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Mine Action Technologies: Problems and Recommendations

Achenry: Mine Action Technologies: Problems and Recommendations

by Marc Achenry, Royal Military Academy

Introduction

In 1997, at the workshop accompanying the signing of the Ottawa Convention, concern was expressed at the lack of international coordination and cooperation in mine action technology. It was noted that there were no universal standards for technology, no common view on where resources should be directed; additionally, inadequate dialogue and understanding existed both within the R&D community as well as with the other actors in mine action.

Even if there is still a lack of international coordination and cooperation in mine action technologies, especially among the end-users, the donors and the R&D community, a lot of work has been done and some success stories can be reported. Significant progress has been made in the following areas (see the appendix for more details):

- Metal detector and handbook dual sensor performance, which combines metal detectors with ground penetrating radar (GPR)
- Mechanical device use and development
- Development of applications based on information technologies, such as the Information Management System for Mine Action (IMSSM)
- Personal protective equipment (PPE) and protective limb development
- Training of neutrals to detect landmines
- PPE suitability and cost

Thanks to the International Test and Evaluation Programme (ITEP), much work has been undertaken to test and evaluate equipment, systems and methods against agreed standards. Nevertheless, efforts must continue, especially to initiate and increase the coordination and cooperation among donors, end-users and technologies in order to develop and bring to the field equipment and tools based on real needs rather than assumed needs.

Mine Action Technologies: A Very Difficult Problem

A lot of factors are slowing down real progress in technology and the fielding of new equipment. The most important among them are the following:

- The lack of a procurement path makes fielding a technology very difficult. Consequently, developers are faced with a dead-end even when R&D, prototyping and testing and evaluation (T&E)/validation (if any) are successfully accomplished.
- Mine action solutions are not universal and are often country-region-specific (e.g., climate, vegetation, socio-cultural environment, etc.). A "systems approach" needs to be used.
- Mine action technologies are diverse (e.g., ITEP recognizes six different categories: survey, detection, mechanical assistance, manual tools, personal protection and decontamination).
- Requirements for technologies are not easily defined, nor are they easily satisfied.
- Some major advances have not been well appreciated; for example, the significant improvements in metal detectors, PPE and information technology support tools.

Mine Action solutions are not simple, and a "silver bullet" universal solution is not available. Finding all the mines in the ground without a false alarm is a challenge comparable to sending a man to the moon but with much less money.

- The market for mine action equipment is not large enough by itself to support the cost of bringing products to market.
- Both donors and demining organizations are naturally conservative especially regarding safety.
- Donors do not insist on the use of new and more efficient technologies.
- Deminists do not change successful clearance methods (even if they are not efficient) as long as donors accept them.
- Some of the problems of new mine action technologies are not technical (e.g., computer staff in field offices leaving once they are trained).

Donor Responsibilities

Clearly, donors have a key role to play, especially in supporting the introduction of new technologies that offer potential long-term cost savings to the field. This introduction of new technologies must be based on faster operations, saving lives and saving money. Technologies need donor support to establish a sound procurement process for fielding new technologies in order to have more cost-effective mine action.

Donors need to be responsible for the following points:
- Donors must now consider investing in new technology to get future gains in efficiency (thus saving money).
- Donors need to insist on steady improvements in efficiency from demining organizations.
- Donors need to insist that clearance contracts include, where appropriate, participation by demining organizations in testing new technologies (costs re-paid by donors).
- In order to solve the problem of the absence of a large enough market for humanitarian demining equipment, donors should envisage:
  - Dual-use technologies
  - The "leverage" of military technologies
  - The incremental improvement of existing tools
- The most likely vendors of new technologies are probably existing manufacturers of demining equipment (e.g., metal detector manufacturers). Therefore, a technology procurement package should include a staff education package that takes into account the socio-cultural environment, as well as a long-term training package for the maintenance and repair of equipment.
- Donors need to understand users' needs. Appropriate technology must correspond to appropriate needs. Mine action funding is not necessarily just a platform for selling the donor-country's products.
- Donors must realize that clearing mined areas more quickly and efficiently may be seen as leading to unemployment for local deminers, who may therefore reject new technologies. Support for improved clearance technologies must be continued;
- Donors and deminers must help deminers to help them to integrate into the local productive economy when clearance is complete.
- Contract and understanding must be improved between donors and technologists.

End-users need to have a pro-active role and to be understanding and open regarding the process of introducing new technologies in the field. New technologies could save human lives and increase mine action efficiency.

Recommendations to End-Users

- Demining organizations (or Mine Action Centers [MAC]) need to analyse which are the best technologies for their geographic, social, cultural and UXO situation. The "blessedness" can then be addressed (and the areas where problems do not exist should be left alone, e.g., better detectors do not help in areas with UXO in heavy vegetation).
- End-users should keep the opportunities offered by the ITEP members for asking specific questions on technology performance and for receiving information about "tried and tested tools".
- End-users should help technologies to understand the real needs of deminers. End-users must make use of the opportunities of their project teams to test new technologies ("Nothing is more important than understanding the working environment.")

Recommendations to Technologists

Technologies must keep in mind that nothing is more important than understanding the working environment. In order to better serve the end-users:
- Technologists need to spend time and effort to understand the real end-users' needs.
- Technologists must go to the field.
- Technologists must be aware that field users will only accept sophisticated technologies if it is simple to use and affordable.
- ITEP needs to be open to end-users' questions and has a key role in providing information about "tried and tested tools" with clear information about where, why and when they are useful.
- Technologists need to understand that detection is not the only important task, but there is also a need for improved technologies for:
  - Area reduction (so to know where the mines are not)
    - Strategic planning using information technology tools
    - Programme management
    - Other key areas of mine action

Conclusion

The Convention states that "each State Party undertakes to facilitate and shall have the right to participate in the fullest possible exchange of equipment, material and scientific and technological information, consistent with the implementation of [the] Convention." This implies that such an exchange is an important undertaking to assist States Parties in their obligations. It is in the spirit of this provision of the Convention that all actors are urged to apply the recommendations in this document.

Donors need to understand that technologies need their support to establish a sound procurement process for fielding appropriate technologies in order to have a more cost-effective mine action programme. For their part, end-users need to be pro-active, understanding and open to the process of introducing new technologies ("Nothing is more important than understanding the working environment.").

Appendix

Some examples of advances in technology are as follows:

1. Metal detectors: In recent years, manufacturers and scientists have significantly enhanced the performance of current metal detectors (including much better sensitivity and

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resulting from the harm or risk of harm caused by mines and UXO hazards and hazardous areas.

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1. DMAS 08/18
2. DMAS 09/20
3. Defused in this paper as affected communities, mine action operators, national authorities, regional/international organizations and donors.

Endnotes
1. DMAS 08/18
2. DMAS 09/20
3. Defused in this paper as affected communities, mine action operators, national authorities, regional/international organizations and donors.

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References
2. The audience of the CEN Workshop Agreement (CWA) on "Humanitarian Mine Action—Test and Evaluation—Metal Detectors" requested the European Commission’s Joint Research Centre (JRC) to act as a warehouse for test reports.
3. E.g., for TETF or for information exchange on lessons learned when applying mine action technical information from the International Technical Information Forum (ITIF).

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by Ian Mansfield, Operations Director, GiCHD

Developing Mine Action Legislation

The GiCHD has recently published a handbook titled "Developing Mine Action Legislation." The handbook is intended to assist governments, mine action professionals and others to develop national legislation to ensure that national and international organizations have the legal authority to manage and regulate mine action in a country affected by landmines. It identifies the principal elements to be included in such a law and the issues that should be considered in its preparation.

Some specific advantages of regulatory mine action through national legislation are as follows:

• Wide involvement of the national parliament and government agencies in the development of the law will mean greater understanding of the purpose of mine action and the responsibilities and needs of the NMAA and MAC.
• Coordination and cooperation between the government ministries and parliamentary committees associated with mine action will be facilitated and reinforced.
• The NMAA and MAC will be provided with strong mandates under national law.
• The roles and responsibilities of the NMAA and MAC can be more clearly defined (including implementation, accreditation and monitoring).
• Close collaboration will often result in a large degree of transparency and specification in the structuring, planning and taking of mine action.
• There can be better accountability to donors, the country's citizens and its communities.

Geneva Diary: Report From the GiCHD

The Geneva International Centre for Humanitarian Demining (GiCHD) provides operational assistance to mine action programmes and operators, conducts research and provides support to the Anti-Personnel Mine Ban Convention (AP MBC). This article highlights some of the GiCHD's recent activities.

Mine action legislation is an important, but often overlooked, part of a country’s response to UXO contamination. Consideration of the elements presented in this handbook will help ensure a framework to benefit and support mine action on the ground. The adoption of comprehensive legal frameworks for mine action can proceed effectively and efficiently, and meet the requirements of the broader MAC. This will help facilitate the rapid removal of landmines and help reduce the long-term impact of a past conflict.

The full details of the handbook are available on the GiCHD website at www.gichd.ch, or hard copies can be ordered from the Centre (see contact information below). The GiCHD is also in a position to provide training or arrange workshops on the development of legislation for mine-affected countries.

Other News

Just prior to the 5th Meeting of States Parties to the AP MBC, the GiCHD also launched a new publication, called "A Guide to Mine Action." Over the past decade, mine action has rapidly developed as a humanitarian and development discipline. For a newcomer to the subject, however, the disparate nature of the sources sometimes makes it difficult to understand the complexities and inter-relationships of the different mine action components and activities. Moreover, specialists in one area of the discipline may not be aware of developments in another.

"A Guide to Mine Action" has been prepared by the GiCHD as a basic grounding to the diploma, Masters, lawyer,