

Information Management: Using Non-IMSMA Methods

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The Mine Action Geographic Information System (MAGIS) has been developed to serve the needs of a large number of Croatia Mine Action Centre (CROMAC) users and to support the needs of other agencies and companies involved in mine action activities. The system has been designed to provide full functionality for entry, editing, maintenance, analysis, display and hard-copy output of both graphics and tabular data on a continuous and interactive basis. Development and maintenance of the system is an ongoing process.

When CROMAC was established, it inherited the information system used by the United Nations, which included four simple databases (minefield records, clearance, mine incidents and mine-suspected areas) with all cartographic representation as points. This information system later evolved to support a much wider range of activities by the mine action centre.

MAGIS applications include forms, reports, scripts and programs. The MAGIS system used by CROMAC has been entirely developed by the centre's IT staff. The principle task of the developers at CROMAC is to respond to the actual needs of users by creating user-friendly, easy-to-use and productive solutions. Constant communication with actual users helps the developers to understand the system, policies and procedures of mine action, and evaluations, revisions and changes are important parts of the development cycle. In addition, since the IT department is understaffed, developers also have to take care of the maintenance of the system and training of the users.

Data-entry personnel use pre-constructed forms to enter data into the database and GIS functionalities to enter geographic information. CROMAC's policy is that the producer of particular information or data is responsible for entering that data into the system (for example, the survey team leader is responsible for entering survey report data, and quality assurance officers are responsible for the input of information related to quality assurance).

Some of MAGIS's users at CROMAC only need to be able to access the information held by the system. Typically, these are managers and users who are not directly involved in gathering the information stored in the MAGIS database. Data analysis is carried out either through the use of predefined tools or through custom processing of information in the database.

In relation to the system itself, it should be noted that MAGIS is a Croatian-language relational database. All geographic information stored in the database is in Gauss-Kruger projection (Transverse Mercator), Bessel 1841 ellipsoid. Croatia is covered by the fifth and sixth zones of Gauss-Kruger projection, with central longitudes of 15° and 18°, respectively. Conversion to UTM, Latitude/Longitude or other projections is possible on a request basis.

A map catalogue that includes topographic raster and ortho-photo maps is also being maintained and upsized. CROMAC has a digital map catalogue with small-, medium- and large-scale maps. Small-scale maps in scales of 1:600,000, 1:100,000 and 1:50,000 were inherited from the UN (NATO maps) and are geo-referenced in UTM projection (WGS84 ellipsoid). In addition, 1:25,000-scale maps that cover mine-contaminated areas were bought from the Geodetic State Administration and then scanned and geo-referenced by CROMAC using Gauss-Kruger projection. The IT department at CROMAC has also begun to scan and

geo-reference large-scale maps of 1:5,000. Up to now, approximately three quarters of these maps that cover mine-contaminated area have been processed. However, there is a problem in that 1:5,000-scale maps are not available for the entire area contaminated by mines – not even in paper versions.

The owner of the 1:25,000-scale and 1:5,000-scale maps is the Geodetic State Administration, and CROMAC is not allowed to release these maps either in digital or in paper form. However, CROMAC is allowed to use the maps for mine action purposes.

Until now, most of CROMAC's activities have involved databases and database applications. Since the most important part of any information system is data, there is a need to enhance the quality of CROMAC's data. To achieve this, data quality-control tools have been created. Along with efforts to improve the quality of CROMAC's data, analysis modules and decision support tools have been developed.

MAGIS is intended to play a role that involves more than simply automating a few obvious tasks for the sake of efficiency. MAGIS represents an opportunity to introduce a change into the way all mine action activities are conducted, offering considerable benefit in terms of strategic planning and analysis. Further development of MAGIS will be directed in this direction.