Geospatial Information for Disaster Risk Reduction: Indonesia plan for 2015-2019

The 20th UNRCC-AP and The 4th UN-GGIM-AP
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NATIONAL STRATEGIC ISSUE: MAPS FOR DISASTER MANAGEMENT LIFECYCLE

POLICY ON INSTITUTIONAL ARRANGEMENT, STANDARD, HUMAN RESOURCE, AND TECHNOLOGY
INDONESIA:
RING OF FIRE, SUBDUCTION ZONE, SMALL ISLANDS, FOREST FIRES, HIGH RAINFALL, LARGE POPULATION
LAWS AND POLICY:
GEOSPATIAL INFORMATION FOR DISASTER MANAGEMENT

LAW 24/2007 for Disaster Management
- Geospatial Information are needed in almost all disaster management lifecycle (mitigation, disaster preparation, emergency responses, and post disaster).
  - Local governments should develop disaster risk map
  - Geospatial Information for disaster should accurate and up-to-date.

LAW 24/2007 for Disaster Management
- Basemap should be updated due to disaster
- Institutions and citizens should contribute their thematic maps for disaster management purposes.
Geospatial Information are needed by all level of governments and citizens to improve quality of decision making in all aspects of national government.
ONE MAP STRATEGIC IMPLEMENTATION
NATIONAL GEOSPATIAL INFORMATION PROGRAMS
FOR DISASTER MANAGEMENT

POLICY ON INSTITUTIONAL ARRANGEMENT, STANDARD, HUMAN RESOURCE, AND TECHNOLOGY
PROVIDING BASEMAP (One Reference)
BASEMAP AS REFERENCE FOR THEMATIC MAPS

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

**DATA ACQUISITION**
- DTM (contour lines)
- Topomap features

**STEREO PLOTTING**
- Accuracy Test
- Toponyms
- Administrative Boundary

**FIELD SURVEY**
- Topology
- Seamless-ing

**DATABASE**
- Cartography
- Digital Map
- Gazetteer

**PRODUCTS**

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PROVIDING THEMATIC MAPS (One Standard)
RING OF FIRE, SUBDUCTION ZONE, SMALL ISLANDS, FOREST FIRES, HIGH RAINFALL, LARGE POPULATION

Risk Map
BMKG, PU, BIG, ESDM

Sectoral Zonation Permit Map
BPN, KEMENHUT, ESDM

Land Cover map
BIG, KEMENHUT, LH, LAPAN

Earthquake Distribution Map
ESDM, BMKG

Ortho High Resolution Imagery
BIG, LAPAN

SECTORAL COORDINATION AND SINERGY
FOR 'ONE MAP POLICY'

12 NATIONAL WORKING GROUP FOR THEMATIC MAPPING

NATURAL RESOURCE AND WATERSHED
FARMING AND PEATLAND
RESOURCE DYNAMIC
CLIMATE CHANGE
ECOREGION
TRANSPORTATION
DISASTER MAPPING
SPATIAL PLANNING
MARINE RESOURCES, COASTAL, AND SMALL ISLANDS
SOCIAL, ECONOMY, CULTURE AND ATLAS
SECTORAL ZONATION, LAND COVER, AND LAND STATUS
GEOINTELEGENT
Establishment of Thematic Database
Should refer to standard database so the integration of thematic map can easily be carried out. (ONE Database)

Example:
Integration of consession permits data of Forestry, Estate and Mining at the Pasir Distric, East Kalimantan.
INTEGRATED ON ONE GEOPORTAL SYSTEM

Any map produced by national and sub-national government institution has to be for public transparency & participation:

(OONE Geoportal)

http://tanahair.indonesia.go.id or http://maps.ina-sdi.or.id
STRENGTHENING FUNDAMENTAL ASPECTS
STRATEGY FOR GEOSPATIAL INFORMATION MANAGEMENT AND UTILIZATION

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

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 DAN ANALYSIS
- TYPE OF DATA

CONTRIBUTORS
- GOVERNMENTS
- PRIVATE AND VENDORS
- COMMUNITIES
- HUMAN RESOURCES
- CERTIFIED PROFESSIONALS
- ACADEMICS
- WELL-INFORMED DECISION MAKERS

- Acquisition
- Management
- Visualization
- Access
- Integration
- Analysis
- Quality Control
- Quality Assurance
- Accuracy
- Availability
- Land Cover
- Completeness
- Others
INTEGRATING NSDI INTO DISASTER MANAGEMENT CYCLE

PRE-DISASTER - MITIGATION
a. Planning
b. Disaster Risk Reduction
c. Prevention
d. Synchronization to national development plan
e. Disaster Risk Analyses
f. Implementation of Spatial Planning
g. Education and Training
h. Technical Standard
i. Preparedness
j. Early Warning
k. Mitigation

POST DISASTER
a. Rehabilitation
b. Reconstruction

EMERGENCY RESPONSE
a. Rapid Assessment
b. Declaration of Emergency
c. Rescue and Evacuation
d. Relief
e. Protection for the vulnerables
f. Recovery of vital infrastructure
INDONESIAN SUSTAINABLE DEVELOPMENT
SDI PROVIDE GEOSPATIAL INFORMATION TO ALL GLOBAL GOALS
REGIONAL SDI TO SUPPORT MEMBER COUNTRIES
SDI AS COLLABORATION PLATFORM FOR ALL COUNTRIES TO MEET
GLOBAL GOALS

REGIONAL INITIATIVES

ASIA-PASIFIC

• NATIONAL SDI
• GEOPORTAL

PRODUCTION UNIT
DATA MGT UNIT
GEOPORTAL CATALOG METADATA

DATA CENTER
COMMUNITY NODE
GEOPORTAL METADATA DATA CENTER

WEST JAVA PROVINCE

PROVINCIAL DATA CENTER
DATA MGT UNIT
GEOPORTAL CATALOG METADATA

NATIONAL SDI
GEOPORTAL

NATIONAL GEOSPATIAL DATABANK
PRODUCTION UNIT
DATA MGT UNIT
GEOPORTAL CATALOG METADATA

BIG
NATIONAL AND REGIONAL SDI CONTRIBUTION
SDI AS A SOURCE OF NATIONAL AND REGIONAL DECISION/POLICY MAKING

GOVERNANCE IN THE FIELD OF SURVEYING, MAPPING AND GEOSPATIAL DATA INFRASTRUCTURE IN PROVIDING TIMELY, RELEVANT, AND ACCURATE GEOSPATIAL INFORMATION TO SUPPORT OF DISASTER MANAGEMENT
INA - SDI AS PLATFORM FOR WEBS APPS
STRATEGY FOR GEOSPATIAL INFORMATION UTILIZATION

FACILITATING ALL LEVEL OF DECISION MAKINGS TO COLLABORATE FOR DISASTER RESPONSES WITH ACCURATE AND ACCOUNTABLE GEOSPATIAL INFORMATION
INDONESIAN PARTICIPATORY MAPPING APPS

Left Polygon: tracking results of area affected avalanches,
Right Polygon: avalanche area

WEB VIEWER
ONLINE MAP EDITING
ONLINE FIELD PAPER
DESKTOP MAP EDITING
QUALITY CONTROL APP
INDONESIAN PARTICIPATORY MAPPING APPS

1. DATA CENTER ARCHIVE
   - INPRES 6/2012
2. BASELINE DATA
   - SURVEYOR
   - UAV, TRIKE, CHOPPER
3. DATA MGT
   - VPN, DATABASE
   - ANEW ACQUISITION
   - PROCESS
   - ANALYSIS
   - SCENARIO, RECOMMENDATION, PRIORITY
4. GEOPORTAL DATA SHARING
   - VISUAL AND PRINT
   - SITUATION ROOM
   - PRESIDENT, MINISTERS, GOVERNORS, AND MAJORS
   - QUICK RESPONSE TEAM
LOW COST UAV FOR RAPID MAPPING

Weight & Payload
- Aircraft Weight: 2.5 kg
- Payload Capability: 1.7 kg
- Maximum Gross Take-Off Weight: 4.2 kg

Flight Characteristics
- Cruise Speed: 30 – 40 km/h
- Max. Speed: 120 km/h
- Launch Type: Hand launch
- Max. Altitude: 500 m AGL
- Max. Flight Time: 45 minutes
- Total Flight Distance: 20 – 30 km
- Coverage Area: 400 – 1000 ha

Camera Options
- 12MP /Digital Still Camera
- Near Infrared Camera (optional)
- Multi-spectral Single Camera (optional)

RF Communications
- 72 MHz Data Link, Ground to Aircraft (One-Way, Flight Controls)
- 900 MHz Data Link, Ground to Aircraft & Aircraft to Ground (Two-Way, Autopilot & Telemetry)
- 1.3 GHz Video Link, Aircraft to Ground (One-Way)
WAY FORWARD
GEOSPATIAL INFORMATION STRATEGY FOR
DISASTER MANAGEMENT LIFECYCLE
WAY FORWARD

- **COMPLETE NATIONAL BASEMAPS** AND **HIGH RESOLUTION ORTHO IMAGERY** for **LARGE SCALE**
- **IMPROVING STABLE NETWORK INFRASTRUCTURE** (In coordination with the ministry of communication and information)
- **IMPLEMENTING OPEN GOVERNMENT DATA** AND **PARTICIPATORY MAPPING** as part of “open government initiative”
- **CONSTRUCT NEW POLICY AND GUIDELINES** TO ENCOURAGE More state ministries, provincial and local governments, and universities to join SDI.
- **SYNCHRONIZE WITH REGIONAL AND GLOBAL POLICY** ON Geospatial information, especially for completion of and **sustainable development goals**.