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The Mine Action Technology Newsletter lets you know where to find more information and who to contact, where to go and what is going on in support of your work.

Issue No 6

Introduction

This is the sixth issue of the Mine Action Technology Newsletter, produced by UNMAS and GICHD, dedicated to the promotion and development of related mine action technology.

We welcome new ideas and would happily share them with others if sent for inclusion in the Newsletter. Feedback from the field, NGOs, manufacturers, donors or headquarter organizations helps to make the Newsletter more interesting.

This issue includes six feature articles: A new protective face mask; The PPE CEN workshop agreement - process and outcome; Locally produced mini-flails in northern Iraq; The High Order Burning Box (HOBB); a comprehensive up-date on International Test and Evaluation Program (ITEP) activities, and an update on the 4th International Symposium on Humanitarian Demining. Also included is a page of general information and news.

This newsletter is sent out via e-mail to people and organizations who have expressed an interest in mine action

technology. Those wishing to receive a copy as soon as it is available can contact one of the editors at the e-mail addresses given on the sidebar of this page. The newsletter is also available on the UN Mine Action Service website, **E-Mine** (www.mineaction.org) and on the GICHD website at www.gichd.org.

Readers are once again invited to provide their own comment and to make constructive suggestions to the Editors, Noel Mulliner, Technology Coordinator at UNMAS, or Erik Tollefsen, Technology Officer at the GICHD.

Mine Action
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NEWSLETTER

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WHAT'S GOING ON IN TECHNOLOGY ?

Conferences, Training and other Events

Editor's Note: If readers have details of any forthcoming conferences, symposiums or training events please submit the information to one of the editors.

27-30 August 2007 : UXO/Countermine/Range Forum 2007

The UXO/Countermine/Range Forum assembles the best researchers, developers, policy makers and programme planners from industry, government and contractors to showcase cutting-edge technologies, ideas, programmes and partnerships. Learn and network with fellow professionals and researchers while exploring this year's theme "Countering Explosive Threats: Integrating Technologies and Forming Partnerships. For more details of this meeting which will be held in Orlando, Florida, visit the website at http://www.the_forum2007.com

This summer conference will focus on four major topics:

- * Detection and Systems
- * Skallingen
- * Reclamation of Land Contaminated by Munitions-Related Activity
- * Organizations and Development

For further information visit the website:
<http://www.ndrf.dk/documents/groupp/SS07-Programme.pdf>.

22 -24 August 2007. *The Annual Nordic Demining Research Forum (NDRF) Summer Conference – Varde, Denmark*

Each year NDRF organizes a number of Mini-seminars and one Summer Conference which are held at various places in the Nordic countries. The participants are invited to present on-going work and activities related to mine clearance or with a bearing to development and improvement of mine clearing. In this way, NDRF wishes to stimulate research and development through qualified exchange of information. The seminars and conferences include a number of presentations from 15 to 25 minutes. The aim of the presentation is to stimulate discussions and networking among professionals of various fields.

A new Protective Face Mask

By
Erik Tollefsen

The full face visor we are used to seeing on deminers may soon be a piece of history. A great deal of design and effort has been applied to improving the deficiencies of the full face visor and, at last, we may have a viable alternative with added comfort and improved protection in some areas. The following article describes what has been going on and provides details for further information.

The project.

Norsk Form initiated a project looking at the application of industrial design in humanitarian demining in 2001. The project was carried out in cooperation with Norwegian People's Aid (NPA). Three product designers were sent on a three week research and fact-finding trip to Mozambique, after which they produced a report outlining the shortcomings of the current equipment being used. (Please find the complete report at http://www.kodedesign.no/downloads/rapport_minerydding.pdf)

Based on this report, KODE Design was commissioned to develop new, safe, and ergonomically sound concepts for demining Personal Protective Equipment (PPE). Of the manual demining equipment currently in use, the visor was identified as the item with the greatest potential for improvement.

Problems found with the PPE visor:

- It is heavy (roughly 1 kg), unbalanced, and can strain the neck muscles.
- It can distort your vision depending on what angle you look through it.

- It act as a greenhouse by trapping the exhaled air, making the visor very uncomfortable and hot.
- It scratches easily and has a lower ballistic performance than the vest



Current PPE Visor

Product development.

To ensure the best possible results, KODE Design arranged a three day intensive product development workshop in Oslo for leading experts in a variety of fields.

Participants:

- Demining organisations and the GICHD
- Demining specialists with profound experience with PPE
- Physiology and ergonomics scientists
- Weapons and explosives scientists

- High performance sports and work wear designers
- Materials manufacturers and scientists
- Product manufacturers

The goal of the workshop was to agree on the best possible way to protect the deminer, while improving the ergonomics and physiological impact of the equipment at the same time. This way the concentration span could be improved, efficiency increased, and the risk (a function of probability and consequence) of accidents reduced.



Concept of face mask

The Mask.

Following the workshop, a PPE manufacturer called ROFI has developed and put the first series of protective face masks into production. The weight has been reduced by 50% to 500 grams due to the use of a new ballistic protective material (PURE Composite). The main body of the mask is white, which reflects the sun's radiation, reducing the internal temperature by up to 17°C in tests. An efficient valve system of overlapping shells expels exhaled air, which is especially important when employed in a crouching position prodding for mines. The eye protection component (goggles) is positioned closer to the eyes, reducing visual distortion. The new design of the mask also prevents the goggles from being scratched. The goggles component is made of 5 mm polycarbonate and is relatively inexpensive and easy to replace. The main body of the mask is considerably stronger (Stanag 2920 -V50-380m/s) than a standard 5 mm polycarbonate

visor, as currently used by most demining organisations.

At present the first production models are undergoing a second round of ballistic testing before release. The product has been nominated for the INDEX design award 2007.



Prototype of face mask

All input and photos © KODE Design
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PPE CEN Workshop Agreement - process and outcome

by

Tim Lardner

The humanitarian mine action sector is a young and potentially hazardous industry. While deminers are operating in hazardous environments, they are usually (and now in accordance with generally accepted International Mine Action Standards – IMAS) provided with Personal Protective Equipment (PPE) for their own safety in the event of an unplanned detonation.

Since the beginning of formalized mine action, the PPE provided has been that developed for protection against small arms ammunition and light weapons. While this has provided hundreds of deminers with protection when accidents have happened, there has always been a suspicion that the protection is not necessarily best suited in terms of design and in terms of protection against the different types of fragments that a mine or item of UXO throw against the victim.

The European Committee for Standardization develop voluntary technical standards that are designed to protect workers. A working group was formed to develop specific standardization activities in mine action, one of which was titled: “CEN Workshop 26 'Humanitarian Mine Action - Personal Protective Equipment - Test and Evaluation'“

CEN WS 26 was a process that entailed gathering interested specialists from the mine action industry to discuss PPE requirements and develop widely accepted and applied specifications for testing and evaluation of PPE, so increasing confidence that the PPE used is safe, reliable and fit for purpose.

The draft workshop agreement has been reached through a consultative process involving around 20 specialists (including representatives from NGOs, commercial

organizations, manufacturers and research agencies) and a series of three meetings. The document provides guidance for stakeholders in the testing and evaluation process in three areas – ballistic testing, blast testing and ergonomic suitability testing. The document will be formally accepted after a public consultation period which will end in July 2007.

The key points of note for development are believed to be an improvement on the currently used NATO STANAG 2920 (Ballistic Test Method for Personal Armour Materials and Combat Clothing). The key areas of difference are:

Utilization of an aluminium alloy projectile of a different size and velocity to STANAG 2920 to be more representative of the threat posed by anti-personnel blast mines.

Initiation of guidance rules for users and developers for ergonomic requirements and testing regimes for the PPE.

Locally produced mini-flails in northern Iraq

**By
Pehr Lodhammar**

The Kurdistan Region of Iraq—comprising the three governorates of Erbil, Dahuk, and Sulamanyah—is one of the regions of the world most seriously affected by landmines and unexploded ordnance (UXO). Landmines and UXO remaining from numerous internal and external conflicts continue to affect the population, together with other explosive remnants of war (ERW), significantly impairing the resumption of normal livelihood activities. In late 1997, the Office for the Iraq Programme (OIP) requested the United Nations Office for Project Services (UNOPS) to implement the UN Mine Action Programme (UNOPS-MAP) to address the situation. The resulting programme employed more than 4,500 Iraqi nationals as part of Manual Mine Clearance Teams, Explosive Ordnance Teams, Permanent Marking Teams, Integrated Mine Detection Dog (MDD) Teams, and in the manufacture of mechanical equipment for mine clearance. In addition, the programme fielded Mine Risk Education (MRE) Teams and an extensive Mine Victim Assistance (MVA) network.

Iraqi Kurdistan Mine Action Centre

The UNOPS Mine Action Programme (MAP) transformed into the Iraqi Kurdistan Mine Action Centre (IKMAC) operating under the auspices of the Kurdistan Region Government. Many of the IKMAC management staff have had long experience working on mine action in Kurdistan Region. They are familiar with the local population, topography, culture, and all aspects of managing a complex programme. National staff have managed the mine risk education and mine victim assistance components of the programme in Kurdistan Region since 2002, and the manual clearance teams together with the Integrated MDD Teams

have been under national management since mid 2003.

The IKMAC staff have full responsibility for the management and coordination of all mine action activities in Kurdistan Region. Local ability to manage the programme effectively is best demonstrated by IKMAC's continued effectiveness, its operational capacities, and management structure.

Indigenous Construction of Mine Clearance Machines

Starting in 2000 UNOPS constructed, with the assistance of local contractors, a number of Mini Flails, Heavy Flails, and Armored Working machines such as armored Excavators and Front End Loaders, all to be used for mine clearance operations. The machines were built using materials and old, working machines that could be armored locally. Construction was completed in a short period of time. Seven years later, these machines are still clearing landmines and preparing ground for manual clearance and clearance using MDD's in northern Iraq. The machines are used for verification, vegetation removal, and in support of clearance.

Currently UNOPS is undertaking a unique project in support of IKMAC involving construction of Mechanical Mine Clearance equipment, Mine Action training on Explosive Ordnance Disposal (EOD), an Information Management System for Mine Action (IMSMA), and procurement of manual demining equipment and office equipment. The Project is funded through the Iraqi Trust Fund (ITF) and the United Nations Development Group (UNDG). Within six months of signing, the project will result in the indigenous construction of:

- Two armored front end loaders with sifters;
- Two armored Excavators;
- One mini flail, and
- Three mobile workshops.

After twelve months the project will deliver:

- One armored front end loader with a sifter;
- One armored Excavator;
- One mini flail, and
- Three mobile workshops.

All equipment will be delivered with spare parts sufficient for maintenance and repair for twelve months of operations.

UNOPS developed the Statement of Work (SOW) in close cooperation with IKMAC Technical staff.

Monitoring

Machine construction will be monitored by the UNOPS Project Manager, the national UNOPS Field Coordinator, and IKMAC staff through weekly Quality Assurance visits to the construction facilities in Erbil, northern Iraq. Once the machines have been constructed they will undergo an accreditation set up and completed by IKMAC. During the construction, the contractor will prepare and submit weekly reports, monthly reports, phase reports, and a final report upon completion to UNOPS.

Completion and Conclusion

The machines will be handed over to IKMAC in Erbil and be used for operational mine clearance in the Kurdistan Region.

We hope to write again in this Newsletter once the project has reached six months and when construction of the machines has been completed.

For questions related to the this project, please contact:

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The High Order Burning Box (HOBB)

by
Stephen Bryant
Esma Al Samari

Norwegian People's Aid (NPA) Mine Action Programme in Jordan faced the unusual problem of having to dispose of large quantities of mines almost everyday of clearance operations. During a period of six months to the end of 2006, NPA clearance teams removed 32,000 Anti-Personnel and some 6,000 Anti-Tank mines. Traditional disposal would at best have been time consuming, cumbersome and expensive. Additionally, strict national regulations and laws controlling the use of explosives would in this case only compound the difficulties.

In minefields stretching from the Dead Sea to the Red Sea along the Jordanian side of the common border with Israel are 126 known minefields. According to the Israeli minefield records that were made available to NPA, there is suspected to be a total of 75,000 mines. Disposal of so many mines created a considerable logistic problem.

Pelle Christup, while working with NPA as a technical advisor during the initial setup of the of operations adapted his knowledge to produce the High Order Burning Box.

The HOBB is a safe, effective, durable and simple tool that is used to dispose of the high quantities of Anti-Personnel mines. In addition, this method of disposal is inexpensive and does not hamper or slow the clearance teams in their work.

The mines are recovered using the rake method and using an extended arm grabber, the Section Commanders places the mines in a collection pit and records both the location of the find and the number of mines. The mines are removed from the collection pit by the mine burners who carefully record the number of mines and later the number that were burnt.

The HOBB is a welded, mild-steel box, 15x30cm, with an open top. A thin layer of sand and sawdust is soaked in a petrol and diesel mix and placed inside the open box. Never touched by hand, the one mine is placed on top of the fuel mix again using the extended arm grabber. Twenty such HOBBs can be placed in a row for simultaneous disposal, to save the operator's time.



Fueling the HOBB



Lighting the HOBB

When the safety perimeter has been checked and the Team Leader gives the signal, the ignition of the fuel starts. Petrol in the fuel mix makes ignition simple. A two-meter flaming torch is used ensuring once again the distance between the mines and the operator for safety. The operator withdraws after checking that all HOBBS are alight to a safe point. The mines heat up and start to burn and the detonator will, once reaching the required temperature, initiate the explosive chain and the mine has been destroyed. This process varies in length from two to three minutes. A careful check is made of each mine report, ensuring that each mine has been disposed of. In the unusual case where a mine fails to detonate, a soak time of 20 minutes is left to ensure there is no residual risk to the operator returning to the HOBBS.

The whole process from placing the mines, safety checks and burning through to the final destruction of the mines takes an experienced crew approximately 15 minutes when the process can start all over again. Meaning one operator can destroy up to 80 mines per hour at work.

Accepting there is a toxic hazard when dealing with explosive material, some precautions for the operator have to be taken. The toxic hazard is compounded by the sheer volume of mines and the exposure to such hazards on a daily basis. Toxins are found in both the gases given off during the procedure, any residue left behind and the dust that is created. Known hazards when exposed to such materials and gases are heart arrhythmias, headaches and over longer periods cancer and other serious medical complications. The operator wears normal PPE as used by a deminer to protect from any potential blast hazard plus ear protection. The operator is always upwind from the burning and the disposal is conveniently located close to the minefields and quite normally in remote areas. Additionally, it was considered prudent and is now the practice, that a face mask, incorporating filters for dust and chemicals in the air is worn. Gloves or barrier creams are also used. At the end of each day, portable showers are used so the operator can wash off any chemical residue on the skin and hair. Clean, laundered clothes are then put on before leaving the site to ensure

the operator does not contaminate his home over a period of time.



Wooden pickets marking mine location

Some 32,000 A-P mines have been disposed of in Jordan by NPA without incident. The mines are not touched by hand and a distance is always kept from the mines. Safe, inexpensive and easy to implement without hampering mine clearance activities.

ITEP Test and Evaluation of Humanitarian Demining Equipment, 2007

by
ITEP Secretariat

The ITEP Work Plan 2007 was published at the ITEP website in March 2007. It compiles all test and evaluation activities that will be carried out during 2007 by, or with, ITEP member countries. Compared to previous years there are fewer projects planned, reflecting the reduced interest of a number of ITEP member countries in test and evaluation of humanitarian demining equipment. On the other hand, ITEP has decided to try and increase efforts in building test and evaluation capacity by assisting third parties that need advice and guidance on test and evaluation methodologies.

The full ITEP Work Plan 2007, as well as a summary list of all 2007 projects is available at http://www.itep.ws/activities/itep_workplan/activities.html. All activities with trials scheduled prior to the end of September 2007 are shown in the list below. The article further includes some project highlights and a list of published ITEP test reports since December 2006.

ITEP Work Plan Project Highlights

More information on the highlighted projects, as well as contact details can be found in the associated ITEP Work Plan project descriptions.

CEN Workshop on Test and Evaluation of Metal Detectors/Part 2 (2.4.1.2) and Part 3 (2.1.1.1)

Both CEN Workshop activities, of which Part 2 has already started, are a follow-up to the CEN Workshop on Test and Evaluation of Metal Detectors which was carried out during 2002 – 2003, and resulted in the publication of the corresponding CEN Workshop Agreement (CWA 14 747) in June 2003.

Part 2 is looking into soil characterization issues to assess the metal detection performance. In view of the possible future use of dual-sensor detectors, incorporating a metal detector and a ground penetrating radar (GPR), the Workshop is also tackling soil characterization for GPR. The Workshop intends to publish a practical soil measuring and classification system by the end of 2007.

Part 3 has as main objective to update the CWA 14747 taking into account lessons learned from three years of metal detector testing (see for example the STEMMD project). The update will consist of a separate document (Field User Guide for CEN Workshop Agreement 14747) providing clarification on how the CWA 14747 should be used, identifying key performance tests, and listing guidelines on how the obtained test results can be used.

Both Workshops envisage delivering final documents by the end of 2007.

Evaluate the performance of dual-sensor detectors in humanitarian demining as compared to the stand-alone metal detector (2.4.2.12)

The trial, which is scheduled for October 2007, will consist of a reliability trial in which the performance (probability of detection and false alarm rate) of available dual-sensor detectors will be independently assessed as compared to the corresponding stand-alone metal detector. The tests will be carried out at the HCR-CTRO Benkovac test site in Croatia where nine Commercial-Off-The-Shelf (COTS) metal detectors were also tested in 2006 (see STEMMD project, last phase). At the moment the test methodology is being developed, and a first proposal is available at the ITEP website for input from interested parties.

Note that the HSTAMIDS dual-sensor detector has completed an operational field trial and

demonstration (2.4.2.6), and is currently undergoing a long term operational evaluation as the primary and sole detector in minefields while being used by deminers in Thailand and Cambodia (2.4.2.11). The long term operational field evaluation for Afghanistan is complete. The MINEHOUND™ dual-sensor detector was evaluated in real minefields during 2005 (2.4.2.4).

Test and evaluation of Personal Protective Equipment (5.2.3)

To main objective of this project is to support the development of the CEN Workshop Agreement on Test and Evaluation of Personal Protective Equipment (PPE), and to validate the published agreement. The CEN Workshop to draft a CEN Workshop Agreement (CWA) on Test and Evaluation of PPE (5.1.2) started last year and aims at publishing the final agreement in Autumn 2007. Trials on the position of the deminer to be adopted in the CWA test protocol were already carried out during 2006. Blast and ballistic tests on visors, using the draft CWA testing guidelines, will start in summer 2007.

Test and evaluation of mechanical demining equipment according to the CWA 15 044 (3.2.10, 3.2.43)

Two performance trials according to the CEN Workshop Agreement on Test and Evaluation of Demining Machines (CWA 15044) are planned during 2007. The Mini MineWolf will be evaluated at the German Military Technical Centre 91 (MTC 91) in Meppen, while the Digger D-2 will be tested at the SWEDEC Norra Kulla test range in October.

Test and evaluation of STORM (3.2.40)

This activity includes modification and testing of the COTS [Menzi Muck high mobility mechanical excavator](#). The modifications include an armoured cab, blast resistant tires and a suite of commercial attachments. The suite of tools will include vegetation removal, soil sifting, soil grinding, and material handling attachments. STORM is currently undergoing armoring of the cab and an initial assessment of the attachments is pending. It is projected that STORM will be ready for an operational field assessment in 2007.

Non-explosive high-order mine neutralisation (6.2.12)

This project is developing and testing a new high-order surface laid or buried mine neutralization device using two non-explosive chemical compounds that can be initiated without an electric detonator. The chemicals are non-toxic, non-explosive, environmentally friendly and low cost. The devices developed are now being evaluated for detonation pressure, velocity, density, in confinement and non-confinement states to down select to the best device.

Follow up on requests for advice on test and evaluation procedures (7.2.1)

Capacity building in test and evaluation of humanitarian demining equipment is considered to be opportune for ITEP, especially in the light of the approaching end of ITEP's lifespan (July 2010). Capacity building is proposed as a logical evolution within ITEP moving from the development of best practices, and the execution of test and evaluation activities, to a transfer of this knowledge. Therefore, ITEP plans to engage more in training and advice on test methodologies to demining entities in mine affected countries. Please direct your inquiries for support during your test and evaluation of demining equipment to the ITEP Secretariat or the ITEP contacts listed in the project description file.

Test reports on ITEP activities, published since December 2006

- [Test and evaluation results for an ALLU bucket fitted to an armoured front end loader.](#)
- [South-East Europe Interim Report Field Trial Croatia \(STEMD - continuation\).](#)
- [Report on the Mine Clearing Rake Test](#)
- [Digger D-2 Pre-Trial Assessment report](#)
- [Tests and evaluation of dual sensor mine detectors based on a combination of Metal Detector and Ground Penetrating Radar \(TEDS\)](#)
- [APOPO-PARADIS trial report, October 2006](#)
- [HSTAMIDS with acoustic vibration sensing](#)
- [Systematic Test & Evaluation of Metal Detectors \(STEMD\): Interim Report Laboratory Tests Italy](#)
- [Metal Detector Trials - Test Results and Their Interpretation](#)

The 4-th International Symposium “Humanitarian Demining 2007 – Mechanical Demining”, 24-27 April, Sibenik, Croatia

by
Sanja Vakula

The 4th International Symposium entitled “Humanitarian Demining 2007 – Mechanical Demining” was held from 24 to 27 April in Sibenik, Croatia. The symposium was attended by 170 participants from 35 countries, representatives of national mine action authorities, the UN, MACs, demining programmes, governmental organisations, NGOs and demining equipment manufacturers. The Symposium covered a number of topics related primarily to mechanical demining issues and the employment and management of mechanical equipment in mine action.

On the first day, plenary sessions were held on the following topics:

- Use of demining machines in area reduction
- Cost effectiveness of the use of machines
- Risk management

On the second day, a field demonstration was held where eleven machines were presented. Nine of them demonstrated their work on a 50 m long lane, where soil treatment depth and pattern were measured by use of three fibreboards in every lane. The following machines were presented:

RM-KA 02 (Duro Dakovic Special Vehicles, Croatia), MV-4 and MV-10 (DOK-ING d.o.o., Croatia), Bozena 4 and Bozena 5 (Way Industry a.s., Slovakia), Minewolf, Mini Minewolf (MineWolf Systems A.G., Switzerland), Samson 300 (Vilpo d.o.o., Slovenia) and Hydrema 2500/770 (Hydrema Ltd., Denmark). This event provided an excellent opportunity for end-users to see the machines at work and talk to the various manufacturers.



In addition to manufacturers of machines, two manufacturers of metal detectors exhibited their products: Vallon GmbH and Fuji Tecom Inc.

On the third day, plenary sessions continued with the following main topic and presentations:

- Machine methods and use in combination with other demining methods

In addition, the presentation of preliminary results of the field demonstration was held.

The following conclusions were drawn by the Program Committee:

- Machines are good but they need some follow up procedures to confirm quality control
- Machine operators have a major influence on the performance of machines
- Tillers are good but in some conditions flails can be better. It would be ideal to consider availability of both.
- A machine is not the answer to all problems.
- A change in management thinking and planning is required in order to avoid the purchase of machines that are not used.
- However, the introduction of machines, if properly managed, will save time and money in most programmes.
- If a programme is interested in buying machines, they should seek advice and assistance from those who have experience and know-how.

After the plenary sessions, the Program Committee met to discuss the outcome of the symposium and to start the planning activities for the next symposium. The members expressed their satisfaction with the symposium organization and with the large number of attendees. They agreed that the next symposium will try to attract operational staff and QA officers.

Topics for the next symposium were provisionally agreed. One topic will be mine action system management. Another topic, covering the field demonstration and the third day, will address quality control in demining. The following methods and techniques would be presented through this topic: a) use of metal detectors in quality control, b) use of mine detection dogs in quality control and c) use of GPR in quality control.

The Book of Papers will be published in June and will be sent to the attendees together with

the CD with Symposium presentations. The Program Committee concluded that the next Symposium would be held next year at roughly the same time.

The detailed programme for this year's Symposium can be found at:

<http://www.hcr.hr/index.php?link=simpozij&lang=en>

Mine Action Technology Information Resources

The following websites contain information on the latest technical mine action activities and organizations, as well as calendars showing forthcoming technology conferences.

E-Mine

The Official Website of the United Nations Mine Action Service (UNMAS) designed to support both the planning and coordination of global mine action efforts.

<http://www.mineaction.org>

Geneva International Centre for Humanitarian Demining

The Official Website of GICHD that provides regular updates on GICHD activities, studies and projects, including the Equipment Catalogues.

<http://www.gichd.org>

International Test and Evaluation Programme

Provides information, updates, current test and evaluation reports of demining machines and technologies.

<http://www.itep.ws>

Mine Action Information Center at James Madison University

Contains a good global mine action registry, the Journal of Mine Action, Lessons Learned database, and a Spatial Information Clearing House.

<http://www.maic.jmu.edu>

The International Mine Action Training Centre (IMATC)

The International Mine Action Training Centre (IMATC) is a joint British and Kenyan venture aimed at alleviating the suffering caused by landmines and Explosive Remnants of War by providing high quality Mine Action Training.

<http://www.army.mod.uk/aroundtheworld/ken/imatc/>

UXOInfo.com

Website devoted to information on Unexploded Ordnance (UXO). Latest news on UXO, photo galleries and technology information available.

<http://www.uxoinfo.com>

Canadian Forces National Defense Mine/Countermine Information Center

The NDMIC provides mine and countermine information for Canadian Forces in international operations.

<http://ndmic-cidnm.forces.gc.ca>

US Humanitarian Demining R & D Programme

This site provides an overview of the optional products and technologies that are available for use in global humanitarian demining and developed, or being developed, tested, and evaluated under the U.S. Department of Defense (DoD) Humanitarian Demining Research and Development Program.

<http://www.humanitarian-demining.org/demining/default.asp>

ORDATA Online

ORDATA Online supports the U.S. Department of Defense by providing information to facilitate international UXO training, awareness and clearance operations.

<http://www.maic.jmu.edu/ordata>

Mine Information and Training Centre (MITC)

Sponsored by the Battlefield Engineering Wing at Minley in Surrey, UK, MITC provides a gateway that facilitates the flow of information between military and civilian organisations.

<http://www.army.mod.uk/royalengineers/org/mitc/index.htm>

Nordic Demining Research Forum (NDRF)

Aims to stimulate research and development activities to support improvement in demining efficiency and safety through promotion of co-operation between the operator, research and development, and industrial environments; stimulation of information exchange; and initiation of cross border and cross sector research and development activities between companies and institutions in the Nordic countries.

<http://www.ndrf.dk/>

International Campaign to Ban Landmines

Provides information on the Ottawa Treaty, as well as general information on landmines, campaigns and calendar information on mine action activities.

<http://www.icbl.org>

Sound Bites

The following section contains snippets of information for general interest. They are collected from different communications in the course of the working day. They are offered for what they are worth but the accuracy of the information cannot be guaranteed. If you, too, have short interesting bits of information just send them to the Editors and we will pass them on, submit to the lessons learnt database or discard as appropriate!

The GICHD Metal Detectors and PPE Catalogue 2007 is now available (and the accuracy of this information is guaranteed).

The catalogue provides a comprehensive directory of detectors and personal protective equipment (PPE) under one cover.

A brief summary of the “Results of STEMED trials” (conducted in Laos 2004, Mozambique 2005 and Croatia 2006) is included as Annex 1. A few amendments have to be incorporated in this annex since the publication. The latest and accurate version are exclusively available at the GICHD website: <http://www.gichd.org/fileadmin/pdf/publications/Metal-Detectors-2007/MD-Catalogue-2007-Annexes.pdf>.

Also included as Annex 2 is an article on guidelines for purchasing a detector.

Currently, no standard test system exists for demonstrating the effectiveness of particular items of PPE. To address this issue, a European Standards Committee (CEN) Workshop of implementer and manufacturer representatives was due to publish an industry workshop agreement in late 2006. An article about the workshop agreement process is included as Annex 3.

Don't use alkaline batteries with Schonstedt locators!

Following T&E trials in Lebanon, when identical GA72-CD Schonstedt locators were tested in identical conditions, it was found that all locators, when using the same battery types performed with similar results and all locators using Lithium batteries were able to reliably locate each test item at a depth of 20 cm.

Also, all locators using NIMH Duracell rechargeable batteries were able to reliably locate each test item at a depth of 20 cm.

However, all locators, when using alkaline batteries, were only able to reliably locate the M-42 at 20 cm and could not reliably locate the MZD-2 and BLU-63 at this depth.

This is consistent with information provided in the manufactures instruction manual, which explains that Lithium batteries should always be used and that Alkaline batteries produce magnetic fields that will affect performance of the locator, particularly when set to the 'H' or 'XH' sensitivity range.

So.....follow the instructions, which are:

1. Lithium batteries should be used when operating the GA72-Cd Schonstedt locator.
2. Each locator must be tested against a pertinent test piece (inert item of EO) at the operational task to confirm its ability prior to deployment into Demining clearance operations