Building a National Geospatial Information System: Malaysian’s Experiences

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Introduction
Malaysia

Land Area: 329,000 sq. km
Marine Area: 574,000 sq km
No. of Island: 827 islands
No. Geographical Entity: 273 entities
Population: 28 Millions
Geospatial Data Is Critical to Governments and Businesses

- Government and business information is a valuable resource in all nations
- Estimated 80% of government data has a spatial (geospatial) component
- Also as much as 80% of public and private decision making is based upon some geospatial aspects
- Geospatial serves as the common thread to address diverse issues
- Can’t effectively address Electronic Government, National Security or Sustainable/Livable Communities without geospatial information
Geospatial Information Layers

- Administrative Boundaries
- Land Used / Classification
- Cadastral parcels
- buildings → addresses
- Vegetation
- topography

Real World
Geospatial Information Technology

- GIS / LIS
- Remote Sensing & Photogrammetry
- Surveying and GNSS
- LIDAR, IFSAR and UAV
- Mapping and Cartography
- CAD, GPR and PCL
- 3-D Imaging and Other Visualization Tools
- Information and Communication Technology
Geospatial Information Systems Initiatives
Before Year 2000

1) Forest Information System Sabah
   - 1983
   - Quit Rent System Peninsular Malaysia
   - 1985
   - Computer Assisted Land Survey System
   - 1986
   - National Forestry Information System

2) Public Work System (SUTRA)
   - 1988
   - Computer Assisted Mapping System
   - 1989
   - Property Assessment System
   - 1991
   - Valuation Information System

3) Demographic Information System
   - 1989

4) Coastal Erosion Monitoring System
   - 1993

1) Penang GIS (PEGIS)
   - 1994

Computerized Land Registration System
   - 1995

National Infrastructure for Land Information System (Nalis)
   - 1997

Cadastral Data Management System (CDMS)
   - 1999
PICK POLICY

Digital Signature Act 1997 (Act 562)

Communication and Multimedia Act 1998 (Act 588)

Consumer Protection Act 1999 (Act 599)

Electronic Commerce Act 2006 (Act 658)

Government Electronic Activities Act 2007 (Act 680)

Personal data Protection Bill 2009

National Geospatial Act ????
Unique Parcel Identifier (UPI)

FEATURE AND ATTRIBUTE CODES 1759 (MS1759)

MyGDI METADATA STANDARD DEVELOPMENT (MMS)

Dataset Quality for Geographic Information (DQ)

Standardisation of Geographical Names (Geoname)
APPLICATIONS USING MyGDI

Integrated GIS... Management and maintain spatial data in Local Government

Survey, plan, design

Create map

Local Government

Consulting Company

Work Office

Residential Map

Urban Planning Map

Road Administration Map
MyGDI Explorer

http://mygdix.mygeoportal.gov.my/
Malaysian Government Initiatives and National Transformation Agenda
National Vision

Malaysia has set a vision to move towards a knowledge-based society and economy

- Where ICT as driver for restructuring of economy and employment
- Prerequisites include access to infrastructure and development of Information, knowledge and applications

Vision 2020

Knowledge-Based Society

Access to Infrastructure

Enrichment of Information, knowledge and applications
Vision 2020

1. Preservation and enhancement of unity in diversity
   - 1Malaysia
     - People First, Performance Now
     - April 2009

2. Effective delivery of government services
   - Government Transformation Programme (GTP)
     - 6 National Key Result Areas (NKRAs)
     - January 2010

3. New Economic Model - A high income, inclusive and sustainable nation
   - Economic Transformation Programme (ETP)
     - 8 Strategic Reform Initiatives (SRIs)
     - March 2010

4. Smooth implementation of government’s development programme
   - 10th Malaysia Plan
     - Macroeconomic growth targets & expenditure allocation
     - June 2010
Government Transformation Programme (GTP)
New Economic Model (NEM)

1. Re-energising the Private Sector
2. Developing Quality Workforce and Reducing Dependency on Foreign Labour
3. Creating a Competitive Domestic Economy
4. Strengthening of the Public Sector
5. Transparent and Market-friendly Affirmative Action
6. Building the knowledge base infrastructure
7. Enhancing the Sources of Growth
8. Ensuring Sustainability of Growth

High Income
Targets US$15,000 - 20,000 per capita by 2020

Ensures quality of life
Enables all communities to fully benefit from the wealth of the country
Inclusiveness
Sustainability
Meets present needs without compromising future generations

Characteristics of Malaysia in 2020
- Market Led
- Well-Governed
- Regionally Integrated
- Entrepreneurial
- Innovative

Malaysia to become a high-income nation that is both inclusive and sustainable by 2020
National Transformation

1Malaysia – People First, Performance Now
Preservation and Enhancement of Unity in Diversity

Government Transformation Plan (GTP)
Effective Delivery of Government Services

Economic Transformation Programme (ETP)
National Key Economic Areas

10 & 11 Malaysia Plan Roll-Out
Macroeconomic growth targets & expenditure allocation
Implementation of Government’s Development Programmes
Digital Malaysia
DIGITAL MALAYSIA

BLOCK 1
Existing ICT Initiatives
- R&D
- Risk Capital
- Talent
- e-Sovereignty

National Broadband Initiative
MyICMS 886
National Content Policy
National Technology Roadmap

BLOCK 2
Enhancing existing transformative initiatives in GTP & ETP

BLOCK 3
Utilisation of digital technology as many times as possible in as many ways as possible by as many people as possible

Innovative Business Models
Infusion of ICT across the rest of economy
MILESTONES OF MALAYSIA’S ICT DEVELOPMENT

ICT in Malaysia has evolved over the years

- From Government as telco provider to a liberalised telco market
- Now a convergent industry where connectivity is key

2004 onwards
- Towards a Connected Society
- Ubiquitous computing
- NBP - 2004
- MyICMS 886 - 2005
- National Broadband Implementation Plan (NBIP) - 2008
- Digital Malaysia 2012

1998
- Convergence Policy
- Communications and Multimedia Act

1997
- Cyberlaws
- Computer Crimes Act
- Digital Signature Act

1996
- MSC to spearhead development of ICT industry

1994
- National IT Council
- NITA

1993
- Market liberalization
- New service providers

1992
- Privatization and deregulation

Pre-1984
- Government as Service Provider
Public Sector ICT Challenges in Achieving 4 Strategic Thrusts of Transformation

- **Information Sharing**
  - Provide inter-agency information access

- **ICT Infrastructure**
  - Infrastructure Sharing
  - Network, Data Centres & Security

- **Shared Services**
  - Common government services

- **Knowledge Management**
  - Knowledge capturing, storing, retention and dissemination

- **Policy**
  - ICT Strategic Plan
  - Revise and develop policies

- **Government Collaboration**
  - Intra-agency collaboration

- **ICT Governance**
  - GCIO
  - Performance Measurement

- **Integration and Interoperability**
  - Interoperability framework & enforcement
**Public Services IT Governance (Websites & Portals)**

**Government IT & Internet Committee**
Chairman: Chief Secretary to Government
- Formulate policy & strategy
- Coordinate planning & implementation of ICT program
- Monitor progress of all ICT program including portal/website implementation
- Resolving escalated issues

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**Public Sector Portal/Website Steering Committee**
Chairman: Director General (MAMPU)
- Formulate vision and strategies
- Coordinate & monitor implementation of websites/portal
- Monitor effectiveness of websites/portal and identify improvement efforts
- Monitor & solve problems/issues

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**Public Sector Portal/Website Task Force**
Chairman: Deputy Director General ICT (MAMPU)
- Monitor & evaluate all government websites/portal
- Ensure compliance to guidelines & policies
- Identify & plan promotional program
- Identify problems/issues faced by agencies in deploying websites/portal

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**Head of Ministries & Dept. Meeting**
Federal Government & State Government Liaison Meeting
Chairman: Chief Secretary to Government

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**Main Committee of Ministry & State Government Portal/Website**
Chairman: Head of Ministry/State Secretary

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**Governance at Agency level**

- **Main Committee on the Management of Ministry & State Government Portal/Website**
  Chairman: Head of Agency

- **Working Committee of Agency Portal/Website**
  - Ensuring website’s implementation according to policy & guidelines

- **Technical Committee of Agency Portal/Website**
  - Provide technical assistance in the management of portal/website

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The establishment of **e-Government** is another initiative towards improving information flows and processes, and focusing on the effective and efficient delivery of Government services to the people as well as enhancing transparency and accountability.
Examples of Government’s Portal

- www.jupem.gov.my
- www.jkr.gov.my
- www.townplan.gov.my
- www.ekl.gov.my
Achievements and Developments in Geospatial Information Management
WHERE IS MALAYSIA – A GLOBAL SNAPSHOT
Expediting the B1 plan preparation from 2 years to just 2 months (Required for Final Title)
From Single Purpose eKadastre To Multipurpose Kadastre
Mutipurpose Cadastre Infrastructure

3-Dimensional City Models
Street Addresses
Building/Facilities
Satellite Images

NGDC/SGDC (GDM2000)
National / State Geospatial Database
(Server MyGDI National/State)

NDCDB (GDM2000)
National / State NDCDB
(JUPEM HQ / State)
3D City Model of Putrajaya
(3D MPC Database Overlay with Orthophoto)
Multipurpose Cadastre – “Ubiquitous Environment”

- To enable individuals to fully utilize services
- Required information in the desired style
- Ubiquitous Services: Securely, reliably, and appropriately-priced
- Ubiquitous Networks
- To enable individuals to freely engage in activities
- To enable individuals to utilize services with peace of mind
Malaysia Geoportal and MyGDI Explorer

- Map Services Integration
- Geospatial Information Sharing Via Services
National, Regional, State and Local Geospatial Data Centres (NGDC, RGDC, SGDC, LGDC)
Geospatial Data: Reducing Crime
Geospatial Data: Urban Planning
Geospatial Data: Navigation
Improving Urban Public Transport: Foundation For Public Transport Infrastructure
Regional Economic Development
Kuala Lumpur Metropolis

GREAT KUALA LUMPUR
Greater KL will encompass 279,327 ha, which is an area four times the size of Singapore. By 2020, seven out of 10 Malaysians are expected to live in urban areas like Greater KL.

Cities of the future
Overall results

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<tr>
<th>Cities</th>
<th>Overall average</th>
<th>Above average</th>
<th>Well above average</th>
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<td>Haroi</td>
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<td>Kuala Lumpur</td>
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Performance for different categories

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<th>Energy and CO₂</th>
<th>Transport</th>
<th>Waste</th>
<th>Water</th>
<th>Sanitation</th>
<th>Air quality</th>
<th>Environmental governance</th>
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<td>Well below average</td>
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The Star : Saturday February 26, 2011
The Use of Geospatial Information in Development Projects in Malaysia
Electrification of Double Track Project (EDTP)
The Penang Second Bridge
Dam Development
Group Settlement Planning
State & Federal Roads
National Sovereignty
Federal Administrative Centre Development

PUTRAJAYA
Intelligent City, Garden City
Concluding Remarks
“...we must **transform** to achieve Vision 2020. Transformations are seldom easy – they involve conquering our own fear of the unknown while also winning over those who defend the status quo and attempt to obstruct our affords. In this journey, we will be transparent.”

*Government Transformation Programme*
Concluding Remarks

“True transformation requires a fundamental change to the way things are done in the organization, and through this new way of acting, the character of the organization is change.”

Government Transformation Programme
Concluding Remarks

- Spatially Enabled Government will increase efficiency, effectiveness and competitiveness of government and enhance government’s delivery systems.

- Spatially Enabled Government requires MyGDI as an “enabling platform” to provide appropriate technology, standards, policies, governance and legal structure to link geospatial information, products and services.

- The Malaysian Government has envisioned a technologically advanced society and implicitly, a technologically enabled government through its Vision 2020.
End of Presentation
Thank You