Benefits and advantages of using modern mobile technologies for field data collection in mine action

15th IARP-ICI Workshop
14th International Symposium
MINE ACTION 2017
Biograd 25 April

Torsten Vikström, CEO
SITE Scandinavian IT
Presentation Topics

• About SITE
• Common Method for Field Data Collection
• Technology Development
• The Importance of Standards
• T-IMS – SITE Information Management System
• Experiences from the Field, Cambodia
• Mobile Technology, Why..?
About Scandinavian IT

• Former Spinator AB
• Swedish (SME) IT company, located in Stockholm
• Dedicated to the support of Military EOD and Humanitarian Mine Action using mobile technologies
• IT support for EOD and Mine Action since 1999
• Member of the ICI-EKC
Common Method for Field Data Collection

Information manually captured by hand with the use of pen & paper, separate GPS-units and hand drawn maps over the current area and situation. Over time, this is a very time and effort consuming way – often combined with high risk – to collect sensitive information. Information that often need to be passed several steps by hand to finally end up in an IM-system, where it is consolidated for further reporting, analyses etc.

A real case...

- Suspected areas may take days to define and map as all sources of information are cross referenced in order to get the most accurate report.
- Where evidence exists such as mines seen or confirmed accidents the SHA becomes a confirmed hazardous area.
- Suspected and confirmed HAs are then mapped with GPS and physically marked on the ground.
- Mapping is produced by hand to support technical survey data and socio economic information gathered.
- In due course it is entered into the IM-system as an electronic GIS geo referenced map.
Technology Development

• **1995**
  IBM THINKPAD 385cd
  16MB RAM, 2GB HDD

• **2015**
  Microsoft Surface Pro 3
  16GB RAM, 512 GB **SSD**
  Multitouch, virtual keyboard
The Importance of Standards

• What is a ”standard”?
  Something used as a measure, norm, or model in comparative evaluations
  Eg. 'It manages to be both an industry standard, and a daring departure from the norm.'
  (Oxford Dictionaries)

• Examples of widely accepted and used standards within the mine action community;
  • Open Geospatial Consortium (OGC)
    Standards for geospatial data/information storage and exchange
  • Geneva International Centre for Humanitarian Demining (GICHD)
    mine action eXtensible Markup Language (maXML), for information exchange with IMSMA
  • International Mine Action Standards (IMAS)
    Information, process and symbology

With the use of standards for information storage, data exchange, integration, reporting etc. increased interoperability is enabled, allowing us to exchange and share information with other systems and tools commonly used and accepted by the Mine Action Community.
T-IMS – SITE Information Management System
Mobile field data collection tool for mine action

- Operationally validated by HCR-CTRO (CROMAC-CTDT)
- User-friendly and intuitive field data collection tool built on touch technology, no need for a keyboard or a mouse
- Full compliance with international standards for land release (IMAS 7.11)
- Adaptable input forms for easy customization
- Runs with Esri map engine and supports all well established map formats and layering of data
- For use in the early stages of non-technical surveys through the phases of technical survey and mine clearance as well as quality assurance/quality control, reporting and analyses
- Any type of attachment – such as georeferenced photos, images, documents and voice recordings – can be attached to any activity
- Communicates with IMSMA
- Optionally equipped with JMU's ordnance database – CORD, giving access to approximately 5 000 ordnance objects in T-IMS off-line
- Operates on Windows platform (tablet, laptop etc), with internal or external GPS connected
- Ability to use a rangefinder for positioning of objects in the map directly in the field situation
- Runs with 100% functionality off-line and does not require internet or WiFi connection
- Hosts a user and support program
Experiences from the field, Battambang Province in Cambodia

• Case study together with GICHD and the Cambodian Mine Action and Victim Assistance Authority (CMAA) in three (3) minefields where the Cambodian Mine Action Centre (CMAC) were conducting clearance operations.

• Non-technical survey (NTS), technical survey (TS), quality assurance (QA) and quality control (QC).

• With T-IMS: SHA, CHA, turning points, safe routes, benchmark, area cleared, findings (landmines), videos captured, photos taken, GPS-tracking made etc.
The complete documentation was made directly in the field, without any additional office work afterwards. Average time spent on reporting was between 15 and 30 minutes.

Mobile Technology, Why..?

• Allows everyone involved in survey, clearance and QA/QC to be able to contribute & report.
• No more human errors and errors from manual handling.
• No need for additional office work for completion of field reports.
• Situation awareness. Digital up-to-date maps with historical information, also showing the carriers’ current position substantially improves safety in the field.
• Standardized map symbology – for the whole process of land-release – minimizes the risk of misunderstanding and misinterpretation.
• All captured information in the field – what, when and by whom – is accessible for communication, interaction and reporting in native form. Increased interoperability.
• Collected and captured information over larger areas can be compiled periodically and likewise shared in a common and standardized way.
• …

Land release in a higher pace, with higher quality and improved security.
Thank you!

Any Question?

Benefits and advantages of using modern mobile technologies for field data collection in mine action