ADVANTAGES OF USING MOBILE TECHNOLOGIES FOR FIELD DATA COLLECTION IN MINE ACTION

13th International Symposium and Equipment Exhibition MINE ACTION 2016
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This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 284747
“There is an emergent consensus that an excessive use of clearance resources in areas that may not contain landmines and/or explosive remnants of war (ERW) represents an error in miscalculation rather than justifiable prudence. Tens of millions of dollars have been invested in survey since 2009. At large, the global survey efforts did not yield any conclusive data and could have been applied differently. This is a concern which continues to be the single biggest obstacle to faster and better aimed mine clearance. This has increased the inability to establish a clear baseline of the remaining hazard, time and resources needed, which are fundamental for the eradication of this global threat. To treat this problem a solid information management system is required.”

M. Bold – GICHD
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*

- **2005**
  Dell Inspiron E1505
  *1GB RAM, 80 GB 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)
    
    Land Release: 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 (TIRAMISU Information Management System)

State of the art mobile field data collection tool – Operationally validated by CTDT/CROMAC

T-IMS in summary

- User-friendly and intuitive Field Data Collection tool, built on touch technology
- Runs with Esri or Carmenta map engine and supports all well established map formats
- For use in the early stages of non-technical surveys through the phases of technical survey and mine clearance as well as the following quality assurance and reporting
- Any type of attachment – such as georeferenced photos, images, documents and voice recordings – can be attached to any activity
- Communicates with IMSMA
- Contains optionally JMU’s ordnance database – CORD
- Operates on Windows platform (tablet, laptop etc), with internal or external GPS connected
- Does not require internet or WiFi connection
- Will host a User and Support Program

"The recording of the path of the surveyors and geospatial positioning significantly improves safety of field activities"

"The T-IMS tool improves the general survey processes – SHA analysis, with significantly increased finalization of activities directly through field work – without additional office work"

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EXPERIENCES FROM THE FIELD,
BATTAMBONG PROVINCE IN CAMBODIA

- Case study together with the Cambodian Mine Action and Victim Assistance Authority (CMAA) in three (3) minefields where the Cambodian Mine Action Centre (CMAC) was 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.
EXPERIENCES FROM THE FIELD, BATTAMBONG PROVINCE IN CAMBODIA – cont.

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.

More information about T-IMS is available at the [Spinator] T-IMS booth. T-IMS also will be a part of the field demonstrations Wednesday April 27th.
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