A Primer on Explosive Remnants of War

Daniele Ressler

Center for International Stabilization and Recovery at JMU (CISR)

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A Primer on Explosive Remnants of War

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. 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.

by Daniele Ressler [Mine Action Information Center]

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 synecdoche for unexploded ordnance, which the International Mine Action Standards have defined as “unexploded ordnance that has been primed, fused, armed or otherwise prepared for use and it may have been fired, dropped, launched or projected yet remains unexploded either through malfunction or design or for any other reason.” The IMAS defines explosive ordnance as “all munitions containing explosive, nuclear fission or fusion materials, biological and chemical agents.”

The IMAS definition of explosive ordnance presents a more extensive scope of munitions 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 bomb or land-based systems and other unexploded ordnance.” 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 submunitions have been of increasing concern. In a 2000 study on Kosovo, the ICRC reported that cluster bombs had an estimated overall failure rate of between 10 and 15 percent. Landmine Action U.K. reported that in Kosovo between 1999 and 2000, while landmines caused about 13 percent of civilian deaths, unexploded cluster-bomb submunitions proved a larger threat, contributing to almost 32 percent of deaths. 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.”

Proposers for international regulation of ERW advocated the addition of a protocol to the 1980 Convention on Certain Conventional Weapons. 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.

Protocol V defines AXO as “explosive ordnance that has not been used during an armed conflict, that has been left behind or dumped by 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.” This means that not only can ERW be understood traditionally as resulting from the failure of weapons (UXOs), but it can also be understood as explosive remnants of war 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.”

The second major caveat is that even as CCW Protocol V legally defines what ERW is, it also specifically states what ERW is not, due to separate obligations 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 characteristics of all ERW” as “conventional munitions containing explosives, with the exception of mines, booby traps and other devices as defined in Protocol III of this Convention as amended on 3 May 1996.” This means that mines, including APMs and AVMs,47今日头条 maps and manually emplaced munitions/cluster submunitions48 including improvised explosive devices49 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.

There is not a prevailing definition of what actual physical ordnance is considered to be “explosive remnants of war,” but ERW clearance should be managed. Herein rests 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 2011 and 2012. 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” and explicitly argued that ERW was a broader term than simply UXO. The
The GICHD divided the explosive threat of ERW into four major areas that are useful as a framework to understand better what ordnance might technically be included in the ERW risk: 1. Mines and UXO contamination of the ground 2. Abandoned armored fighting vehicles 3. Small arms and light weapons, including limited ammunition and explosive devices in the possession of civilians and non-state actors 4. Abandoned and/or damaged/disrupted stockpiles of ammunition and explosives (AXO) 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 ordnance might be compared by looking at the GICHD’s four specific types of ERW understood to underpin explosive threat. 

Table 1 lists an array of potential UXO that might be found on the ground after a conflict.** However, under Protocol V, AFMs 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.

**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 noted in Protocol V.

**Abandoned armored fighting vehicles. The GICHD describes explosive ordnance disposal of abandoned AFVs in a defunct position as “one of the most technically complex and demanding operations conducted by an IED technician” due to threat components of surrounding mines/UXO, deployed warheads, explosive reactive armor, unstable containers of internally stored ammunition and access denial devices.** With these 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 UXO and only if they have exploitive properties.

Small arms and light weapons. SALWs and their variant munitions can be functionally understood as ERW due to their potential instability through aging and improper/unhealthy maintenance, leading to explosions. The GICHD defines SALW as “all legal conventional munitions that can be carried by an individual combatant or a light vehicle, that does not require a specialized logistical and maintenance capability.”** Danger lies in lacking explosive content and degradation of fuse safety systems and propellant stabilizers. The international legal definition of ERW would allow inclusion of SALW with the exception of any mines, booby traps or improvised explosive devices that might be carried and as long as the SALW are not being carried by state actors for official use. 

Stockpiles of ammunition and explosives. Stockpiles of and caches 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 movement resulting in a catastrophic incident. In one example, a January 2002 explosion at a government ammunition depot in Lagos, Nigeria, resulted in over 1,000 deaths.** 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 abandoned 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 “exception”—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 defers a paradoxical reality: while mines, booby traps and IEDs cannot be legally defined in Protocol V as ERW, practically they are all highly exploitive. The philosophical argument that mines are different from UXOs and AXO because when exploded they have fulfilled their function (as opposed to failing to explode) (UXOs) or never being used (AXOs) 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 UXOs, may be emplaced around AFVs, and can be stored within stockpiles. Because mines are highly exploitive, 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 tagged or abandoned explosive ordnance, they can 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 considered the victim of the ongoing conflict or rather of an explosive remnant of that conflict? Ultimately, even if they aren’t technically abandoned or Protocol V does not carry over with any importance into functional clearance, do they remain under the purview of humanitarian law as an explosive ordnance?

**A possible tension is that of not being satisfactorily reason to care out of practical concern. What becomes clear is that the physical exploitive 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 greater 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 effort of mines, booby traps, IEDs and ERW aren’t coordinated because their jurisdiction under humanitarian law doesn’t technically carry-over of specific status anywhere outside that specific legal mandate. For example, clearance of landmines is required through the Ottawa Protocol while clearance of ERW is required through CCW Protocol IV. Humanitarian law provides the regulation of the requirements 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.

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

<table>
<thead>
<tr>
<th>Aircraft bombs</th>
<th>Missiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cruise missiles</td>
<td>Minelabs</td>
</tr>
<tr>
<td>Small-arms ammunition</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Anti-tank ammunition</th>
<th>Submunitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth chargers</td>
<td>Mortar ammunition</td>
</tr>
<tr>
<td>Artillery shells</td>
<td>Surface-to-air missiles</td>
</tr>
<tr>
<td>Electro-explosive devices</td>
<td>Torpedos</td>
</tr>
<tr>
<td>Artillery shells</td>
<td>Tank ammunition</td>
</tr>
<tr>
<td>Ballistic missiles</td>
<td>Unmanned aerial vehicles</td>
</tr>
<tr>
<td>Field artillery ammunition</td>
<td>Unmanned aerial vehicles</td>
</tr>
<tr>
<td>Mortar shells</td>
<td>Unmanned aerial vehicles</td>
</tr>
<tr>
<td>Bombs</td>
<td>Torpedos</td>
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<tr>
<td>Free-flight rockets</td>
<td>Rockets</td>
</tr>
<tr>
<td>Propellant-actuated devices</td>
<td>Rockets</td>
</tr>
<tr>
<td>Bombs</td>
<td>Rockets</td>
</tr>
<tr>
<td>Gravity bombs</td>
<td>Rockets</td>
</tr>
<tr>
<td>Pyrotechnics</td>
<td>Tanks</td>
</tr>
<tr>
<td>Cannon ammunition</td>
<td>Warheads</td>
</tr>
<tr>
<td>Grenades</td>
<td>Rocket ammunition</td>
</tr>
<tr>
<td>Cluster-bomb units</td>
<td>Guided missiles</td>
</tr>
<tr>
<td>Rocket motors and fuel</td>
<td>Guided missiles</td>
</tr>
</tbody>
</table>

Figure 1. Landmines and UXO.

**Function After Toward ERW Eradication**

Many groups still deal pragmatically with mines and other UXOs 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 “seeks to reduce the social, economic and environmental impact of landmines, unexploded ordnance and small arms ammunition.”** Protocol V of 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 landmines contamination”, however, despite its name, it is understood that U.N. mine action “also addresses all forms of UXOs.”** Even so, the reality is that despite some inclusion of UXO and AXO in mine-action clearance activities, they have not yet had
misreported, resulting in a skewed picture of the source of casualties from functional and the type of explosive ordnance cleared, been. This is due largely to the strength and focus of the Ottawa Convention, which has provided for, more financial support, research, and political pressure toward rid- ding society of the scourge of landmines toward as ERW. If the goal is to eradicate ERW with the same inspiring success as landmines, strongest policy is needed to en- sure ERW receive the same level of concern and action as landmines, and that clearance of unexploded explosive threats, including ERW, mines, booby traps and IEDs, is coordi- nated and focused on with equal priority. It was only in 2004, for example, that the U.S. Department of Defense obtained a change in its legislative authority to broaden its humanitarian-mine-action efforts to in- clude ERW, showing that for many, the priority of ERW clearance is in early stages. Presently, there is no agreement on what specific ordnance is included in the frame- work of UXO and A3X. The GICHD notes that since there is no common stan- dard for reporting post-conflict casualties and the type of explosive ordnance cleared, there is no common “accurate and objective assessment of the impact of specific types of UXO.” In particular, injuries can be misinter- preted, resulting in a flawed picture of the source of casualties from functional ERW. Missrecorded 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.

Conclusion
This article serves to clarify definitions of ERW by examining 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 lim- ited, excluding mines, booby traps and IEDs from its mandate, it challenges us to increase the functional coordination among 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 cleanup 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.

For additional references for this article, please visit http://maic.jmu.edu/feature/resler/resler.htm#addlrefs.

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Mine-Recognition Cards Teach Adults, Children

A new set of playing cards is raising awareness and recognition of common landmines and explosive residuals encountered globally. The cards help adults and children in mine-affected regions learn more about mines and how to identify them. Each card carries the image of a frequently encountered mine, its country of origin, type and basic munitions details. The back of the cards carries a “DANGER: MINES” sign. Attention has been paid to consistency and correlation between suits: Clubs are anti-tank mines, diamonds are anti-personnel mines with the lowest metal content, hearts are AP mines with enough metal to make them detectable, and spades are fragmentation mines capable of injuring at great distances.

In many cases, the card number relates directly to mine designation. Jokers are two of the most common and sensitive submunitions, BLU-97 and M42-type. In addition to being used in normal card play, the cards also are predisposed to “trump,” a game in which a mine category is used to determine top, lowest value in winning. In doing so, players, especially children, absorb technical details easily.

A deck of cards is $7.05, in- clusive of VAT (adaptable approximately $US9.65); ship- ping rates are determined based on destination. The company also offers a database of more than 10,000 mine and ordnance imag- es and can tailor card decks to specific needs.

For more information on the cards or to place an order, visit www.ckingsassociates.co.uk.

Daraese Resler works as a Researcher, Writer and Editorial Assistant for the journal of Mine Action. She holds a Master of Science in violence, conflict and develop- ment studies from the University of London’s School of International and African Studies. She has also studied in Switzerland, earning a Certificate for Applied Studies in parameter.

Daraese Resler, MSc
Editorial Assistant
Journal of Mine Action
Mine Action Information Center
E-mail: maic@jmu.edu

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