

## TECHNOLOGY AND THE MINE BAN TREATY<sup>1</sup>

1. Of all the subjects covered by Standing Committees in the Intersessional Working Groups (SCs), that of Technologies for Mine Clearance is probably one of the hardest to approach, and also probably the hardest for mine-affected states to understand when trying to obtain relevant information under the Mine Ban Treaty (MBT). This partly due to the nature of the technologies, and partly to the level at which they are often presented. This is not a helpful situation, and this short paper makes some suggestions on how technology could be discussed in a more meaningful and authoritative way.
2. The MBT commits States Parties to do the following:
  - a. Under Article 6.2, to participate in the fullest possible exchange of scientific and technological information, which will be released without undue restriction.
  - b. Under Article 6.6, to provide information on various means and technologies to the UN database on mine clearance.
  - c. Under Article 6.7.b, to seek assistance in determining the technological resources required for national demining programmes.
  - d. Under Article 11.1 (d), to meet to consider the development of technologies to clear anti-personnel mines.
3. I doubt whether there have been any widespread exchanges of technologies under Article 6.2 or provision of information under Article 6.6. Although some bi-lateral exchanges of information may have taken place, or high technology equipment may have been donated as part of an assistance package, it is unlikely that all the nations who had hoped to do so have benefited in the ways indicated in the MBT. It is also unlikely that all nations have known enough about existing and new technologies to seek for assistance in compliance with Article 6.7.b. SC meetings have taken place under Article 11.1.(d), but despite the efforts of Co-chairs, they have been inconclusive on matters of technology. There is obviously some reason for this.
4. There are two different "levels" of technology for mine action, based on new technologies and existing technologies. The new detection technologies, such as Ground Penetrating Radar (GPR) or Neutron Quadrupole Resonance (NQR) for detection of mines and munitions, are nowhere near as advanced in development as had been hoped. At the first major meeting of scientists and mine clearers in Stockholm in May 1994, it was predicted that GPR should be available in the field in five years. This has not happened. On the other hand, the practical development of existing technologies, especially in the field of metal detectors, and the generation of new mechanical mine clearance devices, has proceeded quicker than expected, as more NGOs and commercial companies have shown initiative and inventiveness, and many new devices are now available. The "technology" of the use of mine detection dogs has also made great strides, and is beginning to show its full potential.
5. Despite the advances, there have been difficulties in either sharing information, or presenting technology as a subject. It is not the purpose of the SCs to

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<sup>1</sup> The opinions expressed in this paper are those of the author, and do not necessarily reflect the policy of the GICHD.

provide a platform for pure technological discussion. Technological presentations often require the audience to have a high level of previous technical knowledge or familiarity with field operations, which are, for good reasons, usually absent in the primarily diplomatically-trained Co-chairs, rapporteurs and states parties staffs attending the SCs. Many of those presenting information descend into levels of detail difficult to understand. This is frustrating for the audience, especially since two important factors concerning the new technology are rarely addressed - the predicted date into service of the new technology, and its anticipated cost. The field of mine action technology is also depressingly wide; there are for instance 16 different methods of explosive detection using probing radiation alone<sup>2</sup>.

6. Even presentations dealing with developments in existing technologies can be frustrating when devoted to a single manufacturer's products. It would perhaps be better to seek an overview of the entire field of one discrete type of such equipment, like small rollers or flails, together with the results of trials and field operations. This overview would need to be given by a speaker who understood the technologies, but also understood the needs and experience levels of the audience. A few selected items of equipment, selected for presentation on the basis of their practicability and cost-effectiveness in the field, might well have wider relevance and appeal to the audience.

7. The end result of inappropriately given presentations has been to relegate the subject of technology to a lower status than it deserves. Many of the technologies under discussion have profound effects on the safety and cost-effectiveness of mine action, which is of direct relevance to the donor governments in the audience, but the information often makes little impact, being presented in an indigestible form. It is therefore impossible for Co-chairs to advise on promising areas of research and development, or urge funding of specific areas, without the necessary information.

8. It is difficult to establish the whole spectrum of research, or even equipment in current production, in any one country. Presenters are unlikely to have the authority to know what research and development are under way in government Research and Development (R&D) agencies, or mine action equipment manufacturers, in their own country, let alone any other. At present there is no group of people with the overall authority to find out what R&D is taking place on a world-wide basis, although the extended Catalogue of Mechanical Mine Action Equipment, started by the German Government and recently passed to the GICHD for development, will assist anyone looking into the marketplace.

9. The Co-chairs might therefore consider the creation of a network of national technology representatives or focal points of contact. These focal points of contact would typically be senior scientists or engineers, either in government service or academe, who would have the authority to enquire within their own countries of the progress of development of mine action technologies. They would also have the responsibility and authority to discuss mine action developments with their equivalents in other nations, possibly through the medium of meetings of national technology representatives. They would be supported by a small but technically qualified co-ordination centre, with a database for information and reports. They would not need to meet often, but could communicate between each other by e-mail. This would then allow the generation of a much fuller understanding of the spread and progress of new and existing technologies, which could be reported to the Co-chairs.

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<sup>2</sup> Forensic and Environmental Detection of Explosives, Jehuda Yinon

10. The post of National Mine Action Technology Representative would not be a full-time occupation, and might suit someone interested in humanitarian matters who was already working part time in a university or research organisation. If Representatives remained in post for at least a year, they might be able to play a major role in the co-ordination of technology, both nationally and even internationally, on behalf of the Co-chairs.

11. The first thing that a national Representative may find is that there are many relevant technology projects under development in many countries, and sometimes even in different research agencies in the same country, that are inherently similar, but that no attempt is made to carry out joint research on a national or international basis. This lack of joint work has led to parallel developments of almost identical concepts, involving the waste of research money, often accompanied by lack of success as research and development funds die out. They will also find that some research projects involve elements geared to industrial aspiration, rather than user need<sup>3</sup>.

12. These kinds of problems will only be reduced when they can be highlighted at the highest levels, and the SCs might be the appropriate forum in which to do so. The problems will not be eliminated; it is a fact of life that when research begins to be successful and projects enter the development phase, few government or commercial organisations want to combine with anyone else, each wishing to retain the majority of the market share. The problem is that by working separately and in competition, they cannot afford the development costs, and no radically new technologies ever reach the marketplace.

13. Within the Mine Ban Treaty, States Parties commit themselves to sharing information, under Articles 6.2 and 6.6. Since no other organisation has ever been able to achieve the sharing necessary to get new technologies into the field, perhaps the Co-chairs, working within the framework of the MBT can achieve this. Signs of such commitment would be the appointment of a national technical representatives, and the funding of meetings between them . Without such representatives and such meetings, it is doubtful whether the SCs with technological needs, such as Mine Clearance and Stockpile Destruction, can ever be given all the background technical support that they need.

14. **In summary**, it is suggested to the Co-chairs that presentations to the Standing Committees are selected to concentrate on new or innovative applications of developed technologies, and are given at a level that will be comprehensible to the audience. It is further suggested that a network of national technical representatives is established, reporting to the SCs, feeding information and reports through a technically qualified central co-ordinating agency to an information database. This will allow a better, more relevant and more comprehensive overview of national technology capability and outputs. This network would also seek to minimise the waste of money caused by individual nations pursuing almost identical and parallel research projects into mine action technologies. These measures could not only enhance the SC process, but also add significant value and coherence to the global search for new technologies for humanitarian demining.

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<sup>3</sup> A recent joint mine detection project on which the author was invited to comment involved the design of a new tracked vehicle (not mine protected) and carrying arm for the detection system, when mine-protected vehicles and carrying arms are available commercially at a fraction of the cost.