The Role Of Ina-SDI For Disaster Management

Indonesia

Tehran - Iran
28 October 2013

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Geospatial Information Authority of Indonesia (BIG)
Five Basic Components of NSDI have been applied and implemented by the National Geospatial Authority of Indonesia (BIG - Badan Informasi Geospasial):

1. **POLICY**
   
a. State Law No. 4 / 2011: Geospatial Information;
   
b. Presidential Regulation No. 94 / 2011: National Geospatial Information Authority (BIG);
   
c. Presidential Regulation No. 6 / 2012: Ortho-Rectified Hi-Res Satellite Imageries;
   
   
e. Mutual Regulation (being implemented) between Ministry of Interior, Ministry of Communication and Information, and BIG.

**ACT NO. 4 YEAR 2011**

**POLICY AND IMPLEMENTATION**

1. TO ENDORSE SINGLE REFERENCE FOR INTEGRITY OF GEOSPATIAL INFORMATION IN INDONESIA;
2. TO ENSURE THE AVAILABILITY AND ACCESS OF GEOSPATIAL INFORMATION WITH ACCOUNTABILITY;
3. TO ACHIEVE USEFULNESS OF GEOSPATIAL INFORMATION THROUGH COOPERATION, COORDINATION, INTEGRATION AND SYNCHRONIZATION; AND
4. TO ENCOURAGE THE USE OF GEOSPATIAL INFORMATION IN GOVERNMENT ACTIVITY AND PEOPLE’S DAILY LIFE
ACT NO. 4 YEAR 2011
TRANSFORMATION IN PARADIGM AND INSTITUTION

BAKOSURTANAL

- INSTITUTIONS OF NATIONAL ADVISER IN DEVELOPMENT OF SURVEY, MAPPING, AND SPATIAL DATA INFRASTRUCTURE

BADAN INFORMASI GEOSPASIAL

GEOSPATIAL INFORMATION AGENCY

- THE NATIONAL ORGANIZER IN THE FIELD OF THE TOPOGRAPHIC SURVEY AND BASE MAPPING
- INSTITUTIONS OF NATIONAL ADVISER IN DEVELOPMENT OF THEMATIC MAPS
- THE NATIONAL ORGANIZER FOR SPATIAL DATA INFRASTRUCTURE

LAWS AND REGULATION CONCERNING GEOSPATIAL INFORMATION

UU No. 4 / 2011 : Geospatial Information

Presidential Decree No. 85 / 2007 : National Geospatial Data Network (JDSN) → expanded to be
PerPres No. … / 2013 National Geospatial Information Network (JIGN)

Presidential Decree No. 94 / 2011 : Roles and Functions of Geospatial Information Authority (BIG)

Presidential Instruction No. 6 / 2012 : Provision, Use, Quality Control, Processing, and Distribution of Ortho-Rectified Hi-Res Satellite Imagery
WG2: Initial Research on Existing National and International Geoportals for the Sharing of Data and Information Related to Disaster Management

Five Basic Components of NSDI have been applied and implemented by the National Geospatial Authority of Indonesia (BIG - Badan Informasi Geospasial):

2. INSTITUTIONAL →
   a. BIG was established in 2012;
   b. Memorandum of Understanding (MoU) on Geospatial Information Sharing and Network Node with many Ministries and Provincial/Regency-Municipal Governments;
   c. Center for Assessment and Development of SDI with 8 (eight) Universities;
   d. Community-based Participatory Mapping.

3. DATA and STANDARD →
   a. Seamless Basic Geospatial Data (2,500k / 250k / 50k / 25k) of BIG and many Thematic Geospatial Data from Ministries were improved (one map policy) & published on Indonesia Geospatial Portal (Ina-GeoPortal);
   b. National Standard of Geospatial Features and Catalog, and adoption of ISO Metadata as the National Standard.
GEOSPATIAL INFORMATION ROLE IN INDOONESIAN SUSTAINABLE DEVELOPMENT

DECENTRALIZATION AND REGIONAL AUTONOMY

DATABASE
GEOSPATIAL INFORMATION
STATISTICS/CENSUS

PLANNING FOUNDATION
SPATIAL PLANNING
CADASTER MANAGEMENT

APPROACH BY ZONE

NATIONAL GOALS

FAST GROWING
BOUNDARY/FRONTIER
LEAST DEVELOPED
DISASTER RISK
SOCIAL CONFLICT
URBAN SYSTEM
RURAL
LOCAL ECONOMIC DEVELOPMENT
TRANSIMIGRATION
ISLANDS AND PROVINCIAL PLANNING DIRECTIVE

INTER REGION GAP REDUCTION
PROSPERITY ACCELERATION

NEW INDOONESIAN GEOSPATIAL REFERENCE SYSTEM (Ina-GRS2013)

Indonesia has launched a new Indonesian Geospatial Reference System on Oct 17th, 2013 which is called Ina-GRS2013.

Ina-GRS2013 replaced the former Indonesian National Geodetic Datum (DGN95) by considering tectonic plate movement and crustal deformation into its reference system. It will be used as a single geospatial reference system throughout the country.

Details:
1. GRS Name: **Indonesian Geospatial Reference System (Ina-GRS2013)**
2. Reference frame: **National Geodetic Control Network tied to ITRF 2008**
3. Reference epoch for Ina-GRS 2013: **2012.0 (1 January 2012)**
4. Vertical Datum: **Geoid**
5. Include a Deformation Model / Velocity model

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Ina-GRS 2013 REALIZATION

CORS GNSS Distribution 2013

Indonesian Geoid for Kalimantan & Sulawesi

Horizontal Control Network Distribution

Vertical Control Network Distribution

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STATUS 2013: BASE MAPPING

• Aerial photo’s
• Airborne IFSAR
• Airborne LIDAR
• Satellite SAR

DATA ACQUISITION

STEREO PLOTTING

• DTM (contour lines)
• Topomap features

FIELD SURVEY

• Accuracy Test
• Toponyms
• Administrative Boundary

DATABASE

• Topology
• Seamless-ing

PRODUCTS

• Cartography
• Digital Map
• Gazetteer

BASEMAP

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Global Geospatial Information Management for Asia and the Pacific
WG2: Initial Research on Existing National and International Geoportals for the Sharing of Data and Information Related to Disaster Management

Five Basic Components of NSDI have been applied and implemented by the National Geospatial Authority of Indonesia (BIG - Badan Informasi Geospasial):

4. TECHNOLOGY →
   a. Indonesia Geospatial Portal (Ina-GeoPortal) was launched in 2012;
   b. National Geospatial Data Center (Tier 3), Disaster Recovery Center, Geospatial Cloud & High Performance Computing Services;
   d. National Internet eXchange (NIX) for Geospatial Information Communication Infrastructure.
WG2: Initial Research on Existing National and International Geoportals for the Sharing of Data and Information Related to Disaster Management

Five Basic Components of NSDI have been applied and implemented by the National Geospatial Authority of Indonesia (BIG - Badan Informasi Geospasial):

5. HUMAN RESOURCES
   a. Professional Certification based on National Occupational Competency Standards, Licensing for Geospatial Information Services Industry;
   b. Capacity Building: NSDI Training Center, Promotion & Socialization.

LEVERAGING GEOSPATIAL INDUSTRY

Min. of Labor Decree No. 8/2012
STATUS 2013: Ina-SDI DEVELOPMENT

Sistim Penyelenggaraan IG BIG :
1. Data Collection & Processing
2. Data Management
3. Geodatabase Management
4. Production Management
5. Publication Management
6. Utilizing

TARGET CONNECTED TO DO

Ministerial Agencies
57 15 42

Provinces
34 14 20

Regional/ Municipal
500 2 498

INDONESIA: FACING MOST KIND OF HAZARDS

VOLCANO ERUPTION

EARTHQUAKE

FOREST FIRE

FLOOD

ARTIFICIAL FAILURE

TSUNAMI
INDONESIA: FACING MOST KIND OF HAZARDS

• Asia-Pacific Disaster Report 2010 stated that people in the Asia Pacific is 4 times more susceptible than in Africa and 25 times more vulnerable than in North America and Europe. [1]

• United Nations International Strategy for Disaster Reduction (UNISDR) rank Indonesia first in the two natural disasters (tsunami and landslide), ranking third in the earthquake, and ranked sixth in the flood.

• 4408 natural disasters occurred over the past 5 years (2004-2009) in Indonesia: 71 earthquakes; 2 Tsunami; 24 Volcanic eruption; 469 landslide events; 1916 floods; 158 Flooding with landslides; 1083 Drought; 580 Hurricanes; and 105 Tides.

• The UN report estimates that more than 18 million people affected by natural disasters in Indonesia from 1980 to 2009.

KEY INSTITUTIONS IN DISASTER MANAGEMENT

• BNPB is the Indonesian National Board for Disaster Management (Indonesian: Badan Nasional Penangulangan Bencana), has the task to assist the President of the Republic of Indonesia: planning and coordinating the implementation of disaster management and emergency response activities in an integrated manner; and implement disaster management and emergency response from before, during, and after including disaster prevention, preparedness, emergency response, and recovery.

• BIG is the Geospatial Information Agency (Indonesian: Badan Informasi Geospasial), has the task to assist the President of the Republic of Indonesia: planning, organizing and coordinating the development of geospatial information for disaster management activities.

Ina-SDI ROLE IN DISASTER MANAGEMENT

- Extra-Terrestrial:
  - Asteroid Impact
- Internal Geo-Dynamic Processes:
  - Earthquake, Tsunami, Volcanic Eruption
- External Geo-Dynamic Processes:
  - Landslide, Soil Erosion, Land Degradation
- Hydro-Meteorological:
  - Floods, Tropical Storms, Drought
- Ecological / Environmental:
  - Pollution, Crop Disease,
- Epidemics:
  - SARS, HIV / AIDS, Avian Flu
- Technological:
  - Industrial Accidents
- Conflicts:
  - Public Disorders, Political, Terrorism

COMPONENT FOR GEOSPATIAL DATA SHARING

geoSpatial Data Sharing

Ina-SDI

- Policy
- Institutional
- Data & Standard
- Technology
- Human Resources
PILLARS of Ina-SDI FOR DISASTER MANAGEMENT

- Institutional Arrangement
- Human Resource
- Standardized Geospatial Data
- Laws And Rules
- Science and Technology

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Ina-SDI’S WORKING ELEMENTS

STANDARD
- INTEROPERABILITY
- GUIDANCE AND SPECIFICATION
- GEOSPATIAL INFORMATION
- METADATA

• Accuracy
• Land Cover
• Completeness
• Others

ONE MAP POLICY
- SDI ARRANGEMENT
- INSTITUTIONAL ARRANGEMENT
- ACCESS POLICY
- IMPLEMENTATION OF STANDARD
- SDI COMMITTEE
- CAPACITY BUILDING

GEO-ICT
- GEOPORTAL
- HARDWARE AND NETWARE
- SOFTWARE
- DATABASE MANAGEMENT SYSTEM

DATA
- SCALE AND RESOLUTION
- METADATA
- DATA MANAGEMENT
- DATA ACQUISITION
- ACCESS AND ANALYSIS
- TYPE OF DATA

CONTRIBUTORS
- GOVERNMENTS
- PRIVATE AND VENDORS
- COMMUNITIES

HUMAN RESOURCES
- CERTIFIED PROFESSIONALS
- ACADEMICS
- WELL-INFORMED DECISION MAKERS

ACCESS POLICY
- Acquisition
- Management
- Visualization
- Access

• Integration
• Analysis
• Quality Control
• Quality Assurance

Acquisition
• Management
• Visualization
• Access

INSTITUTIONAL ARRANGEMENT
Ina-SDI READINESS FOR DISASTER EVENT
57 MINISTRIES, 34 PROVINCIAL, AND 508 MUNICIPALITIES

Ina-GeoPortal:
http://tanahair.indonesia.go.id or http://maps.ina-sdi.or.id
Ina-GEOPORTAL: Servicing Member of INA-SDI and Public with Multi-Scale BaseMap

Better Decision Making with Common Operating Maps

Geospatial Support Command Center

Geospatial Superiority

Analysis Visualizing Planning Acting

GEO-Monitoring GEO-Accounting GEO-Mapping

Local Government Ministries Community

Mapping Agency

Indonesian SDI

Capabilities

Governance in the Field of Surveying, Mapping and Geospatial Data Infrastructure in Providing Timely, Relevant, and Accurate Geospatial Information to Support of Disaster Management
RESUME: Ina-SDI FOR DISASTER MANAGEMENT

CHALLENGES AND OPPORTUNITY

- **Our strength** is strong political support, has stated strong organizations’ vision and underlying measurable missions.

- **Our challenges** lies in technical level and personal level, both in quantity and quality.

- **Our plan** to overcome these challenges is to empower academia through establishing SDI Centers in 8 top universities and Constructing new standard of competence and professionalism, both in government and the geospatial related industries.

با تشکر از شما  

Thank You  

... See You in Bali