ITEP Test and Evaluation of Humanitarian Demining Equipment, 2006

The ITEP Work Plan 2006[1] compiles all test and evaluation activities that will be carried out during 2006 by the ITEP member countries, either as single-country activities or as ITEP collaborative efforts. The following summary provides an update on collaborative test activities initiated during 2005 and continuing in 2006, including also some of the new test and evaluation efforts envisaged.

by Franciska Borry [International Test and Evaluation Program for Humanitarian Demining Secretariat][2]

The International Test and Evaluation Program for Humanitarian Demining has conducted trials all throughout the world, testing and evaluating detectors that will help in the area of humanitarian demining. ITEP has partnered with different organizations to follow through with these various trials. Current activities include the testing and evaluating of various metal detectors and metal detector arrays described below.

Assessment of the dual-sensor detector HSTAMIDS in Namibia (2005).
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Test and Evaluation Activities

Systematic test and evaluation of metal detectors (*ITEP Project 2.1.2.3*).[3] The first two of the three originally planned regional field trials (Laos, Mozambique and Croatia) to evaluate the current fleet of available metal detectors were carried out during 2005 by the Joint Research Centre of the European Commission in cooperation with several ITEP partners. The corresponding final reports are available at the ITEP reports website.[4] The third and last regional trial was originally postponed by the JRC/EC and then cancelled. The *Bundesanstalt für Materialforschung und -prüfung* took on the responsibility of running the remaining STEMD trial during October 2006. They were assisted by participants from Belgium, the Netherlands and the Croatian Centre for Testing Development and Training. This last STEMD trial was combined with another trial (ITEP Project 2.1.2.8),[5] evaluating two Russian metal detectors for humanitarian demining.

Evaluation of metal-detector arrays for humanitarian demining (*ITEP Project 2.1.2.5 and 2.1.2.6*).[6] Two metal-detector-array evaluation projects have been in the works since the beginning of 2006. The first project (*ITEP Project 2.1.2.5*), which started at the beginning of the year, is still ongoing, and the remaining tests will happen whenever the equipment becomes available. This project is carried out by Canada in collaboration with the Netherlands and Germany. It consists of an evaluation of several vehicle-mounted metal-detector arrays (Ebinger, MineLab, Schiebel, Vallon) in a controlled environment based on the *Comité Européen de Normalisation* (CEN) Workshop Agreement on Test and Evaluation of Metal Detectors,[7] and the procedures developed by the International Pilot Project for Technology Co-operation.[8] The second project (*ITEP Project 2.1.2.6*), to be led by the Netherlands (partners still to be defined), aims at continuing this testing in less controlled conditions (different soil types) and in mine-affected countries. The latter project will probably start in mid-2007.

HSTAMIDS operational field trails and demonstrations project (*ITEP Project 2.4.2.6*).[9] The three planned field trials that started at the end of 2004 have been finalized. The main objective of the trial, to evaluate the performance and suitability of the Handheld Stand-Off Mine Detection System (HSTAMIDS) dual-sensor detector in multiple humanitarian-demining environments, was fully accomplished. Trials were carried out in Thailand, Namibia and Afghanistan. A final test report was expected to be released at the end of 2006. In the course of 2006, Long-term Operational Evaluations of the HSTAMIDS took place in Cambodia (started in April 2006), Afghanistan (started in July 2006) and Thailand (started in September 2006). During these evaluations, the system was operationally employed as a primary and sole detector for extended periods (up to a year) by local deminers in minefields in a variety of environments and with varying levels of threat. Local demining entities are collecting data on system and operator performance and will provide periodic status reports.

Assessment of the dual-sensor detector MINEHOUND™ (*ITEP Project 2.4.2.4*).[10] Three long-term trials of the MINEHOUND dual-sensor detector began in the summer of 2005 and ran partially in tandem in Cambodia, Bosnia and Angola. The main objectives of these trials were to determine the reduction in false-alarm rate when a dual-sensor detector is used in the minefield and to gather data on the performance of the MINEHOUND with respect to depth and soil type. Almost all ITEP participants sent representatives to act as "ITEP invigilators" during one or more of the regional trials. ITEP invigilators observed the testing of the deminers carrying out the main trial from the required safety distances and implemented additional tests to acquire more data on the performance of the detector. All trials have now been completed. The trial report was published in October 2006,[11] while the lessons-learned report is due for publication by the end of 2006.

Assessment of the dual-sensor detector MINEHOUND in Cambodia (2005).
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Test and evaluation of available dual sensors for humanitarian demining (*ITEP Project 2.4.1.3*).[12] Germany, in collaboration with other ITEP participants (partners still to be defined), plans to conduct the testing and evaluation of available dual sensors to be used in humanitarian demining. The objective of the tests is to include all available dual-sensor detectors that may be employed in humanitarian demining, and it should allow for compilation of a "state of the art" report. The project has been conceived in two stages. The first stage started in fall 2006 with the preparation of an optimal reliability test design for dual-sensor detectors. The first draft of the designed test protocol will be presented and discussed at the *Bundesanstalt für Materialforschung und -prüfung*/ITEP Workshop on Reliability Tests for Demining at end of January 2007.[13] This will be followed by the evaluation of the available dual-sensor detectors in a controlled test area in spring 2007. During the second stage (summer 2007), trials will be performed in real minefields with only those detectors that passed the Stage 1 reliability trial.

Testing of the Bozena-5 medium flail that took place in Croatia during summer 2006.
PHOTO COURTESY OF SWEDEC

Test and evaluation of the Bozena-5 medium flail (*ITEP Project 3.2.33*),[14] the MineWolf tiller (*ITEP Project 3.2.34*), the MV-10 flail + tiller (*ITEP Project 3.2.35*)[15] and the MV-20 flail + tiller (*ITEP Project 3.2.36*[16]). A set of mechanical-demining equipment, mainly flail and combined flail/tiller equipment, was tested during spring and summer 2006 by Canada, in collaboration with Sweden. The trials were run in Croatia using the Croatian Centre for Testing Development and Training (HCR-CTRO) Cerovac[17] test site with assistance from Croatian test engineers of the HCR-CTRO. Next to completing the data set on baseline CWA 15044 machine performance and survivability characteristics, the tests were also intended to further evaluate the CWA 15044 test protocol in order to formulate an update of this protocol at the beginning of 2007. The MV-20 trial had to be suspended because of test site layout logistics, but might be carried out in the future by the HCR-CTRO.

In-country trial of the MV-4 and Bozena-4 mini-flails (*ITEP Project 3.2.41*).[18] Canada, in close collaboration with Sweden and the United Kingdom, carried out a trial of the MV-4 and Bozena-4 mini-flails on 2–14 October 2006, at the International Mine Action Training Centre[5] in Kenya (Nairobi). The main trial aims were to evaluate the in-country performance of the MV-4 and Bozena-4 and to quantitatively assess the effect of hammer wear on the flail performance.

CEN Workshop on a test methodology for personal protective equipment for use in humanitarian mine action (*ITEP Project 5.1.2*).[19] CEN Workshop 26 held its first meeting at the Geneva International Centre for Humanitarian Demining on 5–6 September 2006. The second and third meetings will be held in December 2006 and March 2007 respectively. The responsibility for the workshop is equally carried by the *Standardiseringen i Sverige* and the GICHD. Manufacturers, end-users and test centers were all represented during the first meeting. Several ITEP members are also participating.

Additional Projects

Plans also exist to update the CWA on test and evaluation of metal detectors (*ITEP Project 2.1.1.1*),[20] including, among other things, recent developments in the area of soil characterization for electromagnetic sensors (*ITEP Project 2.4.1.2*).[21]

Next to the above collaborative test and evaluation activities, there are numerous trials run by the individual ITEP members for which information is made available through the ITEP channels. They include APOPO-Prototype for Assisting Rational Activities in Demining using Images from Satellites field tests (*ITEP Project 1.2.4*),[22] an evaluation of conditioned bees for detection of buried landmines (*ITEP Project 2.3.2.6*),[23] test and evaluation of magnets (*ITEP Project 2.5.2.6*),[24] and the test and evaluation of the improved "MINE STALKER" NIITEK Ground Penetrating Radar system (*ITEP Project 2.2.2.3*).[25]

See Endnotes, page 112

Franciska Borry has been working for the Secretariat of the International Test and Evaluation Program for Humanitarian Demining since June 2002. Her main tasks are to provide advice, assistance and coordination services to the ITEP Executive Committee. She is further responsible for the maintenance of all ITEP information databases and serves as the point of contact for any communication with ITEP.

Franciska Borry
ITEP Secretariat
c/o Royal Military Academy
31 Avenue de la Renaissance
B-1000 Brussels / Belgium
Tel: +39 0332 771 847
Fax: +32 2737 6349
E-mail: franciska.borry@itep.ws