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.

by Lois Carter Fay [Mine Action Information Center]

The symposium, "Humanitarian Demining 2007–Mechanical Demining," held in Sibenik, Republic of Croatia, at the end of April 2007,[1] had something for everyone. There were 170 people from 35 countries registered for the week-long conference, and each presentation drew a minimum of 100 participants. The donor, manufacturing, governmental, research and development, testing and evaluation, and user communities were represented at the symposium.

Topics covered use of demining machines in area reduction, cost-effectiveness of using demining machines, risk management, machine methods and use in combination with other demining methods, along with a few miscellaneous subjects. Everything was presented in Croatian and English using live translators and state-of-the-art audio headsets in the Congress Center of the Solaris Holiday Resort. An exhibit room housed posters and trade booths for various demining machines and the respective manufacturers.

The conference was hosted by the Croatian Mine Action Centre and the Centre for Testing, Development and Training (HCR-CTRO), with assistance provided by the United Nations Mine Action Service and the Programme Planning Committee.[2] This was the fourth symposium in a series of meetings hosted by Croatia.

Lois Carter Fay with Jawher Omer of the Iraqi Kurdistan Mine Action Agency at the machine demonstration.
PHOTO BY DONALD CRAWFORD

Field Day

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

Machine Model	Total Time (min)	Average Depth (cm)	Average Speed (km/h)	Machine Capacity (m^2/h)
MineWolf	5.35	19.00	1.193	3,327.77
RM-KA 02	9.50	17.53	0.708	1,791.04
Bozena-5	16.53	25.06	0.374	975,00
Samson 300	11.26	12.14	0.562	1,367.57
MV-10	11.25	17.71	0.571	1,400.00
M-FV 2 500/770	13.41	15.25	0.492	962.14
Mini MineWolf	12.39	22.05	0.532	1,206.52
MV-4[2]	5.33[2]	10.38[2]	0.540[2]	891.89[2]
Bozena-4	26.10	19.44	0.239	523.12

Table 1: Preliminary results of the equipment demonstration.

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 detonation imitations prepared for remote activation emplaced to varying depths and three fiberboard boards buried to a depth of at least 20 centimeters (7.87 inches) in each 50-meter (55-yard) lane. The temperature that day was 25 C (77 F).

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

- **Heavy Machines:**
  - MineWolf (tiller, manned)
- **Medium Machines:**
  - DOK-ING MV-10 (flail and tiller)
  - Bozena-5 (flail)
  - RM-KA 02 (flail)
  - Samson 300 (flail, manned)
  - Mini MineWolf (tiller)
  - M-FV 2 500/770 (flail; manned)
- **Light Machines:**
  - MV-4 (flail)
  - Bozena 4 (flail)

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.[3] CROMAC plans to publish the final results in its Book of Papers during the summer 2007, which will be sent to participants and posted simultaneously on its Web site, www.ctro.hr.

About 150 people watched the outdoor demonstration of demining machines.
PHOTO BY MINEWOLF SYSTEMS

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 an average depth of 25.06 centimeters (9.87 inches) in 16.53 minutes. Both Bozena machines were unmanned.

The superiority of the two MineWolf tillers 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 Mini MineWolf tillers demonstrated superior results under these test conditions, the use of a flail is sometimes preferred in certain circumstances, for example, shallow top soil over bedrock. For this reason the MineWolf machines may also be fitted with a flail, according to the manufacturer.[4]

"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.

See Endnotes, Page

The author would like to express a special thanks to Sanja Vakula and Nikola Pavkovic of HCR-CTRO and Carl Fenger of MineWolf Systems for their assistance in clarifying details of the demonstration.

The Samson 300 is a manned machine that became totally engulfed in dust, making it nearly impossible for the operator to see where he was going.
PHOTO BY LOIS CARTER FAY

The flail machines really stirred up the dust as shown in this photo of the Samson 300 in action.
PHOTO BY LOIS CARTER FAY

Lois Carter Fay is Editor-in-Chief of the Journal of Mine Action and more recently has also served as Project Manager on the Adaptive Technology Catalog project. Her management, writing, publishing and editing skills have been a solid addition to the MAIC staff. Lois is an accredited public relations professional and holds a Bachelor of Arts in psychology from the University of Wisconsin–Milwaukee.

Lois Carter Fay, APR
Editor-in-Chief/Project Manager
Journal of Mine Action
Tel: +1 540 568 2503
Cell: +1 540 820 3840
Fax: +1 540 568 8176
E-mail: editormaic@gmail.com

Carl Fenger
Marketing Manager
MineWolf Systems AG
Seedammstrasse 3
8808 Pfäffikon SZ / Switzerland
Tel: +41 555 111 515
Fax: +41 555 111 599
Mobile: +41 793 719 831
E-mail: c.fenger@minewolf.com
Web site: http://www.minewolf.com