



Issue 7.2, August 2003

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## CCMAT Update

**The following article includes excerpts from the Canadian Center for Mine Action (CCMAT) Newsletter intended as a means of keeping the public up to date on CCMAT programs.**

*excerpted from the fourth CCMAT Newsletter*

### Good News

The Canadian government created the Canadian Landmine Fund in 1997, allocating \$100 million (U.S.) to advance the global implementation of the Ottawa Convention and to provide direct assistance to mine-affected communities around the world. On November 29, 2002, the government announced that it will provide \$72 million to the Canadian Landmine Fund over a five-year period beginning in April 2003. This money will support global mine action activities, including the development of Canadian-made mine action technologies through CCMAT.

### Changing of the Guard

On March 31, 2003, Dr. Bob Suart retired from his position as director of CCMAT. After five years as Director, Bob left CCMAT as an established centre of expertise in demining technology, one that understands and responds to the needs of the deminer. The torch now passes to Dr. Chris Weickert, who took over starting on April 1 and is expected to build on Bob's success, taking CCMAT to new heights of achievement. For now, Chris can be contacted by phone (403-544-5331) or e-mail ([chris.weickert@Dr.dc-rddc.gc.ca](mailto:chris.weickert@Dr.dc-rddc.gc.ca)).

### Dissemination of Information to Developers and Users of Demining Technology

#### DTIFJ

The Demining Technologies Information Forum Journal (DTIFJ) (<http://maic.jmu.edu/dtif>) has re-published selected papers from the 2nd Australian-American Joint Conference on the Technologies of Mine Countermeasures held in Sydney, Australia, in March 2001. Papers directly related to humanitarian demining were re-published in the DTIFJ with the permission of the symposium's organizing committee to increase the audience for these papers among the demining research and development (R&D) community.

#### DTIF

The Proceedings of the 3rd Demining Technologies Information Forum (DTIF) workshop, "Ground Penetrating Radar in Support of Humanitarian Demining," held in September 2002 at the European Commission (EC) Joint Research Centre in Ispra, Italy, are now available on the DTIFJ website.

#### CCMAT Website

Detailed information is available on the CCMAT website, in particular, the results of trials and R&D studies, which are posted as .pdf files.

#### Delivering Technology to the Minefield

The following products are recent developments of CCMAT.

<b>The Promac Brush Cutter and Deminer (BDM48)</b>	
Manufacturer	Promac Manufacturing Limited of Duncan, British Columbia <a href="http://www.promac.bc.ca">www.promac.bc.ca</a>
Contact Person	Mr. Geoff Coley at CCMAT ( <a href="mailto:geoff.coley@Dr.dc-rddc.gc.ca">geoff.coley@Dr.dc-rddc.gc.ca</a> ) or Mr. Bill Yearly at Promac ( <a href="mailto:byearly@promac.bc.ca">byearly@promac.bc.ca</a> )
Update	Promac's bid to supply the BDM48 for major projects funded by the Japanese Overseas Development Corp. in Vietnam and Cambodia was unsuccessful. However, the company is currently involved with a proposal to the Korean Mine Action Group regarding a possible lease purchase of a complete BDM48 system.

<b>Mechanical Reproduction Mines (MRMs)</b>	
Manufacturer	Amtech Aeronautical Limited, Medicine Hat, Alberta <a href="http://www.amtechgroup.com">http://www.amtechgroup.com</a>
Contact Person	Dr. Alex Markov at Amtech ( <a href="mailto:alex.markov@amtech-group.com">alex.markov@amtech-group.com</a> ) or Mr. Geoff Coley at CCMAT ( <a href="mailto:geoff.coley@drdc-rddc.gc.ca">geoff.coley@drdc-rddc.gc.ca</a> )

<b>The binary explosive FIXOR</b>	
Manufacturer	MREL Specialty Explosive Products Limited, Kingston, Ontario <a href="http://www.fixor.com/">http://www.fixor.com/</a>
Contact Person	Mr. Bill Bauer at MREL ( <a href="mailto:bbauer@mrel.com">bbauer@mrel.com</a> ) or Mr. Al Carruthers at CCMAT ( <a href="mailto:Al.Carruthers@Dr.dc-rddc.gc.ca">Al.Carruthers@Dr.dc-rddc.gc.ca</a> )
Update	News items on FIXOR are available through a special website maintained by the company ( <a href="http://www.fixor.com/FIXOR_News.html">www.fixor.com/FIXOR_News.html</a> )

<b>Protective Equipment for the Deminer</b>	
Contact Person	Captain Matt Braid ( <a href="mailto:matt.braid@Dr.dc-rddc.gc.ca">matt.braid@Dr.dc-rddc.gc.ca</a> )
Update	A paper describing US/Canada collaboration to develop testing methodology for protective equipment, by Denis Bergeron and Charles Chichester, was published in issue 7.1 of the <i>Journal of Mine Action</i> . The article can be found on the web at <a href="http://maic.jmu.edu/journal/7.1/focus/bergeron/bergeron.htm">http://maic.jmu.edu/journal/7.1/focus/bergeron/bergeron.htm</a>

<b>The Niagara Foot</b>	
Manufacturer	Niagara Prosthetics and Orthotics (NPO) Limited, St. Catharines, Ontario
Contact Person	Mr. Robert Gabourie at NPO ( <a href="mailto:npo@cogeco.ca">npo@cogeco.ca</a> ) or Dr. Tim Bryant at Queens University ( <a href="mailto:bryant@me.queensu.ca">bryant@me.queensu.ca</a> )
Update	With the help of the Thailand Mine Action Center (TMAC), a year-long clinical trial of the Niagara Foot was completed with mine victims at the Aranya Prathet Hospital in January 2003. Larger-scale trials are planned for other mine-affected countries. A paper describing the development work and clinical trials was published in Issue 7.1 of the <i>Journal of Mine Action</i> . The paper is entitled "Victim Assistance Efforts: The Niagara Foot" and is co-authored by Mary Beshai and Tim Bryant. The paper can be found on the web at <a href="http://maic.jmu.edu/journal/7.1/notes/beshai/beshai.htm">http://maic.jmu.edu/journal/7.1/notes/beshai/beshai.htm</a> . Mary Beshai can be contacted by e-mail ( <a href="mailto:beshai@me.queensu.ca">beshai@me.queensu.ca</a> )

### CCMAT R&D Program Updates

A collaborative project is underway at the University of Waterloo to develop improved footwear protection for blast mines containing up to 100 g of TNT equivalent. The goal of this work is to develop protection that will result in a recoverable injury for landmines of

this size. The approach has included numerical modeling and development of a surrogate leg for testing protective boots. A description of this work is available online (<http://www.me.uwaterloo.ca/~dscronin/>). Trials of the surrogate leg and new boot prototypes will take place at CCMAT. For more information, contact Dr. Michael Worswick ([worswick@lagavulin.uwaterloo.ca](mailto:worswick@lagavulin.uwaterloo.ca)) or Dr. Duane Cronin ([dscronin@mecheng1.uwaterloo.ca](mailto:dscronin@mecheng1.uwaterloo.ca)) at the University of Waterloo, or Dr. Kevin Williams ([Kevin.Williams@drdc-rddc.gc.ca](mailto:Kevin.Williams@drdc-rddc.gc.ca)) at Defence Research and Development Canada (DRDC) Valcartier.

Dr. Yoga Das ([yoga.das@drdc-rddc.gc.ca](mailto:yoga.das@drdc-rddc.gc.ca)) represented CCMAT at a discussion day on soil characteristics and metal detector performance held at the EC Joint Research Center, Ispra, Italy, on December 12, 2002. A proposal for future work was made by CCMAT based on a paper previously presented by Dr. Das at the World Congress of Soil Science in Bangkok, Thailand. The paper is available on the CCMAT website (Technical Reports section) and on the International Test and Evaluation Program (ITEP) website (<http://www.itep.ws>) where the proceedings of the discussion day are published.

An instrumented prodger developed for the military at DRDC Suffield has been improved at CCMAT to address shortcomings identified in previous trials in Cambodia and Canada. An earphone system now provides an auditory indication of forces applied to the prodger and target classification (safe or unsafe). The redesigned prodger was tested at CCMAT and improvements in performance were demonstrated. CCMAT will now provide two prototypes for a project at the TNO Physics and Electronics Laboratory (TNO/FEL) in the Netherlands to evaluate the military and humanitarian demining applications of instrumented prodgers. The evaluation will be conducted by a user group made up of experienced military and demining experts. This is an ITEP project and the results will be made available on the web.

Trials have begun that will help to map the effects of AP landmine blasts (mapping the blast cone). These involve detonating surrogate landmines in soil and recording the effects of the blast on a series of cantilevers attached to a plate that is placed vertically over the center of the charge. Trials are also planned to continue investigations of the influence of working position (prone or kneeling) on blast effects.

### **Test and Evaluation of Demining Equipment and Technology Updates**

The Viking Power Dozer, manufactured by an Alberta company, was evaluated at CCMAT to determine its possible application to military mine clearance and humanitarian demining operations. A report of the trials is available on the CCMAT website (Reports section).

A prototype version of the mine hammer (a knee-link flail) was evaluated at CCMAT using the standard test lanes seeded with MRMs. Other trials include the ProneMat being developed at the University of Calgary and the Complex Lower Leg under development at the University of Waterloo. In October, proof of concept trials for APL-DRUMS, (the shallow-water detection system being developed by Guigné International) were carried out in Newfoundland. When data analysis is complete, the results will be provided in the Technical Reports section of the CCMAT website. Development work on all projects is continuing.

For more information on trials, contact Mr. Russ Fall at CCMAT ([russ.fall@drdc-rddc.gc.ca](mailto:russ.fall@drdc-rddc.gc.ca)).

There was a trial of a segmented roller in March/April in Thailand as a collaboration among CCMAT, the Night Vision Laboratory (Ft. Belvoir) and TMAC under ITEP sponsorship. The objective is to determine roller performance and evaluate the potential for combining dogs and rollers in area reduction. The contact at CCMAT is Geoff Coley ([geoff.coley@Dr.dc-rddc.gc.ca](mailto:geoff.coley@Dr.dc-rddc.gc.ca)).

### **Canada's Mine Action Team in Ottawa**

In the Department of Foreign Affairs and International Trade (DFAIT), Canada's Ambassador for Mine Action is Mr. Ross Hynes. Under his leadership, DFAIT's Mine Action Team (ILX) implements Canada's initiatives under the Ottawa Convention in the

areas of international coordination and policy, monitoring compliance, educational outreach and small-scale mine action initiatives designed to build and reinforce Convention support. The DFAIT Mine Action Team also leads a program that helps other states to destroy their stockpiled mines and collaborates closely with CCMAT on technology development. General information can be obtained from the Safelane website ([www.mines.gc.ca](http://www.mines.gc.ca)) or by contacting Ms. Jennifer Brammer by phone (613-944-5959) or e-mail ([Jennifer.Brammer@dfait-maeci.gc.ca](mailto:Jennifer.Brammer@dfait-maeci.gc.ca)).

### **Contact Information**

Al Carruthers  
CCMAT  
P.O. Box 4000 Stn Main  
Canada  
Tel: 403 544 5324  
E-mail: [al.carruthers@drdc-rddc.gc.ca](mailto:al.carruthers@drdc-rddc.gc.ca)