

Challenges in implementing the minerals and geoscience programmes in the new millennium

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Abstract: From the basic activity of geological mapping and mineral investigations initiated in 1903, the Geological Survey Department Malaysia (GSD) has been progressively expanding its scope, since the early 1970s, to encompass other aspects of geoscience in tandem with development in the country. Today, the primary activities of GSD include regional geological mapping, marine geology, mineral exploration, engineering geology, hydrogeology, environmental geology, and various laboratory services. These activities are undertaken to facilitate the mobilization of the country's mineral resources for national development and to address certain aspects of socio-economic programmes as well as to serve the needs of the private sector.

Presently there is an on-going exercise to merge GSD with the Mines Department into a new entity to be named the Department of Minerals and Geoscience. Even after the merger, minerals and geoscience will remain as one of the core activities of this new department. These activities, which are expected to be concentrated in the states, will be more client-oriented, with emphasis being stressed on the provision of quality information and services to the State Government, other Government agencies, the industries and individuals.

In the coming years, the use of IT as an enabling tool for data collation, analysis, storage, retrieval, and dissemination of information will be intensified. This strategic approach will entail the continued maintenance and updating of geoscience and mineral databases which would be linked through an efficient network system to facilitate quick decision-making, and the use of the information by the stakeholders and clients. The department also expects to see an increasing dependence on outsourcing to realise the objectives of some of its activities. In no small measure, this move is expected to stimulate the growth of the private sector in the fields of minerals and geoscience. To live up to these expectations, the department will continuously strive to increase its level of expertise in the minerals and geoscience disciplines to enable it to contribute more effectively to the country's planned R&D activities, industrial development strategies and socio-economic thrusts as outlined in the aspirations of Vision 2020.

INTRODUCTION

The Geological Survey Department Malaysia (GSD) has come a long way since its inception in 1903 when its basic activity then was essentially geological mapping and mineral investigations. However, in consonance with the progressive pace of development of the country which saw an increasing demand for minerals and geoscience inputs, the department has been expanding its scope since the early 1970s to encompass and focus on various geoscience disciplines. The Geological Survey Department's primary activities today, besides regional geological mapping and mineral exploration, include engineering and environmental geology, hydrogeology, marine geology and laboratory services. Such activities are carried out to meet the primary goal of the department, i.e., to facilitate the mobilization of the country's mineral resources for national development and to address socio-economic programmes, besides serving the

needs of the private sector. Based on an analysis of the role and goal of GSD in national development, its core business can be summarised as the delivery of mineral and geoscience information for supporting the economic activity of the private sector, as well as to assist in overall planning and decision-making by the government.

At this juncture it should be reported that there is an on-going exercise to merge the Geological Survey Department with its sister organization, the Mines Department and its associated research branch, the Institute of Mineral Research under the Ministry of Primary Industries, into one new entity to be named the "Department of Minerals and Geoscience". The aim of this merger is to synergise the functions of the two departments with respect to expertise and resource, and to avoid duplication of activities. Based on the proposed merged structure, however, changes relating to a new work culture will not be too drastic, since basically the core business of GSD, the Mines

Department and its Research Institute are retained with some modifications to respond to the changing environment. Greater emphasis will be given on the research in minerals. Against this scenario, this paper will attempt to address the challenges likely to be faced in implementing the new department's minerals and geoscience programmes, which will essentially remain unchanged from their present perspective, in the new millennium.

ROLE AND CHALLENGES

i) Mindful that mineral and geoscience activities are expected to be client-oriented and concentrated in the states, one of the strategies is to broaden the range of technical activities of the states in Peninsular Malaysia under the new organization so that there is better and more effective interaction with clients at state level, and quality information and services can be directly given to the State Governments, other government agencies, the industries and individuals by the respective State Minerals and Geoscience offices. For maximum effect, the proposed structure at state level will have the full complement of minerals and geoscience activities covering regional mapping, mineral exploration, engineering geology, and hydrogeology. Realising that certain aspects of such activities, including the laboratory services, can also be provided by industry, the new organization shall strive to provide specific services which are not available in the market. The policy is not to compete with industry but rather to complement the private sector in this regard for the benefit of everyone. The longer term strategy is in fact to encourage the development of a competent private sector capable of providing viable mineral and geoscience-related services.

Nevertheless in its endeavour to cater to the needs of its clients, one of the most daunting challenges facing the new organization is to ensure that its products and services are of an acceptable quality that conforms to international standards. It is imperative therefore that the organization works towards ISO certification for its appropriate primary activities. For record purposes, GSD has already been awarded MS ISO 25 Guide Certification for two of its laboratory activities, and is actively pursuing MS ISO 9000 Certification for one mineral and two geoscience activities.

ii) As the national organization responsible for procuring basic mineral and geoscience data for multi-purpose usage, the organization needs

to formulate strategic plans to:

- complete the country's minerals database through reconnaissance geochemical sampling and offshore surveys and to assess and characterize the industrial and energy mineral resources available
- undertake priority geological mapping at appropriate scales over areas identified for development, areas with mineral potential, and areas earmarked for other geoscience investigations, e.g. hydrogeology, engineering geology and environmental geology
- explore and develop groundwater in water-stress areas, as well as to systematically assess the groundwater potentials for each state, with the aim to complete a hydrogeological database.

The future trend of financial and manpower management is expected to lead towards greater outsourcing of field surveys, with the organization assuming only a supervisory role. In order to reach the level where most of our information can be made available in digital form, particularly for the historical data, there will initially be an increasing dependency on outsourcing of digital map production and even database development which represent some of the organization's crucial primary products. This move of outsourcing the bulk of the department's work is expected to stimulate the growth of the private sector in these specific fields, besides speeding up project implementation.

iii) The organization's primary products (maps, reports, data) will not serve any purpose if they are not disseminated quickly and efficiently. First, however the organization itself must devise a functional system to collate, organize and manage such data/information. For this activity, data cataloguing and e-archiving of available information using IT as an enabling tool would be very logical and useful. The idea is to finally network such information pertaining to data catalogue on the web-site for global reference. Presently, GSD's Homepage contains relevant information on the department's activities, services available, and publication lists. A new Homepage for the new organization will be structured, with new and improved features like an interactive client-friendly platform as well as facilities for e-commerce built in for efficient electronic transactions. Geoscience and mineral databases, together with their corresponding graphic outputs, meanwhile, should continue to be updated, and

ideally should be linked through an efficient electronic network system for multi-purpose usage. In this regard the organization's involvement and commitment in the on-going National Infrastructure for Land Information System (NaLIS) Project is expected to be further intensified. In line with the policy on paperless bureaucracy through greater use of IT, the use of CD-ROMs in place of hardcopies is expected to be a common application in the new millennium which should also witness greater commitments on e-government applications.

iv) Technological developments in various disciplines, inclusive of minerals and geoscience, are dynamic, and in order to keep abreast of these developments, there has to be continuous technology and skills enhancement executed through a properly managed HRD programme. Recognising that the human resource is the most important asset of any organization, it would augur well for the organization to pay special attention to the following priority areas in order for it to develop its human resource to the maximum:

- team development (teamwork building)
- knowledge-skills-expertise development
- developing a professional network (participation in conferences, collaborative research work)

v) Linkage for greater synergy with other local agencies, industries and institutions of higher learning involved in the fields of minerals and geoscience to undertake joint project or research will be further enhanced. At the international level we are aiming to play a more active role to promote Malaysia as a world class centre for minerals and geoscience through participation in conferences, seminars, joint projects and seeking positions in executive committees on various disciplines of minerals and geoscience.

CONCLUSIONS

The implementation of the department's minerals and geoscience programmes in the new millennium will be client-and needs-driven. To satisfy the needs of its clients, emphasis will be on the provision of quality information and services, including the need for the department to strive towards ISO certification for certain core activities. The department's policy is not to compete but to complement the private sector; the longer term strategy is to encourage the private sectors to fully develop their capabilities to provide such services, if possible.

To meet the objectives of the department's planned strategies for the longer term in relation to the aspect of data gathering for multi-purpose usage, we expect an increasing inclination towards outsourcing of selected activities.

The use of IT as an enabling tool will be intensified to transcend all levels of activity, from data organization, analysis and database development to dissemination. The vision finally is to set in place a globally-linked networking system to facilitate an efficient and effective avenue for interaction and transaction. The new millennium should also witness greater commitments on e-government applications and concerted efforts to adhere to the policy on paperless bureaucracy.

Linkages with agencies, institutions of higher learning and industries involved in minerals and geoscience at the local, regional and international level will be further enhanced.

The successful implementation of the programmes requires a dedicated, competent and professional workforce. The department's level of expertise in the various disciplines, including minerals and geoscience, therefore needs to be enhanced in tandem with technological developments to enable the department to contribute more effectively to national development.

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