

# Implementation of the Geological and Mineral Information System at the Geological Survey of Tanzania

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The availability of geo-scientific and geo-economic data is of key value for the development of many sectors of the Tanzanian economy and society, such as mineral industry, science and education, agriculture, water supply, infrastructure development, geo-hazard prevention and housing.

Since many years, geo-scientific information has been recorded on paper as maps, drawings, texts, and explanation booklets, filling archives with material of inestimable value. After computerisation, a wide variety of electronic data recording systems shifted data to computer hard discs, DVDs and other data carriers. The result was thousands of files and data carrier systems that easily could be copied and multiplied, as well as altered without taking track. Metadata is not really recorded; the availability of information is limited. The use of different software products for data digitisation and storage worsened the situation further.

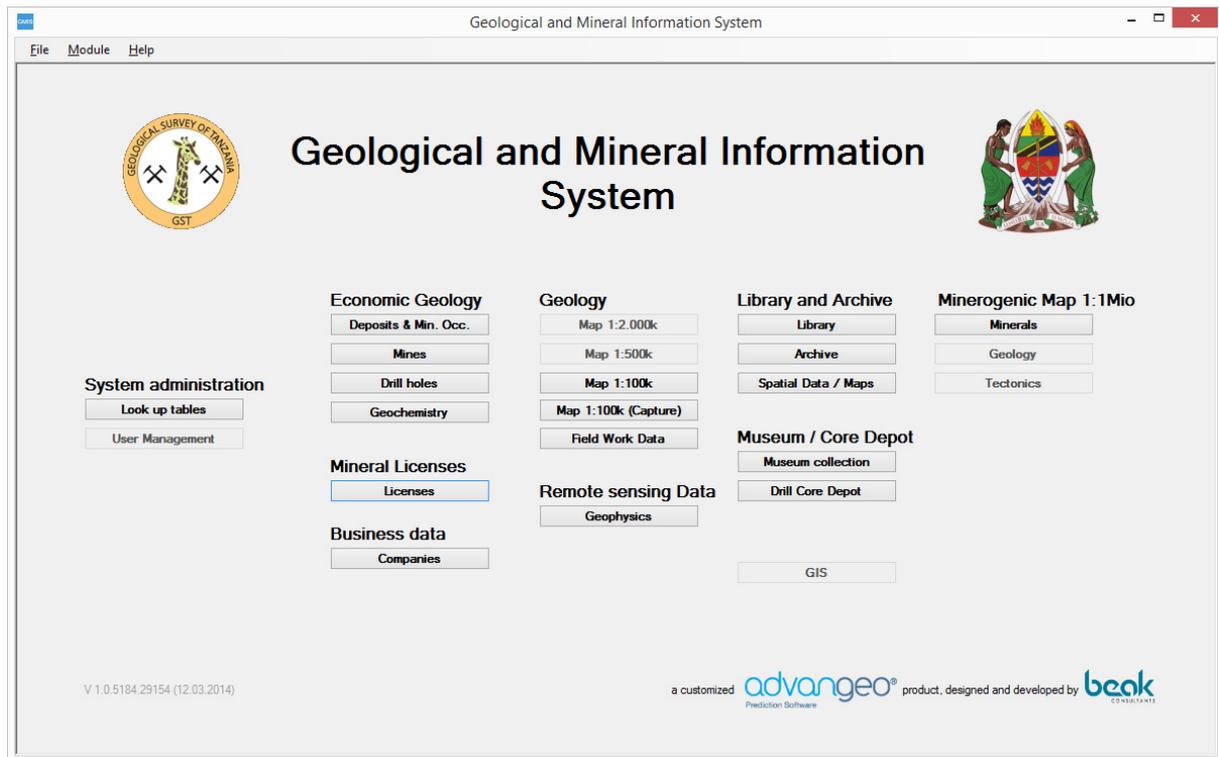
Nowadays, the implementation of a centralised, reliable and safe information management system became an unavoidable requirement. During 2013 and 2014, a modern centralised Geological and Mineral Information System (GMIS) was implemented at the Geological Survey of Tanzania (GST). The modular system based on Beak's advangeo® product series comprises of structures for storage of data and metadata, such as library and archive, geo-referenced structured and non-structured spatial data, and data for mineral occurrences, mines, boreholes, as well as geochemical and geophysical data. The user interface is a modular structured easy-to-use windows-style application, completed by a comprehensive geographic information system (GIS). The GMIS offers functionalities for data entry, data inquiries, export and import as well as functionalities for semi-automatic map printing on demand. Data has been imported from different pre-existing systems as well as been captured during the GMIS implementation process.

Technologically, the GMIS is based on Microsoft and ESRI system software products.

As part of the project, digital geological maps 1:100,000 (QDS maps) have been integrated as a seamless data layer, including the generation of a legend database. Furthermore, the data of the Minerogenic Map 1:1,000,000 is available in the GMIS.

The GMIS integrates the activities of different departments of GST and thus, enhances the co-operation of staff members. Quality management procedures are implemented providing the quality of information. Inside GST, data access is managed at an individual level considering the specific responsibilities and tasks of the different staff members. Public information is distributed via a web-portal with interactive GIS and database access (via <http://www.gst.go.tz/>).

As a living system, the GMIS requires continuing attention with regard to IT-infrastructure, data capture / entry, data verification, and adjustment of system functionalities to changing external conditions and requirements.



**Figure 1:** Graphical User Interface of the Geological and Mineral Information System at the Geological Survey of Tanzania