Mineral Information and Management System (MIMS) for management and regulation of mineral resources

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Abstract

Computer technology in general and GIS & RS in particular brought revolution in maintaining, processing and distribution of spatial data. With the growing trend of applying different types of data in mineral research, it even becomes demanding to apply tools for integrating this varied nature of data to understand the geological phenomena with optimum level of confidence. In this respect GIS can play vital role in compiling, interpretation and integrated analysis of the data.

An effort is being made to apply GIS in geological and mineral research which will serve as prototype to be promoted by the allied institutions and academic circle to maintain geological and mineral data from varied sources such as geochemistry, geomorphology, geophysics, geo-engineering, petroleum exploration and production data, Perotrolgy, drill hole data Air Born magnetic data, satellite data, field mapping and sampling data, ground water data and many other geo-related research data. The Khyber Pakhtunkhwa and FATA area are considered to be prospective geological areas for a variety of mineral potentials.

Due to its favorable geological environment, the area has a number of economic mineral potential which reflects favorable environment for investment in mineral exploration, development and mining.Mineral development process is hampered due to lake of infrastructure, geo-data and absence of technical know-how in mineral exploration, mining and mineral processing technology. This research is based on compiling the geological map of the Khyber Pakhtunkhwa and FATA with particular emphases on distribution of economic mineral resources of the area.

As a tool for efficient management of mineral resource, GIS technique is used to integrate the mineral related information which covers the entire profile of mineral rights from the mineral distribution to location of exploration targets as well as data of the mineral based industries of the province.In absence of proper Geo-database, it is impossible to assess the potential in term of prioritized investment targets. It is the responsibility of the public sector to generate geological and geotechnical data of the province for effectively monitoring and regulating the natural resources.Through dissemination of the resources information, it will encourage the private sector to share in the resources development.

Mineral inventory of KP and FATA areas have systematically been maintained in acentralized database. The database with multiple layers having general geological, mineral distribution record, tectonic configuration of KP and FATA as well as spatial distribution and categorization of mineral based industries of KP have been recorded which is being integrated into a single base in a referenced data format. There is time to generate and maintain and disseminate a proper Mineral Information either on national or provincial level to effectively regulate and promote mineral potential of the area for the long lasting benefits of the nation.