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*
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)