision of this data, which would be in keeping with the spirit of Protocol V of the [CCW], which came into force recently, would significantly assist operators on the ground to mitigate the threat to innocent civilians."[111]

Some information released

Nearly two years after the conflict ended and after repeated calls from the UN Secretary-General, requests from MACC SL, bilateral pressure from governments, and appeals from NGOs, the UN Secretary-General reported that:

> "Following persistent efforts by the United Nations both at Headquarters and in the field to secure technical strike data regarding cluster munitions, on 5 February 2008, the Israel Defense Forces submitted some information. Preliminary findings are however that the information provided is of very limited value."[112]

The UN Secretary-General reiterated as a matter of humanitarian urgency, the Government of Israel should provide detailed strike data including the type, quantity and specific coordinates of cluster munitions used during the 2006 conflict.[113]

Yet despite the new release of data by Israel on 5 February 2008, MACC SL reported in April 2008 that it still did not have vital information on the type, location, and quantity of cluster munitions used in the 2006 conflict.[114] MACC SL's Program Manager later reported that the information provided by the Israelis in February 2008 was essentially a map of South Lebanon with no coordinates. The area was divided up into 10 kilometer blocks on a map, with each block assigned a number; A1, A2, B1, B2 etc. A table accompanied the map, referring to each block and listing expected quantities submunition contamination by type.[115]

On 12 May 2009, Israel handed over data on cluster munition strikes to the UNIFIL Force Commander at the Northern Command Headquarters.[116] The data consisted of three separate spreadsheets for each of the cluster munition delivery systems used during the conflict (MLRS, 155mm artillery, and air-delivered).

Conclusions

This protracted process clearly indicates that the principles of Protocol V are still not embedded in the systems and practices of some States, even where these States have well resourced militaries and weapon systems capable of automated data collection. The long delay in handing over this information was widely noted by humanitarian clearance operators as an impediment to the clearance of unexploded ordnance, thus increasing the attendant costs and civilian risk. However, that information was finally handed over does provide an important point of reference for the future.

Provision of information on abandoned explosive ordnance

Research for this report did not examine in detail the history of information exchange regarding abandoned ordnance. However, it is notable that such practices have historically been included in ceasefire agreements. As a sample, the following contain specific obligations for information provision regarding the locations of stored ordnance:

- Bosnia & Herzegovina, *General Framework Agreement for Peace in Bosnia & Herzegovina,* S/999 (1995): Art V (3) requires parties to report to the Joint Military Commission "position and descriptions of minefields, unexploded ordnance, explosive devices…[and] ammunition dumps…"
- Cambodia, *Framework for a Comprehensive Political Settlement of the Cambodia Conflict,* S/718, (1991): Annex 2, Art 1 (3) requires parties to provide to the United Nations information on "troops positions, occupied and unoccupied, including…supply bases and supply routes," and "exact locations at which arms [and] ammunition… are deployed."
- El Salvador, *Peace Agreement,* S/23501 (1991): Chapter VII, Art 16 "[parties will supply the UN] with detailed information on…inventories of arms, ammunition, mines, other explosives…located anywhere within the national territory."
- Mozambique, *General Peace Agreement for Mozambique,* S/24635 (1992) : Protocol VI, Art 10 (a), parties agreed to supply the UN with "complete inventories of their troop strength, arms, ammunition, mines and other explosives…"[117]

To whom should information be provided?

Article 4(2) also sets out possible mechanisms for transmission of information. Information can be provided to the party in control of the affected territory, directly or through a third party, including but not limited to, the UN, and other organizations that are undertaking risk education and clearance in areas affected by ERW.

In Kosovo (1999) data was provided by NATO to the United Nations, and from there it was used to inform tasks provided to field operators. In Afghanistan (2001), data on U.S. cluster munitions strikes was reported to have been provided to the UN and also directly to NGO operators conducting ordnance disposal. In Iraq (2003), data on U.S. cluster munitions strikes in the south was provided to NGO operators through the Humanitarian Operations Center. NGOs operating in the north also reported receiving information directly from the U.S. military. In April 2009,

Israel announced during a Protocol V Meeting of Experts that it had provided strike data on its use of explosive ordnance during Operation Cast Lead in the 2008–2009 conflict in Gaza.[117] The data, a list of Israeli Armed Forces strike coordinates within Gaza, was initially provided to the Secretariat of the Convention on Certain Conventional Weapons, under the auspices of the UN Office of Disarmament Affairs, and then passed to the UN Mine Action Service (UNMAS).[119]

Beyond uncertainties regarding what information should be provided, problems regarding the mechanics of information exchange have the potential to severely limit the timely transmission of information. As with other areas of the Protocol, humanitarian benefit would be greatly increased by parties determining in advance what their policies and practices will be with respect to information provision.

Conclusions regarding Article 4

The examples in this chapter illustrate that certain States are capable of generating, retaining, and providing detailed data on the use of certain munitions. The level of detail generated in these contexts is encouraging, and while not all of this detail may subsequently be useful to ERW clearance teams, parties should be urged to continue to gather such detail and provide this detail to those entities undertaking ERW clearance. These agencies will be able quickly to filter out data that is not initially needed – though it may prove useful later in the clearance process.

While evidence regarding this practice is encouraging, there are a number of serious reservations concerning how indicative these examples are of wider State practice:

- These examples of explosive ordnance use data collection and hand-over all relate to relatively wealthy States with well resourced militaries. There is no evidence regarding practices for recording, retaining, and providing data on explosive ordnance use (not including landmines) amongst less well resourced States.
- These examples were primarily generated out of concern regarding the particularly high levels of UXO contamination created by cluster munitions. Although there is evidence that the same data is being generated and retained for certain other types of ordnance, the extent of this is uncertain. Amongst these examples, good practice is better evidenced for air-dropped ordnance, with very limited evidence regarding ground-launched munitions.
- Where data on ground-launched munitions has been provided this has related to large computerized weapon systems (artillery and multiple-launch rocket systems) with no indications being available of practice regarding land-service ammunition.
- As noted previously, the evidence examined here does not cover retention of information on the location of ordnance stockpiles that may become abandoned explosive ordnance at the end of a conflict.

Regarding the process of data hand over, the clear expectation should be that users have a responsibility to pro-actively and immediately release information on use. Future practice should strive to improve upon the speed of the transmission of information and aim to improve the accuracy of data provided. Better cooperation between parties operating in coalition warfare contexts will be critical elements to improve practice in this regard. Furthermore, States should clarify their plans and systems regarding the retention and provision of information on the use of land-service ammunition. As yet, there is no evidence of such data being made available after conflict.

States should develop procedures and policies for the release and transmission of information as standard practice in their military doctrines for explosive munitions other than mines. In recent national reporting under Article 4, however, it does not appear that many High Contracting Parties (HCPs) believe the article requires changes to their existing military doctrines. A majority of HCPs reported that measures for recording, retaining, and transmission of information are common procedures for their armed forces. A few HCPs noted their willingness, if necessary, to actively provide data in the event they use explosive munitions in a future conflict.[120] A number of others simply wrote

that the obligations were not applicable or additional steps were not required for the implementation of the article. Such assertions raise concerns that for some States the implementation of Protocol V has not extended far beyond conference hall discussions into actual practice.

Admirably, one HCP, Romania, reported that its systems for recording the use of explosive ammunition were to be reviewed in order to establish if they are accurate enough to be useful for clearance and to determine the best way to retain and transmit information.[121] The HCPs to Protocol V are considering but have yet to clearly establish a mutually accepted standard for recording and retaining and transmitting information.

Article 4: Recommendations

- States should appoint and announce specific contact points who will be responsible for the planning and enactment of policies and practice regarding the retention and hand-over of data on explosive ordnance use.
- As soon as possible, and before engagement in active hostilities, States should confirm that they have in place specific policies regarding:
  - What information must be retained *on all forms* of explosive ordnance;
  - Who is responsible for the collation of this information;
  - What information will be handed over to other parties on cessation of active hostilities;
  - To whom information will be handed over.
- States should retain and hand over as much information as possible. However, this does not mean undertaking additional work to plot strikes on maps, estimate contamination based on failure rates in specific areas etc – such work can be undertaken as required by ordnance disposal teams in the field.
- Speed of data handover is critical. Having policies and procedures in place before active hostilities is necessary to ensure an effective response afterwards.
- To ensure speed of hand-over, States should adopt an interpretation of Protocol V that users of explosive ordnance have an obligation to actively provide data, rather than waiting until data is requested.
- States should test their policies and practices in exercises.

Recommendations for the international community:

- Provisions in line with a strong interpretation of Protocol V should be incorporated into ceasefire and technical agreements. This will provide a humanitarian benefit by strengthening practice, as well as working for the universalization of the Protocol's norms.
- Coalitions and military alliances should adopt policies and procedures that reflect a strong interpretation of Protocol V. Coalitions and military alliances should agree policies and procedures for retention and hand-over of data on explosive ordnance use, including explicit determinations as to whether there will be collective management and responsibility for this work. Constraints resulting from operation in coalitions should not be allowed to justify failure to implement Protocol V obligations to the highest humanitarian standard.

Article 7. Assistance with respect to existing explosive remnants of war

1. Each High Contracting Party has the right to seek and receive assistance, where appropriate, from other High Contracting Parties, from states non-party and relevant international organisations and institutions in dealing with the problems posed by existing explosive remnants of war.

2. Each High Contracting Party in a position to do so shall provide assistance in dealing with the problems posed by existing explosive remnants of war, as necessary and feasible. In so doing, High Contracting Parties shall also take into account the humanitarian objectives of this Protocol, as well as international standards including the International Mine Action Standards.

Overview of Article 7

Article 7 provides High Contracting Parties (HCPs) the right to seek and receive assistance, "where appropriate," and requires that HCPs "in a position to do so" shall provide assistance in dealing with existing ERW, as "necessary and feasible." Article 7 is an attempt to resolve a contentious issue during the negotiation of Protocol V: i.e. the possible application of Protocol V's obligations retroactively to cover ERW created prior to the Protocol's entry into force.[122]

Article 7 must be read in conjunction with Article 8 (Cooperation and Assistance). Article 7 is addressed to the problem of existing – and by implication anterior – ERW, while Article 8 addresses obligations of HCPs with regard to ERW created on the territory of HCPs after the Protocol has come into force.

Article 7 does not delineate the scope of what assistance might encompass in the same way that this is laid out in Article 8. While Article 7 describes assistance with respect to the problems posed by ERW, Article 8 (consistent with other articles) describes in more detail "assistance for the marking and clearance, removal or destruction of explosive remnants of war, and for risk education to civilian populations and related activities" and also "assistance for the care and rehabilitation and social and economic reintegration of victims of explosive remnants of war." It would be reasonable to assume that Article 7's "problems posed by explosive remnants of war," and hence the appropriate forms of assistance, are consistent with those set out in Article 8.

A significant distinction between the two is that Article 7 obligates States "in a position to do so" to provide assistance only where "necessary and feasible." Given the extent of mine action assistance already ongoing with respect to existing ERW (regardless of Protocol V), these qualifiers might be read as establishing high expectations for the level of assistance that will be forthcoming when the conditions of Article 8 are met.

Article 7 asserts a right to seek and receive assistance directly to address a humanitarian problem rather than to fulfil the obligations of a legal instrument (as is the case with the Mine Ban Treaty and the subsequent Convention on Cluster Munitions). However, in many respects, Article 7 is merely a legal endorsement of the long-standing practice of States seeking and receiving assistance to address this contamination outside the framework of any specific legal instrument.

Article 7, Paragraph 1

Article 7(1) establishes the right for HCPs to seek and receive assistance, "where appropriate," from other HCPs, States not party and relevant international organizations and institutions. It does not extend this right to other parties to an armed conflict, such as non-state armed groups. However, in practice both States not party to Protocol V and some non-state armed groups have for many years sought and received assistance to tackle problems of ERW.

"Where appropriate"

The qualifier "where appropriate" contained in Protocol V, Article 7 (1), is ambiguous. It is not clear what kind of situation would be deemed to be inappropriate. A State possessing sufficient resources to address problems relating to ERW on its territory could perhaps be considered an inappropriate recipient of assistance, but assistance in the form of cooperation and technology exchange could still significantly enhance its ability to cope with ERW contamination and should not be precluded. Despite the qualifier, the article remains sufficiently broad to encourage the provision of a wide range of assistance in almost any context.

Article 7, Paragraph 2

Article 7(2) reciprocates the right to seek and receive assistance established in Paragraph 1 with an obligation for HCPs to provide assistance to those already working to deal with existing ERW contamination. Article 7(2) states that HCPs shall provide assistance, taking into account the humanitarian objectives of the Protocol and international standards, including International Mine Action Standards (IMAS). This emphasis on prioritization and standards mirrors Article 3.

"In a position to do so…as necessary and as feasible"

Three qualifying phrases in Article 7(2), "in a position to do so," "as necessary," and "as feasible," all serve to limit the obligation and reduce the strength of the legal requirement to provide assistance.

While Article 7 establishes an obligation on HCPs to provide assistance, this only applies to those "in a position to do so." This is generally understood as a recognition that donor resources are finite and not every State has the means to provide assistance. This phrase follows the same formulation as is found in 1972 Biological Weapons Convention, Art X(1), CCW Amended Protocol II, and the 1997 Mine Ban Treaty, and has also been used in the 2008 Convention on Cluster Munitions.

With diverse forms of assistance possible, and with provision of assistance as the rule rather than the exception, the onus should be on States not providing assistance to explicitly assert that this is because they are not in a position to do so. In the absence of this explicit engagement, some States may simply be ignoring this obligation without justification.

> For example, in national reports submitted under Protocol V, a number of States reported that obligations to provide assistance with respect to existing ERW, victim assistance, and clearance related activities as contained in Articles 7 and 8 were "not applicable." Hungary, the Holy See, Portugal, and Bulgaria either reported "not applicable" or "nothing to declare" under Article 7 and 8 for 2007 and 2008. India first reported that providing assistance under Articles 7 and 8 was "not applicable" in 2007, but in 2008, reported a contribution of 10,000 USD to the CCW sponsorship program under Article 8 (which is arguably not assistance towards the humanitarian purposes of the Protocol). Only one High Contracting Party, Malta, explained its rationale for not providing assistance. Malta stated that, "to date the Armed Forces of Malta, does not have the additional resources to provide assistance for the marking and clearance, removal or destruction of explosive remnants of war outside the territories of Malta. The Armed Forces of Malta will review its position on the matter from time to time."[123]

While interpreting "in a position to do so" is largely a matter of judgment confined to States, "as necessary and as feasible" could be subject to more independent criteria. The test of "necessity," however, could also be interpreted in such ways that provide an almost blanket rejection of the obligations of Article 7(2) (i.e. an interpretation that this relates to the necessity of specific assistance being received from one specific HCP in order to adequately address ERW contamination, rather than an interpretation that assistance is necessary in general terms).

Overlapping assistance under the 1997 Mine Ban Treaty and Protocol V

The 1997 Mine Ban Treaty and CCW Protocol V deal with separate categories of explosive weapons (respectively, anti-personnel mines and explosive remnants of war). In many contexts, however, these form part of a common humanitarian problem (generically, explosive weapons that continue to pose a threat in the post-conflict environment). For this reason, practical field programmes and donor funding streams tend to tackle both weapon categories without distinction; to do otherwise would be inefficient and would likely lead to problems of humanitarian principle. However, this synthesis in programming and funding can create difficulties for understanding at what level HCPs are meeting specific Article 7 obligations, and to what extent, therefore, Protocol V can serve as a framework that makes a real difference to the humanitarian assistance received by communities living with ERW.

A comparison of assistance identified in the national annual reports for the Mine Ban Treaty (Article 7)[124] and Protocol V[125] shows that a large majority of States report the same funding for assistance under both instruments, to the extent that text appears to be copied and pasted between reports. Only a minority of States party to both instruments provided substantially different information in their respective reports. More commonly, States treat the 1997 Mine Ban Treaty as the general framework for reporting on mine action and see Protocol V as having more limited or specific scope. In some cases the same money was purposefully represented distinctly differently under the context of the different legal instruments.[126] Rather than engage in such contortions, it may be more useful for donors to report funding by recipient country under a general rubric such as 'mine action' and to promote the generation of basic information, in national mine action centers, that can serve as national level proxy for how funding is allocated across different explosive weapon threats.

PRACTICE: IS PROTOCOL V RESULTING IN INCREASED FUNDING TO TACKLE THE PROBLEM OF EXISTING ERW?

Given the lack of clarity between funding interrelated funding streams, it is very difficult to understand the real impact of Protocol V on funding to address problems of existing ERW. There is very little evidence to suggest that Protocol V has served to increase funding to tackle existing ERW problems.[127]

Conclusions regarding Article 7

Article 7 further codifies what is already a widely accepted international practice; it re-asserts the primary obligation of humanitarian assistance between States affected by conflict and, more specifically, ERW.

However, the framework of Protocol V does not seem yet to have given any particular additional impetus or improved coherence to the ongoing practice of States seeking and receiving assistance to tackle existing ERW contamination. The pre-existing strength of mine action practice (including funding), organized primarily under the more widely-adopted and humanitarian focused framework of the 1997 Mine Ban Treaty, exists as the dominant organizing framework for engagement and communication between affected countries, donors, and implementing agencies. The confusing overlap of reporting subject matter and time periods, including widespread confusion amongst parties to Protocol V about how and where to report their own assistance to mine action even within the Protocol V framework, suggests that there is little chance of Protocol V developing into a significant nexus for the facilitation of humanitarian assistance towards traditional mine action activities.

- There is a lack of clarity in State practice regarding the overlap between assistance to address explosive remnants of war and assistance to address problems caused by anti-personnel landmines, making it difficult to assess what, if any, impact Protocol V is having on donor practice.
- There is little evidence of an increase in funding to address problems of existing explosive remnants of war as a result of the advent of Protocol V.

Article 7: Recommendations

- States should move towards a standardized system of reporting across different legal instruments. The current system of confused, overlapping reports means that it is impossible to readily determine the real extent of State practice and must also waste time within the States undertaking this reporting.
- Rather than expecting donors to make distinctions between types of contamination, Mine Action Coordination Centers should be able to provide basic representations and estimates of the balance of work being conducted to address the specific threats of anti-personnel mines, anti-vehicle mines, cluster munition remnants and other ERW. Such representations could then be used to understand how donor funding by country is likely being spread across these particular threats.
- States not "in a position" to provide assistance should report explicitly that this is the reason why they are not providing assistance.
- Protocol V should not try to replicate or import the community of humanitarian practice of the Mine Ban Treaty into its framework of meetings. Rather, Protocol V should explore ways in which it can provide an overarching legal framework for wider issues of safe ammunition storage and management.

Article 8: Cooperation and assistance

1. Each High Contracting Party in a position to do so shall provide assistance for the marking and clearance, removal or destruction of explosive remnants of war, and for risk education to civilian populations and related activities inter alia through the United Nations system, other relevant international, regional or national organisations or institutions, the International Committee of the Red Cross, national Red Cross and Red Crescent societies and their International Federation, non-governmental organisations, or on a bilateral basis.

2. Each High Contracting Party in a position to do so shall provide assistance for the care and rehabilitation and social and economic reintegration of victims of explosive remnants of war. Such assistance may be provided inter alia through the United Nations system, relevant international, regional or national organisations or institutions, the International Committee of the Red Cross, national Red Cross and Red Crescent societies and their International Federation, non-governmental organisations, or on a bilateral basis.

3. Each High Contracting Party in a position to do so shall contribute to trust funds within the United Nations system, as well as other relevant trust funds, to facilitate the provision of assistance under this Protocol.

4. Each High Contracting Party shall have the right to participate in the fullest possible exchange of equipment, material and scientific and technological information other than weapons related technology, necessary for the implementation of this Protocol. High Contracting Parties undertake to facilitate such exchanges in accordance with national legislation and shall not impose undue restrictions on the provision of clearance equipment and related technological information for humanitarian purposes.

5. Each High Contracting Party undertakes to provide information to the relevant databases on mine action established within the United Nations system, especially information concerning various means and technologies of clearance of explosive remnants of war, lists of experts, expert agencies or national points of contact on clearance of explosive remnants of war and, on a voluntary basis, technical information on relevant types of explosive ordnance.

6. High Contracting Parties may submit requests for assistance substantiated by relevant information to the United Nations, to other appropriate bodies or to other states. These requests may be submitted to the Secretary-General of the United Nations, who shall transmit them to all High Contracting Parties and to relevant international organisations and non-governmental organisations.

7. In the case of requests to the United Nations, the Secretary-General of the United Nations, within the resources available to the Secretary-General of the United Nations, may take appropriate steps to assess the situation and in co-operation with the requesting High Contracting Party and other High Contracting Parties with responsibility as set out in Article 3 above, recommend the appropriate provision of assistance. The Secretary-General may also report to High Contracting Parties on any such assessment as well as on the type and scope of assistance required, including possible contributions from the trust funds established within the United Nations system.

Overview of Article 8

Article 8 establishes a responsibility on all High Contracting Parties (HCPs) to provide assistance to efforts to remove and reduce the risk of ERW on the territory of other HCPs, if they are in a position to do so. Article 8 should be read as additional to the obligations to tackle this problem which fall on ERW affected countries, or the users of ordnance that has become ERW, that are established in Article 3 of Protocol V. Article 8 does not apply to "existing ERW" but only to ERW created subsequent to the entry into force of Protocol V for the HCP on which the ERW is located. Article 8 does not explicitly assert that HCP have the right to seek and receive assistance to meet the obligations of the Protocol even though such a right is asserted in Article 7 towards tackling problems caused by existing ERW.

As with Article 7, Article 8 does little significantly to extend what is already a widespread practice amongst States.

Article 8 indicates the wide range of channels through which such assistance may be provided, such as through the UN system or NGOs, as well as through direct bilateral channels. Article 8 also establishes a responsibility on HCPs to provide assistance for the care and rehabilitation and social and economic reintegration of victims of ERW. Historically, much of this assistance falls under the rubric of "mine action" – a term that reflects the primary role of anti-personnel mines in shaping conceptions and practical responses to challenges of post conflict explosive weapon contamination.

The article requires States to support 'trust funds' to facilitate assistance. It also provides HCPs with a right to participate in the exchange of such things as equipment and technical information that are considered "necessary" for the implementation of the Protocol. The article requires HCPs to provide information to various databases established within the UN system.

The article also establishes that the UN Secretary-General will communicate requests for assistance to all other HCPs and to international organizations and NGOs. Where requests for assistance are made to the UN, the UN Secretary-General may work with relevant parties (including the affected party and any party responsible for using the ordnance now ERW) to assess the situation and make recommendations regarding assistance.

Article 8, Paragraph 1

Paragraph 1 contains the primary obligation of Article 8 that HCPs shall provide assistance to tackle the threat of ERW. The central question for the implementation of this paragraph is which HCPs will consider themselves not to be in a position to act on this obligation (a question that we have already considered under Article 7). This paragraph should also be read in conjunction with Article 3 that elaborates the forms that assistance can take.

Article 8, Paragraph 2

Paragraph 2 establishes an obligation for HCPs in a position to do so to provide assistance to the victims of ERW. This involves not only care and rehabilitation of individuals but also assistance to address social and economic marginalization. As it is explicitly stated in Article 1 of Protocol V that Article 8 does not apply to "existing explosive remnants of war," it is therefore arguable that this obligation to provide victim assistance only applies to victims of ERW that has come into existence after the entry into force of the Protocol for the HCP. However, as we noted under Article 7, it is also arguable that the harm experienced by victims is part of "the problems posed by…explosive remnants of war" and so the needs of victims of existing ERW are subject to rights and obligations under that Article.

As we have noted elsewhere, this report does not seek to provide a detailed analysis of the practice of mine action – around which extensive literature already exists. The Landmine Monitor 2008 presents a succinct summary of the weaknesses in the provision of victim assistance in general.[128] In recent national reporting under Protocol V, victim assistance was the least prevalent form of assistance reported. Only five HCPs reported specific actions taken related to victim assistance.

In November 2008, HCPs adopted a more detailed Plan of Action on Victim Assistance that was modelled in many ways on Article 5 of the Convention on Cluster Munitions. This Plan of Action is not legally binding but it does provide a more detailed delineation of what should be expected in relation to victim assistance. Most importantly, the Plan of Action frames victim assistance as a responsibility of States towards populations under their jurisdiction or control. It notes:

Action 1: With respect to victims of ERW in areas under its jurisdiction or control, each High Contracting Party, in accordance with applicable international law, should adequately provide or facilitate the provision of age- and gender-sensitive medical care, rehabilitation, psychological support and adequate assistance for social and economic inclusion in a non-discriminatory manner.

This is substantially different to how victim assistance is presented in the main text of Protocol V where it appears only as a practice to be "assisted" by parties "in a position to do so." It is not made explicit in the main text that States have a responsibility to assist victims in areas under their control as part of the process of tackling the humanitarian problem of ERW.

Anther significant achievement of the Plan of Action is its unqualified recognition of the importance of data-gathering regarding people that have been killed, injured, or otherwise impaired as a result of ERW.

Action 2: Each High Contracting Party should make every effort to collect reliable relevant data with respect to victims.

It is significant that this commitment stands outside and above the further delineation of concrete activities, to be undertaken "where appropriate" at Action 4.

Beyond these points, the Plan of Action is an important reinforcement of the normative significance of the approach developed towards victim assistance in the Convention on Cluster Munitions.

Article 8, Paragraph 3

Trusts like the Voluntary Trust Fund for Assistance in Mine Action provide an opportunity for parties to provide assistance even at relatively small levels with a minimum of bureaucratic requirement on their part. There is therefore scope for the barrier of capability and feasibility to be reduced.[129] However, others have argued that over-reliance on trust funds risks promoting a disengagement of States from meaningful control over the assistance they are providing. Where the obligation to provide assistance falls upon HCPs, is it reasonable also to consider that this extends to an obligation to ensure that financial, technical, or other resources provided as "assistance" are functioning effectively to the ends required by the Protocol.

Whereas the Mine Ban Treaty and the Convention on Cluster Munitions only note the role of trust funds as a mechanism to facilitate assistance, Protocol V actually obliges HCPs to provide some funding through these mechanisms.

The most prevalent contributions to trust funds reported in HCPs' Protocol V reports for 2007 and 2008 were to the UN Voluntary Trust Fund for Assistance in Mine Action (VTF); the International Trust Fund for Demining and Mine Victims Assistance (ITF); and the NATO Partnership for Peace Trust Fund.

Article 8, Paragraph 4

Paragraph 4, on the exchange of equipment, material and scientific and technological information, is based on the language of the Mine Ban Treaty, CCW Amended Protocol II, Art. 11(1), and the 1972 Biological Weapons Convention, Art. X(1). However, this paragraph falls below the legal standard of these earlier instruments by limiting the technology and information relevant to the paragraph to that "necessary" for implementation of the Protocol rather than that "concerning" implementation. Such a formulation raises questions about what is necessary, and could allow an interpretation that even though certain technologies or information might make the work of ERW clearance safer and more efficient they would still not be strictly necessary. Paragraph 4 also includes a clarification that it does not apply to "weapons related technology." A wider reading could extend this to exclude access to information on how explosive ordnance works, which is arguably important to the safe and efficient implementation of ERW clearance operations. Although mentioned by some HCPs,[130] this type of information and equipment exchange appears to be limited practice under Protocol V or not reported on.[131]

Article 8, Paragraph 5

Under Protocol V, each HCP is obliged to provide information to relevant mine action databases established within the UN system, with an emphasis on providing information concerning means and technologies of clearing ERW, and lists of experts, and expert agencies or national points of contact on clearance of ERW. It does not appear that any High Contracting Party to Protocol V has yet provided such information in the Protocol V framework.

Article 8, Paragraph 6

To date, three requests for assistance in dealing with ERW contamination have been submitted to the ERW database under Protocol V: Ukraine, Belarus, and Serbia (although Serbia was not at the time of writing a High Contracting Party). All of these requests relate to "existing ERW" and are therefore relevant to Article 7 of Protocol V rather than Article 8. As of August 2009, no HCP had indicated a willingness to respond to these requests.

Article 8, Paragraph 7

Paragraph 7 establishes a role for the UN Secretary General in assessing and making recommendations regarding assistance to parties affected by ERW. Such a role is particularly pertinent as a mechanism to ensure transparency regarding decisions to allocate funding from trust funds established within the UN system.

Conclusions regarding Article 8

There is evidence of some confusion amongst Parties to Protocol V regarding the distinctions between Article 7 and Article 8. It will be an important test of Protocol V to see the level of cooperation and assistance extended to address new contamination with ERW. There is evidence that certain obligations of the article, such as the commitment to provide information to databases, are not being given significant attention by Parties because they are not considered particularly relevant either to increasing humanitarian protection or furthering the interests of individual States or the Protocol as a whole.

- At the time of writing, Article 8 is yet to be tested. While there is a long history of States providing cooperation and assistance to each other to address problems caused by ERW it is yet to be seen whether Article 8 will result in an improvement or significant expansion of that assistance.
- Linked to the conclusions drawn regarding Article 7, States should expand the scope of what is traditionally considered cooperation and assistance in relation to Protocol V so as to support also a strengthening of measures aimed at the prevention of ERW and improvements in the safety of ammunition throughout its lifecycle.

Article 9: Generic preventive measures

1. Bearing in mind the different situations and capacities, each High Contracting Party is encouraged 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.
2. Each High Contracting Party may, on a voluntary basis, exchange information related to efforts to promote and establish best practices in respect of paragraph 1 of this Article.

Overview of Article 9

Consideration of generic preventive measures, such as improvement in design and procedures for handling and use of existing munitions was one pillar of the discussions that led to the adoption of Protocol V. Delegations proved unable to agree on any legally binding preventive measures, resulting in a Protocol that combines legal obligations and so-called "best practices."[132]

Article 9 encourages, but does not require, each High Contracting Party (HCP) to take generic preventive measures to minimize the occurrence of ERW. Possible measures are listed in the Technical Annex, including provisions governing munitions manufacturing, management, storage, transfer, future production, and training for personnel. The Technical Annex is not an exhaustive list and HCPs should be encouraged to take other steps that would prevent the occurrence of ERW – such as joining the Convention on Cluster Munitions. In addition to addressing risks of UXO, the Technical Annex provides a framework that could be usefully developed to address additional concerns regarding surplus ammunition, risks of ammunition diversion, and risks of uncontrolled explosive events in ammunition stockpiles.

The generic preventive measures should be considered also in the context of Article 36 on new weapons of Additional Protocol I to the Geneva Conventions.[133] While Article 9 of Protocol V treats these measures as dependent upon the "different situations and capacities" of parties, Article 36 of Additional Protocol I makes it clear that there is a binding legal obligation on States to analyze the risks specific weapons pose to civilians. This obligation is to assess the legality of their use in different contexts and would include an assessment of the UXO risks from specific weapons (which the CCW has affirmed must be taken into account in the application of legal rules governing attacks).[134]

TECHNICAL ANNEX 3

3. Generic preventive measures

States producing or procuring explosive ordnance should to the extent possible and as appropriate endeavour to ensure that the following measures are implemented and respected during the lifecycle of explosive ordnance.

(a) Munitions manufacturing management

(i) Production processes should be designed to achieve the greatest reliability of munitions.
(ii) Production processes should be subject to certified quality control measures.
(iii) During the production of explosive ordnance, certified quality assurance standards that are internationally recognised should be applied.
(iv) Acceptance testing should be conducted through live-fire testing over a range of conditions or through other validated procedures.
(v) High reliability standards should be required in the course of explosive ordnance transactions and transfers.

(b) Munitions management

In order to ensure the best possible long-term reliability of explosive ordnance, States are encouraged to apply best practice norms and operating procedures with respect to its storage, transport, field storage, and handling in accordance with the following guidance.

(i) Explosive ordnance, where necessary, should be stored in secure facilities or appropriate containers that protect the explosive ordnance and its components in a controlled atmosphere, if necessary.
(ii) A State should transport explosive ordnance to and from production facilities, storage facilities and the field in a manner that minimises damage to the explosive ordnance.
(iii) Appropriate containers and controlled environments, where necessary, should be used by a State when stockpiling and transporting explosive ordnance.
(iv) The risk of explosions in stockpiles should be minimised by the use of appropriate stockpile arrangements.
(v) States should apply appropriate explosive ordnance logging, tracking and testing procedures, which should include information on the date of manufacture of each number, lot or batch of explosive ordnance, and information on where the explosive ordnance has been, under what conditions it has been stored, and to what environmental factors it has been exposed.
(vi) Periodically, stockpiled explosive ordnance should undergo, where appropriate, livefiring testing to ensure that munitions function as desired.
(vii) Sub-assemblies of stockpiled explosive ordnance should, where appropriate, undergo laboratory testing to ensure that munitions function as desired.
(viii) Where necessary, appropriate action, including adjustment to the expected shelf-life of ordnance, should be taken as a result of information acquired by logging, tracking and testing procedures, in order to maintain the reliability of stockpiled explosive ordnance.

(c) Training

The proper training of all personnel involved in the handling, transporting and use of explosive ordnance is an important factor in seeking to ensure its reliable operation as intended. States should therefore adopt and maintain suitable training programmes to ensure that personnel are properly trained with regard to the munitions with which they will be required to deal.

(d) Transfer
A State planning to transfer explosive ordnance to another State that did not previously possess that type of explosive ordnance should endeavour to ensure that the receiving State has the capability to store, maintain and use that explosive ordnance correctly.

(e) Future production
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

Technical Annex 3(a) – Manufacturing Management

Part (a) of the Technical Annex on generic preventive measures sets out measures through which HCPs should aim to increase the reliability of explosive munitions they produce, through design and production processes to achieve the greatest reliability of munitions and through subjecting production to certified quality control measures and internationally recognized quality assurance standards; as well as conducting rigorous acceptance testing, including live-fire testing over a range of conditions or "through other validated procedures."

Live Fire Testing, Acceptance Testing and Other Validated Procedures

Extensive research with cluster munitions has shown that reliance on manufacturers' claims about reliability based on tests conducted in ideal conditions has been dangerously misleading. States should develop better testing processes that more accurately reflect the variation of conditions experienced in combat. Furthermore States should transparently gather data and analyze munition reliability after conflicts in order to assess the utility of the testing data as a basis for assessing civilian risk. Thus the obligation stated here implies an ongoing responsibility to test, assess, and review prior to, during, and following periods of explosive weapons use.

States purchasing or procuring weapons have an obligation to conduct evaluations under Article 36 of Additional Protocol I. Article 36 of Additional Protocol I[135] does not elaborate the specific means States must employ to conduct weapons reviews, but it does require each State Party to establish a formal procedure to conduct these reviews and enables other Parties to request information about procedures. Australia, Belgium, the Netherlands, Norway, Sweden, and the United States have made information about their legal review processes publicly available. France and the United Kingdom have informed the ICRC that they carry out reviews, but have not made information publicly available.[136] States should make available their policies and procedures for analyzing the reliability of explosive ordnance in relation both to Protocol V, Article 9 and their legal obligations to this effect under Article 36 of Additional Protocol I.

In 1987, the United States passed the Live Fire Test Law, which Congress intended to be implemented "in a manner which encourages the conduct of full-up[137] vulnerability and lethality tests under realistic combat conditions, first at the sub-scale level as they are developed and later at the full-scale level mandated in the legislation."[138] Conventional weapons systems, vehicles, and weapons platforms "that include features designed to provide some degree of protection to users in combat" are covered by the law.[139] So-called "full up" testing seeks to accurately represent risks and should be carried over into testing of risks that munitions may pose to the civilian population.[140] This practice sets a precedent for States directly testing the performance of systems intended to protect personnel and could be extended to testing performance relevant to civilian protection.

High Reliability in Transactions and Transfers

Additional Protocol I places the onus on the recipient State to ensure that the weapons they procure are sufficiently reliable.[141] However, it follows from the principle of Article 9 that States should not sell or transfer ordnance that they consider unreliable or that has an elevated risk of being unreliable.

Technical Annex 3(b) – Munitions Management

Part (b) of Technical Annex 3 indicates that the storage, management, and movement of munitions have implications for their future reliability, and also for the immediate risk of uncontrolled explosions, which can kill and injure directly as well as generating unexploded ordnance contamination in the surrounding area. While there has been considerable analysis of such incidents of uncontrolled explosions, there is little available information on the general degradation of ordnance reliability over time as a result of different storage and management factors.

Minimize the risks of explosions through appropriate stockpile arrangements

Explosions in ammunition stockpiles can cause significant levels of death and injury, as well as high financial losses.[142]

Poorly stored and aging munitions have resulted in a number of serious incidents in recent years. A summary of undesired explosive events in ammunition storage areas from 1995–2007 reports a confirmed 153 explosive events causing over 2,575 fatalities and over 4,264 injuries. The actual numbers are expected to be significantly higher, as the data was compiled only from open sources.[143]

Four primary factors have been identified as the most prevalent causes of ammunition stockpile explosions:

a) unstable ammunition and deterioration of physical or chemical condition of the explosive;
b) unsafe storage practices and or infrastructure;
c) unsafe handling and transport practices; or
d) deliberate sabotage or acts of war.[144]

Appropriate containers, controlled atmosphere

One major factor increasing risk of stockpile explosions, particularly in post-conflict countries, is inadequate storage facilities.[145]

Transport and handling

Ensuring proper safety while transporting munitions is another important facet of munitions management.[146]

Logging, tracking, testing procedures

For each lot of explosive ordnance, States should keep records of its date of manufacture, the conditions in which it has been stored, and its exposure to environmental factors.[147]

Periodic live-firing testing of stockpiled explosive ordnance

Periodic live-fire testing of stockpiled explosive ordnance is important in assessing the safety and security of stockpiled munitions and for appropriately determining the shelf-life of munitions. In a broader context, periodic review and testing of stockpiled ordnance, particularly in the wake of new evidence about a weapon system, is necessary for States to accurately assess the risks weapons pose to civilians through the creation of ERW.[148]

Test sub-assemblies of ordnance in laboratories

Certain types of ordnance have electronic or other components that can be tested without live firing the munitions. Such periodic testing can be used as a further indicator of reliability or of degradation in reliability over time.

Shelf-life

Shelf-life refers to the length of time a munition can be stored before degradation of the ammunition affects its performance.[149] The average shelf life for ammunition is around 20 years, varying according to the type of ammunition and storage conditions. The scale of stockpiled ammunition globally is such however that stockpiles consisting of hundreds or thousands of tons of ammunition beyond its shelf-life is not unusual.[150]

A large number of States often lack sufficient technical expertise with regards to ammunition management, especially in regard to surveillance and munitions life assessment in stockpile management.[151] It has been noted that while international assistance is available to aid countries to increase stockpile security and to dispose of surplus stocks of ammunitions, programs to assist countries to establish integrated ammunition management systems are scarce.[152]

However, it should be noted that some States continue to show scant regard for the additional civilian risk caused by their choice of weapons and the principles endorsed by Protocol V.

Broader implications: Identifying and Minimizing Risk

Risks to civilians

The location of ammunition stockpiles is also an important factor in reducing the risk posed to civilians from stockpile incidents. While it may be considered a logical safety precaution to locate ammunition stockpiles as far as possible from populated areas, there are often ties between stockpiles and communities, as stockpiles may provide employment and service industry opportunities. The placement of stockpiles often relates to three factors. Whether stockpiles are placed:

- in wide open spaces to ensure security and minimize the impact of potential explosions;
- close to transportation nexuses to ensure ease of access;
- close to the security forces to ensure uninterrupted supply (for countries which have military doctrines based on the use of paramilitary forces, a wider dispersal of stockpiles may be put in place to enable access to local militias or units).[153]

For these reasons, stockpiles may often be positioned in and around civilian areas. For stockpiles located in community environments, safety precautions along with proper risk education and awareness for civilians and military personnel will take on increased importance. A greater emphasis on stockpile-community interactions would be beneficial in improving stockpile management practice.[154]

Post-conflict risks

While numerous examples of stockpile accidents occurring in peace-time exist, due to poor safety procedures and environmental factors, the likelihood of stockpile accidents occurring increases in post-conflict environments. Factors such as decreasing implementation of safety standards and monitoring or the possibility of damage to the stockpile storage infrastructure can greatly increase the likelihood of accident or incident.[155]

In post-conflict countries where disarmament, demobilization, and reintegration programs have collected significant amounts of munitions from ex-combatants, it is particularly important to ensure that collected munitions are stored in a manner to reduce risks of explosion.[156]

As the purpose of Protocol V is to minimize the risks and effects of ERW in post-conflict environments, ensuring the security of stockpiles of ammunition in post-conflict environments should be a priority concern for HCPs.

Risks from surplus

A surplus stock of ammunition increases the risk of incidents, including the risk of theft and diversion, as resources are less likely to be allocated for safe storage and surveillance of surplus or non-essential munitions.[157] Surplus ammunition is not necessarily past its shelf-life but is simply extraneous to the needs of the State. Recent trends in reducing the size of armed forces in many countries has contributed to increasing stocks of surplus munitions.[158]

States may find it more cost-effective to destroy non-essential stockpiles of ammunition or to maintain smaller stockpiles, rather than pay for the maintenance of large stockpiles. The South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons (SEESAC), in partnership with UNIDIR and the University of Bradford, has developed a cost-benefit analysis model to enable States to estimate the costs of munition storage versus the costs of destruction.[159]

Risk of theft and diversion

The most common source of weapons obtained by criminals, armed opposition forces, and non-state actors is legal stockpiles of munitions supposedly under State control.[160] Insufficient management, storage, and stocktaking can mean that loss of munitions can go unnoticed for years.[161] Preventing unauthorized access to stockpiled ammunition is the most effective means of securing stockpiles, although comprehensive security entails planning, accounting, marking, and a broader range of activities, including controlling access, fencing and lighting systems, surveillance equipment, guards, and alarms.[162]

Attention to the problem of stockpile security and the potential for theft, particularly in relation to the recycling of stockpiled munitions to create improvised explosive devices, is growing. This has become a large-scale phenomenon in Iraq and Afghanistan, where massive amounts of stockpiled ordnance is inadequately secured. From 2004–2006, the US spent close to $6.1 billion on combating IED attacks on US troops in Iraq.[163]

Addressing the risks: Standards

There is no current global standard or instrument which addresses stockpile management[164] but responsibility for the safe storage of ammunition stockpiles remains with the individual State.[165] Regional guidelines, such as NATO standards for stockpile management and destruction are widely considered best practice standards, along with standards developed in the OSCE, SEESAC, and the Southern African Development Community (SADC) regional frameworks.[166] However, there may be significant variations between some regional approaches.[167]

The GICHD noted in its study of undesired explosive events in ammunition stockpile areas that while NATO standards compel a rigorous safety standard, implementing NATO's standards can be expensive and alternative, lower cost measures can be employed to reduce the risk of accident and ensure a sufficient safety level. According to the GICHD, "many of the known accidents could probably have been prevented if simple, inexpensive safety precautions and management processes had been implemented…"[168] A study by Saferworld, International Alert, and the University of Bradford (Biting the Bullet) reports that most States are unable to ever reach compliance with NATO standards without "substantial capital investment." While upgrading storage facilities requires considerable resources, donors have proven to be hesitant to fund projects which could be seen to enhance the operational capacity of a recipient State's military.[169]

In addition, the scale of the problem posed by large amounts of poorly secured stockpiled munitions around the globe is such that the achievement of best practice standards is not immediately feasible. The Biting the Bullet report has instead recommended the development of universal "minimum 'emergency' standards" as a priority.[170] While international standards are a long-term goal, international professional understandings of 'emergency' minimum standards and criteria to prioritize the most vulnerable stocks would increase the ability of the international community to address the stocks which present the most urgent risk.[171]

Practical assistance

The 2005 Biting the Bullet study[172] reported that the largest channels of assistance for stockpile management and destruction were the UNDP Small Arms Demobilization Unit (SADU) and the NATO Partnership for Peace (PfP),[173] along with the European Stability Pact and the OSCE.[174] The study found that stockpile destruction assistance, however, is usually not a primary concern for donors and assistance is inadequate. Assistance that is provided tends to be along regional lines, with the main exception of the U.S., which has provided assistance to a wide range of countries including in Africa, Eastern Europe, and Southeast Asia.[175] While many examples of donor and assistance programs can be found, the donor base is arguably far too limited in relation to the global scale of the problem (the 2005 study Biting the Bullet found only 11 donors).[176]

Lessons learned in the context of the 1997 Mine Ban Treaty have shown that stockpile destruction is one area of mine action that is often overlooked by donors and under-funded. Contributing to this is a tendency not to connect assistance for stockpile destruction with available funds for humanitarian and development purposes.

While NATO's PfP and OSCE member States have established a framework for cooperation for stockpile management and destruction projects, Protocol V could serve as a broader platform for cooperation amongst a more diverse group of States. A significant number of stockpile accidents occurred in African States in recent years, showing the need for wider assistance beyond regional and military alliances to deal with aging stockpiles of munitions around the globe.

Technical Annex 3 (c) – Training

Analyses of munition stockpile risks repeatedly cites a lack of technical expertise on stockpile management issues in many countries. Increased provision of technical assistance and training by donors would make a significant impact into strengthening national capacity to store and manage munitions safely.[177]

Technical Annex 3 (d) – Transfer

The Technical Annex states that it is best practice for States transferring explosive ordnance to work to ensure that the recipient State can store, maintain and use these weapons effectively. Positively, this suggests a responsibility of the transferring State to actively gather information in order to make such a determination.[178] Furthermore, certain elements of this determination should be based on an assessment of concrete factors, such as the facilities and procedures for ordnance storage and maintenance. It is unclear if any State has undertaken such assessments prior to transfers of explosive weapons or if any State has explicit procedures in place to mandate such assessments. States should clarify their procedures and practices on this in their reporting under Protocol V.

Additional measures

Article 9 states that HCPs should be encouraged to take generic preventive measures aimed at minimizing the occurrence of ERW, including, but not limited to, the measures contained in the Technical Annex. There are clearly additional measures not specified in the Technical Annex which can be taken to dramatically reduce the risks of creating ERW. One such action is the decision to prohibit the use of cluster munitions by 78% of Protocol V's HCPs, who as of June 2009 had signed the Convention on Cluster Munitions.[179] Others who have not signed the Convention on Cluster Munitions have taken steps that should be considered to fall under the terms of Article 9. For example, the U.S.[180] and Singapore,[181] have taken limited unilateral measures to reduce the risk of ERW from cluster munitions or ban the transport of cluster munitions.

Implementation

There is little evidence of States making efforts to improve their generic practices to improve the reliability of ordnance based on the provision in the Technical Annex of Protocol V. From national reports from HCPs to Protocol V it appears that most HCPs consider themselves to be in compliance with and currently implementing the measures set out in the Annex. States listed various laws and directives governing munitions production, management, testing, transfer controls, and training. Several cited compliance with EU directives and NATO standards. However, most of the laws and directives listed dated prior to the entry into force of Protocol V, indicating that Protocol V has not motivated HCPs to take specific actions.

Reporting on specifics was vague. For example, one HiCP reported that reliability of weapons was "taken into account" in the procurement phase, and that "due diligence" of manufacturers was amongst the considerations taken in a "robust procurement process." Another HCP, on whose territory a series of explosions in a munitions depot resulted in tons of ammunition and explosives exploding, forcing the evacuation of civilians within a 6 kilometer radius in 2008,[182] reported that its explosive munitions "are managed and stockpiled in a manner that ensures their reliability."[183] The level of detail provided in national annual reports varied greatly from listing legislation pertaining to each provision of the Technical Annex, to a blanket statement that measures are in place to meet the obligations of the Protocol, to an assertion that the obligations of Article 9 were "not applicable" made by States who possess stockpiles of explosive weapons which undoubtedly have the potential to cause accidents or ERW.

Few HCPs mentioned measures designed to improve the reliability of explosive munitions in future production or standards for procurement. Most States reported only on their current practices. A few mentioned generally that they were conducting research but did not specify the area or nature of that research. Discussing such research openly, or as openly as commercial and security concerns will permit, is in the spirit of co-operation mentioned in Article 8 and will help establish best practices. The apparent lack of proactive measures from HCPs on the issue of generic preventive measures is a concerning indication that Protocol V is not being interpreted or implemented in a way that will make any impact to improve the reliability of explosive weapons used in conflicts or decrease the likelihood of their becoming ERW.

Conclusions regarding Article 9

States have a special responsibility for the management of explosive weapons through their production, storage, use, or disposal. Many of these responsibilities are delineated in Technical Annex 3 relevant to the implementation of Article 9. Approaches taken to the prevention of risk from explosive weapons should serve as an important indicator of the State's wider orientation to civilian protection.

Protocol V could provide an important framework to address stockpile security and provide a mechanism for cooperation and assistance between HCPs. HCPs to Protocol V can make important steps forward in addressing stockpile management and security and the interrelationship between improperly stored munitions and abandoned munitions as a primary source of material for the creation of improvised explosive devices.

- Protocol V can provide a platform for States to discuss appropriate standards and training protocols that can enable States to improve stockpile management processes and reduce the risk of accidents.[184]

Article 9: Recommendations

- States need to develop mechanisms for testing the reliability and wider civilian risks of ordnance that better reflect likely combat performance. Data on the performance of munitions in combat should be gathered and transparently assessed against testing data to provide an indication of the validity of such tests.
- Information on munition testing practices and data should be made publicly available so as to allow assessment and comparison of Sate practices and orientation to civilian risks.
- In addition to periodic testing of munition reliability, States should adopt clear policies that they will immediately take out of service and rapidly destroy munitions that are beyond their shelf-life.
- States should implement the provisions of the Technical Annex for responsibility in the transfer of explosive weapons and should report on their policies and practices in this regard.

Notes

1 Louis Maresca, "A new protocol on explosive remnants of war: the history and negotiation of Protocol V to the 1980 Convention on Certain Conventional Weapons," *ICRC Current Issues and Comments,* Vol. 86, No. 856, December 2004, p. 826. Maresca notes that historically, parties to a conflict have only been responsible for clearance of unexploded and abandoned ordnance on their own territories.

2 Louis Maresca, "A new protocol on explosive remnants of war: the history and negotiation of Protocol V to the 1980 Convention on Certain Conventional Weapons," *ICRC Current Issues and Comments,* Vol. 86, No. 856, December 2004, p. 826. See also Christian H. Ruge, "Explosive Remnants of War ERW, CCW Group of Governmental Expert Meetings in June and November 2003: Report from the process with recommendations for further actions," Fafo AIS New Security Programme, 26 January 2004.

3 This has subsequently been further reinforced by the 2008 Convention on Cluster Munitions.

4 CCW Amended Protocol II uses the phrase "areas under control," while the 1997 Mine Ban Treaty uses "jurisdiction or control." A commentary to the Mine Ban Treaty interprets "control" by a State Party to refer to "places over which the State Party exercises factual power or authority," referring in particular to "areas outside the jurisdictional competence of the State that are none the less within its control, such as occupied territories or zones." (Maslen, Stuart, *Commentaries on Arms Control Treaties, Volume I: The Convention on the Prohibition on the Use, Stockpiling, Production, and Transfer of Anti-Personnel Mines and on their Destruction,* first ed., Oxford University Press, New York, 2004, p. 166.)

5 Maslen's commentary to the Mine Ban Treaty interprets the obligation to mean in practice that "although it may safely be assumed that there is no obligation to clear anti-personnel mines in an unsafe environment or a temporary operational context (where the force could not be said to have control), the same is not true where a national contingent of troops is operating over a period of several months or even years in a given area under a broad mandate from the UN Security Council and has de facto control of that area in the absence of an effective central government with control of all its territory. An example of such a context is Kosovo and possibly also Afghanistan." However, in the context of the Mine Ban Treaty, State practice has shown that States have also acknowledged an obligation and undertaken to clear mines in areas outside of their jurisdiction or control. (Maslen, Stuart, *Commentaries on Arms Control Treaties, Volume I: The Convention on the Prohibition on the Use, Stockpiling, Production, and Transfer of Anti-Personnel Mines and on their Destruction,* first ed., Oxford University Press, New York, 2004, p. 167.)

6 "Operation Iraqi Freedom," official website of the Multi-National Force in Iraq, www.mnf-iraq.com/index.php?option=com_content&task=view&id=294&Itemid=27, accessed 10 February 2009.

7 ICRC, "Explosive Remnants of War: Cluster Bombs and Landmines in Kosovo," August 2000, revised June 2001, p 27. See also Carlotta Gall, "UN aide in Kosovo faults NATO on unexploded bombs," *New York Times,* 23 May 2000.

8 Jonathan Steele, "Death Lurks in the Fields," *The Guardian,* 14 March 2000.

9 ICRC, "Explosive Remnants of War: Cluster Bombs and Landmines in Kosovo," August 2000, revised June 2001, p. 36.

10 "Feasible" is not defined in the Protocol, but a common definition is "capable of being done, carried out." Maslen's commentary to the Mine Ban Treaty defines "feasible" as "practical or practicable." (Maslen, Stuart, *Commentaries on Arms Control Treaties, Volume I: The Convention on the Prohibition on the Use, Stockpiling, Production, and Transfer of Anti-Personnel Mines and on their Destruction,* first ed., Oxford University Press, New York, 2004, p. 181.)

11 The conflicts sampled were Israel – Hezbollah (Cessation of active hostilities in 2006); Indonesia – Aceh separatists (2005); Sudan – SPLA (2004); Haiti – Rebel groups (2004); Solomon Islands – Malaitan Eagle Force and Isatabu Freedom Movement (2003); Liberia – LURD rebels (2003); Iraq – USA, UK and coalition (2003 – cessation of "major combat operations"); Angola – UNITA (2002); Sierra Leone – RUF (2002); Chad – Muslim separatists (MDJT) (2002); Sri Lanka – LTTE (2002 ceasefire period); Burundi – Tutsi vs. Hutu (2002); Afghanistan Taliban – Northern Alliance, U.S.A., U.K. and coalition (2001 – end of conflict in the north); Indonesia – East Timor (2000); Tajikistan – United Tajik Opposition (UTO) (2000); Ethiopia – Eritrea (2000); Fiji – Insurgents (2000); NATO and KLA – Yugoslavia (1999); India – Pakistan (1999 Kargil conflict).

12 See ICBL, *Landmine Monitor Report* for India and Pakistan for the years 1999–2008.

13 See ICBL, *Landmine Monitor Report* for Israel for the years 2006–2008.

14 See ICBL, *Landmine Monitor Report* for Indonesia, for the years 1999–2008.

15 See ICBL, *Landmine Monitor Report* for Ethiopia and Eritrea, for the years 2000–2008.

16 United States Department of State, Bureau of Political-Military Affairs, "To Walk the Earth in Safety: the United States' Commitment to Humanitarian Mine Action and Conventional Weapons Destruction," 8th ed., July 2009; and United States Department of State, "United States clearance of unexploded cluster munitions," 23 February 2007. Also ICBL, *Landmine Monitor Report,* Vietnam, 1999.

17 United States Department of State, Bureau of Political-Military Affairs, "To Walk the Earth in Safety: the United States' Commitment to Humanitarian Mine Action and Conventional Weapons Destruction," 8th ed., July 2009: The US began providing financial assistance for humanitarian mine action to Bosnia and Herzegovina in 1996, directly following the conclusion of the 1992–1995 hostilities there. In 1996, the US provided over $11 million for humanitarian mine action and in total, from 1996 through 2009, the US has provided over $74 million to Bosnia and Herzegovina.

The US began providing financial assistance for humanitarian mine action to Croatia in 1999, after its internal conflict (1991–1995) and the NATO campaign in 1999 resulted in ERW contamination. In 1999, the US provided $600,000 and from 1999–2009, the US has given over $23 million. Kosovo began receiving humanitarian mine action assistance from the US in 1996, prior to the NATO bombing campaign in 1999. From 1996–1998, US funding averaged around $2 million per year, but increased to over $5 million in 1999 and peaked at over $10 million in 2000, the year after the bombing campaign. From 1996–2009, the US has provided over $27 million to Kosovo. Albania began receiving assistance from the US in 2000 with $1 million in mine action aid from the US and has received over $10 million from 2000–2009. The US provided far less assistance and much later, however, to Serbia, which was its adversary in the NATO campaign. The US did not begin to provide assistance to Serbia (then Serbia and Montenegro) until 2003, when it provided $833,000. Funding in 2004–2006 averaged at $1 million a year, and in total from 2003–2009, has provided a total of $5 million.

18 Louis Maresca, "A new protocol on explosive remnants of war: the history and negotiation of Protocol V to the 1980 Convention on Certain Conventional Weapons," *ICRC Current Issues and Comments,* Vol. 86, No. 856, December 2004, p. 826.

19 For example, in Iraq hostilities persisted at different levels in different parts of the country after 2003, resulting in Iraq's National Mine Action Authority (NMAA) becoming largely inactive by 2007 as a result of political turmoil and insecurity. ICBL, *Landmine Monitor Report,* Iraq, 2008.

20 See for example, Jim Freedman Consulting, "Evaluation of the SLIRI/LMA Socio-Economic Impact and Dangerous Areas Surveys and of SLIRI's Organizational Sustainability in the Nuba Mountains," London, Canada, 20 January 2006; and Kristian Berg Harpviken and Bernt A. Skara, "Humanitarian mine action and peacebuilding: exploring the relationship," International Peace Research Institute (PRIO), in *Third World Quarterly,* Vol. 24, Issue 5, October 2003, pp. 809–822.

21 See also Geneva Call, "Mine Action in the Midst of Internal Conflict: A report on the workshop organized by Geneva Call and the International Campaign to Ban Landmines Non-State Actors Working Group, Zagreb, 27 November 2005," September 2006.

22 President Bush stated that "major combat operations in Iraq have ended. In the Battle of Iraq, the United States and our allies have prevailed. And now our coalition is engaged in securing and reconstructing that country." Address by President George W. Bush aboard USS Abraham Lincoln, 1 May 2003. www.cbsnews.com/stories/2003/05/01/iraq/main551946.shtml, accessed 23 August 2009.

23 By August 2003, over 2,500 minefields, 2,200 UXO/sub-munitions locations, and thousands of abandoned munitions sites had been identified. USCENTCOM has also established mechanisms to transfer information to non-governmental organizations (NGOs) about the minefield and UXO locations as part of the effort to clear the land of these silent threats. See "The U.S. Humanitarian Mine Action Program in Iraq," *Journal of Mine Action,* Issue 7.2, August 2003; and ICBL, *Landmine Monitor Report,* Iraq, 2003.

24 A ceasefire between the Colombo government and the Liberation Tigers of Tamil Eelam (LTTE) was signed in February 2002 after 19 years of conflict. The conflict left Sri Lanka with a substantial ERW and mine problem. Landmine Action, "Explosive Remnants of War: A Global Survey," June 2003, p. 43.

25 For example, the Landmine Monitor in 2002 reported that the Engineering Unit of the Sri Lankan Army, the LTTE, and the non-governmental Humanitarian Demining Unit (HDU) were all engaged in mine clearance operations. Furthermore, the LTTE was also involved in demining certain areas of the A9 highway, with the International Committee of the Red Cross (ICRC) reportedly coordinating information between the Army and LTTE. In 2001, Sri Lankan security forces and LTTE were reported to have removed tens of thousands of mines and other items of ordnance during the period 20 April 2000 to 31 December 2001. ICBL, *Landmine Monitor Report,* Sri Lanka, 2002. It was also reported that the Sri Lanka Army (SLA) carried out explosive ordnance disposal during the conflict as the frontlines shifted. Its EOD specialists, some trained by the UK, cleared ERW "in response to reports made by the general public." Landmine Action, "Explosive remnants of war: ERW in Sri Lanka," May 2003.

26 On 26 March 2002, the World Bank announced that it had committed US$1 million for a UNDP-implemented Landmine Action Project, which included strengthening of survey and mapping capacity, and training deminers in areas under the civil administration. In addition, UNDP contributed US$300,000 and UN Mine Action Service (UNMAS) US$58,000 to the project. In February 2002, the Australian government committed US$75,000 to the UN High Commissioner for Refugees (UNHCR) for mine action expert advice and mine risk education activities with the objective of facilitating the return of internally displaced persons in the northern and eastern parts of the country. In June 2002, the Australian government signed an agreement with UNDP to provide A$500,000 (about US$285,000) for mine action. ICBL, *Landmine Monitor Report,* Sri Lanka, 2002.

27 Landmine Action, "Explosive remnants of war: ERW in Sri Lanka," May 2003, p. 25.

28 Landmine Action interview with Chris Clark, Geneva, 9 July 2008.

29 The group included UNMAS, UNDP, UNICEF, UNOPS, OCHA, the World Food Program, UNHCR, the UN Relief and Works Agency for Palestine Refugees in the Near East, the Food and Agriculture Organization, the ICRC, the Swedish Rescue Service Agency, Mines Advisory Group, the Vietnam Veterans of American Foundation, and Response International. United Nations Mine Action Service (UNMAS), "Annual Report 2006," p. 47.

30 UNMAS, "Annual Report 2006," p. 47.

31 UNMAS, "Annual Report 2006," p. 48.

32 It is arguable that Paragraph 2 only establishes an initial basis for prioritization. Having addressed areas classified as "a serious humanitarian risk," it could be argued that Protocol V does not provide any strict obligation to prioritize remaining tasks on the basis of the risk to civilians. However, the humanitarian intent of the Protocol would support an approach that keeps civilian needs to the fore in planning ERW eradication.

33 GICHD, "Mine Action and the Implementation of CCW Protocol V on Explosive Remnants of War," first ed., Geneva, July 2008, p. 25.

34 "Gender Guidelines for Mine Action Programmes," published by the UNMAS, February 2005.

35 An example of the effective use of removed ERW is the Golden West Humanitarian Foundation's work in Cambodia, where the organization is involved in the transformation of stockpiles of munitions into the tools deminers need to clear the country's minefields. Golden West Humanitarian Foundation has devised low-cost and low-technological programs called Explosive Harvesting Systems, which allow for the recycling of explosive charges for clearance operations through cutting open, removing, melting, and recasting the explosive filler inside abandoned or stockpiled munitions. Golden West Humanitarian Foundation, homepage, "Success story: Transforming Weapons of Warfare into Tools for Peace," www.goldenwesthf.org, accessed 13 February 2009.

36 See for example: GICHD, "A Study of the Role of Survey in Mine Action," Geneva, March 2006, www.gichd.ch/fileadmin/pdf/publications/Survey_in_MA_March2006.pdf, accessed 13 September 2009.

37 See Ian Mansfield and Eric M. Filippino, "The Role of the Military in Mine Action," *Journal of Mine Action,* Issue 8.1, June 2004.

38 ICBL, *Landmine Monitor Report,* 2008, "Support for Mine Action," pp. 58–59.

39 Louis Maresca, "A new protocol on explosive remnants of war: the history and negotiation of Protocol V to the 1980 Convention on Certain Conventional Weapons," *ICRC Current Issues and Comments,* Vol. 86, No. 856, December 2004, p. 828.

40 See for example "The United Nations and the Implementation of Protocol V, presented by the United Nations Mine Action Service (UNMAS) on behalf of the IACG-MA," Geneva, 31 August 2006, CCW/GGE/XV/WG.1/WP.2.

41 In part this recognizes the differing sophistication of States' mechanisms to record and retain information under situations of active combat. The qualifiers, however, may serve to weaken the obligation considerably if the article is not implemented in good faith and in accordance with the objectives of the Protocol. Based on common definitions of the terms "possible" and "practicable," the qualifiers might be understood to mean that High Contracting Parties must record and retain information to the greatest level within the limits of its ability, and as far as capable of being done with its available means. Absent questions of financial wherewithal, the "maximum extent possible" can be defined by the leading available technologies.

42 Obligations to record and provide information are contained in CCW Amended Protocol II (1996). Keeping records of minefield locations has been a standard practice for many militaries. Several recent cease-fire agreements for conflicts where mines were suspected to be used have stipulated the exchange of minefield data in their conditions (See United Nation Inter Agency Coordination Group on Mine Action, Mine Action Guidelines for Ceasefire and Peace Agreements, undated, pre 2003.) Despite this, a global survey found that very few countries contaminated by anti-vehicle mines as a result of armed conflicts had possession of detailed or comprehensive maps or records. Landmine Action, Mines Action Canada, Actiongroup Landmine.de, "Explosive remnants of war and mines other than anti-personnel mines, Global Survey 2003–2004," March 2005, p. 14.

43 See United Nation Inter Agency Coordination Group on Mine Action, Mine Action Guidelines for Ceasefire and Peace Agreements, undated, pre 2003, on: Angola, *Cease Fire Agreement,* S/22609, (1994); Bosnia & Herzegovina, *General Framework Agreement for Peace in Bosnia & Herzegovina,* S/999 (1995); Cambodia, *Framework for a Comprehensive Political Settlement of the Cambodia Conflict,* S/718, (1991): Annex 2, Art 1 (3); El Salvador, *Peace Agreement,* S/23501 (1991); Ethiopia/Eritrea, *Agreement on Cessation of Hostilities between Ethiopia and Eritrea,* Brokered by OAU, (2000); Kosovo, *Interim Agreement for Peace and Self Government in Kosovo,* S/1244 (1999); Mozambique, *General Peace Agreement for Mozambique,* S/24635 (1992)

44 The databases were initially classified as top secret and maintained by the Joint Chiefs of Staff. In 1976 they had been declassified and sent to the National Archives. See Tom Smith, "Southeast Asia Air Combat Data," *DISAM Journal,* 22 December 2000; and Daniel Lovering, "Taming the Killing Fields of Laos," *Scientific American,* August 2001.

45 Reports included "Summarized Tables of Combat Sorties and Losses in Southeast Asia," "Helicopter Sorties and Losses in South Vietnam," and "U.S. Combat Sorties in North Vietnam and the Gulf of Tonkin."

46 The United States National Archives, "Access to Archival Databases (AAD)," Southeast Asia Database, aad.archives.gov/aad/series-description.jsp?s=464, accessed 05 May 2009.

47 Gaps exist in the data within the years 1965, 1967, 1968, and 1969.

48 The United States National Archives, "Access to Archival Databases (AAD)," Combat Air Activities Files (CACTA), aad.archives.gov/aad/series-description.jsp?s=485&popup=Y, accessed 05 May 2009. The databases also include a very limited amount of information on the extensive air-bombing campaigns and air-dropped landmine "seeding" carried out by the Air Forces of the Republic of South Vietnam, the Royal Lao, Thai, Khmer FANK, Mong, and CIA (Igloo White and Air America). Source: "Historical Records of US Air Force Combat Activities 1965–1975, Indochina," www.bbs.keyhole.com/ubb/ubbthreads.php?ubb=showthreaded&Number=615769&site_id=1#import, accessed 05 May 2009.

49 The United States National Archives, "Access to Archival Databases (AAD)," Combat Air Activities Files (CACTA), www.aad.archives.gov/aad/series-description.jsp?s=485&popup=Y, accessed 05 May 2009. "Each record contains data on a mission, one sortie of that mission, and one or more incidents of different types that occurred during the sortie. If more than one incident of the same type occurred during the sortie, a separate record for each incident exists."

50 Mines Advisory Group (MAG) news, "LAO PDR: U.S. Air Force Bomb Data," 08 July 2008. www.maginternational.org/news/lao-pdr-us-air-force-bomb-data-196575/, accessed 05 May 2009.

51 For example, an individual record reads as follows: LATITUDE = 17.62375, LONGITUDE = 105.33646, DATE_ = 7/22/1968, LAT_IND60 = 17.62222, LON_IND60 = 105.34028, NUM_ACRFT = 2, AIRCRAFT = F-4 D, LOAD_QTY = 3, LOAD_LBS = 531, ORDNANCE = 500 LB Gen Purp Bomb MK-82 Low Drag, ORD_CLASS = 500LB MK-82, CATEGORY = General_Purpose, TARGET = Truck Park/Stop, BDA = ONTGT/NO BDA, Total Bombs = 3

52 "Historical Records of US Air Force Combat Activities 1965–1975, Indochina," www.bbs.keyhole.com/ubb/ubbthreads.php?ubb=showthreaded&Number=615769&site_id=1#import, accessed 05 May 2009.

53 For example, "UTM/Desc: 34T DM737813"; "DMPI.GeoCoords: 435710.81N 0193001.31E"; "AC drop LatLon: 43-57-11N 019-30-01E"

54 Data recorded in Kosovo included descriptions, such as: "Radrel tower with buildings at base;" "Artillery in scrapes;" and "Building beside Ursoevac Afld."

55 For example: "Weapons observed to fall to the left of the building – possible damage caused. DMT target point left of tower on road – weapons appeared to impact aim point;" and "VFT of –350 day Intended drop at 19000 but wind blew off target, also altitude was wrong for VFT set All weapons pickled successfully. Target at the bottom end of the stick, slightly left 200ft short of aim point 50 ft right Hit – no secondary."

56 Document "A10_TARG," author HQ USAFE.

57 The number of rounds was recorded and reported for 89 strikes out of the 112 that comprised this specific dataset (that is 79% of cases). The other weapons on which information was provided were all bombs and missiles and do not provide an indication of capacity of willingness to provide data on the quantity of explosive ordnance used where this is in the form of ammunition.

58 Ordnance was listed as, TLAM, CALCM, AGM/GP, AGM–65, AGM–130, CBU–87, CBU–99, RBL–755, GBU–10, GBU–12, GBU–13, GBU–14, GBU–16, GBU–24, GBU–31, MK–82, MK–83, MK–84AB

59 Geographic coordinates were provided under the WGS84 system and using a 7 digit northing and easting.

60 Article 4(1) states that recording and retaining information must be done to facilitate the "provision of relevant information to the party in control of the territory and to civilian populations in that territory." The same sentence in Article 4(2) which requires parties "to make available" information also includes the phrase, "the party providing the information," further demonstrating the understanding that the party is to actively provide the information. Article 4(3) also refers to the "recording, retaining, and transmitting" of information. Article 6 additionally emphasizes the right of a humanitarian mission or organization to request information and for parties "to provide" information.

61 Tom Smith, "Southeast Asia Air Combat Data," *DISAM Journal,* 22 December 2000.

62 Andrew Wells-Dang, Roger Rumpf, and Jacqui Chagnon, "The Secret Spraying of Herbicides in Laos & Cambodia," *Indochina News,* Spring 2002. "Air Force historian William Buckingham, author of the 1982 report 'Operation Ranch Hand', had access to Laos and Cambodia data but was not allowed to disclose it. Maps of spraying missions released for Vietnam research show many flights extending to the borders of Laos and Cambodia where the lines abruptly stop. Records on the herbicide sprayings in these countries were classified top secret. Military personnel who flew on the Lao and Cambodia spraying (and bombing) missions are still restricted from speaking about those incidents." The data has many gaps, including those corresponding to the heaviest warfare years (1968–71) and information on air-spraying prior to 1966. No records on the use of herbicides have been released by the CIA, which was heavily involved in the war."

63 Guy Rhodes, "Chapter 4: The case of Lao People's Democratic Republic," in GICHD, "The Role of Survey in Mine Action," March 2006, p. 87.

64 Guy Rhodes, "Chapter 4: The case of Lao People's Democratic Republic," in GICHD, "The Role of Survey in Mine Action," March 2006, p. 116. One example was Oudomxay Province, which had been excluded from the HI-B survey. The US bomb data provided grounds to suspect contamination in the eastern districts of the province.

65 Guy Rhodes, "Chapter 4: The case of Lao People's Democratic Republic," in GICHD, "The Role of Survey in Mine Action," March 2006, p. 114.

66 Tom Smith, "Southeast Asia Air Combat Data," *DISAM Journal,* 22 December 2000.

67 Taylor Owen and Ben Keirnan, "Bombs Over Cambodia," *The Walrus,* October 2006.

68 IMSMA had been developed by the Geneva International Centre for Humanitarian Demining (GICHD).

69 The Praxis Group, Ltd. "Willing to Listen: An Evaluation of the United Nations Mine Action Programme in Kosovo 1999–2001," Riverside/Geneva, 12 February 2002, p 59.

70 See Shawn Messik, et al., Survey Action Center "Kosovo (FRY) Landmine Impact Survey," Washington, D.C. 31 March 2000; and The Praxis Group, Ltd. "Willing to Listen: An Evaluation of the United Nations Mine Action Programme in Kosovo 1999–2001," Riverside/Geneva, 12 February 2002, pp 44–45;

71 The Praxis Group, Ltd. "Willing to Listen: An Evaluation of the United Nations Mine Action Programme in Kosovo 1999–2001," Riverside/Geneva, 12 February 2002, p 43.

72 Memorandum from Dave Armitt, Chief of IT (IMSMA) UNMIK Kosovo MACC, Office of the DSRG (Humanitarian Affairs), to Mr. John Flanagan, PM, "Reference: NATO Cluster Data, Subject: Requirements for Additional Data and Clarification," date unknown.

73 For different assessments of this, see Shawn Messik, et al., Survey Action Center "Kosovo (FRY) Landmine Impact Survey," Washington, D.C. 31 March 2000; and The Praxis Group, Ltd. "Willing to Listen: An Evaluation of the United Nations Mine Action Programme in Kosovo 1999–2001," Riverside/Geneva, 12 February 2002.

74 ICRC, "Explosive Remnants of War: Cluster Bombs and Landmines in Kosovo," August 2000, revised June 2001, p 8.

75 ICRC, "Explosive Remnants of War: Cluster Bombs and Landmines in Kosovo," August 2000, revised June 2001, p 6, footnote 3.

76 Memorandum from Dave Armitt, Chief of IT (IMSMA) UNMIK Kosovo MACC, Office of the DSRG (Humanitarian Affairs), to Mr. John Flanagan, PM, "Reference: NATO Cluster Data, Subject: Requirements for Additional Data and Clarification," date unknown.

77 UNMIK MACC Quarterly Report 1 June – 30 September 2000.

78 Letter from US Army Task Force Falcon to USEUCOM, dated 21 December 1999. The letter noted that "Without more detail about the CBU sites, army combat engineers must take greater risks and expend enormous resources to search large areas in an attempt to identify suspected bombing sites… there is significant risk to our soldiers scouring fields and woods for unexploded ordnance (UXOs) without better information on the boundaries of the site. More information will significantly reduce risk to our soldiers and the time and resources required to conduct the marking mission."

79 Memorandum from Dave Armitt, Chief of IT (IMSMA) UNMIK Kosovo MACC, Office of the DSRG (Humanitarian Affairs), to Mr. John Flanagan, PM, Reference: NATO Cluster Data, Subject: Requirements for Additional Data and Clarification, date unknown; and UNMIK MACC Quarterly Report, 1 June – 30 September 2000.

80 In May 2007, in response to a parliamentary question, UK government confirmed that: "NATO is coordinating Alliance data from Operation Allied Force 1999 and will, in due course, hand over this information to the Government of Serbia." In July 2007, with data still not handed over, it was suggested that the UK handover data bilaterally, and a UK Government spokesperson admitted that the situation was "rather shameful." (UK House of Lords, Hansard, 17 May 2007 & 9 July 2007). By contrast, the Government of the Netherlands, another NATO member that had carried out bombing missions, was more dismissive of the issue. When asked why the coordinates were provided so late that Dutch officials responded that, "It is not known why Serbia has waited approximately eight years to request the information" (Parliamentary questions, 28th of March 2007 to Minister Donner [Minister of Social Affairs and Employment] also in the name of the Minister of Finance, Foreign Affairs and Defense.)

81 NATO Press Release, 25 September 2007, www.nato.int/docu/update/2007/09-september/e0925b.html, accessed 20 March 2009.

82 NATO Press Release, 25 September 2007, www.nato.int/docu/update/2007/09-september/e0925b.html, accessed 20 March 2009.

83 NATO Press Briefing by James Appathurai, NATO Spokesperson, NATO Headquarters, 19 September 2007, "Until then there was no request," a NATO spokesperson stated, adding that they had been working hard since the request was received on the "difficult process" of data collation.

84 Norwegian People's Aid, Regional Office South East Europe, "Report on the impact of unexploded cluster submunitions in Serbia," January 2009, p. 25.

85 Statement by John Flanagan, UNMAS, "Explosive Remnants of War – Experience from Field Operations," to the Group of Governmental Experts of the States Parties to the Convention on Certain Conventional Weapons, Geneva, 15 July 2002, CCW/GGE/II/WP.13.

86 Carlotta Gall, "UN aide in Kosovo faults NATO on unexploded bombs," *New York Times,* 23 May 2000; and Statement by John Flanagan, UNMAS, "Explosive Remnants of War – Experience from Field Operations," to the Group of Governmental Experts of the States Parties to the Convention on Certain Conventional Weapons, Geneva, 15 July 2002, CCW/GGE/II/WP.13; and Landmine Action interview with Chris Clark, UNMAS, Geneva, 9 July 2008.

87 During a NATO Press Conference presenting the findings of NATO's Kosovo Strike Assessment, General Wesley Clark, Supreme Allied Commander, Europe, and Brigadier General John Corley, Chief of Kosovo Mission Effectiveness Assessment Team, explained the rigorous evaluation procedure for each and every aircraft mission. "We were extremely rigorous in our evaluations of each of the claimed strikes… Every mission is documented," General Clark stated. Review processes included aircrew mission reports, on-site findings, examination of cockpit video from the aircraft itself, pre- and post-strike images from national sources as well as U2 and other unmanned aerial surveillance vehicles, with additional tactical reconnaissance after strikes were carried out. "During the conflict… NATO made extensive use of intelligence, surveillance and reconnaissance capabilities deployed in support of the operations. This was probably the most robust capability seen in any conflict to date. In addition, NATO fighters have an extremely modern cockpit recording system. During this study both of those capabilities were analysed extensively by the team to provide us corroborating evidence of the successful strikes," BG Corley emphasized. Press Conference on the Kosovo Strike Assessment, by General Wesley K. Clark, Supreme Allied Commander, Europe and Brigadier General John Corley, Chief Kosovo Mission Effectiveness Assessment Team, NATO Headquarters, Brussels, 16 September 1999.

88 The Praxis Group, Ltd. "Willing to Listen: An Evaluation of the United Nations Mine Action Programme in Kosovo 1999–2001," Riverside/Geneva, 12 February 2002, p 44; and Landmine Action interview with Chris Clark, UNMAS, Geneva, 9 July 2008.

89 Fact Sheet, "United States Clearance of Unexploded Cluster Munitions," Office of the Spokesman, United States Department of State, Washington D.C., 23 February 2007.

90 Human Rights Watch, "Fatally Flawed: Cluster Bombs and their use by the United States in Afghanistan," Vol. 14, No.7, December 2002, p. 37.

91 Email correspondence, 29 July 2009.

92 Human Rights Watch reported that the list contained the wrong coordinates for the village of Khodydad Kolai, giving the coordinates for a neighborhood of the same name in Kabul, instead of the coordinates for the village, which is located south of Kandahar. In another instance, the data from January 2002 appeared to have mistakenly transposed two digits of coordinates for 13 strikes near Herat, giving the false impression that they were located to the south of Heart. Other strikes, such as in villages in Ishaq Suleiman and Jebrael, were not included in the data at all.

93 Human Rights Watch, "Fatally Flawed: Cluster Bombs and their use by the United States in Afghanistan," Vol. 14, No.7, December 2002, p. 37, fn. 261.

94 Human Rights Watch, "Fatally Flawed: Cluster Bombs and their use by the United States in Afghanistan," Vol. 14, No.7, December 2002, p. 38.

95 United States Department of State, "United States clearance of unexploded cluster munitions," 23 February 2007.

96 Bonnie Docherty, field research notes, 2003. Quoting Chuck Conley of UNMACT.

97 Bonnie Docherty, field research notes, 2003.

98 Email correspondence, Richard Moyes, Landmine Action, and Steve Priestley, MAG, July 2009.

99 Email correspondence, Richard Moyes, Landmine Action, and Steve Priestley, MAG, July 2009.

100 Bonnie Docherty, field research notes, 2003.

101 Bonnie Docherty, field research notes, 2003.

102 Resolution 1701, adopted unanimously by the UN Security Council on 11 August 2006, called for an end to the conflict between Israel and Hezbollah. Specifically, the Resolution called for the "provision to the United Nations of all remaining maps of land mines in Lebanon in Israel's possession." The Resolution did not mention maps of cluster munition target locations or other explosive ordnance, nor did it call on Hezbollah to provide records or maps of its use of explosive ordnance. By comparison, the Military Technical Agreement, providing for the withdrawal of Serbian and Federal Yugoslav Forces from Kosovo, explicitly requires Serbian and FRY officials to provide "detailed records, positions and descriptions of all mines, unexploded ordnance, explosive devices, demolitions, obstacles, booby traps, wire entanglement, physical or military hazards to the safe movement of any personnel in Kosovo laid by the FRY Forces," along with "any further information of a military or security nature" requested by the KFOR commander. See Military Technical Agreement between the International Security Forces ("KFOR") and the Governments of the Federal Republic of Yugoslavia and Republic of Serbia, 9 June 1999.

103 Report of the UN Secretary-General on the implementation of resolution 1701 (2006) for the period 11 to 17 August 2006, S/2006/670, 18 August 2006, p. 3.

104 Report of the UN Secretary-General on the implementation of resolution 1701 (2006), S/2006/730, 12 September 2006, p. 10.

105 Report of the UN Secretary-General on the implementation of resolution 1701 (2006), S/2006/730, 12 September 2006, p. 10.

106 Report of the UN Secretary-General on the implementation of resolution 1701 (2006), S/2006/730, 12 September 2006, p. 10.

107 Israel Ministry of Foreign Affairs website, "IDF to probe use of cluster munitions in Lebanon War," 21 November 2006, www.mfa.gov.il/MFA/Government/Communiques/2006/IDF%20to%20probe%20use%20of%20cluster%20munitions%20in%20Lebanon%20War%2021-Nov-2006, accessed 20 March 2009, emphasis added.

108 Meron Rapoport, "A Barrage of Accusations," *Haaretz,* 15 December 2006.

109 "UN calls on Israel to hand over coordinates of cluster bomb strikes in Lebanon," *Haaretz,* 19 September 2006.

110 Human Rights Watch, "Flooding South Lebanon: Israel's Use of Cluster Munitions in Lebanon in July and August 2006,"Volume 20, No.2(E), February 2008, p. 91, citing interview with Dalya Farran, media and post clearance officer, MACC SL, Tyre, August 19, 2006.

111 Letter dated 1 December 2006 from the Secretary-General addressed to the President of the Security Council, S/2006/933, 1 December 2006, p. 6.

112 "Report of the Secretary-General on the implementation of Security Council resolution 1701 (2006)," S/2008/135, 28 February 2008, p. 16, emphasis added.

113 Report of the Secretary-General on the implementation of Security Council resolution 1701 (2006), S/2008/135, 28 February 2008, p. 16.

114 Quarterly Report, Mine Action Co-ordination Centre, South Lebanon, for the period January to March 2008, dated 14 April 2008, p. 1.

115 Landmine Action interview with Chris Clark, Geneva, 9 July 2008.

116 Tom Perry, "Israel hands over Lebanon cluster bomb maps: U.N." *The Washington Post,* 12 May 2009.

117 See United Nation Inter Agency Coordination Group on Mine Action, Mine Action Guidelines for Ceasefire and Peace Agreements, undated, pre 2003.

118 Statement of Israel to the Meeting of Experts of CCW Protocol V, Geneva, 22 April 2009. Notes by Landmine Action.

119 Email from Chris Clark, UNMAS, 5 May 2009.

120 See for example, Norway and Portugal, Protocol V National Annual Reports.

121 Romania, Protocol V National Annual Report, Form B, submitted 08 May 2009.

122 With responsibility for clearance in Protocol V linked back to the users of explosive ordnance, a number of States opposed any retroactive obligations in a new protocol on ERW, as they feared extensive obligations stemming back to their use of explosive munitions in World War I and II. Article 7 arguably allows for flexibility in the obligation to provide assistance, whilst also providing some recourse for affected States. It was perhaps also hoped that Article 7 might serve as a motivator for affected States to ratify Protocol V or to join the CCW framework. Louis Maresca, "A new protocol on explosive remnants of war: he history and negotiation of Protocol V to the 1980 Convention on Certain Conventional Weapons," *ICRC Current Issues and Comments,* Vol. 86, No. 856, December 2004, p. 830.

123 Malta, Protocol V National Annual Report, Forms E and F, submitted 31 May 2008. Malta's statement that it did not have the additional resources to provide assistance outside of its territory at present is the only statement wherein a Protocol V High Contracting Party has explicitly indicated that it considered itself "not in a position" to provide assistance. The qualifier contained in Article 8 states that High Contracting Parties "in a position to do so" shall provide assistance for obligations relating to clearance and victim assistance. State reporting indicates that the majority of High Contracting Parties do consider themselves "in a position" to provide assistance although a few High Contracting Parties considered the obligation "not applicable" or had "nothing to report."

124 Mine Ban Treaty Article 7 Report, Form J: Other Relevant Matters.

125 On forms for both Article 7: Assistance with respect to existing remnants of war and Article 8: Cooperation and assistance.

126 See the Netherlands, Protocol V National Annual Report, Forms F and J, 29 May 2008.

127 **States which appear to have provided increased funding:** *Australia:* although mine action funding appeared to increase between 2007–08 and 2008–09 it is not clear that this is tied to increased impetus towards ERW eradication driven by Protocol V (See Australia, Protocol V National Annual Reports, Form F, reporting period 03 July 2007 to 31 December 2007 and for reporting period 01/01/08 to 31/12/08; and Australia, Mine Ban Treaty Article 7 Reports, Form J, submitted 30 April 2008 and 30 April 2009.); *Germany:* from 2007 to 2008, Germany appears to have allocated increased funding to ERW focused programs. In 2008, Germany reported funding two initiatives primarily focusing on ERW clearance in Vietnam and in Laos, totalling 1 million euro (Germany, Protocol V National Annual Report, Form E, submitted 31 May 2008.) In 2009, Germany reported funding ERW clearance projects in Vietnam, Laos, Lebanon, Georgia, and Albania, totalling 1.9 million euro; along with victim assistance and risk education programs in Colombia under its Protocol V report (0.5 million euro) (Germany, Protocol V National Annual Report, Form F, submitted 31 March 2009.) However, Germany also included the same information under its Mine Ban Treaty report (Germany, Mine Ban Treaty Article 7 National Annual Report, Form J, submitted 29 April 2009); *Austria:* total contribution to mine action funding under the Mine Ban Treaty increased from 1 million euro in 2007 to 1.8 million euro in 2008, whereas its total funding reported under Protocol V increased from 0.26 million euro in 2007 to 0.4 million euro in 2008; *Czech Republic:* reporting appears to indicate an increase in funding for mine action and ERW related activities from 2007 to 2008, but could be a reflection of apparent improvement in reporting practice. See Czech Republic, Protocol V National Annual Report, submitted 20 June 2008, Forms E and F, Form I and Protocol V National Annual Report, Form E, submitted 6 March 2009. However, the Landmine Monitor reports that the Czech Republic contributed 1,200,000 USD in mine action funding in 2007, which it apparently did not report in either its Mine Ban Treaty or Protocol V reporting (See Landmine Monitor, "Executive Summary: Support for Mine Action," 2008.) **States where funding appears to have remained unchanged:** *New Zealand:* reported that its funding for assistance was unchanged in its 2009 national annual report under Protocol V (New Zealand's PV report for 2009 covers the period from 30 September 2008 to 31 December 2009). **States where funding appears to have decreased:** *Lithuania:* reported the same funding for international assistance for mine action in both its Mine Ban Treaty national report and Protocol V report for the year 2008 (Lithuania, Protocol V National Annual Report, submitted 30 April 2009), for demining and UXO clearance in the Ghowr province in Afghanistan (in kind); and for a feasibility study to provide clearance support to Georgia for clearance of ERW (approx 6,667 euro). Lithuania reported similar information on funding in 2007 reports under Protocol V and the Mine Ban Treaty, which also indicate a significant decrease in Lithuania's mine action and ERW related funding from 2007 to 2008 (See Lithuania, Protocol V National Annual Report, Form E, submitted 29 April 2007; and Lithuania, Mine Ban Treaty Article 7 Report, Form J, submitted 26 April 2008.); *Sweden:* presented almost identical information in its 2008 Protocol V and Mine Ban Treaty national reports on funding for assistance (With the exception of listing assistance provided to Russia in its Mine Ban Treaty report in a list nearly identical to the one provided under its Protocol V report, wherein Russia was omitted. Sweden also included a sentence at the end of its Protocol V report which read "Swedish Armed Forces conduct ERW clearance during Peace Support Operations, for example now in Afghanistan," whereas its Mine Ban Treaty report states that "military and civilian personnel from the Swedish Armed Forces and the Swedish Rescue Services Agency have participated in humanitarian mine action for the UN, for example in Lebanon, Eritrea, Iraq, Sudan, Sri Lanka, Liberia.") Sweden reported a 10 million SEK decrease in overall mine action funding, from 135 million SEK in 2007 to 125 million SEK in 2008 (See Sweden, Protocol V National Annual Report, Form F, reporting period 1 January 2007 to 31 December 2007; and Sweden, Mine Ban Treaty Article 7 Report, Form J, reporting period 2007–01–01 to 2007–12–31); *Ireland:* reported funding to "aid agencies working in ERW affected territories" of 5.1 million euro in 2007 across 11 countries (the same figure reported by the Landmine Monitor for mine action funding in 2007). In 2008, Ireland reported that its funding decreased to 4.9 million euro in seven countries. However, Ireland did not include information on its assistance formally in its Article 7 reports under the Mine Ban Treaty.

128 ICBL, *Landmine Monitor Report,* 2008, "Executive Summary," p. 41.

129 The Voluntary Trust Fund for Assistance in Mine Action was established by the UN Secretary-General on 30 November 1994 to provide special resources for mine-action programmes and projects, including surveys, mine-clearance, mine-risk education, victim assistance and advocacy activities, in situations where other funding is not immediately available, "Voluntary Trust Fund," The Voluntary Trust Fund for Assistance in Mine Action (Status as at 22 January 2008), www.mineaction.org/overview.asp?o=28

130 Australia, Protocol V National Annual Report, Form F, CCW/P.V/CONF/2007/1. See also "TTCP Overview," www.dtic.mil/ttcp/

131 For example, The Netherlands specifically stated it did not participate in exchange of equipment, materials, and scientific and technological information, nor did they contribute to any research and development body. The Netherlands did report that it "financed UNMAS regarding training courses in order to provide capacity building for national institutes of demining for the relevant countries."

132 The emphasis on "generic" measures was to avoid a focus on cluster munitions even though these specific weapons were the driving concern behind the discussions. Many States, the ICRC, and several NGOs, advocated for the inclusion of strong obligations to reduce the large number of ERW caused by certain munitions. Several States, however, opposed any sort of legal requirement for such measures. France was particularly opposed to combining legally binding obligations and best practice measures in the same Protocol. See Louis Maresca, "A new protocol on explosive remnants of war: the history and negotiation of Protocol V to the 1980 Convention on Certain Conventional Weapons," *ICRC Current Issues and Comments,* Vol. 86, No. 856, December 2004, p. 872.

133 ICRC, Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977, www.icrc.org/ihl.nsf/WebSign?ReadForm&id=470&ps=P. Furthermore, according to the ICRC, "the requirement that the legality of all new weapons, means and methods of warfare be systematically assessed is arguably one that applies to all States, regardless of whether or not they are party to Additional Protocol I." ICRC, "A Guide to the Legal Review of New Weapons, Means and Methods of Warfare: Measures to Implement Article 36 of Additional Protocol I of 1977," Geneva, revised November 2006, p. 4. 168 countries are States Parties to Additional Protocol I to the Geneva Convention, including all of Protocol V's High Contracting Parties, with the exception of the United States, India, and Pakistan

134 Final Declaration Part II, Third Review Conference of the States Parties to the Convention on Certain Conventional Weapons, Geneva, CCW/CONF.III/11 (Part II), 7–17 November 2006, p. 4.

135 ICRC, "A Guide to the Legal Review of New Weapons, Means and Methods of Warfare: Measures to Implement Article 36 of Additional Protocol I of 1977," Geneva, revised November 2006, p. 24.

136 ICRC, "A Guide to the Legal Review of New Weapons, Means and Methods of Warfare: Measures to Implement Article 36 of Additional Protocol I of 1977," Geneva, revised November 2006, p. 5, fn 7.

137 The 1988 Live Fire Test and Evaluation Guidelines in Air Force Studies Board, Vulnerability Assessment of Aircraft: A Review of the Department of Defense Live Fire Test and Evaluation Program, Washington D.C., National Academy Press, 1993, p. 40.

138 National Research Council, Live Fire Testing of the F–22, Washington D.C., National Academy Press, 1995, p. 18.

139 Air Force Studies Board, *Vulnerability Assessment of Aircraft: A Review of the Department of Defense Live Fire Test and Evaluation Program,* Washington D.C., National Academy Press, 1993, p. 38.

140 Air Force Studies Board, *Vulnerability Assessment of Aircraft: A Review of the Department of Defense Live Fire Test and Evaluation Program,* Washington D.C., National Academy Press, 1993, p. 40.

141 See ICRC, "A Guide to the Legal Review of New Weapons, Means and Methods of Warfare: Measures to Implement Article 36 of Additional Protocol I of 1977," Geneva, revised November 2006, PAGES

142 See GICHD, "Explosive Remnants of War (ERW) Undesired Explosive Events in Ammunition Storage Areas," Geneva, November 2002.

143 Adrian Wilkinson, Chapter 13: Ammunition Depot Explosions," in Bevan, James (ed.) Conventional Ammunition in Surplus: A Reference Guide, January 2008, p. 129.

144 GICHD, "Explosive Remnants of War (ERW) Undesired Explosive Events in Ammunition Storage Areas," Geneva, November 2002, p.7; and Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 16.

145 Buildings not suited for weapons storage or storage in open conditions, especially in hot climates, can dramatically increase the likelihood of accident. Environmental factors such as temperature, lightning, physical impact, electro-magnetic radiation and moisture can trigger ammunition explosions. Consequently, munitions should be stored in a dry, ventilated, and cool environment [such factors may also worsen the reliability of munitions but little data is available on this.] The packaging of ammunition and the way in which munitions are stacked and stored together are also important factors in reducing the risk of stockpile incidents. GICHD, "A Guide to Ammunition Storage," First Edition, Geneva, November 2008, p. 35–6; and Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 16.

146 In February 2004, in Seonggang, North Korea, ammunition and explosives being transported on a train exploded, causing over 1,000 fatalities. (Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 6). In an analysis of 153 ammunition depot explosions which occurred from July 1995–June 2007, movement and handling of ammunition was reported to be the cause of 21 accidents, or 13.7% of the total incidents (Wilkinson, "Chapter 13: Ammunition Depot Explosions," in Bevan, James (ed.) Conventional Ammunition in Surplus: A Reference Guide, January 2008, p. 131.).

147 Registration and record-keeping should be conducted consistently throughout the entire life cycle of ammunition, beginning with proper marking during the production phase, and continuing with record keeping throughout its stockpiling to its final use or destruction. The OSCE guidelines on registration and record keeping state that thorough record-keeping should include "accurate information on the exact types and nature or models of the ammunition that is in stock, quantities of the different types of ammunition, their condition, [and] the site where the ammunition is being stored." Registration and record-keeping should be carried out at the following stages, "at manufacture, at testing, at time of shipment and receipt, at storage and possession, in case of loss or theft, at consumption/use or disposal/destruction, [and] at any transport and handling." Recording this type of information is necessary to provide users with reliable ammunition, as well as to reduce the risk of stockpile accidents. It is also beneficial for stockpile maintenance and acquisition planning and to enable quick identification of theft or weapons unaccounted for (OSCE, "Best Practice Guide on Ammunition Marking, Registration and Record-Keeping," 25 October 2007, FSC.DEL/73/07/Rev.1/Corr.1, p. 8–9).

148 A positive example of State practice is Norway's testing of its own stockpiles of submunitions after evidence that similar UK owned cluster munitions produced higher than expected failure rates and subsequent decision to prohibit the use of the weapon. Such testing was also conducted in the context of serious analysis of weapon system performance in actual combat – which cast light on the inadequacy of the testing regime as an indicator of civilian risk (Colin King, Grethe Østern, Ove Dullum, "M85: An analysis of reliability," 2007, p. 59, www.npaid.org/filestore/M85.pdf, accessed 16 March 2009).

149 Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 19.

150 When considering the life-span of a munition, both its energetic components and non-energetic components, such as seals, electronic components, and structural materials should be taken into account. Surveillance and testing of munitions is critical to assessing shelf-life and ensuring that weapons are stored properly and for the correct amount of time (Adrian Wilkinson, "Chapter 6: Surveillance and Proof," in Bevan, James [ed.] Conventional Ammunition in Surplus: A Reference Guide, January 2008, p. 62). Stockpiling weapons after their shelf-life significantly increases the danger of stockpile accidents and explosions. The 2006 conflict in Lebanon saw Israel documented as using old munitions that contributed substantially to the legacy of unexploded ordnance left by that conflict (Chris Clark, UN Program Manager for the Mine Action Program in South Lebanon, Statement at the International Committee of the Red Cross Expert Meeting on Humanitarian, Military, Technical and Legal Challenges of Cluster Munitions, "Unexploded cluster bombs and sub-munitions in south Lebanon: Reality from a field perspective," Montreux, 18–20 April 2007).

151 Wilkinson uses the term "proof" to refer to a "wider-ranging concept of munitions life assessment as part of an integrated test, evaluation, procurement, management, and disposal process." Proof also refers to "the functional testing or firing of ammunition and explosives to ensure safety and stability in storage and intended use." Adrian Wilkinson, "Chapter 6: Surveillance and Proof," in Bevan, James (ed.) Conventional Ammunition in Surplus: A Reference Guide, January 2008, p. 61

152 Adrian Wilkinson, "Chapter 8: Stockpile Management: Planning," in Bevan, James (ed.) Conventional Ammunition in Surplus: A Reference Guide, January 2008, p. 83.

153 Michael Ashkenazi, "Chapter 18: Ammunition Stockpiles and Communities," in Bevan, James (ed.) Conventional Ammunition in Surplus: A Reference Guide, January 2008, p. 170.

154 Michael Ashkenazi, "Chapter 18: Ammunition Stockpiles and Communities," in Bevan, James (ed.) Conventional Ammunition in Surplus: A Reference Guide, January 2008, p. 170.

155 Regular safety practices that reduce the risk of explosions are often absent or not followed in the immediate post-conflict environment (GICHD, "Explosive Remnants of War (ERW) Undesired Explosive Events in Ammunition Storage Areas," Geneva, November 2002, p. 7). That study argued that the likelihood of accidents caused by "human error/security" factors was 16 times higher in post-conflict environments than in non-conflict situations. Conversely, in non-conflict environments, lightning strikes and fire were a more common cause of accident. For a significant number of accidents, (over 30% of explosions reported in a post-conflict environment) the cause was reported as "unknown." This not only complicates drawing conclusions about the primary factors which cause accidents but also indicated that States and militaries do not release information on the cause of accidents or fail to carry out investigations into ammunition explosion incidents (pp. 12–15).

156 Ben Coetzee, "The Danger of Arms and Ammunition Stockpiles," The Institute for Security Studies, 20 March 2009.

157 Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p 5.

158 Force reduction in the post-Cold War environment has lead to the destruction of millions of tons of surplus ammunition by the United States and NATO allies, but remains a significant concern in other regions such as Africa, Latin America, South and Central Asia, and East and Southeast Europe. Central Asian States who have inherited enormous stockpiles of former Soviet Union munitions face significant risks as stockpiles age. Ukraine, Belarus, Kazakhstan and Uzbekistan have all declared large stocks of surplus ammunition and requested assistance for stockpile destruction through the OSCE and NATO. Afghanistan is particularly at risk, having what is thought to be the world's largest stockpiles of ammunition, followed by Iraq, which prior to the US and coalition invasion, had an estimated 650,000 ton stockpile of munitions. In 2004, it was reported that the US military had secured 400,000 tons, but an estimated 250,000 tons remained unaccounted for.

159 SEESAC Activity Reports – report AR/071, "Cost Benefit Analysis of SALW Storage versus Destruction," 22 June 2006; and GICHD, Guide to Ammunition Storage, p. 40.

160 Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 8. As noted by a Small Arms Survey guide, even the smallest unsecured stockpiles "when subject to diversion…and subsequent use in crime, insurrection, or unlawful commercial activities such as mining or fishing, arguably pose the greatest immediate danger for communities that reside in the immediate and near vicinities of stockpiles." Michael Ashkenazi, "Chapter 7: Stockpile Management: Security," in Bevan, James (ed.) Conventional Ammunition in Surplus: A Reference Guide, January 2008, p. 74.

161 Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 8

162 See Michael Ashkenazi, "Chapter 7: Stockpile Management: Security," in Bevan, James (ed.) Conventional Ammunition in Surplus: A Reference Guide, January 2008, pp. 67–74.

163 "U.S. spending billions to 'defeat' IEDs in Iraq," Associated Press, 13 March 2006.

164 James Bevan, "Chapter 1: Ammunition-related Political Developments," in Bevan, James (ed.) Conventional Ammunition in Surplus: A Reference Guide, January 2008, p 12. International Mine Action Standards (IMAS) 10:50 contains standards for the storage, transport, and handling of explosives and explosive materials used by demining organizations for mine action. See GICHD, "A Guide to Ammunition Storage," First Edition, Geneva, November 2008, p 27; and IMAS 10:50 Safety & occupational health – Storage, transportation and handling of explosives, Second Edition, 1 January 2003.

165 Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 10. While stockpile management is the responsibility of the individual State, in some unusual cases, such as peace-support missions in post-conflict environments, the UN or another authority may become responsible for ensuring proper stockpile management.

166 Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 6. The SADC Protocol 2001, or the Southern African Development Community's Protocol on the Control of Firearms, Ammunition and Other Related Materials, covers ammunition for small arms and portable weapons, including also howitzers, automatic cannons, and unspecified air defence weapons. The SADC Protocol also specifically refers to national stockpile management, storage, inventories, and disposal of ammunition and extends stockpile management obligations to a number of types of conventional ammunition. See James Bevan, "Chapter 1: Ammunition-related Political Developments," in Bevan, James (ed.) Conventional Ammunition in Surplus: A Reference Guide, January 2008, p 15. The OSCE guidelines are one of the most comprehensive in addressing the safe storage and destruction of ammunition, including documents such as the OSCE Document on Small Arms and Light Weapons (2000), the OSCE Handbook of Best Practice Guides (2004), and the OSCE Document on Stockpiles of Conventional Ammunition (2003). SEESAC, or the South Eastern Clearing House for the Control of Small Arms and Light Weapons has developed Regional Micro-Disarmament Standards and Guidelines for Southeast Europe, which are also applicable to all regions. (See Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, pp. 11–12). NATO "AASPT-2" standards are considered to be some of the most comprehensive in regards to principles and guidelines for safe storage and transport of ammunition. See Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p 19.

167 For example, according to one expert, a comparison between the Manual of NATO Safety Principles and the former Soviet Union's USSR Armaments and Ammunition Safety Manual (USSRMoD, 1989), still used by many Eastern European countries, "shows radical differences in terms of safety differences and permitted safe stockpile levels."Adrian Wilkinson, "Chapter 8: Stockpile Management: Planning," in Bevan, James (ed.) Conventional Ammunition in Surplus: A Reference Guide, January 2008, p. 83.

168 GICHD, "Explosive Remnants of War (ERW) Undesired Explosive Events in Ammunition Storage Areas," Geneva, November 2002, p. 15

169 Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 19.

170 Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 4.

171 Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 5.

172 Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 24.

173 NATO's Partnership for Peace Trust Fund mechanism was established in 1999 with the purpose of addressing the large post-cold war stockpiles of aging weapons, such as "arms, ammunition, anti-personnel mines, missiles, rocket fuel, chemicals and unexploded ordnance." Since its inception, NATO/PfP Trust Fund projects have destroyed "more than 1.5 million SALW; 145,000 tonnes of munitions and abandoned explosives; 1,000 MANPADS; 530 high-altitude anti-aircraft missiles; 4.1 million landmines; and 1,500 tons of dangerous chemicals, including rocket fuel." NATO/PfP has also provided retraining assistance to over 5,000 former military personnel. The Trust Fund is maintained by voluntary contributions from NATO Allies, partner countries, and "most recently even NGOs." States eligible to receive assistance from the Trust Fund are those who are participating in "NATO's PfP program, the Mediterranean Dialogue and the Istanbul Cooperation Initiative, as well as countries where NATO is leading a crisis management operation." A lead nation assumes responsibility for the implementation of each project, which are predominately carried out by the NATO Maintenance and Supply Agency (NAMSA).

174 The Operation for Security and Cooperation in Europe (OSCE) seeks to provide a framework between member States for dealing with security risks arising from stockpiles of conventional ammunition, explosive material, and detonating devices in surplus and/or awaiting destruction. The OSCE Document on Stockpiles of Conventional Ammunition provides criteria for assessing the likelihood of risk posed by stockpiles, including to civilians, the environment, and to security, through the possibility of theft or acquisition of weapons by criminals, terrorists, or non-State actors. The OSCE approach in based on collective security as a principle in motivating the provision of assistance, in recognition of the broader risks posed by unsafe stockpiles. However, as the responsibility for stockpile maintenance lies with the individual State, the OSCE also seeks to promote national capacity building to enable States to manage their stockpiles and their up-keeping for the long-term. The OSCE lists indicators through which each State can use to identify and determine the whether and how much of its stockpiles are considered surplus and provides the criteria for assessing whether the surplus should be considered a risk. It notes that particular emphasis should be placed on the need for information gathering by States, as critical to assessing the risk posed by stockpiles. While the OSCE's involvement is primarily oriented towards the establishment of standards, the OSCE also has begun responding to requests for assistance; such as in Ukraine (December 2003), Belarus (March 2004), the Russian Federation (May 2004), and Tajikistan, and also through its missions operating in Georgia and Moldova.

175 Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, pp. 24–25. For examples of types of assistance programs, see pages 24–25. Australia and New Zealand also provide bilateral assistance, mainly in the Pacific region, p. 23.

176 Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, p. 29.

177 Adrian Wilkinson, "Chapter 6: Surveillance and Proof," and "Chapter 13: Ammunition Depot Explosions," in Bevan, James (ed.) Conventional Ammunition in Surplus: A Reference Guide, January 2008, p. 65 and pp.129–134.

178 Few other weapons transfer control regimes explicitly require this degree of responsibility on the part of those making transfers. Frameworks such as the Missile Technology Control Regime tend to emphasise evaluation of the 'intent' rather than the capacity of the proposed recipient (Arms Control Association, "The Missile Technology Control Regime at a Glance," Fact Sheet, September 2004.) Similarly, some transfer control agreements for small arms and light weapons also include requirements for transferring States to make assessments based on the 'intended' use of weapons by recipient states (see for example the Nairobi Guidelines, which include a duty for States not to transfer arms which would be used to suppress human rights or to "commit serious violations of international humanitarian law," or to worsen the internal situation in the country of final destination). Protocol V's focus on more concrete indicators of capacity is a useful addition to thinking around the responsibilities incumbent on those making arms transfers.

179 In June 2009, 45 of Protocol V's 58 High Contracting Parties had signed the Convention on Cluster Munitions.

180 Human Rights Watch and Landmine Action, "Banning Cluster Munitions: Government Policy and Practice," p. 239.

181 Human Rights Watch and Landmine Action, "Banning Cluster Munitions: Government Policy and Practice," pp. 253–254.

182 Fact Sheet, "Dangerous Depots: The Growing Humanitarian Problem Posed by Ageing and Poorly Maintained Munitions Storage Sites around the World." Bureau of Political-Military Affairs, Office of Weapons Removal and Abatement, Washington, D.C., 4 August 2008.

183 The Republic of Bulgaria, Protocol V National Annual Report, submitted 26 June 2008, (reporting period 16/11/2006 to 31/05/2008.)

184 One study recommends that a balance can be achieved between funding to build national capacity and staff training, which can provide for better infrastructure and the establishment of procedures which will significantly lessen the risk of stockpile accidents, rather than focusing solely on the achievement of NATO standards of storage or ammunition management. Owen Greene, Sally Holt, and Adrian Wilkinson, "Ammunition Stocks: Promoting Safe and Secure Storage and Disposal," Biting the Bullet Briefing 18, September 2005, pp. 19–20.

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