

# 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.<sup>1</sup> 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 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.”<sup>2</sup> The IMAS define **explosive ordnance** as “all munitions containing explosives, nuclear fission or fusion materials, biological and chemical agents.”<sup>3</sup>

The IMAS definition of explosive ordnance presents a more extensive scope of **munitions**<sup>4</sup> 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.”<sup>5</sup> 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**<sup>6</sup> 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.<sup>7</sup> Landmine Action U.K. reported that in Kosovo between 1999 and 2001, while landmines



Submunition.



Submunition.

caused about 13 percent of civilian deaths, unexploded cluster-bomb submunitions proved a larger threat, contributing to almost 32 percent of deaths.<sup>8</sup> 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.”<sup>9</sup>

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

defines **ERW** as “unexploded ordnance and abandoned explosive ordnance.”<sup>13</sup> Protocol V defines **UXO** using the IMAS’ standard definition as previously cited; 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.

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.”<sup>13</sup> This means that not only can ERW

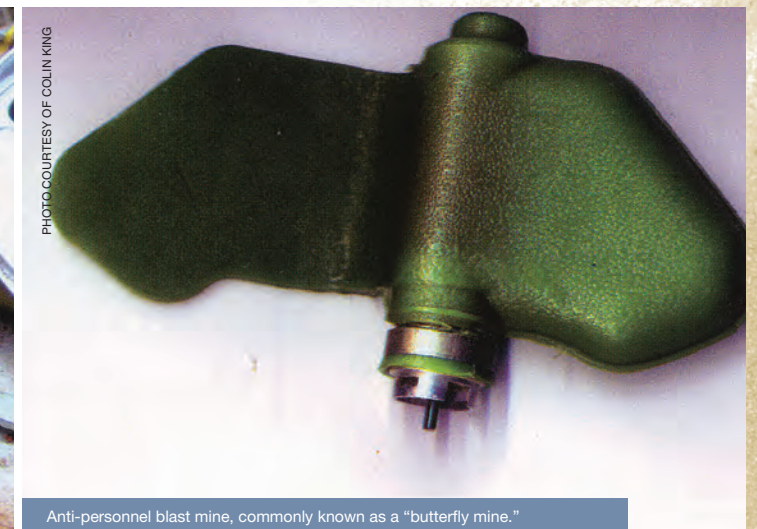
of mines, booby traps and other devices as defined in Protocol II of this Convention as amended on 3 May 1996.<sup>13</sup> This means that mines, including APMs<sup>15</sup> and AVMs,<sup>16,17</sup> booby traps and manually emplaced munitions/other devices<sup>18</sup> including improvised explosive devices<sup>19</sup> 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.<sup>15</sup>

## 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?



Anti-personnel blast mine.



Anti-personnel blast mine, commonly known as a “butterfly mine.”

80 countries.”<sup>10,11</sup> 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.<sup>12</sup>

## A Legal Definition of ERW

Protocol V presents a legal precedent for defining explosive remnants of war. It

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.”<sup>14</sup>

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

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”<sup>20</sup> 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 explosives<sup>21</sup>

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.

**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.<sup>22</sup> However, under Protocol V, APs and AVs 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.

Aircraft bombs	"Cruise" missiles	Minelets	Small-arms ammunition
Anti-tank ammunition	Depth charges	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.

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.

**Abandoned armored fighting vehicles.** The GICHD describes explosive ordnance disposal of abandoned AFVs<sup>23</sup> in a defensive



Anti-tank mine.

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.<sup>21</sup> 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.

**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."<sup>21,24</sup> Danger lies in leaking explosive content and degradation of fuse safety systems and propellant stabilizer.<sup>20</sup> 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 caches<sup>25</sup> 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.<sup>26</sup> 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



A small, aerial-dispensed, impact-fired, anti-personnel fragmentation bomb.

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."<sup>27</sup> 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."<sup>28</sup>

Even so, the reality is 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 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,<sup>29</sup> showing that for many, the prioritization of ERW clearance is still in early stages.

Presently, there is no agreement on what specific ordinance 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."<sup>21</sup> 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).<sup>21</sup> 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, yet 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 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 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/ressler/ressler.html#addrefs>.

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## News Brief

### Mine-Recognition Cards Teach Adults, Children

A new set of playing cards are raising awareness and recognition of common landmines and explosives 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 "top trumps," a game in which a mine category is used to determine supremacy. For example, players will designate a category, such as diameter, to specify highest and lowest value in winning. In doing so, players, especially children, absorb technical details easily.

A deck of cards is £7.05, inclusive of VAT where applicable (approximately US\$9.05); shipping rates are determined based on destination. The company also offers a database of more than 10,000 mine and ordnance images and can tailor card decks to specific needs.

For more information on the cards or to place an order, visit [www.ckingassociates.co.uk](http://www.ckingassociates.co.uk).



A pile of abandoned munitions.

