

SDI

- The easiest issue to address in any SDI development
- The most difficult issue to address in any SDI development
- Which one do you recommend addressing first in SDI development
- Brief example of these from your own experience/observations

SDI

- The easiest issue to address in any SDI development
 - Organisational needs
 - Individual data/metadata inventory

SDI

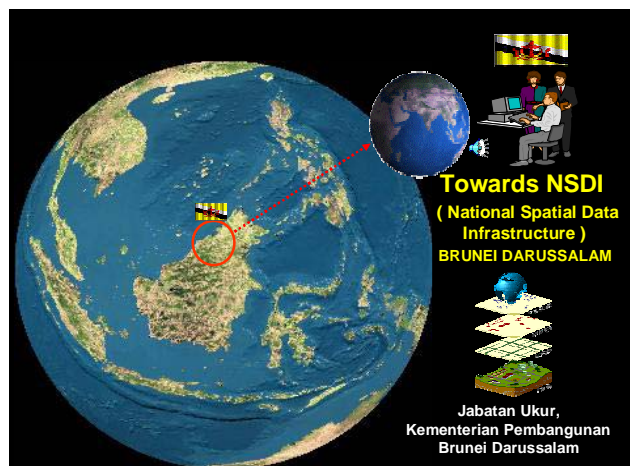
- The most difficult issue to address in any SDI development
 - Consensus / cooperation
 - financing

SDI

- Which one do you recommend addressing first in SDI development
 - Awareness / needs
 - Policy (top down)

SDI

- Brief example of these from your own experience/observations



Formation of NSDI (National Spatial Data Infrastructure) for Negara Brunei Darussalam

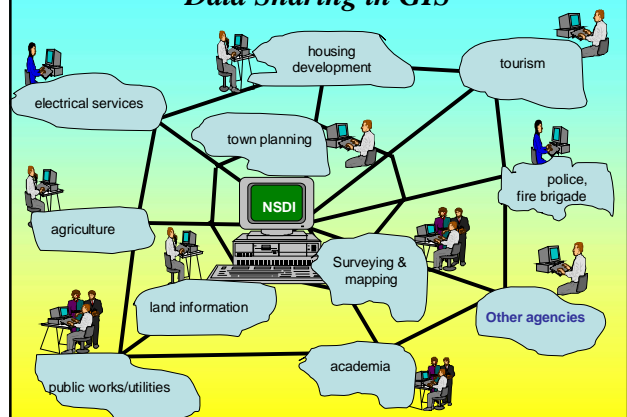
National GIS / NSDI

The formation of **National Spatial Data Infrastructure** (NSDI) for Brunei Darussalam was initiated by The Surveyor General, Survey Department, Ministry Of Development Brunei Darussalam.

Why do we need NSDI?

- To share geographic data among all users
- To produce significant savings for data collection
- To enhance decision making

Data Sharing in GIS



Objectives

- To reduce duplication of effort among agencies, improve quality and reduce costs related to geographic information.
- **To make geographic data more accessible to the public.**
- To increase the benefits of using available data, establish key partnerships with Government Departments, Academia and the Private sectors.

NSDI Benefits

- Greater sharing and better access to high quality geographic data could also improve the well being of our communities .
- If sharing data among organisations were easier, millions \$ could be saved annually, and governments and businesses could become more efficient and effective.
- In line with our e-Government projects.

Problems / Challenges

- Data collection is an expensive business. In many cases, however, data are duplicated.
- There may be many Government departments and other organisations collecting the same data.
- Data created for one application may not be easily translated into another application.
- Some Government departments and other organisations may not be willing to share data with one another.

Problems / Challenges

- The lack of metadata or information on the "who, what, when, where, why, and how" databases exist.
- Public access to data is also a concern. Many government agencies have public access mandates .
- Confidentiality of data is controlled by higher authority (KDN).

How to integrate the data

- The System used by other organisations should be interoperable.
- Geospatial Standard needs to be introduced.
- The Government and other agencies should always work together.
- Data should be transparent. Any national law and government policies on data confidentiality need to be reviewed and amended.

Our stages towards the formation of B-NSDI

- **First stage** ,
Forming Working Committees.
The Committee should look into the Survey Department SDI (SDSDI) requirements.
- **Second stage** ,
Awareness programme to other departments and ministries .
- **Third stage** .
Expand the scope of work to other departments under the Ministry of Development.
- **Fourth stage** ,
Expand the scope of work to other ministries and private sectors.
Forming NSDI Committees.

NSDI

National Spatial Data Infrastructure Working Committee

First stage :

The Committees identify the Survey Department SDI (SDSDI) requirements:

- Inventorise existing data (graphics and textual) in all sections including formats (*Done*)
- Data analysis (*Done*)
- Metadata creation (*in process*)
- Follow-up standard with reference to ISO TC 211
- Brunei NSDI policy (*In process*)
- Access mechanism (Clearing house) (*In process*)
- IT Infrastructure (network etc.) (*In process*)
- Database Management (*In process*)
- Compile the SDSDI report . (*90% completed*)

List of existing data in our database

- RSO / Cadastral Data 1/2500.
- Raster Data (Remote Sensing, Aerial Photograph)
- Digital Map 1:1,000 and other...
- Geodetic Control Points
- LOT Books System
- LTS / TOL
- Gazettes

Oracle 8.0.5 Database, Unix Server KPN1

- Coordinates of lots, TOL, LA, GRCad 200/500, point database system.
- Coordinates of control points, Geopan, Geodetic system
- Lot book system, TOL system, Details of surveying, details of lots, details of tol, details of control points
- House numbering system
- Owner of lots and Tol LRS and Tol in land departments

List of existing data in Land Department's Database

- Land Ownerships / Land Title Registration.
- Land Tax
- Land Transaction
- TOL Registration

List of existing data in TCP Department's Database

- Master Plan
- Development area
- Conservation area

Second stage :

Awareness programme to other departments and ministries

- Seminars
- Workshop
- Meetings
- Study Visit
- Conferences

Awareness Programme GIS / NSDI MEETING

(UKUR & K.H.E.D.N) 23rd March 2005



Findings from the KHEDN officers and NSDI Working Committees meeting:

- They need up-to-date and more precise Base Map for their GIS.
- The location map should be clearly and precisely presented. (eg: using Aerial photo, Ikonos Satellite Imagery)
- Fire Services Department wishes to share their data (Location of Fire Hydrants and location of their buildings).
- KB Municipal Department requested us to show the municipal boundary on the map.
- Our GIS (SIKA) should be updated from time to time. Some information are still missing.
- District office requested GIS for Kampong Information (We have Sungai Akar Pilot project , SAIS done by Licensed Surveyor, JPS . Still in the process of compilation).

Third stage :

Expand the scope of work to other departments under the Ministry of Development.

- Forming Steering Committee (Chaired by JUA)
- Database Integration
 - Sharing data
 - Standard terms of reference (TOR)
 - Avoid data duplication
 - Centralise database

Fourth stage :

Expand the scope of work to other ministries and private sectors

- Forming NSDI Committees (top level)

Chairman: Permanent Secretary Ministry Of Development
 Secretary: Surveyor General
 Members: Director General of Public Works
 Commissioner Of Lands
 Commissioner Of Town And Country Planning
 Director Of Housing
 Director Of Electrical Services
 Director Of Economic Planning
 Director Of Environmental & Recreation
 Director Of Road, PWD
 Director Of Drainage & Sewerage, PWD
 Director Of Building, PWD
 Districts Officers
 Other related departments

The existing data in Other Departments' Database will be Integrated in our NSDI

- Electrical Department ?
- Public Work Departments ?
- Housing Department ?
- Fire Services ? (Location of fire Hydrant, etc)
- Police ? (Location of Police Stations, etc)
- Education ? (Location of schools , etc..)
- Health ? (Location of Hospitals, Clinics, etc)
- Other ...

Milestone

| | 2004 | 2005 |
|---|--------------------|----------------------------------|
| Stage 1 - List of existing data in our database | July | |
| Stage 2 - Awareness programme to other Departments and Ministries | May - December | Jan - December |
| Stage 3 - Expand the scope of work to other departments under the Ministry of Development | October - December | Jan - December |
| Stage 4 - Expand the scope of work to other ministries and private sectors. - Forming NSDI Committee. Implementation B-NSDI | | Jan - 21st Nov |

Brunei-NSDI End Results

- Become one-stop online service that enable property buyers, lawyers, real estate agents, valuers, developers, surveyors, and the general public to easily access to GIS or Land information.
- B-NSDI enables you to find out what's in and around the land / property you are looking at.
- B-NSDI enables the decision makers (Ministers, Heads of Departments and others) to make decision more efficiently.
- B-NSDI will reduce the cost of Government's expenditure..!

NSDI PROTOTYPE using ArcExplorer / ArcIMS From Survey Department Database

- Control Points (Horizontal and Vertical)
- Standard Survey Sheet
 - Private Lots
 - Government Housing Scheme.
- Gazetted Areas
- Status of Land Subdivision .
- House Numbering (Addresses)

Details Information (Initial stage):

- **Location**
 - Natural features and man made features.
 - Addresses.
- **Land Ownerships**
 - Private Land
 - Buildings, etc
 - State Land
 - Gazetted land
 - Buildings, etc.
- **Land Development Application**
 - Subdivision Application Status
 - Building Application status
 - Land Taxations.

Note:

We need a base map of scale at least 1: 1,000. Overlay with aerial photograph / satellite imagery (Ikonos or Quick Bird) with the equivalent scale.

NSDI PROTOTYPE From Survey Department Database



<http://172.20.11.15/nsdi/index.html>

BUDGET ? \$

- Start from \$ 0...!
- Departmental Annual Budget
- Existing e-Government Projects
- **Proposed RKN 9 Project**

Proposed NSDI in RKN 9 Project

- NSDI project is a continuous effort
 - It involves Man powers, Hardware, Software and Knowledge.
 - Data collection.
 - Maintenance Hardware and Software.
 - Up-to-date information.
- Budget required approximately: **\$ 3,000,000.00**

To achieve our Vision and Objective, we need:

- Support from Top Management (SUT and Minister).
- Support from **KDN** (Internal Security Department).
- Support from other related departments and other agencies.
- Support from Treasury, Ministry Of Finance.

Shukran

THANK YOU