Approximately 70% of the earth is covered by water
What Malaysia is the maritime nations?

`The Making Of Malaysia As A Maritime Nation' is appropriate and relevant as it highlights Malaysia's aspiration to be a maritime nation in the true sense…..

Because of our history and the close proximity of many Malaysians to the sea we are inclined to regard Malaysia as a maritime nation. We are situated on the trade routes between India and China, between Europe and the East and naturally served as a port of call between monsoons for supplies and crew for all ships plying this route.

Tun Dr. Mahathir, 1997 (Malaysia's First International Maritime Conference)
Shipping Density Analysis
Malaysia as a Maritime Country

<table>
<thead>
<tr>
<th>Area</th>
<th>Square Kilometers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Waters</td>
<td>94,132</td>
</tr>
<tr>
<td>Territorial Waters</td>
<td>65,035</td>
</tr>
<tr>
<td>EEZ</td>
<td>379,820</td>
</tr>
<tr>
<td>Continental Shelf</td>
<td>439,373</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>598,540</strong></td>
</tr>
</tbody>
</table>
Marine Governance

**PRIME MINISTER DEPT**
- National Security Council
- Economic Planning Unit
- Maritime Enforcement Agency

**MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION**
- National Oceanography Directorate
- Meteorological Dept
- Remote Sensing Agency

**MINISTRY OF AGRICULTURE AND AGRO-BASED INDUSTRY**
- Dept of Fisheries
- Fisheries Development Authority

**MINISTRY OF TRANSPORT**
- Marine Dept
- Port Authority
- Maritime Institute of Malaysia (MIMA)

**MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT**
- National Mapping Agency
- MaCGDI
- Dept of Environment
- Dept Marine Park
- Dept Irrigation & Drainage
- Dept Mineral and Geoscience
- NAHRIM
- Dept DG of Land and Mines

**MINISTRY OF DEFENCE**
- Royal Malaysian Navy
- National Hydrographic Centre

**MINISTRY OF FOREIGN AFFAIRS**
- Multilateral Economic and Environment Division

**MINISTRY OF DOMESTIC TRADE, CO-OPERATIVES AND CONSUMERISM**
- EEZ Act

**MINISTRY OF TOURISM AND CULTURAL**
- Department of Natural Heritage

**MINISTRY OF ENERGY, GREEN TECHNOLOGY AND WATER**
- Ocean Renewable Energy
Situational Analysis
Marine Data Management-Knowledge Management

Marine is Complex

Different jurisdictions under various agencies/ministries

- Heterogeneous
  - Distributed
  - Autonomous

Need mechanism for sharing

Seamless Solution

Marine SDI
Malaysia Geospatial Data Infrastructure (MyGDI)

- MyGDI as a National Spatial Data Infrastructure (NSDI)
- Malaysian Center for Geospatial Data Infrastructure (MaCGDI) is a center under Ministry of Natural Resources and Environment (NRE)
- MaCGDI was formed in 2002 to promote the development and implementation of MyGDI
- MaCGDI plays crucial roles to spearhead the geospatial industry in Malaysia.
MyGDI GOVERNANCE

New

Policy & Governance (People)

MyGDI Marine Technical Committee

MyGDI Standard Technical Committee

MyGDI Framework Technical Committee

MyGDI Clearinghouse Technical Committee

MaCGDI

MyGDI National Coordinating Committee
Ministry of Natural Resources & Environment (NRE)

National Land Council

MyGDI State Coordinating Committee

MyGDI State Technical Committee

Federal Geospatial Data Providers

State Geospatial Data Providers
MyGDI Marine Technical Committee

a. Lead Agency: National Hydrographic Centre
b. Secretariat: Malaysian Centre for Geospatial Data Infrastructure (MaCGDI)
c. Permanent Members (Data Provider/Ownership)
   (1) Department of Survey and Mapping Malaysia (JUPEM)
   (2) Minerals and Geoscience Department Malaysia (JMG)
   (3) Malaysian Meteorological Department (MMD)
   (4) Marine Department Malaysia (JLM)
   (5) Department of Irrigation and Drainage (DID)
   (6) Department of Environment (DOE)
   (7) Department of Fisheries Malaysia (DoF)
   (8) Department of Marine Park Malaysia (DMPM)
   (9) Department of National Heritage (DNH)
   (10) Strategic Technology and S & T Application Division (formerly NOD), MOSTI.
   (11) Ministry of Energy, Green Technology and Water (KeTTHA)
   (12) National Water Services Commission (SPAN)
   (13) Malaysian Communications and Multimedia Commission (MCMC)
   (14) Malaysia Petroleum Management (MPM)
   (15) Tenaga Nasional Berhad (TNB)
   (16) Telekom Malaysia Berhad (TM)
d. Supporting Agencies
   (1) National Security Council (MKN)
   (2) Malaysia Remote Sensing Agency (MRSA)
   (3) Ministry of Domestic Trade, Cooperatives and Consumerism (KPDNKK)
S-57 / S-100 and others product specification

Data dissemination through OGC Web Service
…….WMS/WMTS/WFS/WCS etc….
Framework Data Categories

Categories:
- Aeronautical
- Built Environment
- Demarcation
- Geology
- Hydrography
- Hypsography
- Soil
- Transportation
- Utility
- Vegetation
- Special Use
- General

Lead Agencies:
- DCA
- JUPEM
- JMG
- NHC
- DOA
- JKR
- JUPEM
Identify Key Datasets for inclusion in MSDI!

Geographic Content (Data)

- Undersea feature names
  - Coastal names
  - Sea names
- Natural
- Artificial
- Intertidal Zone
- Underwater Rocks
- Wrecks
- Obstructions
- Geographical Names
- Coastlines
- Bathymetry
- Elevation
- Uncertainty
- Depth
- Sounding
- Contour
- Administrative Boundaries
  - Shipping Fairways, Lanes and Zones
    - Marine Jurisdiction
    - Marine Protection Area
- Human Activities
- Geology
  - Seabed
  - Sediment
  - Backscatter
  - Borehole
- Bouy
- Beacon
- Lighthouse
- Aids to Navigation
- Oceanography
- Meteorology
  - Wind
  - Relative Humidity
  - Pressure
  - Temperature
- Tides
  - Currents
  - Salinity
  - Conductivity
  - Waves
  - Temperatures
  - pH
  - Dissolved Oxygen
  - Turbidity
  - Total Suspended Sediments (TSS)
  - Biological Oxygen Demands (BOD)
  - Chemical Oxygen Demands (COD)

...plus Meta Data
Hydrographic data and its role in MSDI

- Raster charts as basemap

- ENC - S57 data as operational /additional layer

Hydrographic data sets and data infrastructure
MyGEOPORTAL

- Malaysia Geoportal is the visible front-end to MyGDI, the gateways through which users access the geospatial information services.

- Access and distribution of geospatial information is at the heart of MyGDI project.

- This portal allows Users to explore, view and access the implementation of MyGDI, initiatives and its related applications.

www.mygeoportal.gov.my
MyGDI Applications

http://www.mygeoportal.gov.my/data-services
MyGDI Explorer is a metadata catalogue services which enables user to explore, discover, view and evaluate geospatial data from anywhere and at anytime.
Malaysia Geospatial Online Services (MyGOS)

A platform for user to promote sharing of geospatial information. It enables you to turn your data into web-enabled services that your whole organization members can use.

- Online mapping platform
- Content management platform
- Collaborative and sharing platform

MyGDI
Marine SDI

- Marine Spatial Planning (MSP)
- Integrated Coastal Zone Management (ICZM)
- Strategic Environmental Assessment (SEA)
- Shoreline Management Plans (SMP)
- Emergency Response
- Offshore Renewables Energy
- Aggregates Extraction
- Oil and Gas
- Infrastructure Development (e.g. Ports and harbours)
- Economic Development (e.g. Tourism)
- E-Navigation
- Defence (i.e COP, NCO)
CONCLUSIONS

• MSDI is about “best practise”
• The biggest challenge is “people” and “organisations” (culture)
• There are many benefits to be realised from MSDI
• National Hydrographic Centre – the right agency to develop Marine SDI
  • Hydrography data - provides the fundamental backdrop
  • The IHO standards are aligned with ISO and OGC standards
  • ICT ready
  • Good governance through National Hydrographic Committee
• Marine SDI ready by end of 2018!
Thank you for your attention