

## 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

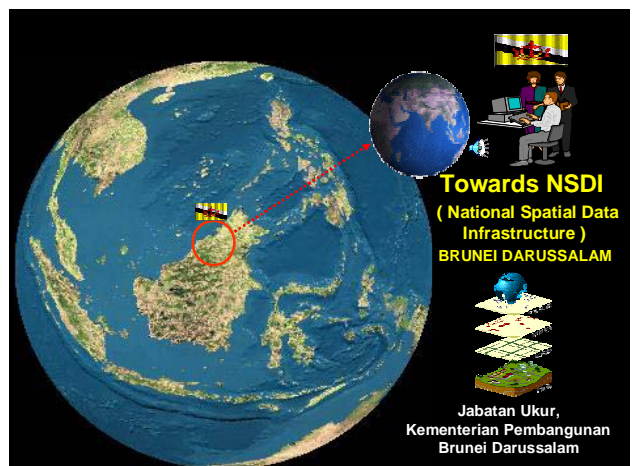
- The most difficult issue to address in any SDI development
  - Consensus / cooperation
  - financing

## 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

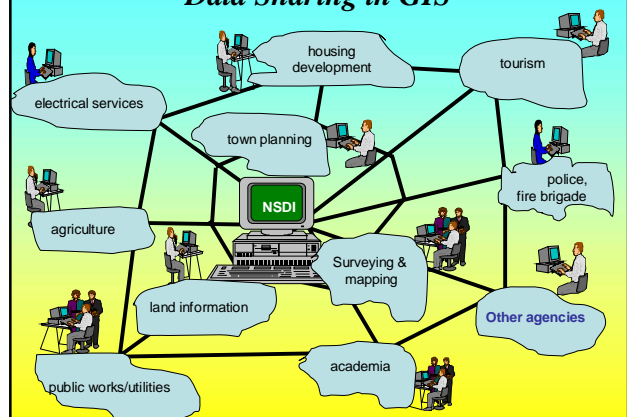
## National GIS / NSDI

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 ) 23<sup>rd</sup> 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 - <b>21<sup>st</sup> Nov</b>

### 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