November 2006

Mine-risk Education and the Amateur Scrap-metal Hunter

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Recommended Citation
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In many countries where landmines and unexploded ordnance threaten populations, people ignore warnings about these hazardous explosives to collect explosive remnants of war for the valuable scrap metal they contain. The author discusses a program proposed by the Golden West Humanitarian Foundation to manage this dangerous practice.

These numbers certainly do not mean we should abandon efforts to educate the population about avoiding death and injury from mines and UXO. On the contrary, what it may suggest is new ideas are needed to address specific types of hazards and categories of potential victims, particularly amateur scrap-metal collectors.

According to reports by the Cambodian Mine/UXO Victim Information System, 353 people were injured or killed between January and August 2006 in Cambodia. Of those casualties, 62 percent were men, 8 percent were women, and 30 percent were children under 18 years of age. Fifty-eight percent of the casualties were people injured or killed by UXO and 42 percent by landmines. These numbers indicate a disturbing trend in which casualties are increasing despite greater efforts to eliminate threats. This trend also exists in Vietnam, Laos, and other areas. We think it points to an underlying problem—collecting scrap metal is the new growth industry in these countries.

The Golden West Humanitarian Foundation has taken a pragmatic approach to MRE, generalizing it to become ERW-threat-indicators education. We strongly support education but believe the best way to prevent deaths and injuries is to use education as one element in a program designed to eliminate the ERW threats as quickly as possible.

Sneaky Devices
In central Vietnam and Laos, many deaths or injuries are caused in particular by unexploded cluster submunitions or 40-mm grenades. These unstable, long-lasting munitions are a widespread hazard, frequently concealed by tall grass or shallow dirt. Not only are they hit by farmers’ hoes or plows, exploded when fires are built on top of them and irreverently to children, but these dangerous munitions are often the very devices scrap-metal collectors intentionally gather, disarm and sell.

In addition, unexploded mortar projectiles can be a threat. Mortar projectiles come in a huge variety of sizes and contain a number of different fillers. In Vietnam, mortars can be found from 60-mm to 100-mm. Fillers may include black powder, white phosphorus, other smoke and flares, or metallic shrapnel. Fuzes may incorporate proximity devices, or use impact, powder rain or timing mechanisms for initiation. Unfortunately, once the paint and markings are washed away, it is often impossible to identify the type of filler and, therefore, the explosive threat. Mortars can be small, easy to move and less intimidating than artillery projectiles and bombs. They can also be deadly.

These munitions, submunitions and grenades share a single deceptive characteristic: that they can hurt victims into a false sense of security: inconsistency. They often fail to fully arm and detonate due to a virtual and permanent mechanical fault in their arming or firing mechanism. However, at other times, the munition is primed, allowing the arming but preventing firing. In these cases, items of UXO may require only heat, shock or friction to detonate—sometimes years later. Firing mechanisms are complex and designed to accept input from almost any direction. Because these munitions are so often damaged and prevented from functioning, people come to believe they are harmless. When a civilian picks one up and it doesn’t kill him or her, that person is more likely to pick up the next one. However, the next munition or the one after that may detonate without warning, killing or seriously injuring both the person who picked it up and anyone nearby.

Challenges to Conventional Mine-risk Education Practices
So what might the problem be? Why would anyone who has received training pointing out the dangers of interacting with unexploded munitions intentionally do it anyway? Is there something about the training that makes it ineffective? Are there other factors at play here at the warnings? Are there ways to enhance the training to make it more effective? The answers to these questions are complex and there are no easy solutions.3

More programs engaged in MRE recognize that people are frequently injured by dextrally trigger explosions in the process of their daily work, but those most resistant to behavioral change are scrap-metal collectors. Scrap-metal trading has become a well-entrenched part of many local economies throughout Southeast Asia. Scrap-metal collectors engage in their dangerous trade for a variety of reasons, but most say they simply need the money they earn from it. Sales. Studies have shown people are generally well-aware of the dangers they face, but feel compelled to continue the dangerous activity due to the pressures of poverty. They often report feeling they have no choice.

The Solution
The apparent failure of various kinds of education to change this risky behavior signals a need for a change in our MRE approach. Perhaps instead of spending all our energies trying to eliminate risky behavior, we should be trying to find new and dangerous processes that can make this inevitable behavior safer. This proposed approach will undoubtedly find many opponents who feel we are simply encouraging more risky behavior; however, at Golden West we believe in taking a pragmatic approach to behavior that we think will continue with or without our intervention. Golden West believes we can successfully combine our experience with Explosive Remnants of War Indicators Programs and our popular Explosive Harvesting System into a concept that addresses the growing number of scrap-metal-related casualties. Educating people and providing a more robust explosive ordnance disposal response to ERW reports will hopefully encourage the public to make more reports. Rather than spend resources trying to discourage behavior we know is happening, why not try a new approach that may make the process a little safer?

A New Response to Scrap-metal Collection
In this concept, expanded explosive ordnance-disposal teams respond to UXO reports from civilians, assess the threats and then return hazardous items to be sold as scrap. For questionable items that cannot be safely recovered, a fix equal to the weight of the useful metal would be paid by the team to the recipients of that item. These items would be transported to a small explosives-processing facility for treatment (when feasible) and the metal parts sold to reimbursed UXO. Deemed too dangerous for movement would be destroyed in place by the safest method possible. Remaining items deemed safe and dangerous for processing or lost during treatment would be considered a program cost.

A one-in-place procedure for small items (like individual submunitions or grenades) can use field-expedient damage-mitigation methods such as Ms. BIP. Larger items may be controlled by digging, sandbags or some other method. Whatever possible, items will be moved away from occupied areas prior to any procedures being initiated.

The Expanded Explosive Harvesting System
With a new approach to behavioral change, we can attempt to find absolutely no procedures that include any degree of risk to operators will be conducted. Safety will never be compromised in the interest of scrap metal. Only items the senior EOD

### Table 1: Examples of entries for different threats.

<table>
<thead>
<tr>
<th>Status</th>
<th>Action</th>
<th>Reinforcement</th>
<th>Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutral: hazards, no explosive</td>
<td>None</td>
<td>None</td>
<td>Turn over to finder for sale</td>
</tr>
<tr>
<td>Extreme hazard: fuzed and contains explosive (do not move)</td>
<td>None</td>
<td>None</td>
<td>Destroy on site</td>
</tr>
<tr>
<td>Dangerous: fuzed and contains high explosive</td>
<td>Attempt render-safe procedures</td>
<td>Market price</td>
<td>Treatment facility or BIP</td>
</tr>
<tr>
<td>Dangerous: no fuse and contains high explosive (no transportation hazard)</td>
<td>Transport to safe holding area</td>
<td>Market price</td>
<td>Treatment facility</td>
</tr>
</tbody>
</table>

3 As determined by EOD only.
Finding More than Honey with Bees

Buried within the USD$66 billion appropriations bill for the U.S. Department of Defense’s fiscal 2007 budget is $5 million for a new military tracking system—honey bees. The project would train honey bees for a variety of military and commercial uses, including finding landmines and other buried explosives.

Researchers at the University of Montana and Montana State University claim the bees can be monitored via a laser-tracking system. With further development, the bees may be able to detect more than just landmines and buried explosives—researchers believe the bees may also be capable of finding methamphetamine labs, dead bodies and other hard-to-detect items.

Still, the primary focus of the honey-bee experimentation is on the discovery of explosives because bees are very attuned to the scent of TNT and similar material. Recognizing the acute sensitivity of honey bees to different molecular compounds, scientists have studied the bees’ reaction to the scent of food and, through a Pavlovian technique, trained the bees to react positively toward the scent of dangerous materials. Funding for honey-bee programs is difficult to secure, and the technology still is not in a marketable form.

The Aftermath of War

The recent conflict between Hezbollah and Israel resulted in many civilian victims, and though the fighting has ended, the problems are nowhere near over for the civilians of Lebanon whose country is littered with cluster bomblets. This article explains the effects of the conflict on Lebanese civilians and describes how organizations are trying to eradicate the cluster-submunitions problem and provide aid to affected civilians.

by Katie FitzGerald [Mine Action Information Center]