



A Primer on Explosive Remnants of War

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This primer reviews the legal and functional understandings regarding explosive remnants of war, particularly after the adoption of Protocol V in the Convention on Certain Conventional Weapons.¹ It examines the tensions between the legal definition of ERW and the reality on the ground, and recommends clarifying the terms that bind post-conflict clearance efforts to ensure the greatest effectiveness of those campaigns.

While using weapons during a conflict is a military decision, modern combat operations have introduced a dilemma: what to do with explosive remnants of war that remain after a conflict ends. Such weapons not only threaten the post-conflict safety of civilians and military personnel but can also be a major impediment to economic development. This primer on ERW provides an overview of the changing definition of ERW, reports what is currently included in the term ERW and argues that the way ahead for post-conflict stabilization and development will require a clarification and agreement on those terms if the challenge is answered effectively.

Working Toward a Definition of ERW

Prior to November 2003, there was no formal legal definition for ERW. It was often treated as a synonym for *unexploded ordnance*, which the International Mine Action Standards have defined as “explosive ordnance that has been primed, fused, armed or otherwise prepared for use or used. It may have been fired, dropped, launched or projected yet remains unexploded either through malfunction or design or for any other reason.”² The IMAS define *explosive ordnance* as “all munitions containing explosives, nuclear fission or fusion materials, and biological and chemical agents.”³

The IMAS definition of explosive ordnance presents a more extensive scope of *munitions*⁴ than most groups involved with mine/ERW clearance would use, as it encompasses nuclear, biological and chemical weapons. A more pragmatic explanation of ERW is exemplified in an *International Review of the Red Cross* article, which included in its definition of *unexploded munitions* “anti-personnel mines, which are widely prohibited, as well as anti-vehicle mines, submunitions from airborne cluster bombs or land-based systems and other unexploded ordnance.”⁵ In general, the term *ERW* was open for interpretation regarding what munitions or ordnance might be included, and entailed anything from APMs to submunitions or “other UXO.”

Pressure for legal regulation of ERW under humanitarian law has been spearheaded primarily by the International Committee of the Red Cross, Landmine Action U.K. and the Geneva International Centre for Humanitarian Demining. In particular, cluster-bomb submunitions⁶ have been of increasing concern. In a 2000 study on Kosovo, the ICRC reported that cluster bomblets had an estimated overall failure rate of between 10

and 15 percent.⁷ Landmine Action U.K. reported that in Kosovo between 1999 and 2001, while landmines caused about 13 percent of civilian deaths, unexploded cluster-bomb submunitions proved a larger threat, contributing to almost 32 percent of deaths.⁸ Some observed that the likelihood of munitions malfunction was increasing through “the rapidly expanding use of mass-produced cluster munitions, the increased reliance on highly sensitive micro-electronics in munitions and fuses, and quality-control problems in the defense industry.”⁹



Submunitions.
Photos courtesy of Colin King

Proponents for international regulation of ERW advocated the addition of a protocol to the 1980 Convention on Certain Conventional Weapons to address humanitarian concerns. After over a year of discussion and preparation, CCW Protocol V was adopted Nov. 28, 2003. Protocol V requires states to clear future ERW and to work together to “clear existing unexploded ordnance or abandoned ammunition, which can already be found in more than 80 countries.”^{10,11} This includes taking all feasible precautions to protect civilians from ERW dangers as well as recording and sharing post-conflict ERW location information for clearance.

While not yet in force, Switzerland and Liechtenstein recently deposited instruments of ratification on May 12, 2006, to reach the necessary 20 States Parties consenting to be bound to Protocol V. As a result, Protocol V will now enter into force as a legally binding accord by the end of this year, on Nov. 12, 2006. Since then, countries have continued to ratify this Protocol.¹²

A Legal Definition of ERW

Protocol V presents a legal precedent for defining explosive remnants of war. It defines *ERW* as “unexploded ordnance and abandoned explosive ordnance.”¹³ Protocol V defines *UXO* using the IMAS’ standard definition as previously cited above; thus the first part of this new legal definition of ERW differs little from older understandings of ERW-as-UXO. However, Protocol V’s definition of ERW provides two important modifications to popular understanding of ERW-as-UXO.



Anti-personnel blast mine.



Anti-personnel blast mine.



Anti-tank mine.

The first noteworthy aspect is the second part of the legal ERW definition, as “abandoned explosive ordnance.” Protocol V defines AXO as “explosive ordnance that has not been used during an armed conflict, that has been left behind or dumped by a party to an armed conflict, and which is no longer under control of the party that left it behind or dumped it. Abandoned explosive ordnance may or may not have been primed, fused, armed or otherwise prepared for use.”¹³ This means that not only can ERW be understood traditionally as resulting from the failure of weapons (UXO), but it can also be understood as weapons that were not used at all. AXO may range from “a few rounds of ammunition or a grenade left with the body of a dead soldier to entire ammunition dumps abandoned (frequently in a great hurry) by a retreating force.”¹⁴

The second important caveat is that even as CCW Protocol V legally defines what ERW is, it also specifically states what ERW is not, due to separate obligation under CCW Amended Protocol II. When defining the jurisdiction under which the term ERW can now be applied in international humanitarian law, Protocol V defines explosive ordnance (the common characteristic of all ERW) as “conventional munitions containing explosives, with the exception of mines, booby traps and other devices as defined in Protocol II of this Convention as amended on 3 May 1996.”¹³ This means that mines, including APMs¹⁵ and AVMs^{16,17}, booby traps and manually emplaced munitions/other devices¹⁸ including improvised explosive devices¹⁹ are excluded from Protocol V on ERW and legally are not defined as ERW. APMs also legally fall under the jurisdiction of the widely ratified Ottawa Convention’s regulations.¹⁵

Practical Application of ERW as Legally Defined

International humanitarian law has now codified a definition of *ERW*, obliging States Parties that have ratified Protocol V to act on the resultant legal requirements of clearance. Meanwhile, what does *ERW* functionally mean? When organizations and clearance teams are working to “remove ERW,” what are they actually clearing on the ground? There is not a prevailing depiction of what actual physical ordnance is considered to be “explosive remnants of war” or how ERW clearance should be managed. Herein resides a potentially problematic gap between an understanding of ERW with regard to legal obligations for clearance and an understanding of effective clearance operations.

In attempting to understand a practical definition of ERW more acutely, this article examines an analytical model published by the Geneva International Centre for Humanitarian Demining in 2001 and 2002. Rather than focusing on a legal or technical definition of ERW, the GICHD examined ERW in practical terms of what might present an “explosive threat in post-conflict environments”²⁰ and explicitly argued that “ERW” was a broader term than simply “UXO.” The GICHD divided the explosive threat of ERW into four major areas that are useful as a framework to understand better what ordnance might realistically be included in “ERW” risk:

1. Mine and UXO contamination of the ground
2. Abandoned armored fighting vehicles
3. Small arms and light weapons, including limited ammunition and explosives in the possession of civilians and non-state actors
4. Abandoned and/or damaged/disrupted stockpiles of ammunition and explosives²¹



The GICHD's model lists what it considers to be the ERW of primary concern based on potential on-the-ground explosive hazards. How does a definition of "ERW" as it is functionally understood compare to the new legal definition of "ERW" in international humanitarian law? The relationship between practical and legal understandings of explosive remnants of war will be compared by looking at the GICHD's four specific types of ERW understood to be potential explosive threat.

A small aerial-disposed of impact-fired anti-personnel fragmentation bomb.

Photo courtesy of MAIC

Mines and unexploded weapons ground contamination. One aspect of on-the-ground ERW contamination is UXO (as defined by the IMAS). However, at the time of publication, both AP and AV mines were also included in the GICHD's identification of ERW, due to the highly explosive nature of these weapons. Table 1 lists an array of potential UXO that might be found on the ground after a conflict.²² However, under Protocol V, APMs and AVMs are no longer legally defined as ERW as they are codified separately and exclusively in CCW Amended Protocol II or the Ottawa Convention; thus, mines are not included in Table 1.

This highlights a core tension between the functional and legal understanding of ERW because, although ERW does not legally include mines, they are still highly explosive munitions, a danger to civilians and military personnel, and functionally an explosive remnant of war. Additionally, Protocol V does not include chemical, biological or nuclear weapons and ordnance; however, many of the possible types of UXO listed in Table 1 such as warheads and grenades might very well have such properties, again presenting existence of a practical interrelatedness of weapons both included and not included in Protocol V.²²



A hand-thrown, anti-personnel, fragmentation grenade primarily used as a booby trap.

Photo courtesy of MAIC

Abandoned armored fighting vehicles. The GICHD describes explosive ordnance disposal of abandoned AFVs²³

in a defensive position as “one of the most technically complex and demanding operations conducted by an EOD technician” due to threat components of surrounding mines/UXO, depleted uranium fragments, explosive reactive armor, unstable stocks of internally stowed ammunition and access denial devices.²¹ With these explosive threats present, abandoned AFVs are functionally considered ERW. The international legal definition of “ERW” would also appear to identify AFVs as ERW, though again with the exception of mines surrounding the AFV or any booby traps or improvised explosive devices, as they are all codified in CCW Amended Protocol II. Additionally, AFVs are only legally considered ERW once they are abandoned by the user party as AXO and only if they have explosive properties.

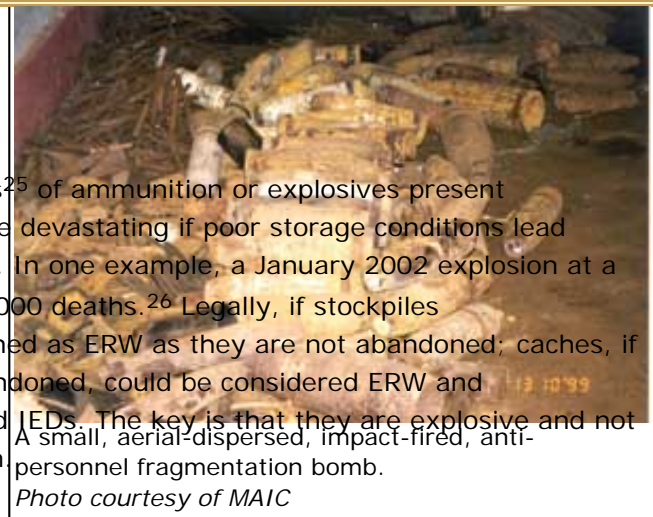
Aircraft bombs	“Cruise” missiles	Minelets	Small arms ammunition
Anti-tank ammunition	Depth chargers	Mortar ammunition	Submunitions
Artillery shells	Electro-explosive devices	Mortar rounds	Surface to air missiles
Ballistic missiles	Field artillery ammunition	Mortar shells	Tank ammunition
Bomblets	Free flight rockets	Propellant actuated devices	Torpedoes
Bombs	Gravity bombs	Pyrotechnics	Unmanned aerial vehicles
Cannon ammunition	Grenades	Rocket ammunition	Warheads
Cluster bomb units	Guided missiles	Rocket motors and fuel	

Table 1. Examples of UXO that can be considered ERW under Protocol V.

Small arms and light weapons. SALW and their ammunition can be functionally understood as ERW due to their potential instability through aging and improper/unregulated maintenance, leading to explosions. The GICHD defines SALW as “all lethal conventional munitions that can be carried by an individual combatant or a light vehicle, and that also do not require a substantial logistical and maintenance capability.”^{21,24} Danger lies in leaking explosive content and degradation of fuse safety systems and propellant stabilizer.²⁰ The international legal definition of “ERW” would allow inclusion of SALW with the exception again of any mines, booby traps or improvised explosive devices that might be carried and so long as the SALW are not being carried by state actors for official use.



Stockpiles of ammunition and explosives. Stockpiles and caches²⁵ of ammunition or explosives present a practical ERW threat through the danger of explosion, which can be devastating if poor storage conditions lead to leaks or sudden movements resulting in spontaneous combustion. In one example, a January 2002 explosion at a government ammunition depot in Lagos, Nigeria, resulted in over 1,000 deaths.²⁶ Legally, if stockpiles are understood to be under national control, they would **not** be defined as ERW as they are not abandoned; caches, if understood to be ordnance stored by non-state actors and then abandoned, could be considered ERW and might include any explosive ordnance except mines, booby traps and IEDs. The key is that they are explosive and not under the control of the party that left them behind or dumped them.



Tension between Legal and Functional Definitions

The existence of a tension between legal and functional definitions of ERW quickly becomes clear when examining the “exceptions”—mines, booby traps and IEDs/other devices—to ERW as it is legally defined. The pattern found when comparing ERW as explosive threat with ERW by legal definition reflects a paradoxical reality: while mines, booby traps and IEDs cannot be **legally** included in Protocol V as ERW, **practically** they are all highly explosive. The philosophical argument that mines are “different” from UXO and AXO because when exploded they **have fulfilled** their function (as opposed to failing to explode [UXO] or never being used [AXO]) does not carry over with any importance into functional clearance in a post-conflict setting. For example, mines can be found on the ground amidst other UXO, may be emplaced around AFVs, and can be stored within stockpiles. Because mines are highly explosive, they must be treated with the same concern, precision and technical skill as any legally defined ERW.

An additional tension relates to the function of weapons and the timing of their use. For example, if booby traps and IEDs remain **after** a conflict and are rigged to detonate explosive ordnance, can they be considered *abandoned* ordnance and, by definition, ERW? If a civilian is injured by an abandoned explosive booby trap or IED left by retreating forces, are they a victim of the ongoing conflict or rather of an explosive remnant of that conflict? Ultimately, even if they aren’t “legally” defined as *ERW* under Protocol V, booby traps and IEDs present the same risk of explosion and the same need for effective and successful clearance.

These tensions are of interest not for semantic reasons but out of practical concern. What becomes clear is that the physical explosive threat of mines, UXO, AXO, booby traps and IEDs/other devices cannot be separated from each other on the ground, despite a separation within legal jurisdiction of international humanitarian law. Provision of assistance in clearance and clean-up is required by both CCW Protocol V and the Ottawa Convention, and there is the need for greatest efficiency in order to best protect and serve human lives at risk. This requires coordination, sharing of information and collaborative expertise.

One potential pitfall will be if the clearance efforts of mines, booby traps, IEDs and ERW aren’t coordinated because their jurisdiction under humanitarian law doesn’t technically require carry-over of specific duties anywhere outside that specific legal mandate. For example, clearance of landmines is required through the Ottawa Convention while clearance of ERW is required through CCW Protocol V. Humanitarian law provides the regulation of clearance within each convention or protocol, but there is no guarantee that effective clearance efforts will be well coordinated between signatory parties of these separate legal agreements.

Future Action toward ERW Eradication

Many groups still deal pragmatically with mines and other UXO together. For example, the U.S. government

includes in its definition of ERW "landmines, UXO and abandoned ammunition caches," and in its humanitarian mine-action program it "strives to reduce the social, economic and environmental impact of landmines, unexploded ordnance and small arms ammunition."²⁷ Within the United Nations, mine action is coordinated primarily under the U.N. Mine Action Service and includes "all activities geared towards addressing the problems faced by populations as a result of landmine contamination"; however, despite its name, it is understood that U.N. mine action "also addresses all forms of UXO."²⁸

Even so, the reality that despite some inclusion of UXO and AXO in mine-action clearance activities, they have not yet had the popular attention that APMs have garnered, nor have they been understood and researched as extensively as APMs have been. This is due largely to the strength and success of the Ottawa Convention, which has provided far more financial support, research and political pressure toward ridding countries of the scourge of landmines than toward ERW. If the goal is to eradicate ERW with the same inspiring success as landmines, stronger policy is needed to ensure that ERW receive the same level of concern and action as landmines, and that clearance of various explosive threats, including ERW, mines, booby traps and IEDs, is coordinated and focused on with equal priority. It was only in 2004, for example, that the U.S. Department of Defense obtained a change of its legislative authority to broaden its humanitarian mine-action efforts to include ERW,²⁹ showing that for many, the prioritization of ERW clearance is still in early stages.

Presently, there is no agreement on what specific ordnance is included in the framework of UXO and AXO. The GICHD notes that since there is no common standard for reporting post-conflict casualties and the type of explosive ordnance cleared, there is not even an "accurate and objective assessment of the impact of specific types of UXO."²¹ In particular, injuries can be misreported, resulting in a skewed picture of the source of casualties from functional ERW. For example, a leg injury may have occurred through a submunition, but was recorded as an anti-personnel injury due to the popular focus on landmines or lack of concrete data and knowledge of UXO and AXO in contrast to familiarity with landmines. An important first step, then, is additional research about and standardized identification of weapons and munitions remaining after a conflict to provide accurate reporting, measuring and understanding of ERW incidence.

Additionally, the GICHD argues in particular for a "system to allow a global overview of casualties caused by specific types of ERW" with reports including not only generic type but also condition (blind/dud, field storage, rigged as IED or booby trap).²¹ Such an understanding of ERW functionally includes mines, booby traps and IEDs along with the aforementioned UXO and AXO, because in order to comprehensively assess the incidence and scope of deadly munitions, the analysis must include all explosive munitions.

The understanding of threats and incidence of post-conflict casualties needs to be improved, and clearance and risk-education efforts need to be effective. This will require coordination between mine and ERW policy and practice, development of a deeper understanding of the relationship between mines and ERW and a greater commitment to understanding ERW (as it is now legally defined) in its own right. Practical questions arise in terms of best practice. For example, is it more effective to have one EOD team working to clear both mines and ERW, or should they be cleared separately to work within their legally separate mandates (or separate funding)? If mines and other functional ERW are cleared by separate groups, should it be at the same time? How can governments, organizations and workers share decision-making and coordination roles? Will relevant information be quickly and correctly shared and recorded between groups?

As the legal scope and responsibility for ERW clearance become more exclusively defined under CCW Protocol V, there is increased need for policy and coordination to improve overall clearance efforts between the legal jurisdictions of mines, booby traps/IEDs and ERW. There is also the hope that as ERW clearance becomes its own legal jurisdiction of concern, it will receive a boost in global awareness and priority.

Because Protocol V regarding ERW will not be put into force until Nov. 12, 2006, it is not clear how agencies and governments will address the problem and clearance of ERW. States Parties must first decide to ratify

the Protocol, and then follow its dictates. Protocol V may succeed in increasing awareness of the deadly threats of ERW and the need for global clearance in the same way that the Ottawa Convention did for landmines. However, if ERW is to join the ranks of priority with landmines, the need to combine and coordinate education, identification, information management, research, and clearance efforts between landmines and ERW should become imperative.

Conclusion

This article serves to clarify definitions of ERW by examining its legal and functional understandings. At the same time, how the international community, governments, organizations and individuals choose to respond to ERW is of keen interest. As the legal definition of ERW becomes more limited, excluding mines, booby traps and IEDs from its mandate, it challenges us to increase the functional coordination amongst various explosive elements remaining after conflict in both research and cleanup efforts. Our challenge will be to understand and apply legal requirements that enforce commitment to clean up of **all** explosive ordnance, from ERW as legally defined (including UXO, AFVs, SALW and caches) to mines, booby traps, IEDs and other devices. Ultimately, defining ERW should not create regression or obfuscation in clearance projects, but rather provide stronger clarity, which allows us to consider all pertinent aspects of post-conflict munitions threats.

Biography



Daniele Ressler works as a Researcher, Writer and Editorial Assistant for the *Journal of Mine Action*. She holds a Master of Science in violence, conflict and development studies from the University of London's School of Oriental and African Studies. She has also studied in Switzerland, earning a Certificate for Applied Studies in peacemaking. Daniele has previously lived in Washington, D.C., Seattle and Nairobi, Kenya.

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Endnotes

1. This convention is formally known as *The Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects*, presently with five protocols. The weapons covered include weapons that leave undetectable fragments in the body (Protocol I); mines, booby-traps and other devices (Protocol II, amended in 1996); incendiary weapons (Protocol III); blinding laser weapons (Protocol IV); and ERW (Protocol V). This convention bans or restricts weapons that may cause unnecessary or indiscriminate suffering for soldiers and civilians. The full text can be found at <http://www.ccwttreaty.com/KeyDocs/ccwtreatytext.htm>. Updated May 18, 2006. Accessed July 1, 2006.
2. *IMAS Mine Risk Education Best Practice Guidebook 12: Glossary of Terms and Resources*, UNICEF and GICHD, Geneva, 2005. http://www.mineactionstandards.org/guides/MRE_Guidebook_12.pdf. Accessed March 27, 2006. Updated May 18,

2006. The IMAS can be found at <http://www.mineactionstandards.org>. Accessed March 27, 2006. Updated May 18, 2006.
3. The IMAS continue their definition of explosive ordnance to include "bombs and warheads; guided and ballistic missiles, artillery, mortar, rocket and small arms ammunition, all mines, torpedoes and depth charges; pyrotechnics; clusters and dispensers; cartridge and propellant actuated devices; electro-explosive devices; clandestine and improvised devices; and all similar or related items or components explosive in nature" (*IMAS Guidebook 12*, 2005, p.12).
 4. The IMAS define a munition as "a complete device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological or chemical material for use in military operations, including demolitions. Note: In common usage, 'munitions' (plural) can be military weapons, ammunition and equipment" (*IMAS Guidebook 12*, 2005, p.17).
 5. Herby, P. and A. Nuiten. "Explosive Remnants of War: Protecting Civilians through an Additional Protocol to the 1980 Convention on Certain Conventional Weapons." *International Review of the Red Cross*, March 2001, No. 841, p.195.
 6. The IMAS define a submunition as: "any munition that, to perform its task, separates from a parent munition" (*IMAS Guidebook 12*, 2005, p.20) and a cluster bomb unit as: "a bomb containing and dispensing submunitions which may be mines (anti-personnel or anti-tank), penetration (runway cratering) bomblets, fragmentation bomblets etc." (*IMAS Guidebook 12*, 2005, p.11). The United Nations Office for the Coordination of Humanitarian Affairs notes that "failed munitions remain on the ground and may explode with the slightest touch, when picked up, stepped on or kicked. These munitions become less stable and therefore more dangerous with each passing year" (p.9). *Glossary of Humanitarian Terms: In Relation to the Protection of Civilians in Armed Conflict*, United Nations Office for the Coordination of Humanitarian Affairs, New York, 2003. [http://www.reliefweb.int/rw/lib.nsf/db900SID/LHON-64UHAE/\\$FILE/OCHA_Glossary_2004.pdf?OpenElement](http://www.reliefweb.int/rw/lib.nsf/db900SID/LHON-64UHAE/$FILE/OCHA_Glossary_2004.pdf?OpenElement). Accessed April 7, 2006. Updated May 18, 2006.
 7. *Explosive Remnants of War: Cluster Bombs and Landmines in Kosovo*, ICRC, Geneva, 2000, p.8. [http://www.icrc.org/web/eng/siteeng0.nsf/htmlall/p0780/\\$File/ICRC_002_0780.PDF!Open](http://www.icrc.org/web/eng/siteeng0.nsf/htmlall/p0780/$File/ICRC_002_0780.PDF!Open). Accessed April 5, 2006.
 8. *Explosive Remnants of War: Unexploded Ordnance and Post-Conflict Communities*, Landmine Action, London, 2002, p.3. http://www.landmineaction.org/resources/Explosive_remnants_of_war_sum_2.pdf. Accessed April 15, 2006. Updated May 18, 2006.
 9. Hunger, R. "The Convention on Certain Conventional Weapons: Or, How to Reduce Human Suffering by Prohibiting or Restricting the Use of Certain Conventional Weapons" *Strategic Insight*, Vol. 2, Issue 3, March 2003, p.3. <http://www.ccnps.navy.mil/si/mar03/wmd.pdf>. Accessed March 27, 2006. Updated May 18, 2006.
 10. Protocol V requires each party to an armed conflict to mark and control ERW in territory they control; provide technical, material and financial assistance to facilitate removal of ERW due to party military operations that occurred in area not under party control; take all possible precautions to protect civilians from harm of ERW (including fencing and monitoring of territory and provision of warnings and risk education); and record information of use of explosive ordnance by armed forces to share after conflict with others engaged in ERW clearance or risk warning programs. See 1980 *Convention on Certain Conventional Weapons* ICRC overview fact sheet (published March 31, 2004) at: [http://www.icrc.org/Web/Eng/siteeng0.nsf/html/57JNXR/\\$FILE/1980_CCW.en.pdf?OpenElement](http://www.icrc.org/Web/Eng/siteeng0.nsf/html/57JNXR/$FILE/1980_CCW.en.pdf?OpenElement). Accessed March 15, 2006. Updated May 18, 2006. Full Protocol V available at: <http://www.cwtreaty.com/KeyDocs/MainDocs/Protocol-V-E.pdf>. Accessed March 15, 2006. Updated May 18, 2006.
 11. Sanders, C. "Contending with Explosive Remnants of War" *Arms Control Association*, September 2004, p.2. http://www.armscontrol.org/act/2004_09/Sanders.asp?print. Accessed March 27, 2006. Updated May 18, 2006.
 12. As of June 30, 2006, 23 states have consented to be bound by Protocol V after it comes into force. As of June 30, 2006, the CCW has 100 States Party and an additional six states who have signed but not yet ratified. See the status of these treaties provided by the UN Department for Disarmament Affairs: <http://disarmament.un.org/TreatyStatus.nsf>. Accessed June 30, 2006.
 13. CCW, Protocol V, Article 2.1, 2.3 and 2.4. See endnote 10 for link.
 14. Greenwood, C. "Legal Issues Regarding Explosive Remnants of War" (UN Doc: CCW/GGE/I/WP.10), May 23, 2000, p.4. <http://www.cwtreaty.com/KeyDocs/GGE1/CCW-GGE-I-WP10-E.pdf>. Accessed March 12, 2006. Updated May 18, 2006.
 15. Landmines are also legally addressed and defined in the separate, more prominent *Convention on the Prohibition of the Use, Production and Transfer of Anti-personnel Mines and on their Destruction*, Sept. 18, 1997. This Convention is also known as the Ottawa Convention or Mine Ban Convention. In this Convention, an APM is defined as "a mine designed to be exploded by the presence, proximity or contact of a person and that will incapacitate, injure or kill one or more persons" (Article 2.1). <http://www.icbl.org/treaty/text>. Accessed April 14, 2006. Updated May 18, 2006.
 16. Although they are not defined in Amended Protocol II, anti-vehicle mines are (weakly) regulated by the Protocol's general rules (Article 3) and a specific rule in Article 6.3. AVMs are mines that are "designed primarily to be detonated by vehicles, and contain a large explosive charge capable of destroying or incapacitating such targets" (p. 7). *Humanitarian*

Impact from Mines other than Anti-Personnel Mines, GICHD, Geneva, October 2004. http://www.gichd.ch/fileadmin/pdf/publications/Humanitarian_Impact_from_MOTAPM.pdf. Accessed May 5, 2006. Updated May 18, 2006.

17. AVMs are explicitly excluded from the Ottawa Convention which prohibits anti-personnel mines, but are being presently considered for a potential CCW Protocol addition regarding mines other than anti-personnel mines to achieve stronger regulation. See <http://www.ccw-treaty.com>. Accessed March 15, 2006. Updated May 18, 2006.
18. CCW Protocol II, *Prohibitions or Restrictions on the Use of Mines, Booby Traps and Other Devices* as amended on 3 May 1996, defines a booby trap as "any device or material which is designed, constructed or adapted to kill or injure and which functions unexpectedly when a person disturbs or approaches an apparently harmless object or performs an apparently safe act" (Article 2.4). "Other devices" are defined as "manually-emplaced munitions and devices including improvised explosive devices designed to kill, injure or damage and which are actuated manually, by remote control or automatically after a lapse of time" (Article 2.5). Full Protocol II amended available at: <http://www.ccw-treaty.com/KeyDocs/MainDocs/Amended-Protocol-II-E.pdf>. Accessed April 18, 2006. Updated May 18, 2006.
19. Improvised explosive devices can vary widely as they are created with materials originally manufactured for a different use. GlobaSecurity.org defines an IED as a "'homemade' device that is designed to cause death or injury by using explosives alone or in combination with toxic chemicals, biological toxins, or radiological material" and with the following components: an initiation system or fuse; an explosive fill; a detonator; a power supply for the detonator; and a container. *Improvised Explosive Devices (IEDs) / Booby Traps*, <http://www.globalsecurity.org/military/intro/ied.htm>. Accessed May 23, 2006. CCW Amended Protocol II bans IEDs; however, due to the great variation in IED construction as well as their varied application in conflicts, there is a need for clearer understanding of IEDs. Though typically associated with active battle, IEDs have the potential to be a post-conflict threat if failing to explode or remaining rigged. Consequently, depending on their material construction IEDs may interface with Protocol V or Ottawa clearance obligations. Discussion and clarification on this subject is sorely needed to come to terms with these unanswered issues and even address a common definition of an IED.
20. *Explosive Remnants of War: A "Quick Look" Threat Analysis*, Geneva International Centre for Humanitarian Demining, Geneva, 2001, p.4.
21. *Explosive Remnants of War (ERW): A Threat Analysis*, Geneva International Centre for Humanitarian Demining, Geneva, 2002, p.3–19. Direct citations came from p.3, 5, 11 and 19.
22. This list was broadly compiled by this author, from suggestions within numerous publications of what specific munitions and ordnance might be included within the term *ERW*.
23. An AFV is defined as a vehicle that "protects crew and passengers from shrapnel and small arms fire, whilst carrying machine guns, cannon or guided missiles to attack enemy vehicles and infantry. Examples of armoured fighting vehicles include tanks and Infantry Fighting Vehicles (IFVs)." <http://www.army-technology.com/glossary/armoured-fighting-vehicle.html>. Accessed April 24, 2006. Updated May 18, 2006.
24. For more information on SALW, see Cranfield University's *Compendium of Good Practices on Security Sector Reform*, online at http://www.gfn-ssr.org/good_practice.cfm?id=21&p=21. Accessed April 21, 2006. Updated May 18, 2006. Examples of SALW include "pistols, rifles, assault rifles, machine guns, light support weapons, grenade launchers, cannon (>37 mm), light mortars, light anti-tank weapons, shoulder launched surface to air missiles (SAM), high explosive grenades ... and small arms ammunition." Hughes-Wilson, J. and A. Wilkinson "Safe and Efficient Small Arms Collection and Destruction Programmes: A Proposal for Practical Technical Measures" UNDP, July 2001 (p.32). <http://www.smallarmsnet.org/issues/themes/undpdes.pdf>. Accessed April 21, 2006. Updated May 18, 2006.
25. A stockpile is defined as "a large accumulated stock of weapons and explosive ordnance" (Cranfield online, see endnote 24). A cache is "weapons stored in a remote or concealed, unmanned site" (Greenwood, p.4, see endnote 14). Neither term has one accepted definition; this article understands the difference between stockpiles and caches to be the actors who have control of them. A stockpile is under official control by state actors while a cache is an accumulation of stored weapons to be used by non-state actors. In this sense, a stockpile under national control would not be legally be considered ERW (though practically it is still an explosive threat), while a cache could be considered ERW if the supply of munitions or ordnance is explosive and abandoned by those who stocked it.
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