IMPLEMENTATION OF NATIONAL SPATIAL DATA INFRASTRUCTURE IN MALAYSIA

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Ministry of Natural Resources and Environment (NRE), MALAYSIA
Introduction

Malaysian Geospatial Data Infrastructure (MyGDI) - Challenges and Actions Plans

Inclusion of Services in MyGDI Implementation

Conclusion
Malaysia

Land Area: 329,000 sq. km
Marine Area: 574,000 sq km
No. of Island: 827 islands
No. Geographical Entity: 273 entities
Population: 26 millions
Malaysian Center for Geospatial Data Infrastructure (MaCGDI) is a center under Ministry of Natural Resources and Environment (NRE).

MaCGDI was formed to promote the development and implementation of Malaysian Geospatial Data Infrastructure (MyGDI) as the Malaysian NSDI.
MyGDI as Malaysian NSDI

- **MyGDI is an initiative by the government** to enhance the awareness about data availability and improve access to geospatial information by facilitating data sharing among participating agencies.

- **MyGDI** provides a basis for spatial data exploration, evaluation and application for users and data providers, within all levels of government, commercial, and non-profit sectors, academia and the public.
Geospatial Activities in Malaysia

- Malaysia Geoportal
- Penang GIS
- Darul Ehsan GIS
- Negeri Sembilan GIS
- Road Network
- Landuse Portal
- JUPEM Geoportal
- Mineral and Geoscience
- Remote Sensing

Penang Geographic Information System

Public Works

LandUse Portal

JUPEM Geoportal

DATA SERVICES
- QuickBird
- SPOT
- Landsat
- Radar
- MODIS
- OCM
- NOAA

JMG

Maps
Focus on the important of accountability among data provider to ensure that the government interest is confidential and well protected.

- **Public Administration Development Circular, Year 1997**
  Guideline for The Establishment of The National Infrastructure for Land Information System (NaLIS)

- **Public Administration Development Circular, Year 2001**
  Guideline For Data Custodianship

- **Public Administration Development Circular, Year 2005**
  Guideline for Data Pricing and Geospatial Data Distribution

- **Public Administration Development Circular, Year 2006**
  Implementation of Malaysian Geospatial Data Infrastructure
Our Partners.

Federal Agencies

State Agencies

Regional Agencies

Local Government

Utilities

Private Sector

Others

Universities
MyGDI Conceptual Design

PROVIDERS
- Federal
- States
- Agencies
- Commercials

INTERCONNECTION MEDIUM
- MyGDI Explorer
- Metadata Catalogue

USERS
- Thin Client
- Thick Client

Internet

Conceptual Design
Federal
States
Agencies
Commercials
INTERCONNECTION MEDIUM
MyGDI Explorer
Metadata Catalogue
Internet

Thin Client
Thick Client
The creation of metadata is a priority.

Malaysia has derived profiles from the international metadata standard - ISO19115

Develop tools, procedures and user guides for consistent metadata entry and updating
Current Implementation Experience

• Experiences gained in the current implementation of MyGDI helps identify areas for improvements:
  – The presence of NSDI
  – Target users
  – Usage
  – Data content

www.mygeoportal.gov.my
Lessons Learned

飙 The system as it has been implemented is based on data oriented

飙 In the very beginning, these issues focus on the collection of the data: what data should be collected and who should collect it.

飙 In the other stages of maturity, the issues of data quality and data interoperability become more and more critical. The introduction of new technology, and new products, which may change the way MyGDI performs.

飙 Changes in the SDI environment lead to new needs and new believes, changing the ultimate ideal of MyGDI.
# Challenges

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Plan Of Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>To increase the effectiveness of MyGDI application to meet users expectation</td>
<td>Widening the services in MyGDI to materialize the potential and to address the demands by potential users</td>
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<tr>
<td></td>
<td>Adoption of the enabling technology</td>
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<td>Assimilation of the trend in the field that progresses in response to the common challenges elsewhere.</td>
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### Challenges

<table>
<thead>
<tr>
<th>Challenges:</th>
<th>Plan Of Actions</th>
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<tbody>
<tr>
<td>Improving the coordination among agencies in the implementation and usage of the MyGDI application.</td>
<td>A holistic approach to the institutional-related issues will be formulated.</td>
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# Challenges

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<tr>
<td>To widen the range of services in the application to accommodate wider users needs.</td>
<td>Focus on usage of data to include spatial functionalities</td>
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<td></td>
<td>Focus on the integration of spatial data and analysis in the mission-critical business processes on increasing the return on investment (ROI)</td>
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<td></td>
<td>Focus on using GIS technology to improve decision making and service delivery</td>
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## Challenges

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<tr>
<td>To strike a balance between data sharing functionalities and inclusion of focused application in the system.</td>
<td>To package the services to utilize data that are made available through the system</td>
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<td></td>
<td>Developed applications such as Geo information for Executive, Sectoral Based such as GDI for Land Information, GDI for River Basin Management, GDI for Natural Resource Management</td>
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## Challenges

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<td>Unwillingness to share data</td>
<td>A thorough and formal approach need to be identified</td>
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<td></td>
<td>A more proactive strategy has to be put in place to increase data use</td>
</tr>
</tbody>
</table>
Comparison Between Services Offered and Target Users

Services/Applications

Sectoral Based
MyGDI Apps.
MyLIIS
NSDI

More advanced Functionalities/applications

GI-SDI
Government & GIS Experts
Businesses
General Public

Target Users

Increasing number of users

Web Service
ASP

Target Users

General Public
Businesses
Government & GIS Experts

More advanced Functionalities/applications

GI-SDI
Better and more efficient solutions
Save resources
Individual services for citizens and businesses
Easier access to the public sector
Increase transparency and access to information
Electronic (e-) government has been proposed as a solution to the problems due mainly to the lack of interoperability within and among government agencies;

MyGDI is a very important component of e-government. SEG builds on MyGDI initiatives.
MyGDI – Enabling Better Government

- Cost Savings
- Improved Decision Making
- Better collaboration and Coordination
Geospatial Data Centre At All Level

Federal Personalization

State

Local

LGDC

DISTRICT

RGDC

STATE

SGDC

NGDC
The public sector is responsible for standards, policy and legislation

The public/private sector cooperatively designs and develop the infrastructure

Clearly defined responsibilities

The public and private sectors work co-operatively to market the services and technologies

Wider coverage in geoinformation sharing focusing on services for the users from public and private sectors
The National Geospatial Data Centre (NGDC) will further capitalize the investment on MyGDI.

Spatial databases (geodatabase) are databases that provide storage, seamless access mechanisms and management of data sets.

The data in NGDC will overcome various problems of spatial data quality and interoperability.
Data Integration Issues

Reference System
- RSO
- Cassini
- WGS84
- LatLon

Data Quality
- Completeness
- Logical Consistency
- Positioning
- Temporal
- Thematic

Data Structure
- Compliance to MS1759
- Compliance to Metadata
- Compliance to UPI
- Compliance to symbols and color standard

GIS Environment
- Data Format
- Algorithm of GIS software
Framework Data

- Aeronautical
- Built Environment
- Demarcation
- Geology
- Hydrography
- Hypsography
- Soil
- Transportation
- Utility
- Vegetation
- Special Use
- General
Design Model For NGDC

SEAMLESS, CONTINUOUS DATABASE – STATES, SCALES
Design Model For SGDC

By States

Johor
- SGDC
- BuiltEnv
- Demarcation
- Environmental
- Geology
- Hydrography
- Hypsography
- Transportation
- Utility

Terengganu
- SGDC
- BuiltEnv
- Demarcation
- Environmental
- Geology
- Hydrography
- Hypsography
- Transportation
- Utility

Selangor
- SGDC
- BuiltEnv
- Demarcation
- Environmental
- Geology
- Hydrography
- Hypsography
- Transportation
- Utility
Inclusion of Services in MyGDI

Multi Users & Platforms

GIS Expert

Public

NSDI

G2G

G2B

G2G

G2B

B2B

B2B

B2C

B2B

B2C

MyGDI

(MySDI Application)

Sectoral Based
• Natural Resources
• Inland Security
• Agriculture
• Land Management
• Urban & Regional Planning
• Healthcare

An added value application
running on top of NSDI initiative

MyLIIS

Geoportal

Client Applications

Component Based Web Service
(Functional & Map)

ASP (Specific Application)

package

GI - SDI

Catalog Service

Textual Data

GI Web Service Providers

NGDC

Detailed & specialized data

Image database

Geodatabase

Search & Discovery

Analyze

Search

Client

Applications

Public Transportaion, Public Service, Private Service & Emergency

Web Services, Standard Interface
(SOAP, XML, WMS...)

Basemap, Personal location, Geocoding/Address, Routing,

Web Service – Map & Functional

Web map service

Inclusion of Services in MyGDI
General Configuration
The SOA-based solution includes the directory services, spatial data services, and an application that consume the spatial data services.

Components of the SOA-based Solution
Data in Departmental Level

Data stored in RDBMS with spatial management e.g. ArcSDE + MSSQL Server
Relevant feature(s) added to the map using compatible client e.g ArcMap
Choose the type of service e.g. WMS, WFS.

Use relevant GIS server e.g. ArcGIS.
Accessing the Service

Use any supported GIS client e.g. ArcMap

Choose the type of ArcGIS Server connection:

- **Internet**
  - Server URL: www.myserver.com/arcgis/services

- **Local**
  - Host Name: [Enter]

Authentication (Optional):

- User Name: [Enter]
- Password: [Enter]

Save Username/Password

- Finish
- Cancel
Products Highlights

Development of Fundamental Dataset

The fundamental datasets enable users to carry out analysis reliably in GIS applications due to ensured data integrity.

Development of Geographic Names Database

Geographic Names Database is the official geographic names, locations, history and gazetteer notifications for use by government and the public.

Focus Projects

Development of Standard

The development activities include formulation and implementation of standards for names and codes, metadata and preparation of guidelines for quality assurance.

Capacity Building

In the context of MyGDI, capacity building means improving the capacity of institutions to use the geospatial data infrastructure and GIS to enhance their service delivery.
Product and Services

Our product & services online are provided as an added measure of convenience for you to interact with our geospatial data. Please let us know via our Feedback and Contact Us page if the online services that you are looking for is not listed.

MyGDI Metadata Catalogue (Data Explorer)

Data Explorer enables users to discover, view, and access geospatial data from anywhere at anytime.

Geographical Name Database (MyGeoname)

Geographical Names Database is the data bank of geographical names.

Geocinformation for Executive (G4E)

G4E is a purpose-built application aimed for use by government executive officers in policy and decision.

Malaysian Land Integrated Information Services (MyLIIS)

MyLIIS is a one-stop basic land related information services.
Showcase

This section focuses on maps and GIS applications that are implemented in other agencies. Showcase consists of either Desktop Application or Internet Application. Showcase for desktop application shows the examples of GIS implementation in a desktop environment. You may share your experience in such implementation by submitting the description and illustration of your application. Showcase for Internet GIS Application demonstrates web-based GIS implementation. We provide an avenue for you to share your web-based GIS by submitting the description, illustration and links. Maps depict the spatial world graphically and often with interesting representation, colours, and symbols. This showcase let you share with the community maps that may have.

Demographic
- General demographic information of Peninsular Malaysia

Landuse
- General landuse information of Peninsular Malaysia

Protected Area
- General protected area information of

Geology
- General geological information of Peninsular Malaysia

Forestry
- General forest information of Peninsular Malaysia

Marine Park
- General marine park information of Peninsular Malaysia
Resources

- Presentation Papers
- Reports
- Publications
- Circulars & Guidelines
- Forms
- Related Software
- User Manuals
- Glossary

My geospatial needs are about:
- Geospatial Data
- Land & Property Information
- Name of Places

Resources

Papers Presented
This section contains materials that have been presented at conferences, seminars and similar events.

Reports
Official reports for public consumption is published here. These reports include findings in studies, workshops and meetings.

Publications
Periodical publications are accessible here that include Bulatan Geospatial Sektor Awam (BGSA) bulletins.

Circulars & Guidelines
This section contains Government circulars and guidelines that relate to geospatial industry.

Forms
Forms that are related to our business such as application for data are available in this section.
Add a new link

Links

- Geographical Information
- Geospatial Organizations
- GIS Portal
- SDI Geoportals
- SDI Related Organizations
- Special Interests
- Other NSDI
About MyGDI Explorer

MyGDI Explorer provides users with the ability to discover, view and access over 100 datasets - anywhere, any time. MyGDI initiatives will simplify access to the Government's land and geographic information, and promote better integration across Government as well as facilitate improvement of business processes and systems that use land information across networked government. The services produced by MyGDI program use cutting edge technology and will be made available via this portal as they are finalised, however access to some services may be subject to restrictions. MyGDI program is currently in Pilot stage, and is a work in progress, but as the MyGDI program develops more products and services will be made available through the Malaysia Geoportal, as well as useful information and resources. Find out more about how MyGDI can benefit you and how you can get involved today.
Metadata Details

- Metadata Contact
  Organization: Malaysian Centre for Geospatial Data Infrastructure (MACGDI)

- Metadata Identification
  Title: Data Lot Kadaster Daerah Pasir Mas, Kelantan
  Dataset Publication Date: 2007-07-01
  Dataset Language: 002
  Abstract: Data Lot Kadaster Daerah Pasir Mas, Kelantan

- Content Information:
  Content Types: Live Data and Maps

- Data Theme
  Theme Topics: Cadastral

- Spatial Domain
  West Bounding Longitude: 101.101897
  South Bounding Latitude: 4.312814
Download

e-mail address: subashni@macgdi.gov.my
Output file format: ESRI Shape - SHAPE - (shp)
Projection: Ketapu RSO Malaya Meters

Windows Internet Explorer

The data for the selected area will be extracted and will be e-mailed to subashni@macgdi.gov.my

OK

□ WPKL
□ Selangor
□ Melaka
□ Negeri Sembilan
□ Terengganu
□ Pahang
□ Kelantan
□ Johor
□ Label

This is a MyGDI Explorer. #The Malaysia Government and MaCGDI shall not be liable for any loss or damage caused by the usage of any information obtained from #this site.
### Manage Metadata

- **Document title:**
- **Document UUID:**
- **Document owner:** Any
- **Approval status:** Any
- **Publication method:** Any
- **Update date between:**
  - 
  - 
- **(YYYY-mm-dd)**

**Search**

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**For selected records:**
- **Set as Posted**
- **Execute Action**

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**Results 1-50 of 734 record(s)**

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| nizar | Approved | Editor | 2008-11-21 |
| ☑️ ✔️ | Data Lot Kadaster Daerah Temerloh, Pahang | 
*{C34406B8-BD94-AAD87-70C990A37D03}*
| nizar | Approved | Editor | 2008-11-21 |
| ☑️ ✔️ | Boundary Plan for Majlis Daerah Tanah Merah | 
*{5B9C4C9D-7D39-4A4C-A94B-36F20722F2}*
| nizar | Approved | Editor | 2008-11-20 |
| ☑️ ✔️ | Zoning Plan | 
*{3FAE2275-413A-48BC-8AE4-623326E38H11}*
| nizar | Approved | Editor | 2008-11-19 |
| ☑️ ✔️ | Yong Peng District Council Housing Estate Plan | 
*{746842D6-F307-49C8-A753-1E88862D799B}*
| nizar | Approved | Editor | 2008-11-19 |
| ☑️ ✔️ | Yong Peng District Council Public Facility Plan | 
*{E1F23807-6FF8-FE78-9333}*
| nizar | Approved | Editor | 2008-11-19 |
The benefits of MyGDI are *dynamic*. It will grow over time as MyGDI participation increases and standards and procedures are established.
Thank You For Your Attention
Visit us at:
www.mygeoportal.gov.my