International Symposium Draws 170 Participants

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These workshops will provide tools to understand and apply current best practices and integrate a social approach into planning and programs. Workshops can be delivered individually (one day each) or as a series spread over five days.

Adaptive Technology Catalog

The project goals for the Adaptive Technology Catalog are to assist communities and nations recovering from conflicts in providing economic security for individuals who have become disabled by landmines and other explosive remnants of war. We will do this by finding and compiling into a catalog a variety of tools to help survivors get back to work and gain independence.

The Catalog was researched with the help of the Canadian firm, Project Assistance, and will be published in September 2007. It will incorporate low-cost, low-technology products that can either be used directly off-the-shelf or can be easily modified by local vendors. It focuses primarily on the agricultural and mechanical sectors, and is designed to help landmine/RW survivors become gainfully employed using simple, inexpensive technology. There are also several products related to kitchen work, computers, personal hygiene or grooming and transportation. Many of the tools are under $50; a few are about $1,500. With about 800 tools listed, organized by tool function—auto, agriculture, construction, kitchen, mobility, recreation, etc.—there are ideas for overcoming many disabilities. Two of the supplying company owners are active and accomplished upper-amputees themselves.

It is expected that the Adaptive Technology Catalog will be an excellent resource for survivor-assistance personnel, governments and organizations planning rehabilitation projects, donors and physical trauma survivors. There are many benefits to a catalog of this type, including that it:

• Allows people to get back to work
• Gives donors something specific to fund
• Creates survivor independence

The Mine Action Information Center staff enjoys providing useful, needed products to the mine-action community as well as partnering with like-minded organizations to develop and deliver the projects. For more information about any of these projects, please contact Dr. Suzanne Fiederlein at sfiederlein@jmu.edu or Lois Carter Fay at editor@maic.org.

The Adaptive Technology Catalog project was inspired by Purdue University’s Breaking Ground Resource Center Agricultural Project, which was developed to help farm accident victims from the United States. For more information on this resource, visit: http://snipurl.com/79c4u

International Symposium Draws 170 Participants

Numerous key figures in mine action recently gathered in Croatia to attend the international symposium, “Humanitarian Demining 2007–Mechanical Demining.” The symposium featured several presentations on demining, including a live field demonstration, discussed in detail here.

Field Day

The most interesting presentation at the conference was the demonstration held 25 April. Participants were shuffled to the outdoor demonstration site and seated comfortably upon stadium chairs to safety view the demonstration without exposure to the hot sun or flying debris.

Table 1: Preliminary results of the equipment demonstration.

<table>
<thead>
<tr>
<th>Machine Model</th>
<th>Torque (Nm)</th>
<th>Average Depth (cm)</th>
<th>Average Speed (km/h)</th>
<th>Machine Capacity (m³/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MineWolf</td>
<td>5.35</td>
<td>19.00</td>
<td>1.193</td>
<td>3,327.77</td>
</tr>
<tr>
<td>RM-RA 02</td>
<td>9.50</td>
<td>17.53</td>
<td>0.708</td>
<td>1,791.04</td>
</tr>
<tr>
<td>Bzorana-5</td>
<td>13.93</td>
<td>15.25</td>
<td>0.492</td>
<td>892.14</td>
</tr>
<tr>
<td>Samson 300</td>
<td>11.25</td>
<td>12.14</td>
<td>0.562</td>
<td>1,376.57</td>
</tr>
<tr>
<td>MV-10</td>
<td>11.25</td>
<td>17.71</td>
<td>0.571</td>
<td>1,400.00</td>
</tr>
<tr>
<td>M-FV 2 500/770</td>
<td>13.41</td>
<td>15.25</td>
<td>0.492</td>
<td>892.14</td>
</tr>
<tr>
<td>MineWolf</td>
<td>12.39</td>
<td>22.05</td>
<td>0.532</td>
<td>1,206.52</td>
</tr>
<tr>
<td>MV-4*</td>
<td>5.31*</td>
<td>10.38*</td>
<td>0.540*</td>
<td>891.89*</td>
</tr>
<tr>
<td>Bzorana-4</td>
<td>26.10</td>
<td>19.44</td>
<td>0.239</td>
<td>523.12</td>
</tr>
</tbody>
</table>

This machine and quality-control demonstration took place offsite in a very dry, hard, light-vegetation, dirt terrain that had been specially readied for the demonstration with two demining imitations prepared for remote activation—placed to varying depths and three fiberboard boards basted to a depth of at least 20 centimeters (7.9 inches) in each 50-meter (55-yard) lane. The temperature was 25° C (77° F).

Seven of the machines demonstrated were remote-controlled; three were manned. The manned machines tested were divided into categories as follows:

• Heavy Machines:
  • MineWolf (sickle, manned)
  • Medium Machines:
    • DO&KING MV-30 (rake and tiller)
    • Bzorana-5 (rake)
    • RM-RA 02 (rake)
    • Samson 300 (rake, manned)
    • MineWolf (sickle, manned)
  • MV-4 (rake, manned)
• Light Machines:
  • MV-4 (rake)

Testing proceeded one machine at a time, with each traveling down and back in its 50-meter (55-yard) lane, clearing two rows. The machines’ performances were timed, and when all completed the demonstration, the fiberboards used for testing were dug up and measured. The clearance-depth goal for each machine was 20 centimeters (7.9 inches).

The Results

Preliminary results were presented at the conference; see Table 1 for average ground-penetration depth of the equipment demonstrated. CROMAC plans to make the final results in its Book of Papers during the meeting in Romania, which will be sent to participants and posted simultaneously on its Web site, www.ciro.org.

Ms. Lois Carter Fay joined the Journal of Mine Action as Editor-in-Chief in 2005 and recently she has also served as Project Manager of the Adaptive Technology Catalog project. Her project management, writing, publishing and editing skills have been a solid addition to the MAC’s staff. Lois has an accredited public relations professional (APR) and holds a B.A. in criminal justice from the University of Wisconsin-Milwaukee.

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Dr. Suzanne Fiederlein joined the MAC in 1999 as a faculty associate and currently serves as the Victims’ Assistance Team Leader. She has worked on projects related to International Mine Action Standards, victim and survivor assistance, mine action database systems (specializing in casualty data), mine action in Latin America, and program evaluation. In addition, she has coordinated the curriculum for the UNDP Mine Action Senior Managers Course. She holds graduate degrees in Latin American studies and political science and has served on the faculty of James Madison University and Virginia Commonwealth University.

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Conclusion

The organizers followed a very strict testing procedure in accordance with international testing standards, which contributed to the overall results being regarded as representative under testing conditions. In these conditions, there was an astonishing difference between the flail and the tiller. It became apparent in the case of the flail that under dry conditions the operations are heavily affected by limited visibility due to dust. Whether the machines were remote-controlled or manned, lack of visibility affected the performance of the operators because they couldn’t see where to "drive" the machine.

The two Bozena flail machines both adequately cleared the test lanes, although the Bozena-4 was the slowest machine, clearing to an average depth of 19.44 centimeters (7.65 inches) in a total time of 26.10 minutes. The Bozena-5 flail cleared its lane to a depth of 20 centimeters (7.87 inches) in 16.53 minutes. Both Bozena machines were unmanned.

The superiority of the two MineWolf machines in terms of clearance capacity was indisputable among observers. The larger MineWolf cleared the two 50-meter (55-foot) lanes in 5.35 minutes. This corresponds to an hourly clearance capacity of 3,328 square meters (3,980 square yards). It also seemed that having the machine manned adds to more control when operating. The Mini MineWolf, on the other hand, received positive remarks for very good clearance results despite its compact size. The machine cleared consistently to a depth of over 20 centimeters (7.87 inches).

Although the MineWolf and MiniMineWolf machines demonstrated superior results under these test conditions, the use of a flail is sometimes preferred in certain circumstances, for example, shallow top soil overbedrock. For this reason the MineWolf machines may also be fitted with a flail, according to the manufacturer.3

“Humanitarian Demining 2007—Mechanical Demining” was a well-organized and important symposium for the international mine action community. In just one week, participants from 35 countries learned the value of various demining technologies and had the opportunity to witness several demining machines in action. Several people commented that the controlled nature of the testing made it very easy to follow and comprehend. Each participant of the symposium will take this experience back to his or her country to continue making progress in the field of humanitarian demining.4

The author would like to express a special thanks to Szejie Volba and Nikola Panarec of HCR-CBTO and Carl Fenger of MineWolf Systems for their assistance in clarifying details of the demonstration.

![PHOTO BY LOIS CARTER FAY](https://commons.lib.jmu.edu/cisr-journal/vol11/iss1/31)

About 150 people watched the outdoor demonstration of demining machines.

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Twinning: the idea of forming the Japan Alliance for Humanitarian Demining Support was conceived by Hiroshi Tomita in November 1992 when it was discovered that a ground-penetrating radar tool developed by his company, Geo Search, which was used for the detection of sinkholes under roads in Japan, could detect an anti-personnel mine in a sandbox. This discovery started a period of research that led to the development of a mine-detecting GPR tool called Mine Eye. Since Geo Search was too small a company to fund a large-scale development programme, Tomita recruited the moral and practical support of major industrial companies operating in Japan such as Toyota, Honda, IBM, Omron and Secom Co. to help with development.

Practical Experience Needed for Product Improvements

The new team set up camp on Khao Ploa Viha, part of the land belonging to the Thailand Department of National Parks, Wildlife and Plants Conservation (DNP) in the Kanchanaburi district of Sai Yok province, near the famous temple of Pruk Von and the other side of the Cambodian border. It began clearance work on ground known to be contaminated with mines and unexploded ordnance (UXO). The DNP needed the land for the development of a cultural heritage site, camping ground and educational facility, all connected with the temple and its construction. Built circa 900 AD, the temple is 900 metres (984 yards) in length and sets atop a cliff with a sheer drop of about 400 metres (437 yards) on three sides. The temple itself lies in Cambodian territory, but the easiest access is from Thailand because in many places the cliff forms the northern frontier between Thailand and Cambodia. The temple was finally opened on the Thai side because the temple is a candidate to become a UNESCO World Heritage Site.6

Mines and UXO were placed at the site when the border area was contested from 1993–1998. The temple is one of 14 sites listed by the government of Cambodia which are restricted to local authorities. Clearance began in December 2002 and was completed in May 2003. The temple is now open for the first time since 1975.

What Ever Happened to…?

In 1991, Tomita recruited another group of deminers from his company’s team to work there. The JAHDS demining team reformed itself, splitting the clearance team in alliance with the General Chartchai Choonhavan of HCR-CTRO and Carl Fenger of MineWolf Systems for their assistance in clarifying details of the demonstration.

After the successful clearance of the temple at Sadok Kok Tom, the situation at Pruk Von was sufficiently resolved for JAHDS to work there. The JAHDS demining team reformed itself, splitting off from the GCCF, and recruited another group of deminers from the Kanchanaburi district of Sai Yok province. These deminers under went a six-week basic course at the Thai Army Engineer School in Ratchaburi province and were then added to a field team by Joohan van Zyl, an experienced mine-clearance manager who had also trained the deminers at Sadok Kok Tom.

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