

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

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**The 20<sup>th</sup> UNRCC-AP and The 4<sup>th</sup> UN-GGIM-AP**  
Jeju Island, Republic of Korea,  
5-10 October 2015

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**Head of Geospatial Information Agency**  
**Republic of Indonesia**



# **NATIONAL STRATEGIC ISSUE: MAPS FOR DISASTER MANAGEMENT LIFECYCLE**

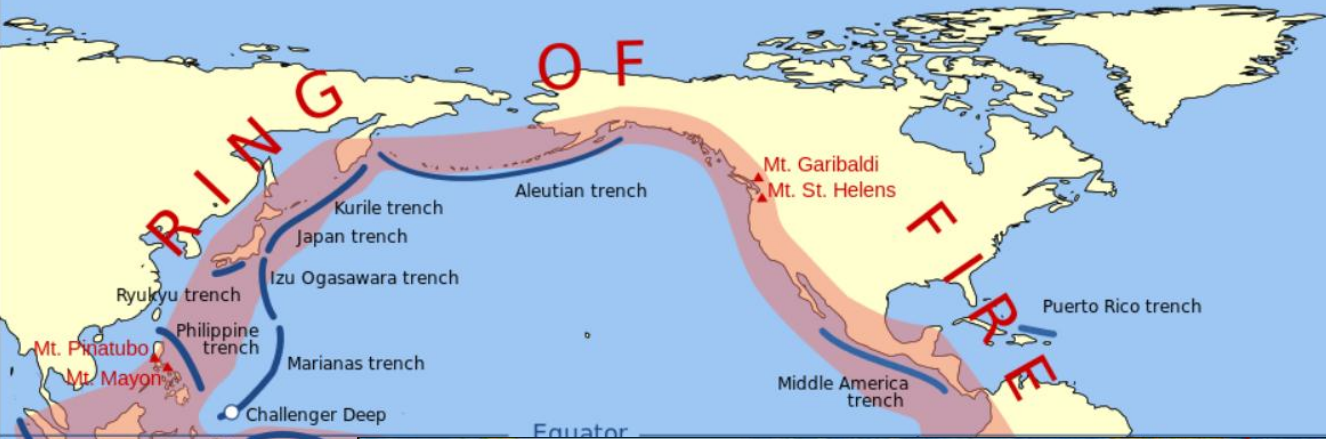
**POLICY ON INSTITUTIONAL ARRANGEMENT, STANDARD, HUMAN RESOURCE, AND  
TECHNOLOGY**





BADAN INFORMASI GEOSPASIAL

# RING OF FIRE



100 mm per year

PACIFIC PLATE

# GEOGRAPHIC POSITION OF INDONESIA



# INDONESIA:

RING OF FIRE, SUBDUCTION ZONE, SMALL ISLANDS, FOREST FIRES, HIGH RAINFALL, LARGE POPULATION



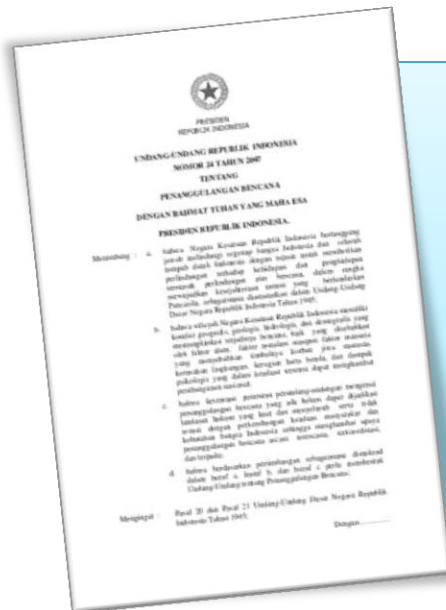
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# LAWS AND POLICY: GEOSPATIAL INFORMATION FOR DISASTER MANAGEMENT



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GEOSPASIAL

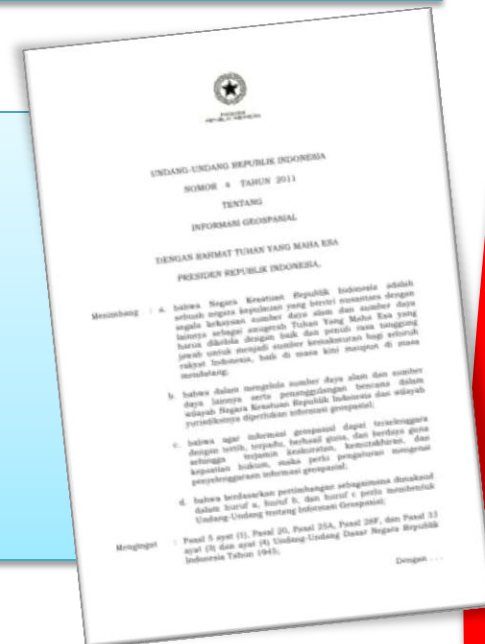


## LAW 24/2007 for Disaster Management

- Geospatial Information are needed in almost all disaster management lifecycle (mitigation, disaster preparedness, 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.

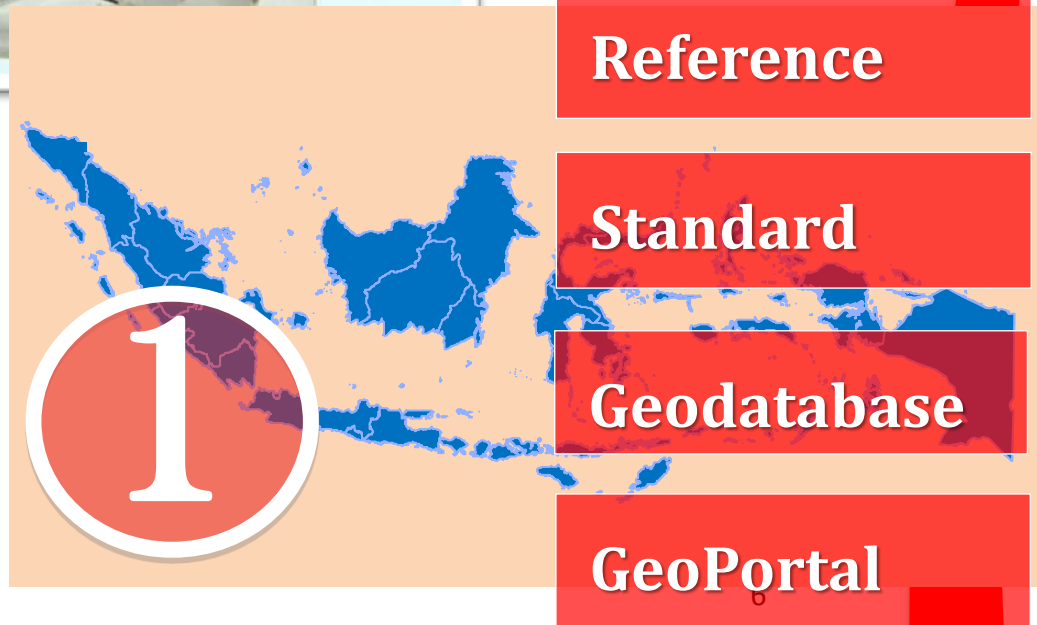


# ONE MAP POLICY

## STRATEGY FOR GEOSPATIAL INFORMATION MANAGEMENT



*Geospatial Information are needed by all level of governments and citizens to improve quality of decision making in all aspects of national government.*



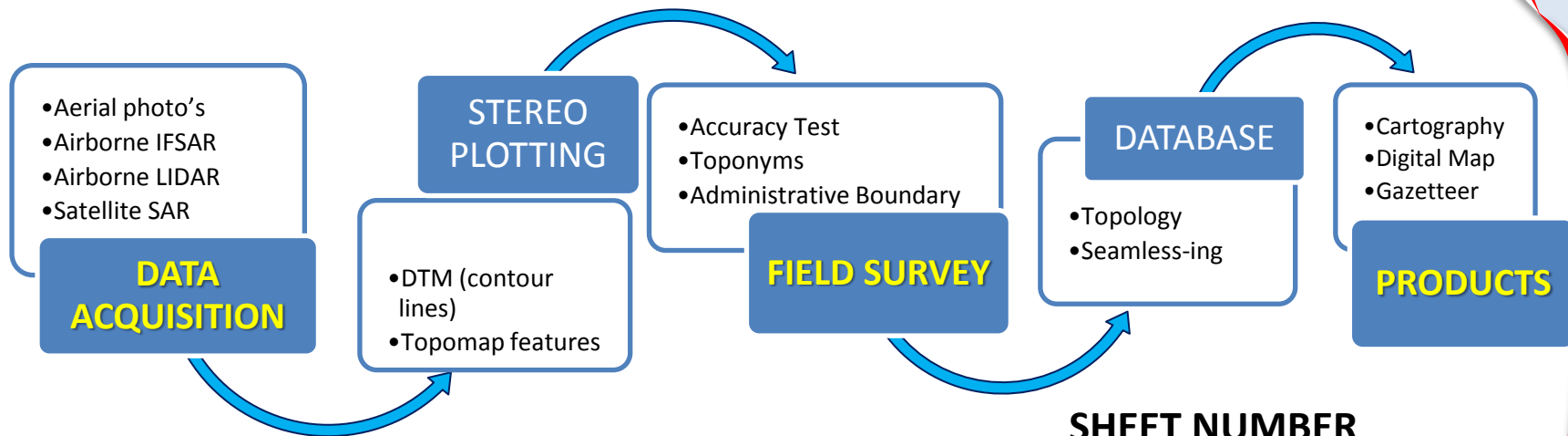
# **ONE MAP STRATEGIC IMPLEMENTATION NATIONAL GEOSPATIAL INFORMATION PROGRAMS FOR DISASTER MANAGEMENT**

**POLICY ON INSTITUTIONAL ARRANGEMENT, STANDARD, HUMAN RESOURCE, AND  
TECHNOLOGY**



# PROVIDING BASEMAP (One Reference)

## BASEMAP AS REFERENCE FOR THEMATIC MAPS



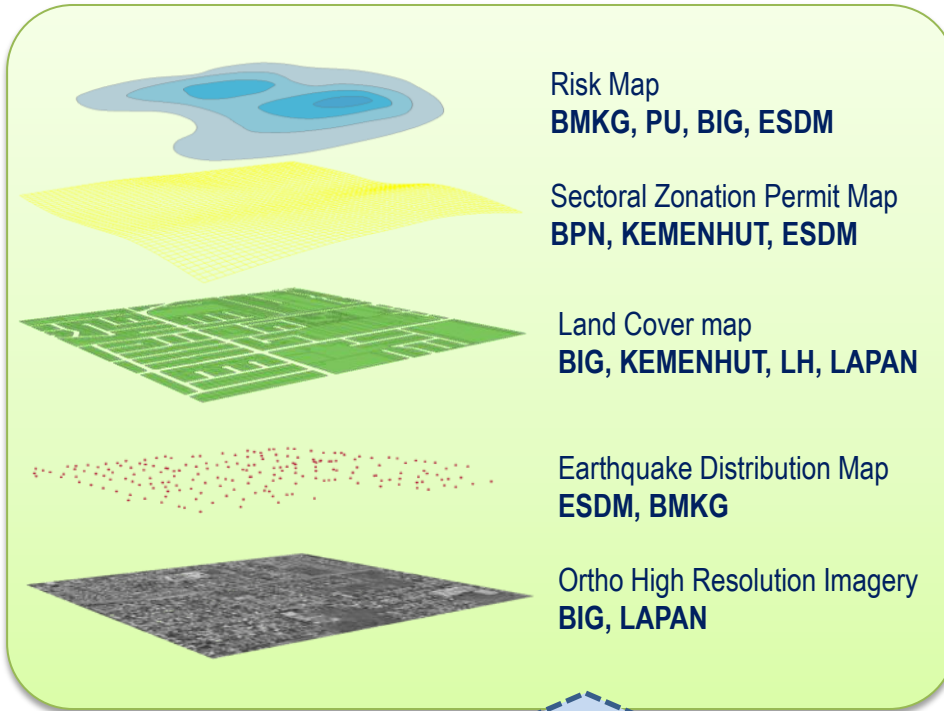
### SHEET NUMBER

	SCALE	TOTAL	AVAILABLE	TO DO
SMALL	1:1.000.000	37	37	0
	1:500.000	103	103	0
	1:250.000	309	309	0
MEDIUM	1:100.000	1.245	1.245	0
	1:50.000	3.899	2.417	1.471
	1:25.000	13.020	1.774	11.246
LARGE	1:10.000	91.547	658	90.889
	1:5.000	379.014	128	378.458
	1:2.500	880.206	0	880.206
	1:1.000	2.729.319	0	2.729.319



# PROVIDING THEMATIC MAPS (One Standard)

RING OF FIRE, SUBDUCTION ZONE, SMALL ISLANDS, FOREST FIRES, HIGH RAINFALL, LARGE POPULATION



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

GEOINTELEAGENT

# Establishment of Thematic Database

Should refer to standard database so the integration of thematic map can easily be carried out. (ONE Database)

## Example:

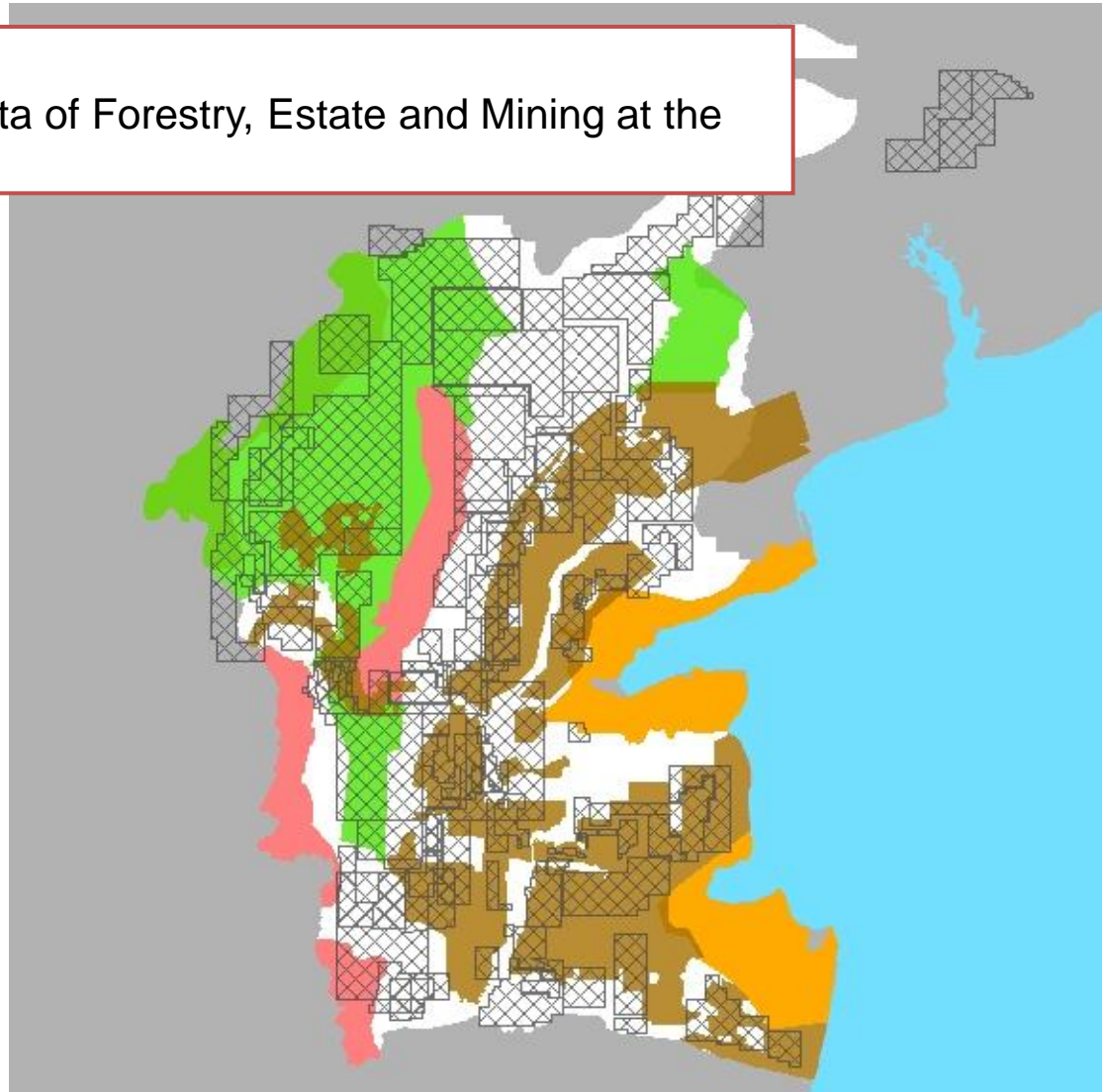
Integration of concession permits data of Forestry, Estate and Mining at the Pasir District, East Kalimantan.

Protected Forest and  
Conservation Area...

...overlay with HPH and HTI  
areas...

...overlay with plantation  
areas...

...overlay with mining area



# INTEGRATED ON ONE GEOPORTAL SYSTEM

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

<http://tanahair.indonesia.go.id> or <http://maps.ina-sdi.or.id>

Ina-Geoportal GALERI PETA GROUP KONTENKU

## Geospasial untuk Negeri

Informasi geospasial menambah dan memperkuat pengetahuan kita mengatasi masalah keruangan

### Galeri Peta Geospasial Indonesia



Gempa di Indonesia 04 -  
11 April 2012



Peta Perbandingan



Gempa Bumi di atas 5.5  
Sejak 1973



Peta tutupan lahan 2006

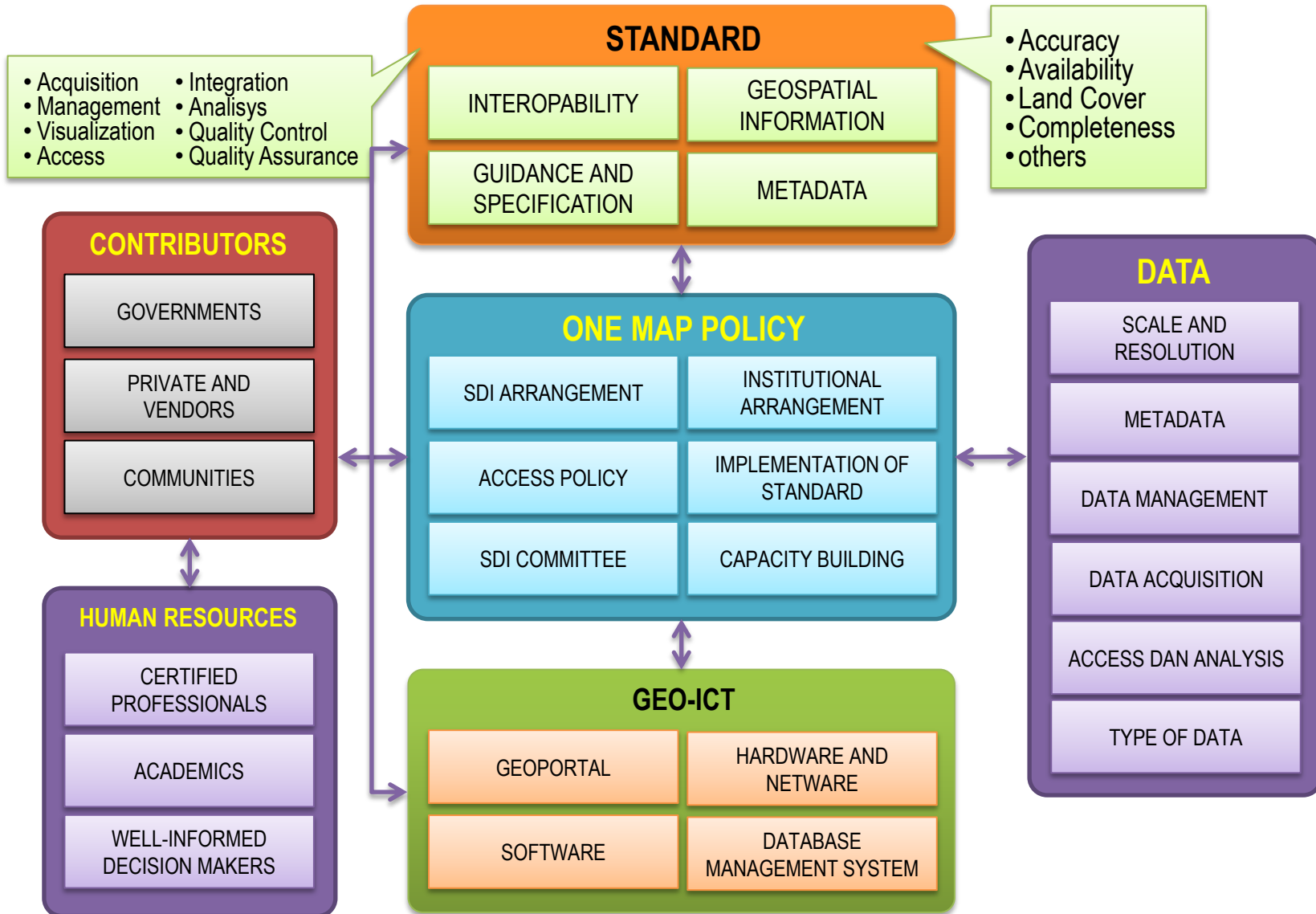
Geospasial untuk negeri adalah portal geospasial Indonesia dibangun dengan partisipasi berbagai kementerian dan lembaga serta pemerintah daerah di Indonesia.

Membuat Peta »

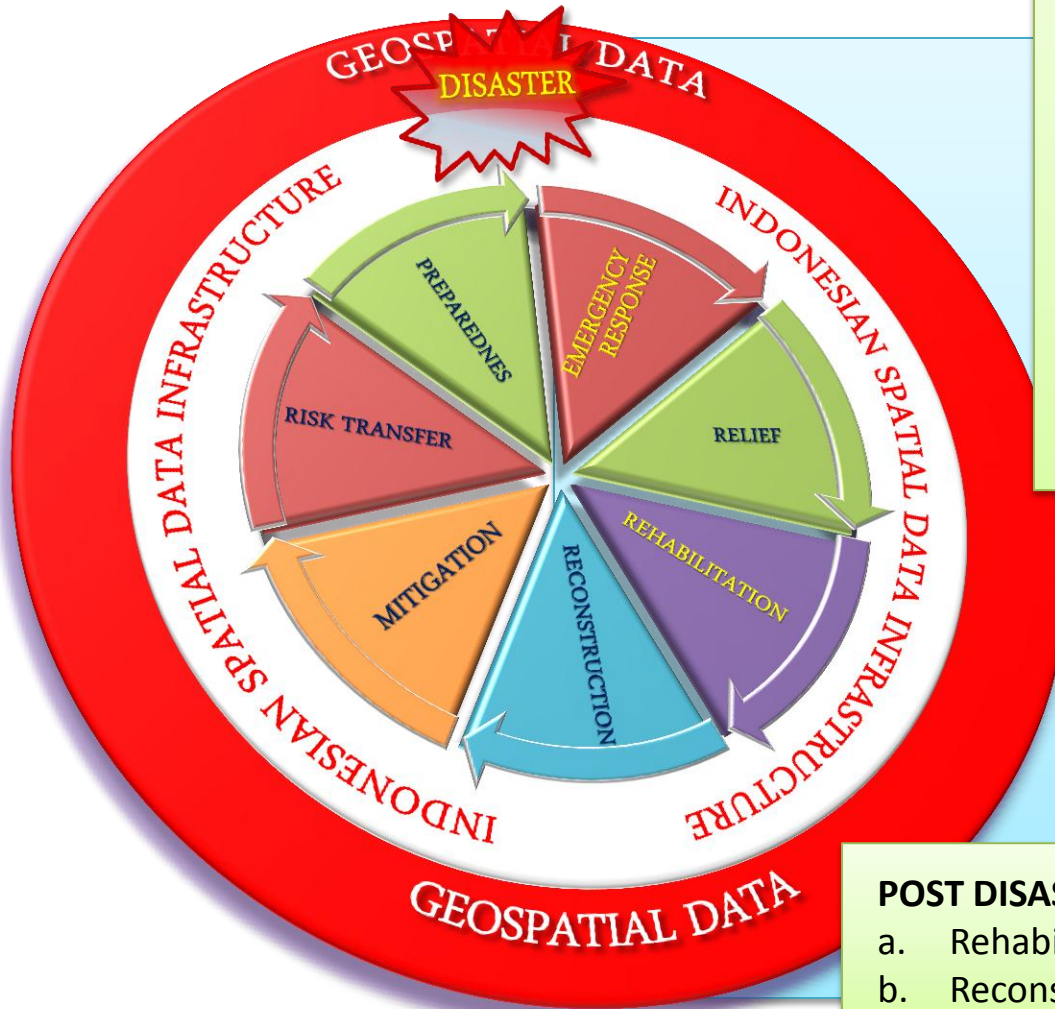
Mulai ArcGIS Explorer Online »

# STRENGTHENING FUNDAMENTAL ASPECTS

## STRATEGY FOR GEOSPATIAL INFORMATION MANAGEMENT AND UTILIZATION



# INTEGRATING NSDI INTO DISASTER MANAGEMENT CYCLE



## PRE-DISASTER - MITIGATION

- Planning
- Disaster Risk Reduction
- Prevention
- Synchronization to national development plan
- Disaster Risk Analyses
- Implementation of Spatial Planning
- Education and Training
- Technical Standard
- Preparedness
- Early Warning
- Mitigation

## EMERGENCY RESPONSE

- Rapid Assesment
- Declaration of Emergency
- Rescue and Evacuation
- Relief
- Protection for the vulnerables
- Recovery of vital infrastructure

## POST DISASTER

- Rehabilitation
- Reconstruction

# INDONESIAN SUSTAINABLE DEVELOPMENT SDI PROVIDE GEOSPATIAL INFORMATION TO ALL GLOBAL GOALS



**SDI**

**STATISTICS/  
CENSUS**

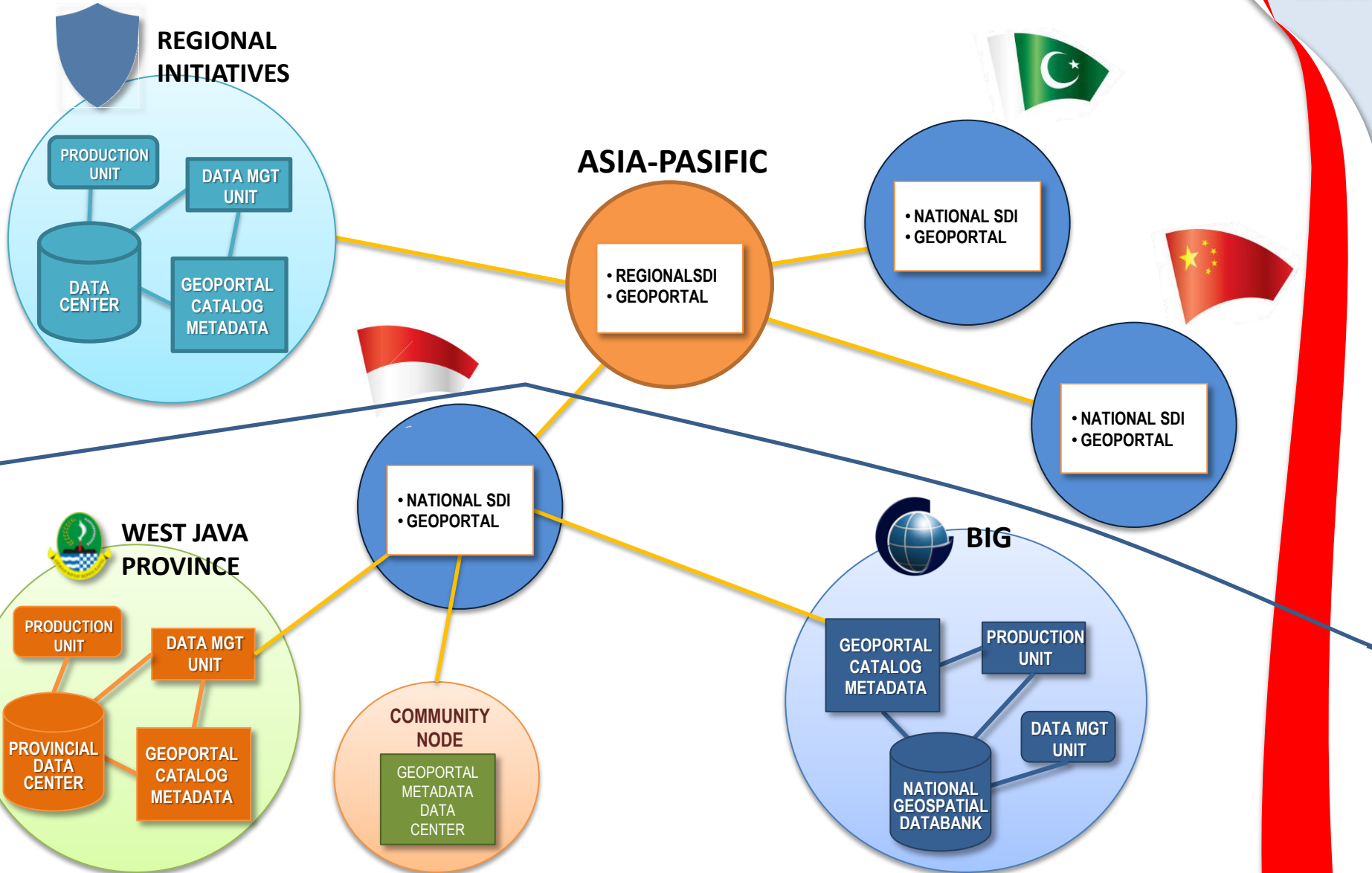


**GEOSPATIAL  
INFORMATION**



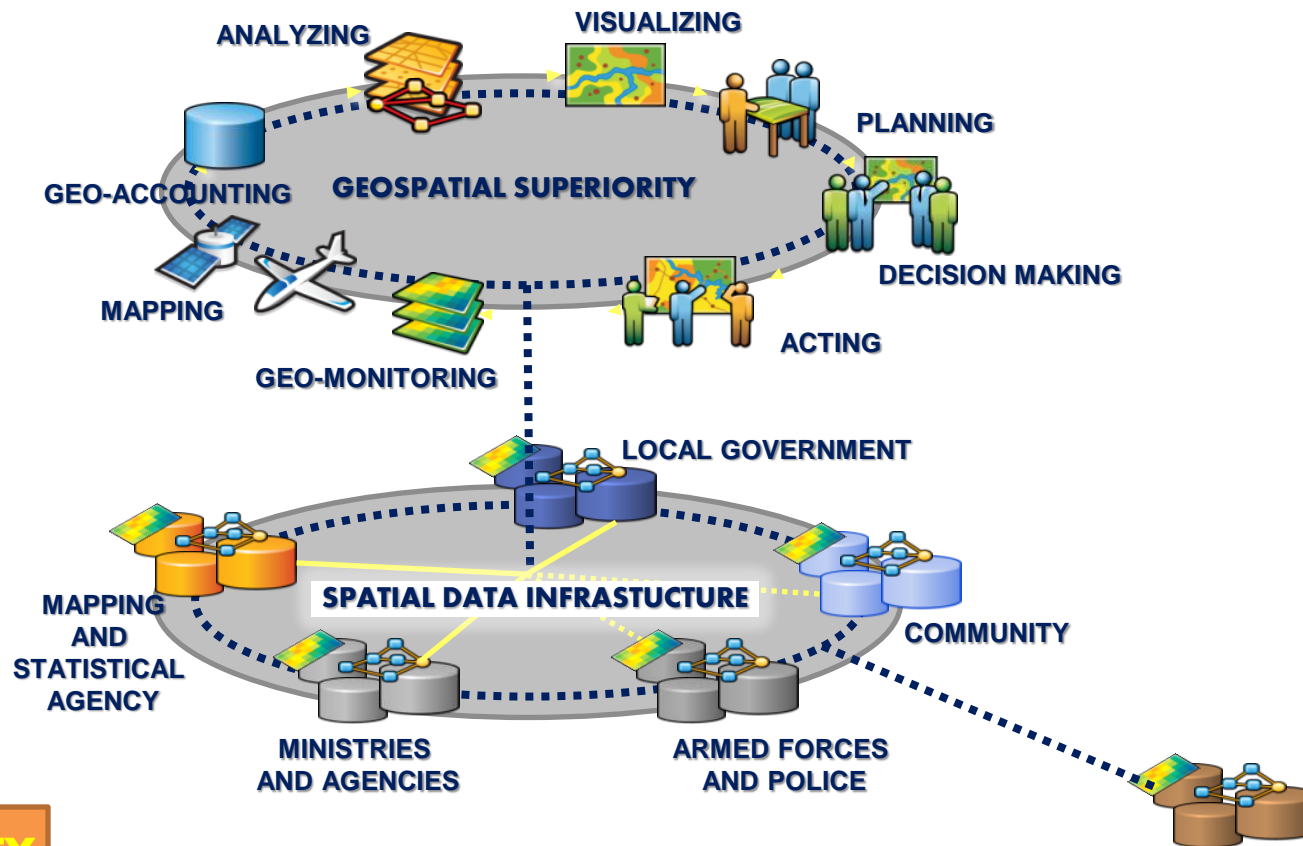
# REGIONAL SDI TO SUPPORT MEMBER COUNTRIES

## SDI AS COLLABORATION PLATFORM FOR ALL COUNTRIES TO MEET GLOBAL GOALS



# NATIONAL AND REGIONAL SDI CONTRIBUTION

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



### CAPABILITY

GOVERNANCE IN THE FIELD OF SURVEYING, MAPPING AND GEOSPATIAL DATA INFRASTRUCTURE IN PROVIDING TIMELY, RELEVANT, AND ACCURATE GEOSPATIAL INFORMATION TO SUPPORT OF DISASTER MANAGEMENT



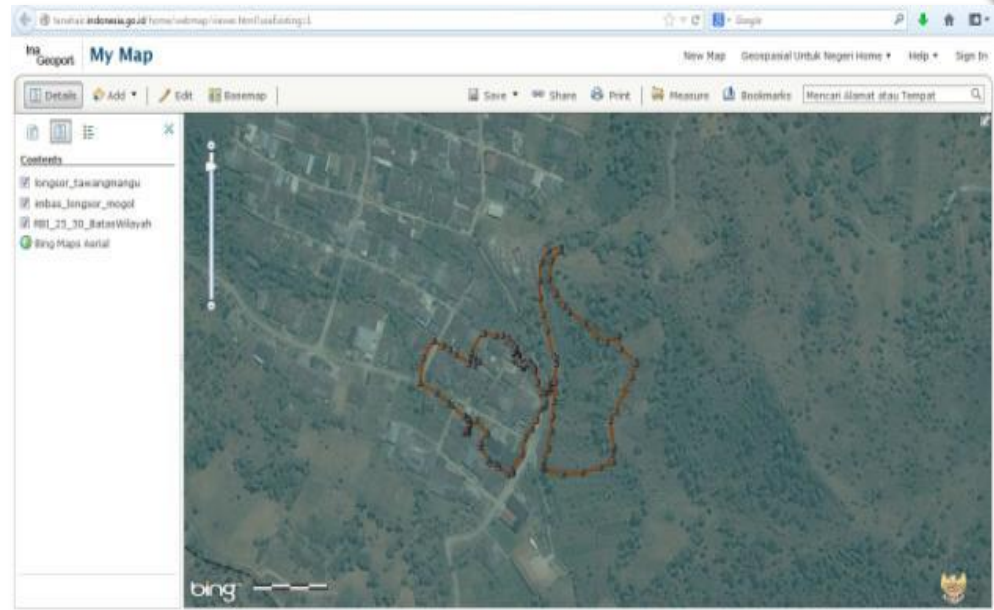
# INA - SDI AS PLATFORM FOR WEBS APPS

## 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**

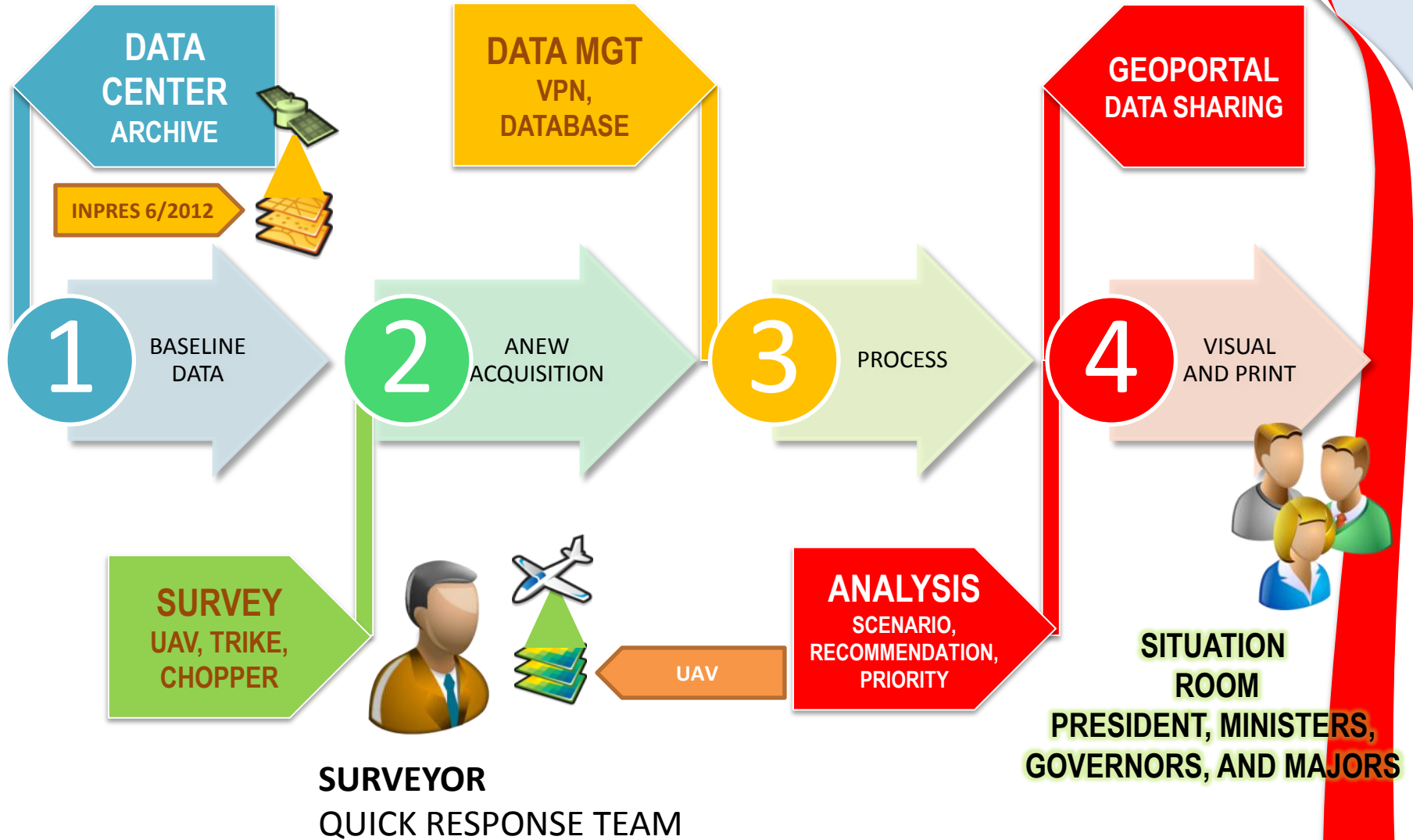


**DESKTOP  
MAP  
EDITING**



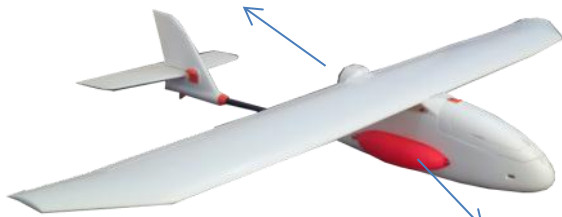
**QUALITY  
CONTROL  
APP**

# INDONESIAN PARTICIPATORY MAPPING APPS

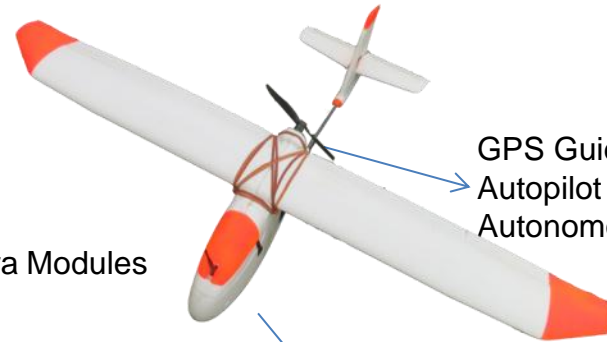


# LOW COST UAV FOR RAPID MAPPING

Advanced Flight  
Stabilization Auto-Levels the  
Plane



Interchangeable Camera Modules



GPS Guided  
Autopilot for  
Autonomous Flight

Parachute Cover (optional)

## Weight & Payload

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



## Camera Options

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



## 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



## 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*.



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A word cloud of the word "thank you" in various languages, including:  
Bahasa Indonesia: **terima kasih**  
English: **thank you**  
Spanish: **gracias**  
French: **merci**  
German: **danke**  
Italian: **grazie**  
Russian: **спасибо**  
Japanese: **感謝**  
Hindi: **धन्यवाद**  
Arabic: **شكرا**  
Portuguese: **obrigado**  
Tamil: **தודה**  
Telugu: **ధన్యవాదం**  
Sinhala: **මුණිසා**  
Burmese: **ကျေးဇူးတင်**  
Vietnamese: **cảm ơn**  
Korean: **고맙습니다**  
Thai: **ขอบคุณ**  
Lao: **ສະບັຍ**  
Khmer: **អរគុណ**  
Burmese: **ကျေးဇူးတင်**  
Tibetan: **ཐུགས་རྒྱུན་ལགས།**  
Mongolian: **багтамал**  
Burmese: **ကျေးဇူးတင်**  
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