

Evaluating the EOD IS-SURVEY Tool: Objectives, Methods and Preliminary Results

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Objectives

The EOD IS-SURVEY tool has been developed by the Geneva International Centre for Humanitarian Demining (GICHD) and its contractors for the collection of field data (technical surveys and minefield reports) that are to be transferred to and analysed in IMSMA. The survey tool consists of a handheld PC running both customized and commercial off-the-shelf software that accepts data inputs from several input devices via wireless Bluetooth communications. These include GPS, digital range and bearing binoculars, and a digital camera. GICHD is currently testing the survey tool and, if this is successful, plans to distribute it to a variety of end users.

A team from the University of Kansas (KU) has been contracted to evaluate the survey tool and to make recommendations to GICHD regarding both its adoption and its modification and improvement. The purpose of this testing is twofold: first, to assess the performance of the survey tool in diverse terrain settings, especially taking into consideration the effects of vegetation, landforms and climate; second, to assess the survey tool in diverse cultural settings, especially taking into consideration the effects of language and levels of education and technical background.

Methods

To accomplish its objectives, the KU team is evaluating the survey tool both in local settings near the KU campus in the USA and at field test sites selected worldwide by GICHD.

Local evaluations

Local evaluations have been carried out with two small groups of professional staff members of the Kansas Applied Remote Sensing Program at KU, all of whom have had extensive experience with computers, geographic information systems (GIS), remote sensing and GPS. The evaluation sessions have consisted of a brief overview of the EOD IS-SURVEY tool and its functions, followed by a field session in which group members use the survey tool to create a technical survey and to collect one or more minefield perimeters. The evaluations have included both observations by the evaluation team and verbal and written feedback from the participants.

Field tests

Evaluation of the survey tool at field test sites is conducted through four methods (to date, field tests have been conducted in Chile and Albania):

- An initial survey form, filled out by each participant near the end of the first week's training.
- Field observations recorded by evaluation team members.

- Exit interviews with each local participant by members of the evaluation team.
- Feedback forms to be filled out after the completion of each minefield report as technical surveys are conducted following the training period.

As the results of the survey forms, interviews and observations are collected, they are analyzed and forwarded to GICHD for action. In addition to these interim reports, a final report will also be produced.

Preliminary results and recommendations

Our most important impression and finding to date is that the survey tool is generally well suited for the tasks for which it has been designed and has the potential to become an important and integral part of field data collection and data entry for IMSMA. We have found nothing at this point that suggests that the development and fielding of the survey tool should not continue.

Having said that, we have made several recommendations for modifications and improvements to the survey tool. Key preliminary recommendations include the following:

- Checklists for such commonly repeated procedures as system set-up, resets, binocular calibration, downloading digital photos and collecting a minefield perimeter should be written and distributed with the training.
- Where possible, materials should be provided in the native language of those who will be using the survey tool – most requested were user guides, quick start guides and checklists.
- More field training in collecting minefield perimeters should be conducted during the training period, with additional emphasis on collecting turning points from multiple viewing points.
- Position averaging should be enabled in ArcPad, and averaging should always be used when acquiring GPS positions (Reference Point, Benchmark, Landmark, Turning Points, etc.).
- It is absolutely essential to avoid electromagnetic interference (for example, from mobile phones or even from the GPS receiver) to avoid obtaining inaccurate bearing readings when using the binoculars.
- A monopod or tripod should be used with the binoculars, especially when taking readings at longer distances, to ensure that the proper target is read.
- Because of intermittent Bluetooth failure and battery drain, the use of a cable connection between the binoculars and the handheld PC should be investigated.
- Because of the relatively short battery life of some of the survey tool components (especially the handheld PC and the GPS unit), provisions must be made for providing a continuous source of power in the field. Such provisions may include extended-life batteries, spare batteries and/or portable battery chargers.