GIS IN SPATIAL DATA INFRASTRUCTURE

Spearheading the National Spatial Data Infrastructure (NSDI) in Malaysia

Highlights

- How metadata makes sharing of geographic information easier
- New geoportal application: MyGDI Explorer
- The future of GIS in Malaysia

Background of the Malaysian Centre for Geospatial Data Infrastructure (MaCGDI)

Malaysian Centre for Geospatial Data Infrastructure (MaCGDI) is a centre under the Ministry of Natural Resources and Environment. Formed in 2002, MaCGDI promotes the development and implementation of Malaysian Geospatial Data Infrastructure (MyGDI) through facilitating the sharing and exchange of geospatial information between data and services providers as well as utilising the latest online technology and information communication technologies. To date, the only existing coordinating organisation that manages the development and implementation of national spatial data infrastructure is MaCGDI.

MaCGDI plays crucial roles to spearhead the geospatial industry in Malaysia towards realizing the benefits of geospatial information. Key activities of MaCGDI include facilitating the sharing and dissemination of geospatial data among users and data providers, formulation of policies and standards that are implemented through MyGDI as well as providing of professional services related to the geospatial industry in Malaysia.

MyGDI is an initiative by the government to enhance the awareness of data availability and to improve better access to geospatial information through data facilitation especially for land related agencies to cooperatively produce and share land information. MyGDI is also the platform for all users and providers to access all spatial data exploration, evaluation, and application across all levels of government, commercial, non-profit sectors, academia and the general public. MyGDI application aims to enable spatial data sharing and usage amongst various agencies and users.

How Metadata Makes Sharing of Geographic Information Easier

One of the main difficulties for MaCGDI in spreading the use of geospatial data (location based information) amongst the government organisation is in the lack of comprehensible

documentation. The available use of structured information was unavailable as the data producers do not see the benefits of creating metadata (descriptive details with regards to the available data) – usually seen as a tedious routine.

To address this problem, MaCGDI embarked on a national metadata profiling drive to resolve the lacked of metadata collected in a structured manner. This drive of national metadata standardisation combines the specifications of international standards such as INSPIRE's Metadata Implementing Rule, the existing regulations in Malaysia and the International metadata standard (ISO19115). This drive resulted in the Malaysian Metadata Standard (MMS) Profile containing a total of 164 elements.

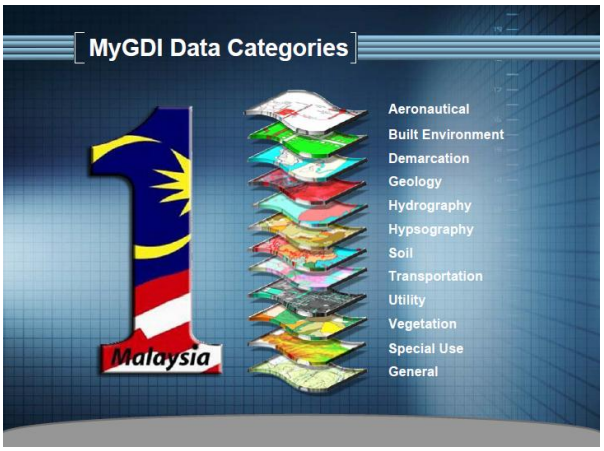

Fig.1. MaCGDI uses GIS for the planning of a standardized spatial data framework in Malaysia.

With the new MMS Profile, it helps to ensure a consistent approach to the use of geographic information throughout Malaysia. The metadata elements imputed help to increase the value of spatial data and services. The metadata include elements such as identification information, constraints, use restrictions, spatial and temporal extent, geographic resource maintenance information, spatial representation and reference, and the quality and distribution of geographic resources such as access policies.

In support of the MMS Profile, ArcGIS Geoportal Extension is used. The ArcGIS Geoportal Extension was chosen because it provides data producers an easy way to publish conformed and structured information via the online metadata editor for the sharing of metadata.

New Geoportal Application: MyGDI Explorer

With another key goal of facilitating the sharing and exchange of geospatial information, the envisioning of an online portal that allows public to access all available geospatial information, MyGDI Explorer version 2 (Screenshot as shown in Fig.2) was built.

Fig.2. A Geospatial Information Portal as a Federated Service

Built using the ArcGIS Server Geoportal Extension Toolkit 9.3.1, this portal allows users to search for their desired location-based information through the search engine provided. On submitting a query, users can select the metadata required and view all details available. With the implementation of MyGDI Explorer portal, the benefits can be seen in many folds for MaCGDI.

The benefits of MyGDI Explorer portal include:

i. Easy online access of geospatial data to maintain relevance in planning and development.
ii. Non-duplication efforts in the collection and production of geospatial data in a centrally managed Geodatabase repository
iii. Consistency in the usage of geospatial data through formulation of policies and standards
iv. Proliferation of local geospatial data industry through higher utilisation and awareness
v. Expediting the implementation of electronic government and knowledge economy
vi. Strengthening institutional capacity to produce knowledge workers through central repository of information for knowledge transfer

To date, MyGDI plays an effective role in sharing of land information. MyGDI now is an important bridge between data providers and users in data, knowledge and information sharing through exchange of the latest online information technology.

The MyGDI Explorer portal can be viewed via www.macgdi.gov.my.

The Future of GIS in Malaysia

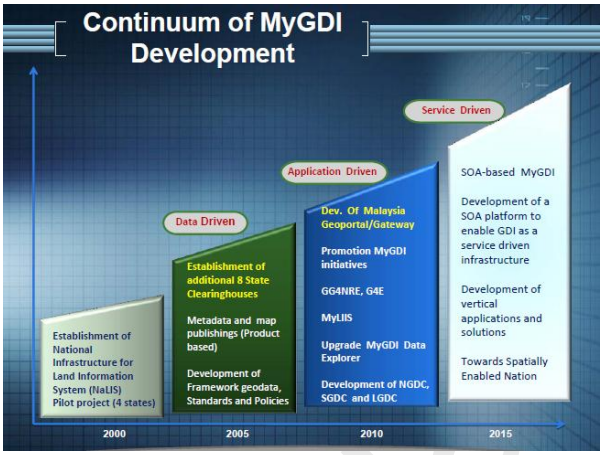

Fig. 3. MyGDI development towards year 2020

From MyGDI initiative which started in 2010, it is seen that the realisation of a GIS-enabled organisation, has transformed MaCGDI from a data-driven focus to a service-driven (which is illustrated in Fig 2.). This spatial enablement from the use of ArcGIS Geoportal and Server technology has assisted in encapsulating many different aspects of mapping, analysis, as well as mitigate risks or likely problems faced in business, social and environmental, thus enabling users of the data to remain sensitive to possible impact on the community during their planning process.

With the successful implementation of MyGDI, the use of GIS is now rolled out to the rest of the nation-wide states in Malaysia. The projection of a truly spatially-enabled nation by 2012 is not without any challenges. The constant challenge comes in the continuation of work in the data and copyrights policies, integration of geospatial data and analysis in business processes and work flows, so as to ensure the effectiveness, accuracy and timely delivery of a spatially-enabled community.

Contact Information

Esri Malaysia
Mr. Daniel Boey
Country Manager
E dboey@esrimalaysia.com.my