The 3rd DTIF Workshop

The latest Demining Technology Information Forum (DTIF) workshop focused on the use of ground penetrating radar (GPR) in humanitarian demining. Participants were able to share knowledge and formulate plans for the future of GPR in demining efforts.

by Stewart Myles, CCMAT

Background

The primary aim of DTIF is to provide the R&D community with an opportunity to exchange information and ideas on technology for mine action. This is accomplished through workshops and an online journal (www.maic.jmu.edu/dtif). The 3rd DTIF workshop, GPR in Superficial Demining, was held at the European Commission's Joint Research Centre (JRC) in Ispra, Italy, on 23–24 September 2002.

Selecting GPR as the topic, the organizers were aware of the successful outcome of the International Pilot Project for Technology Cooperation (IPPTC) on metal detectors. They intended that this workshop serve as a first step in promoting international collaboration to accelerate deployment of mature GPR systems to the field. Through a series of presentations and facilitated discussions, the participants were asked to assess the state of development of GPR, assess lessons learned from the testing and use of GPR systems in the field, and produce recommendations for future work.

Presentations were made on field trials of several GPR systems that are in an advanced development stage. These included ground systems developed at ERA Technology (MINETECT) and QuinteriQ and the LOTUS vehicle-mounted system. Papers were presented describing basic R&D on new antenna configurations, signal-processing software, and the effect of soil characteristics and surface roughness. The perspective of the technology user was provided by Vernon Joynt and Kai Hoierberg who described their experience with vehicle-mounted GPR systems looking for AT mines on roads in Africa and the Balkans. All of the presentations are available from the DTIF website (www.maic.jmu.edu/dtif).

Conclusions and Recommendations for Future Work

There was a consensus that GPR development in several countries had surpassed the research phase and that there was a need to get the more advanced systems (GPR/metal detector combinations) into the minefield for evaluation in the demining community. In anticipation of an end-user trial, suitable test sites in mine-affected countries need to be identified. The characteristics of these test sites must be defined by developers and users, and the workshop participants made a good start on this task. It was felt that someone, such as members of the International Test and Evaluation Program (ITEP), should be asked to develop standard test protocols for an end-user trial. The workshop participants also recognized the requirement for test sites, such as those at the JRC, where developmental GPR systems and improvements, such as new antennas and signal-processing software, can be investigated under controlled conditions. However, they were agreed that soil types and other conditions at these sites should be representative of conditions in a real minefield. They also stipulated that, if real mines (demolator replaced) cannot be used, adequate mine surrogates must be identified and developed. Characteristics of the test site must be documented with some form of quality control in place (updated ground truth).

The need to take soil properties into account when testing any GPR or metal detector system was universally agreed upon by participants at this workshop and has been a concern at many other gatherings of scientists interested in technologies for mine detection. Participants proposed that the existing data be gathered together and a serious effort be made to collect additional data. The ultimate goal is to prepare a global soil database (possibly in the form of a map), making use of existing soil maps and databases created for reasons other than mine action. They recognized that this is a very ambitious undertaking and suggested collaboration under an international program such as ITP.

The 3rd DTIF workshop can be considered a success because it gave many of those working on GPR systems a chance to exchange information and generate ideas for future work that will be passed on to an organization with a mandate to act on them. Contact information was provided to the participants so that this valuable interaction can continue. As always, the JRC was a generous host and excellent facilitator. Thanks are due to Mr. John Dean and Dr. Alois Sekir for their organizing effort.

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Seven Common Myths About Landmine Victim Assistance

Myth 1—A victim is someone who has experienced bodily damage as a result of a landmine accident.

Victims are any of those who have suffered a serious bodily, psychological, or economic loss or impairment due to a landmine accident. A survivor of a landmine explosion may of course experience great physical pain and resultant bodily handicaps. But he or she may also experience depression, psychological trauma, social ostracism and economic hardships, which may far exceed the consequences of the physical damage caused by the accident. While such feelings are common among many accident victims, the flash, horror, guilt and shock which often accompany landmine explosions can have a devastating personal impact and may exacerbate other "spin-off" effects.

The circle of victims often emanates from the direct victim of the blast. Children of the survivor (or of the deceased), spouses, co-workers, and friends are often affected directly by the accident and may suffer economic hardships, remorse, depression, guilt and outrage as a result. Anyone familiar with long-term effects of events such as the Normandy invasion, the Oklahoma City bombing, the Columbine High School shootings, etc. is aware that critical incidents often spawn great post-event psychological and sociological stress, which often has no outlet or expression.

Myth 2—The success of the Landmine Ban Treaty will eventually alleviate the need for victim assistance.

Landmine survivors and victims, unlike discovered mine areas, stockpiles or factions using landmines, do not diminish (in the short term) with time and adherence to the treaty. Landmine casualties—some 300,000 of them—will not disappear when the last of the landmines has been located and destroyed. The effect of the Treaty has been most heartening; by various accounts, the manufacture, transference and use of main line landmines is down, while stockpile destruction continues apace. However, landmine victims as a group are increasing out of line with the pertinence differences between landmine injuries and those caused by more common or routine accidents.

Most countries suffering from the plight of landmine infestation do not possess a medically advanced system and are often challenged to maintain a basic national healthcare structure just to handle the major "normal" problems facing it. They have neither the wherewithal nor the knowledge to deal with the special cases that landmine explosions cause. Because of the angle and direction of the blast, as well as the different kinds of projectiles used, landmines often cause wounds with which most doctors are not familiar. Typically, the Ministries of Health in these countries cannot afford the resources that would take to focus on the pertinent differences between landmine injuries and those caused by more common or routine accidents.

This is not to say, however, that clinics should be created just to look after landmine victims; such a requirement would be ludicrous in light of the great healthcare challenges facing landmine-threatened nations. Therefore, the challenge seems to be to find a way that current medical policies can accommodate all accident victims, including victims of landmines.

Myth 3—Prostheses are not needed today that victims are quickly back in the mainstream.

It is true that some modern prosthetic devices border on the miraculous. However, there are several problems with making them accessible and practical to landmine victims in developing countries. 1. They are expensive. 2. Prostheses wear out and have to be