GROUP OF GOVERNMENTAL EXPERTS OF THE STATES PARTIES TO 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

CCW/GGE/II/WP.13
15 July 2002

Original: ENGLISH

Second Session
Geneva, 15-26 July 2002

Explosive Remnants of War - Experience from Field Operations

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Introduction

Explosive remnants of war (ERW) are not a new phenomenon. The clearance of unexploded ordnance (UXO) dating back to World War I is still ongoing throughout parts of Europe and Central Asia today. It is therefore essential that lessons learned and experience gained from years of practical clearance operations, are identified and applied when considering the options for addressing the ERW problem.

This paper will provide the perspective from field operations, with emphasis on defining the threat and information requirements to facilitate ERW[1] clearance. The aim is to promote discussion of specific questions under items 1 and 4 of the mandate of the Group of Government Experts.

Identifying the Problem

The discussion paper prepared by ICRC-GICHD for the May meeting of the Group of Governmental Experts acknowledged that there is little information available on the factors and types of munitions that could cause a humanitarian problem after a conflict. However, through experience, the vast majority of national mine clearance programmes can provide indicative information as to the type of munitions encountered and the risk associated with each type. In Mozambique, for example, there are approximately 240 remaining sites that are suspected to contain ERW[2]. Common munitions encountered in this country include hand grenades, rocket propelled grenades (some with booby-traps) and booby-trapped anti-vehicle (AV) mines.

In essence, **all** items of explosive ordnance[3, 4] **potentially** pose a hazard to civilian populations, whether through inadvertent contact or deliberate tampering. This is particularly true if there is a low

[1] As landmines are subject to other instruments, the term ERW in this paper shall refer to all items of unexploded ordnance, as defined in the Glossary of the International Mine Action Standards.

[2] Letter from Chief Technical Adviser to UNMAS dated 4 July 02.

[3] The International Mine Action Standards (IMAS) define **explosive ordnance** as "all items containing explosives, nuclear fission or fusion materials, and biological and chemical agents. This includes bombs and warheads, guided and ballistic missiles, artillery, mortar, rocket and small arms ammunition, torpedoes and depth charges, pyrotechnics, clusters and dispensers; cartridge and propellant actuated devices; electro-explosive devices; clandestine and improvised explosive devices; and all similar or related items or components explosive in nature".

[4] **Unexploded ordnance** is defined in IMAS 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".

level of understanding of the associated danger, if there is significant pressure on the land and contaminated areas need to be utilised regardless of the threat, or if economic factors dictate that the items of ordnance have intrinsic value.

In Kosovo during 2001, there were five separate landmine incidents, which killed two and injured three civilians, but 12 incidents involving ERW, which killed seven and injured ten[5]. The fact that all of the incidents were caused by people touching or deliberately tampering with the items highlights the important role that public awareness can play in preventing injury and death occurring.

Furthermore, despite the lack of specific data on types of explosive ordnance (other than landmines) that are likely to cause problems, there is clear evidence to show that sub-munitions are a major cause for concern. Certainly in Laos and Cambodia, sub-munitions dropped during the Vietnam War still pose a significant threat to civilian populations. More recently, cluster bombs dropped in Kuwait, Kosovo and Afghanistan have resulted in a similar situation occurring.

Experience from Kosovo showed that sub-munitions were likely to cause multiple casualties (including fatalities), and that a high proportion of victims were under the age of 18. This was because the shape and colour made them appear "toy-like", and the destructive power and lethality of the weapons was completely misunderstood. One of the key lessons learned from Kosovo was that sub-munitions needed to be singled out for particular attention as part of the awareness campaign. To simply include cluster bombs as part of a generic UXO threat was not sufficient, given the threat that they posed.

There were a number of factors that hindered the clearance of sub-munitions in Kosovo. In some instances, incomplete and/or inaccurate reports were provided to the UN, and this was largely due to a lack of familiarity with the information required. Furthermore, delays in providing updated information over a period of 12 months led to conflicting reports, which affected the overall credibility of the information.

The inaccurate information meant that survey teams were often unable to locate the cluster bomb strike sites. This was particularly prevalent when searching through bush-clad areas, and was compounded by the fact that the survey teams usually consist of only four people (including a medic and driver). As a general rule, a 1 km inaccuracy in the reported location means that the search area becomes 4 km^2, a 2 km inaccuracy makes the search area 16 km^2, whilst a 3 km inaccuracy makes the search area 36 km^2. This presents an enormous area for a survey team to cover, particularly if they are searching bush-covered terrain.

Because of these difficulties, additional information such as the direction of flight of the aircraft was requested, in an effort to narrow down the search area. The most effective search procedure is to move toward the target area along the flight path of the aircraft, so that bomb components can be located more easily. There is a definite pattern of paraphernalia that is encountered during the search operation, which provides vital clues as to the strike location. It also means that if the bomb was dropped long or short of the target, this is the most efficient way of locating the strike site. This, and other important information that was recorded by the coalition air forces should have been provided immediately following the cessation of hostilities so as to facilitate rapid removal of the sub-munition threat. Attached as Annex A is a list of the information that is considered essential to enable timely and efficient clearance operations.

An additional problem was encountered during the clearance of sites that were used to "dump" cluster bombs, presumably if the pilots were unable to identify suitable targets. A number of remote mountain sites were chosen to unload upon. Most of these turned out to be summer grazing areas, and subsequently required clearance. Unfortunately, given the nature of the sites, the ability to access and

[5] UNMIK Mine Action Programme Annual Report 2001, p8

then support the clearance task was extremely difficult. Communications, logistic support, medevac and quality assurance all became a major challenge to overcome.

On the positive side however, Kosovo showed that the problem can be solved relatively quickly, subject to the provision of sufficient information and resources, and the combination of risk reduction clearance techniques and effective awareness. A two-stage clearance process was introduced, whereby the easily accessed munitions lying on the surface were destroyed as part of an initial clearance operation, whilst the sub-surface munitions were located and destroyed as a separate task, which was often conducted some months later. When combined with awareness activities that informed civilians about the residual threat, as well as the appropriate action to take if suspicious or dangerous objects were located, civilian casualty numbers were rapidly reduced.

Information Requirements

As previously stated, a key factor in overcoming the ERW problem is timely access to information that clearly defines the scope and nature of the threat. The information required to facilitate clearance operations can be summarised as follows:

- **Location of munitions.**
    - This applies to cached or stockpiled munitions, demolitions, booby-traps / improvised explosive devices (IED), as well as weapons fired or dropped.
    - The location must be provided as accurately as possible, and in a format that is easily collated and understood (preferably in such a way as to enable easy input into the Information Management System for Mine Action (IMSMA)).
    - Sub-munition clearance requires specific information, as detailed in Annex A.

- **Number and type of munitions used.**
    - This information is critical for all stages of operational planning. Early indication is essential for determining competency and training standards of clearance personnel, as well as equipment requirements.
    - Knowing the likely magnitude of the task (in terms of number of munitions likely to be encountered) assists with resource allocation and asset management through the calculation of indicative completion times. In the previously mentioned case of Mozambique, the national mine action authorities plan to clear the 240 remaining ERW sites by the end of 2003.
    - As ERW are invariably encountered when clearing minefields, knowing the types of munition used, and their location, is a significant factor when determining the assets to be used. For example, mechanical systems would not be used if there was a known threat from white phosphorous mortar or artillery rounds.

- **Technical specifications of the munitions.**
    - This includes shape, colour, size, and characteristics of each munition type.
    - Colour photographs of each item are essential for the preparation of awareness materials.

- **Neutralising, disarming and/or destruction procedures.**
    - As applicable for each weapon/ammunition type.
    - However it is important to note that virtually all mine action programmes train to the minimum standard for explosive ordnance disposal (EOD) operations as a general rule. Where possible, the accepted practice for humanitarian operations is to destroy munitions in-situ, rather than to neutralise items. However, when it is known that items can be safely moved to a centralised demolition area, this will occur.
    - Therefore, the most critical information required by field practitioners are the procedures for safe destruction of UXO.

The provision of technical specifications and destruction procedures is essentially a “one-off” task that involves collating information that will be easily accessible, since inventories of weapon and ammunition holdings will be well known.

However, reporting the location, type and number of munitions used in a conflict requires that a systematic, comprehensive and easily updated recording process be put in place. Depending on the conflict, this could involve collating a large amount of information from a variety of sources, under a multitude of conditions. Clearly, the use of a simple, standardised format will enhance the likelihood of the information being recorded. Such a system requires implementation during peacetime to ensure universal familiarity and acceptance of the process.

This will assist with preventing some of the problems with the quality of the information that occurred in Kosovo. It should be noted that there were significant improvements in the provision of cluster bomb information during the recent Afghanistan campaign, although some problems with conflicting reports still occur.

Information Collection, Collation, Analysis and Coordination

Recent UN mine action experience has shown the benefits of establishing a focal point for information collection, collation, and analysis, and coordination of mine action activities. Adoption of protocols within the CCW that oblige States Parties to record and report the use of explosive ordnance will further reinforce the need for such mechanisms to be established as an integral component of post-conflict clearance operations.

Conclusion

From the field perspective:

- ERW consists of all items of explosive ordnance as defined in the Glossary of IMAS.
- Sub-munitions pose a particular threat and require specific attention as part of post-conflict clearance operations.
- Specific information is required in order to facilitate the clearance of aerially delivered sub-munitions.
- The “dumping” of sub-munitions in remote locations causes significant difficulties during clearance operations.
- Information on the location, number and type, technical specifications and destruction techniques are essential for programme planning, management of operations and effective public awareness.
- Information on the location of munitions should be provided in a format that is compatible with IMSMA.
- The onus of responsibility for recording and reporting this information needs to be clearly understood and implemented as a matter of course.
- Additional reporting requirements will reinforce the need for a centralised coordinating body to be established in order to collate and analyse the information.

Given that the humanitarian consequences of ERW are now widely recognised, and the value of information as an integral part of the solution, it can no longer be deemed acceptable to simply ‘fire and forget”. Recording and reporting the use of explosive ordnance will have a major effect on reducing the post-conflict impact of ERW on civilian populations.

ANNEX A

INFORMATION REQUIRED TO FACILITATE SUB-MUNITION CLEARANCE

1. Date of bombing
2. Target location (general)
3. Target description (specific information)
4. Aim point (Lat/long or UTM coordinates)
5. Aircraft heading
6. Bomb type / number dropped
7. Result
8. Hits / Misses
9. Width of impact area
10. Length of impact area