

Mine Action Technologies

11 May 2006

Report of Expert Working Group

Outline

- Introduction
- Mine Action Technology news
- Importance of Publications
- Current issues
- Key challenges
- Useful information

Some thoughts to start

- New technologies are ready to be fielded
- End-users and donors need to be informed
- A consumer organisation is missing. Why not GICHD
- There is no silver bullet solution



Mine Action Technology News

- Introduction of new technologies
- Field Testing of Technologies
- Management implication of technology

Mine Action Technology News: Introduction of New Technologies : Detection

- Hand-held Dual Sensors (HSTAMIDS) Apers mines (Camb.,Afg, Thailand)
- Veh mounted WADS (Wide Area Detection System) (Angola) AT
- Veh mounted Mine Stalker (GPR) (low metal AT mines in Angola)



Mine Action Technology News: Introduction of New Technologies: Demining Machines

- Mantis – Multi-tool demining machine (Nicaragua)
- Rotary Mine Comb (Angola)



Mine Action Technology News: Introduction of New Technologies: Neutralisation

- **Explosive harvesting systems**
(used in Cambodia, considered for the Balkans)
- **Low-cost neutralisation devices**



HSTAMIDS

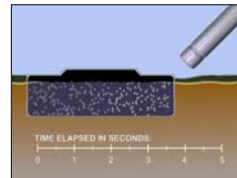
- Fully tested
 - 10 000 mine encounters
 - 2 000 in humanitarian demining context
 - South-east Asia, Africa, South-west Asia
- Permanent training sites in Cambodia, Thailand and Afghanistan
- Now operating as primary sensor
 - Cambodia April 2006
 - Afghanistan May 2006
 - Thailand June 2006
- Emerging results – 1st week
 - Probability of detection: 100%
 - Clutter rejection: 94% and climbing
 - Anecdote: one day a deminer called 160 alerts correctly (159 clutter, 1 mine)

Minestalker

- GPR developed to address request to detect low-metal AT mines
- Tested in Namibia and Angola
- Probability of detection: 100% of the low metal
All AT at 10-35 cm: 252/252 (251 with auto software, 1 with operator call)
- False alarm rate: 0.08/m²
- Compared to metal detector (mine at 10 cm)
 - Probability of detection: 22%
 - False alarm rate: 1.45/m²

Mine Action Technology News: Field Testing of Technologies

- **Types:** accreditation, development testing, operational testing
- **Who:** National MA authorities, ITEP, NGO's, manufacturers, ...
- **What:**
 - Dual sensor: **MINEHOUND**, **ALIS** (?)
 - Wide array MDs (Vallon, Ebinger, Minelab, Schiebel)
 - Mechanical: **TEMPEST**, **Beaver**, **Mini-MineWolf**,
 - Neutralisation: **binary systems** (Tpt safety), **Torches**, ...
- **ITEP** continues extensive T&E
- **Impact:** *Testing provides the user with confidence in the selection of MA Technologies*





Tempest



MD Array



Mini-Minewolf



Minehound



Beaver

Mine Action Technology News: Management implications of technology

- Increasing the number of [brush-cutters](#) has increased effectiveness in Cambodia by 100% (1 year instead of 2 years)
- Use of [low-cost rakes](#) increases efficiency in soft ground in Sri Lanka
- Targeted clearing of populated areas and critical nodes
 - [Uni-disk](#) with rotar bucket (Mozambique)
 - [Allu bucket/grinder](#) (Cambodia, Sri Lanka)
 - [Improved Back Hoe](#) (Afghanistan, Korea)
- Management tools: IMSMA is migrating to [IMSMA4](#)

- [Mechanical system](#) of systems approach shows great promises
- Evaluation of [infrastructure, sustainment and processes](#)

Importance of Publications (examples)

- Mine detector handbook
- Journal of Mine Action (technological section)
- GICHD catalogues (MD, mech)
- GICHD studies (manual demining, etc.)
- UNMAS/GICHD technical workshop proceedings
- IMAS
- Etc.

Current issues

- How to get the information out
(*GICHD as consumer organisation*)
- Additional technical focus
 - Road clearance (Sudan: 10.000 km)
 - Area reduction
 - Improved ergonomics (PPE)

Key Challenges

- How to apply new technologies
- How to provide new technologies
- How to manage new technologies

Useful information

- On websites:
 - GICHD: <http://www.gichd.ch/>
 - ITEP: <http://www.itep.ws/>
 - UNMAS: <http://www.mineaction.org/>
 - JMU: <http://www.maic.jmu.edu/>
 - EC database on technologies: <http://www.eudem.vub.ac.be/>
 - CCMAT: http://www.ccmat.gc.ca/SiteMap/index_e.shtml
 - SWEDEC: <http://swedec.mil.se/?lang=E>
 - Various Equipment Manufacturers
- Phone numbers (see distributed documentation)



