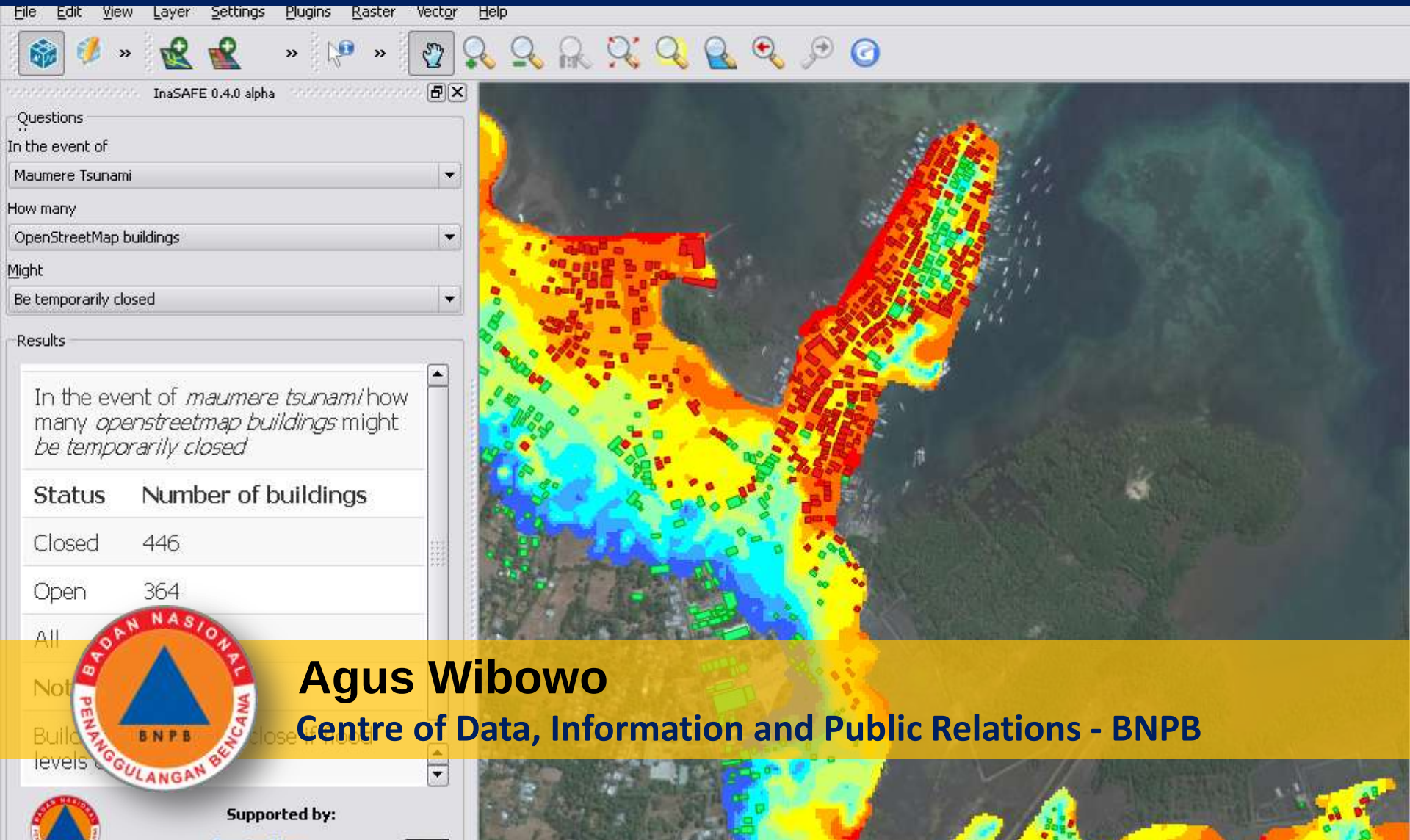
Indonesia Scenario Assessment For Emergencies (InaSAFE)



Agus Wibowo
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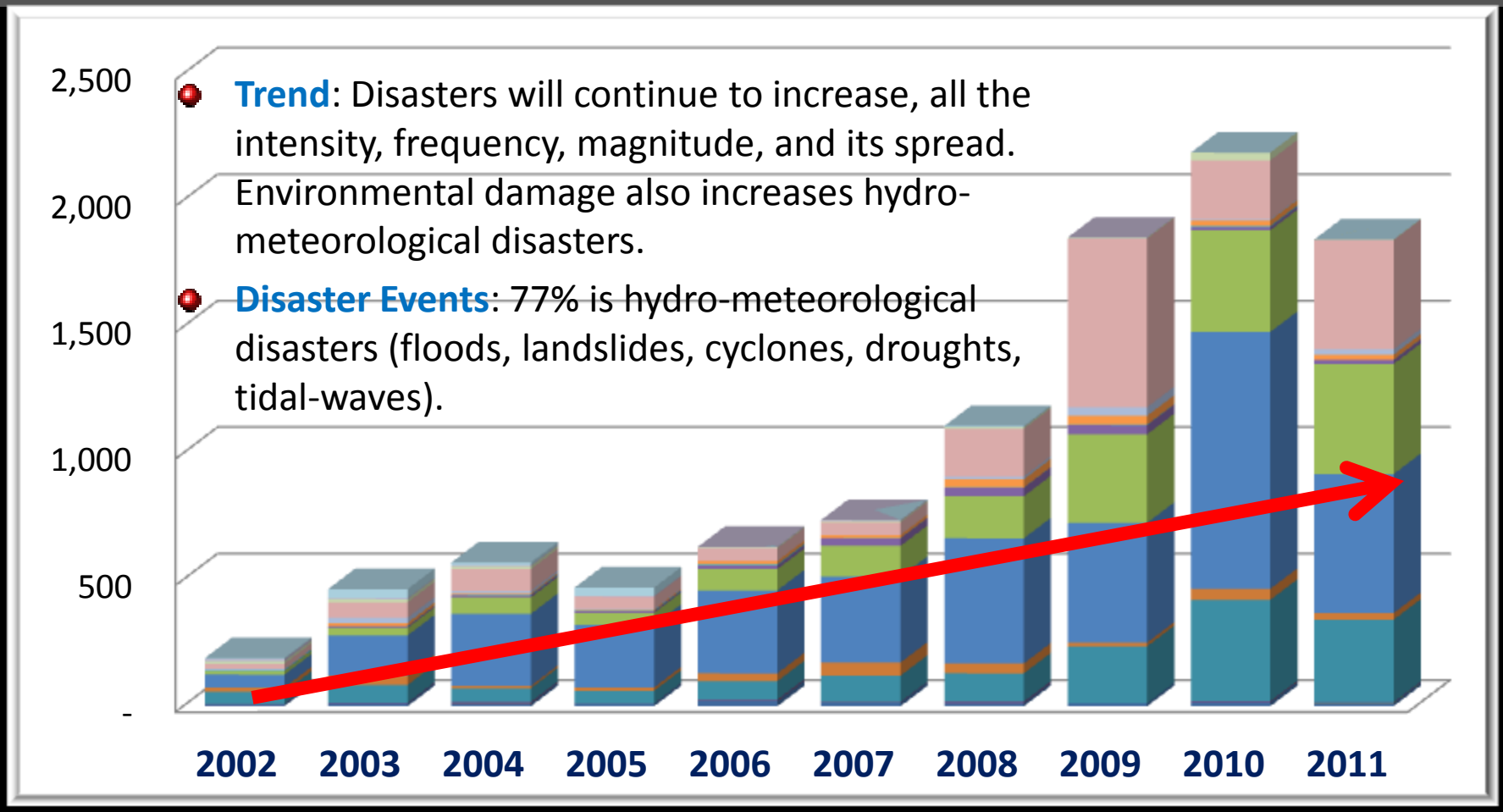
- 17,504 islands (1st in the world)
- 81,000 km long coastline (2nd in the world)
- 237 million people (4th in the world)
- Mega Biodiversity (10% plants, 12% of mammals, 16% of reptiles, 15% fish,17% of bird in the world live in Indonesia) – 3rd in the world
- 13% or 127 active volcanoes in the world (1st in the world)

INDONESIA ..... between blessing and disasters

Based on Population Census 2010, number of population exposed to disaster:

1. **Landslide:** 229.6 millions
2. **Earthquake** : 227.4 millions
3. **Drought** : 225.6 millions
4. **Typhoon** : 115.7 millions
5. **Flood** : 60.9 millions
6. **Forest fire**: 50 millions
7. **Tsunami** : 5 millions
8. **Volcano eruption**: 3,8 millions

How about Disasters in Indonesia?

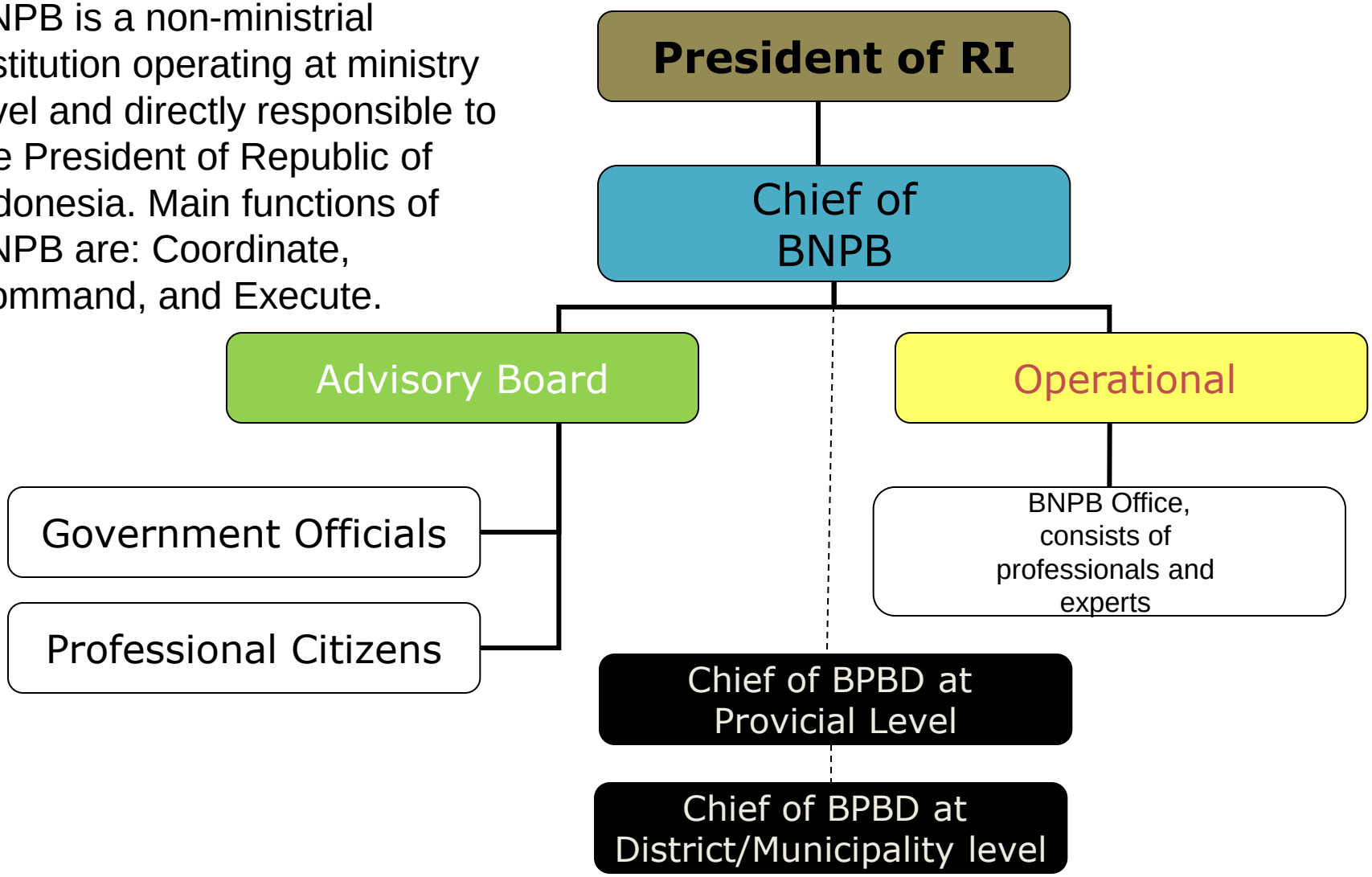


Disaster management has become a national priority in RPJMN 2010-2014. Development targets for 2012 are economic growth by 6.7%; reduce inflation by 5.3%; and reduce unemployment by 6.5%; which are influenced by 5 factors: 1) European economic crisis, 2) the geopolitics in the Middle East, 3) Political and sociology dynamics, and homeland security, 4) the dynamics in Asia Pacific region, and 5) natural disasters

Speech of President of Republic of Indonesia 19-2-2012

Organization for Implementation of Disaster Management in Indonesia

BNPB is a non-ministrial institution operating at ministry level and directly responsible to the President of Republic of Indonesia. Main functions of BNPB are: Coordinate, Command, and Execute.



GEOSPATIAL INFORMATIAN (www.bnpb.go.id)

"To provide geospatial information quickly and easily, BNPB provide basic maps, disaster maps, geospatial and remote sensing data that can be accessed free of charge by the public. There are over 1000 disaster maps in the BNPB's Geospatial Website"

Base Map:

- Indonesian Topographic map of scale 1: 250,000, and scale 1: 25,000 for disasters

Disaster Map:

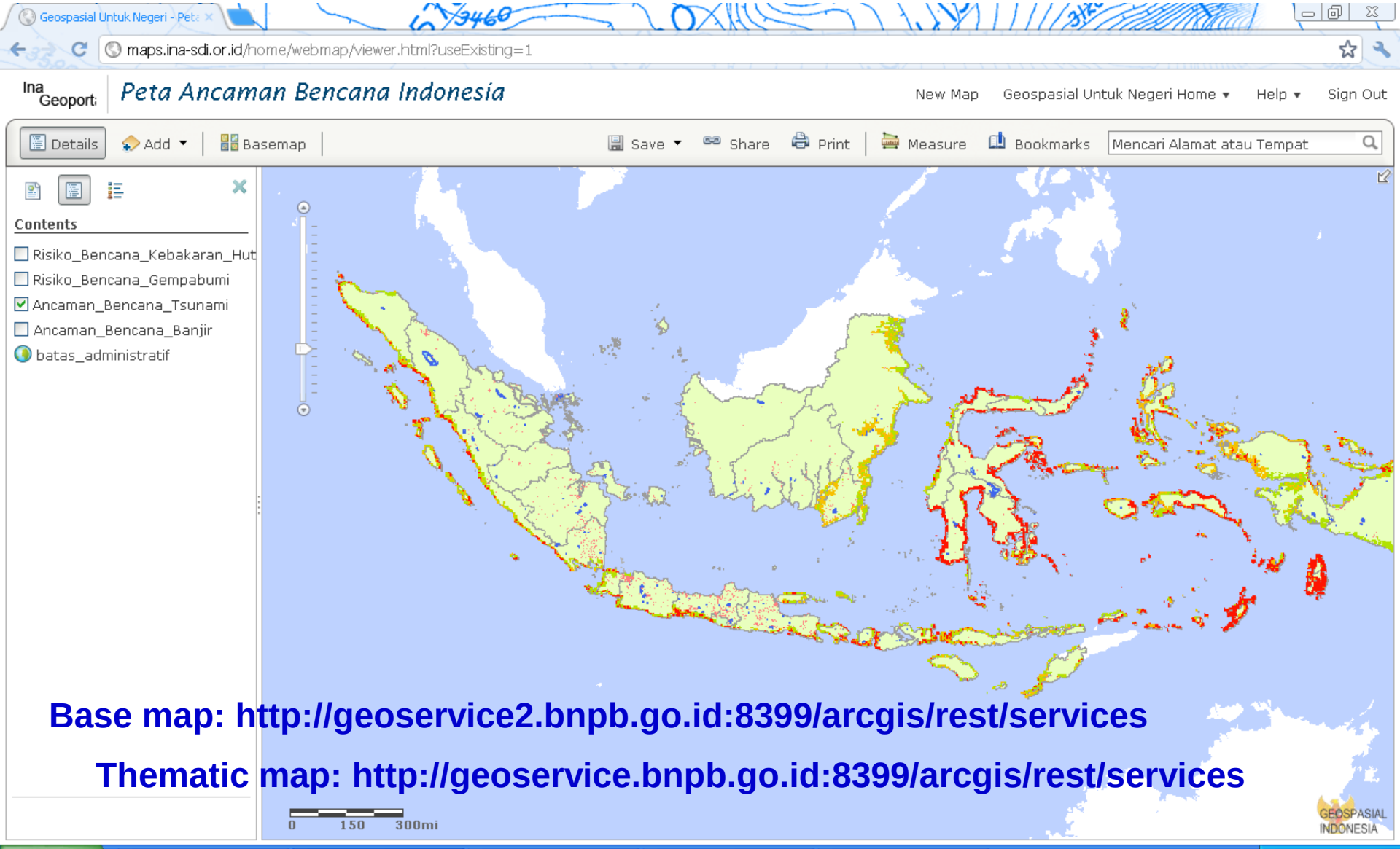
- Hazard maps (earthquakes, tsunamis, floods, landslides, vulnerability maps, map capacity, etc.)

Disaster Monitoring:

- The events of recent disasters in Indonesia.

BNPB Map Services

BNPB provides base map and thematic map services for public, this services can be used for map making or analysis using desktop GIS (qGIS/InaSAFE, ArcGIS) or online GIS (arcgis.com).



Base map: http://geoservice2.bnpb.go.id:8399/arcgis/rest/services

Thematic map: http://geoservice.bnpb.go.id:8399/arcgis/rest/services

Participatory Mapping - OpenStreetMap

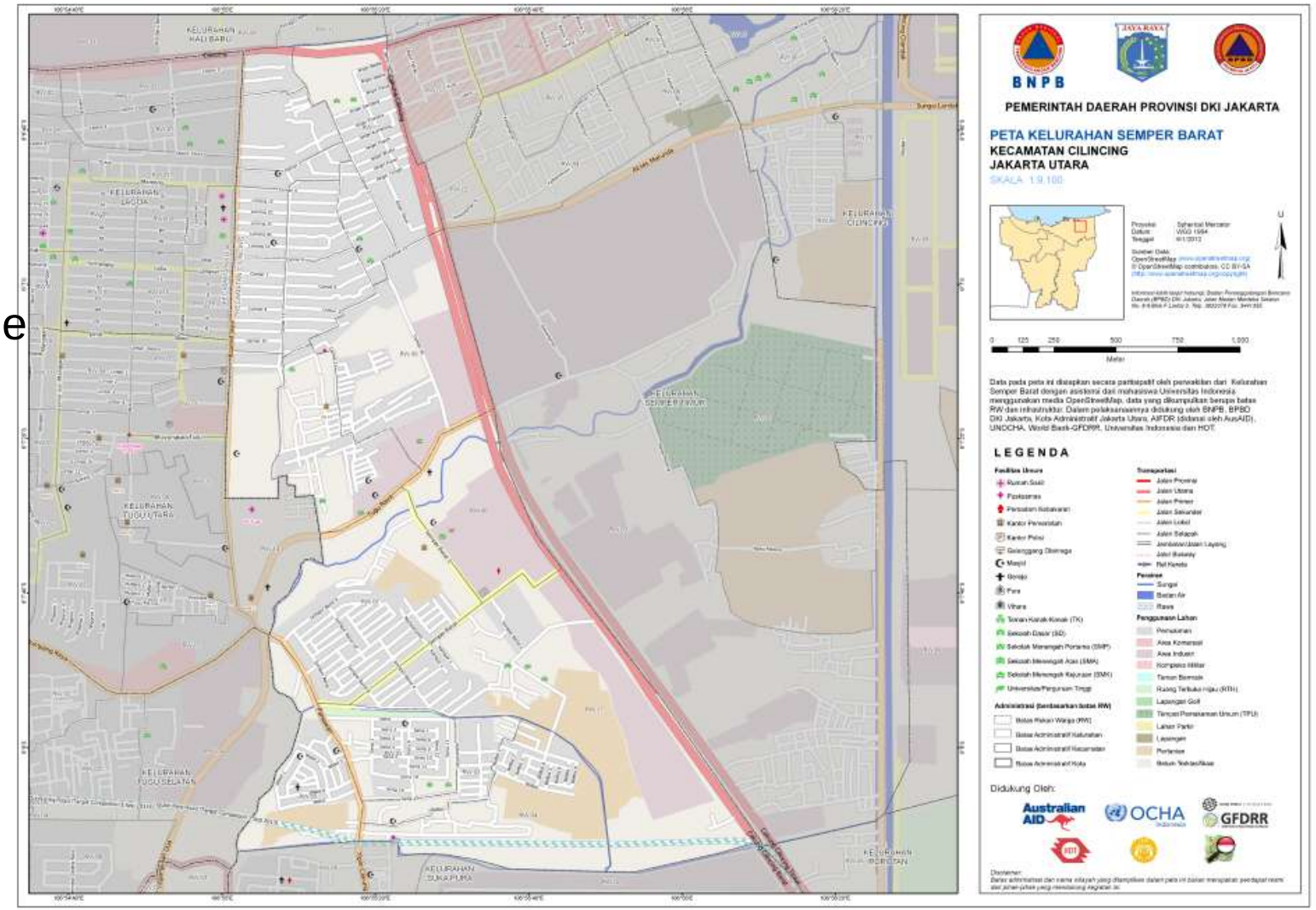
Free map entire world. Easy download as shp file. Done by contributor and Validator. Can be used as data source of InaSAFE

DKI Jakarta:

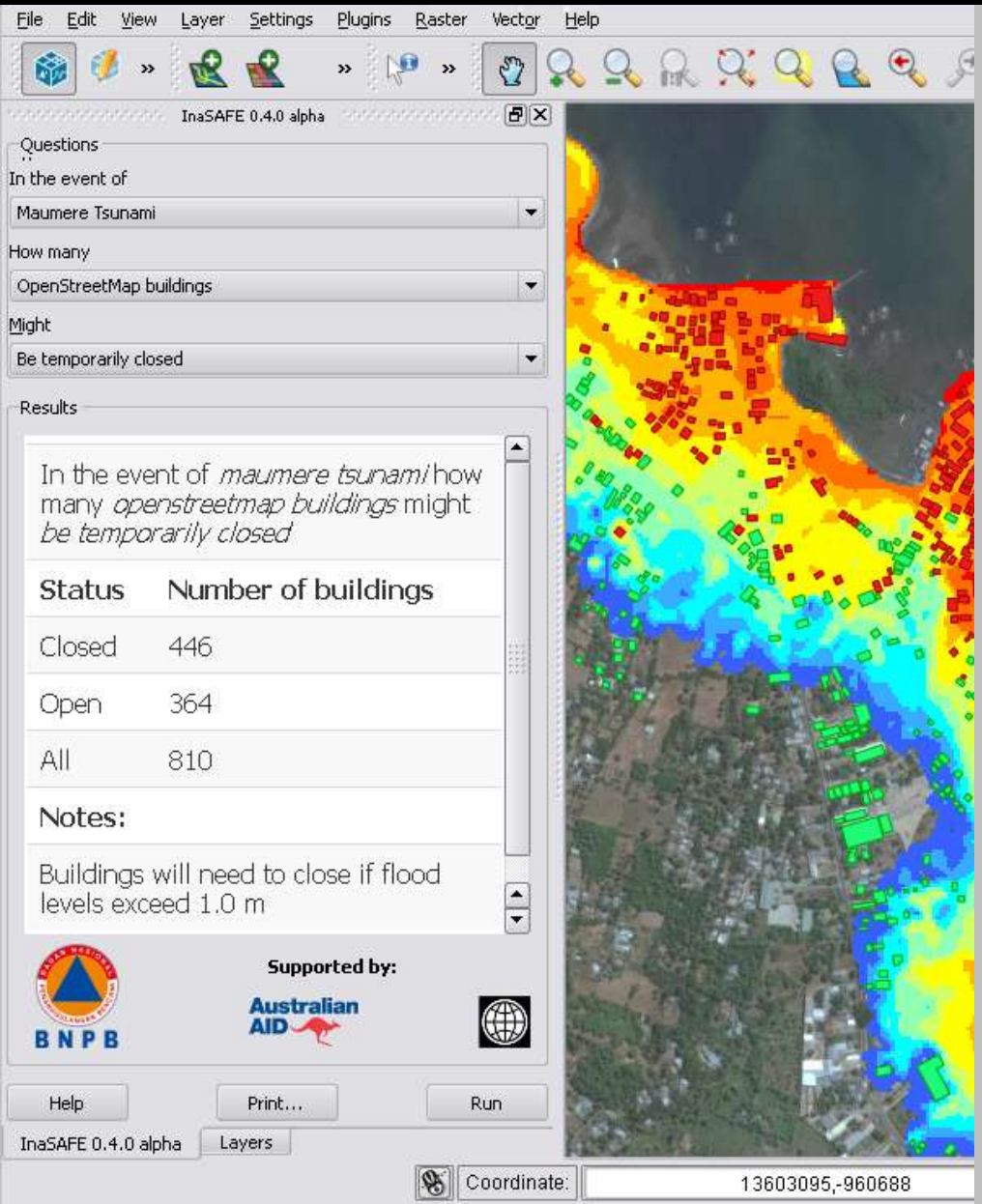
100% coverage

Over 6000 structures digitized

2,658 RW mapped

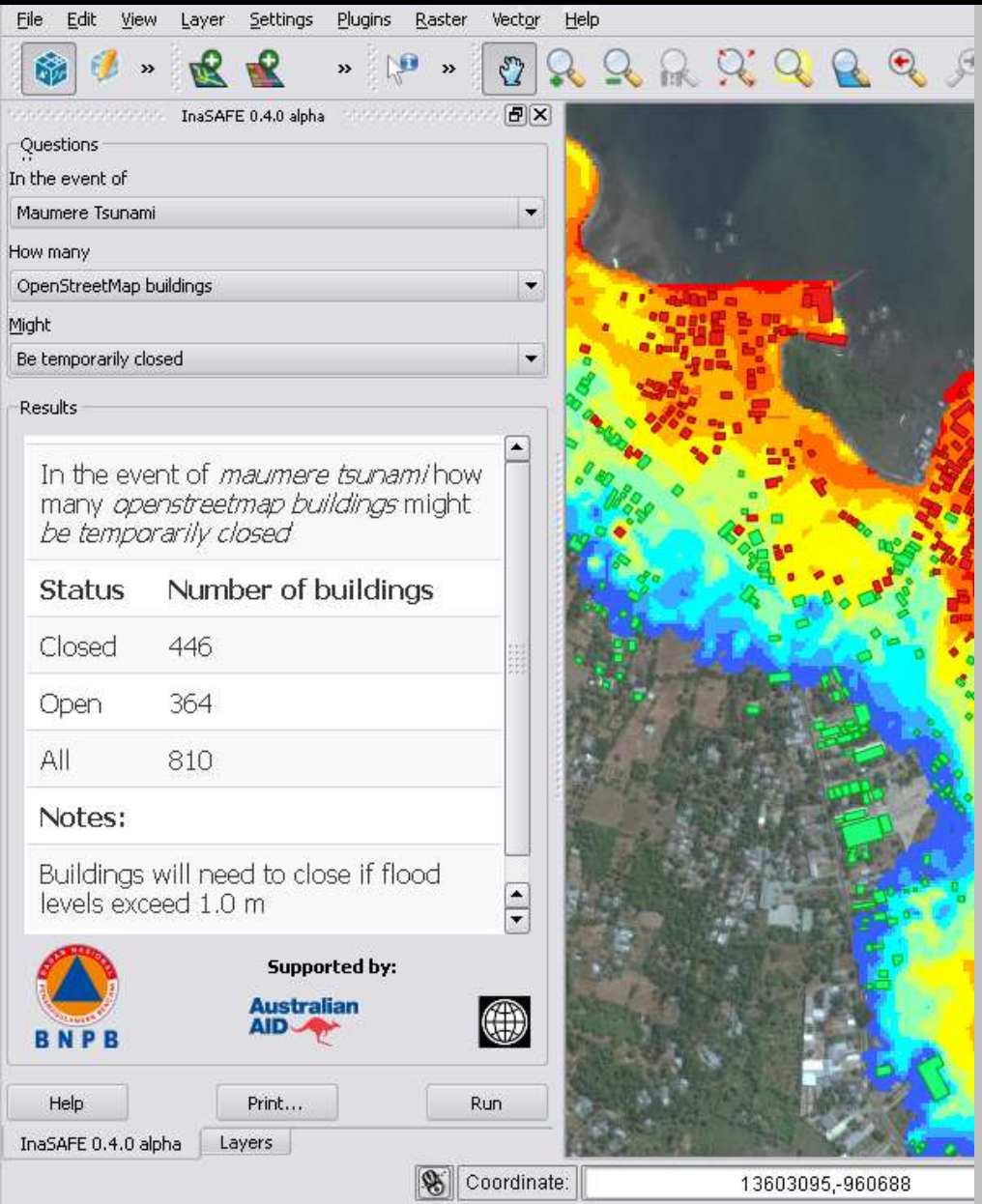


InaSAFE Purpose



- Get the best available science and data to bear on disaster management decisions.
- Make it easy to generate realistic disaster scenarios for use in contingency planning.
- Provide evidence based and quantitative impact assessments.

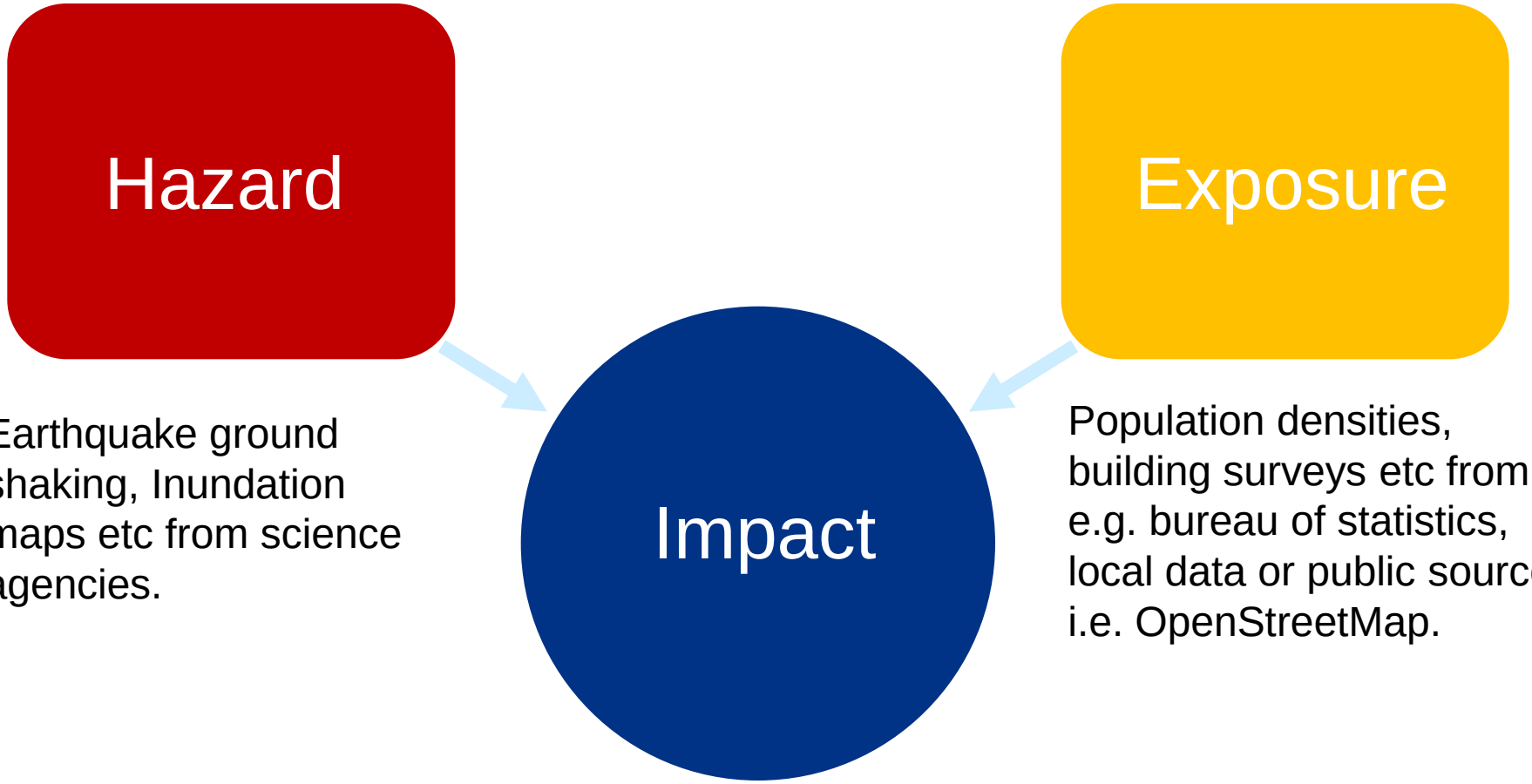
InaSAFE



- Based on QGIS – existing mapping framework
- Provides a collection of GIS procedures for impact analysis
- Keyword system identifies input layers and automatically selects the right impact functions
- Easy to use
- System can be extended
- “Free and Open Source”

InaSAFE – Concept

In the event of **hazard scenario,** how many **exposed elements** might be **impacted**?



Example 1: Population impact from flood levels and minimum requirements

InaSAFE 0.4.0 alpha

Pertanyaan

Apabila terjadi

Banjir 2007 tanpa pompa di Pluit, Ancol dan Sunter

Berapa banyak

Penduduk Jakarta

Yang mungkin

Perlu evakasi

Hasil

Apabila terjadi *banjir 2007 tanpa pompa di pluit, ancol dan sunter* berapa banyak *penduduk jakarta* yang mungkin *perlu evakasi*

Penduduk yang perlu evakuasi	**350000**
Bantuan per minggu	**Jumlah**
Beras [kg]	979999
Air Minum [l]	6125000
Air Bersih [l]	23450000
Kit Keluarga	70000
Jamban Keluarga	17500

Catatan:

Jumlah Penduduk: 7440000

Penduduk perlu evakuasi kalau banjir lebih dari 1 m

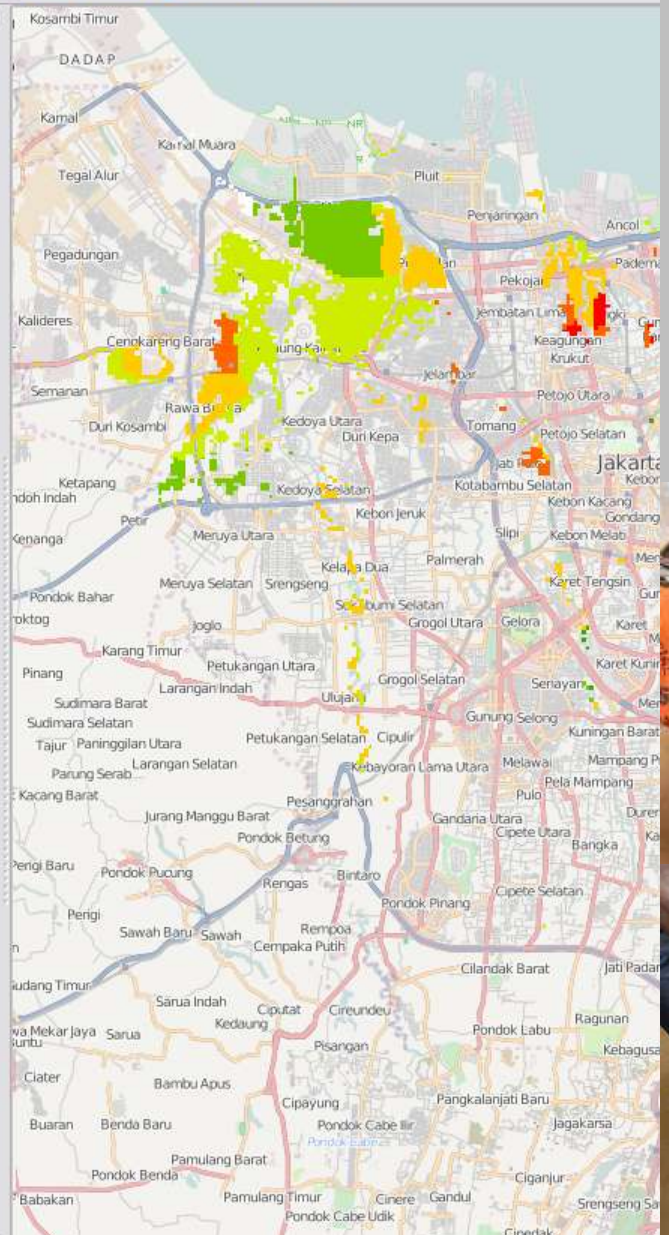
Minimum bantuan per minggu dari BNPB perka 7/2008

BNPB

Didukung oleh:

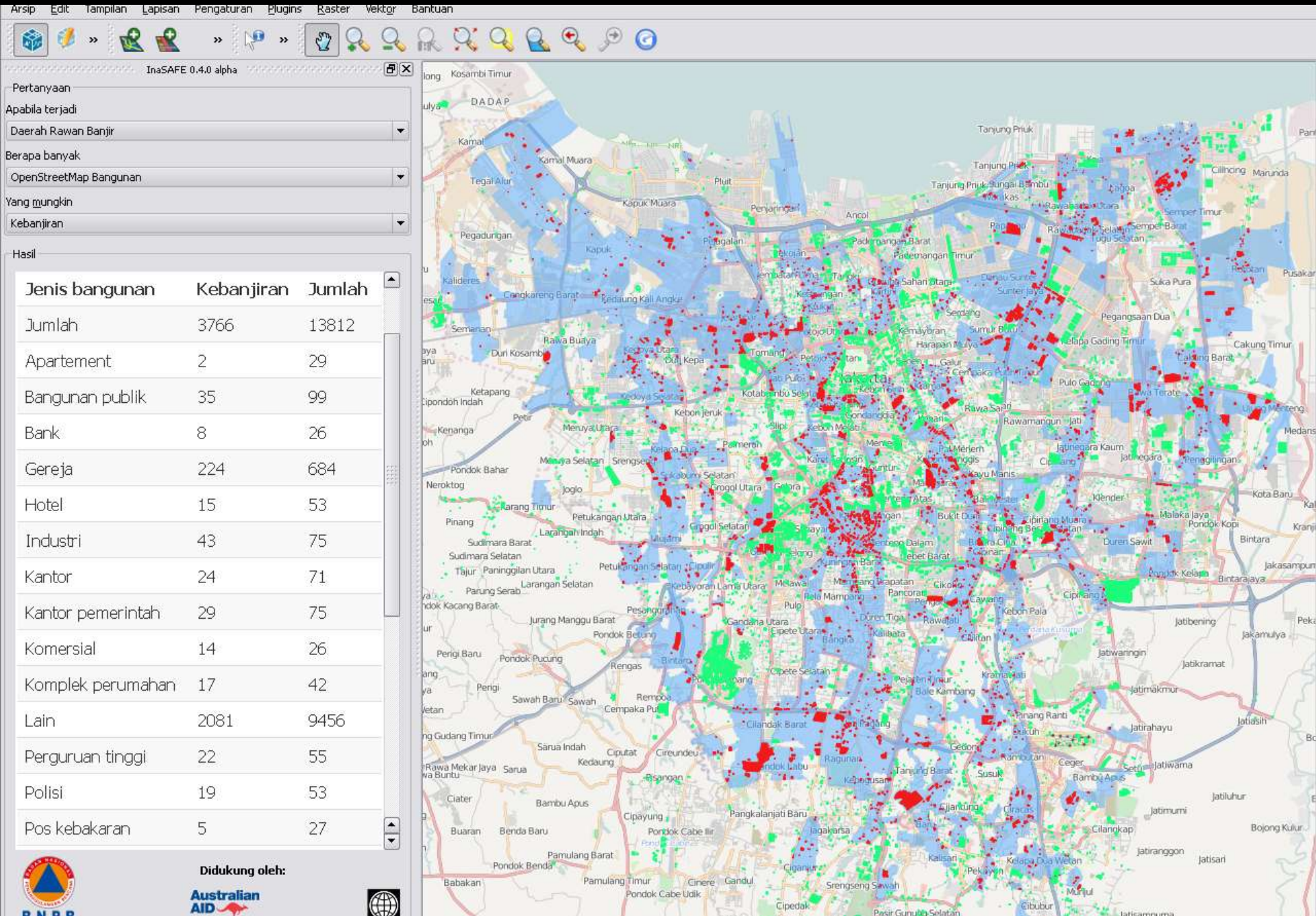
Australian AID

Bantuan | Cetak... | Hitung



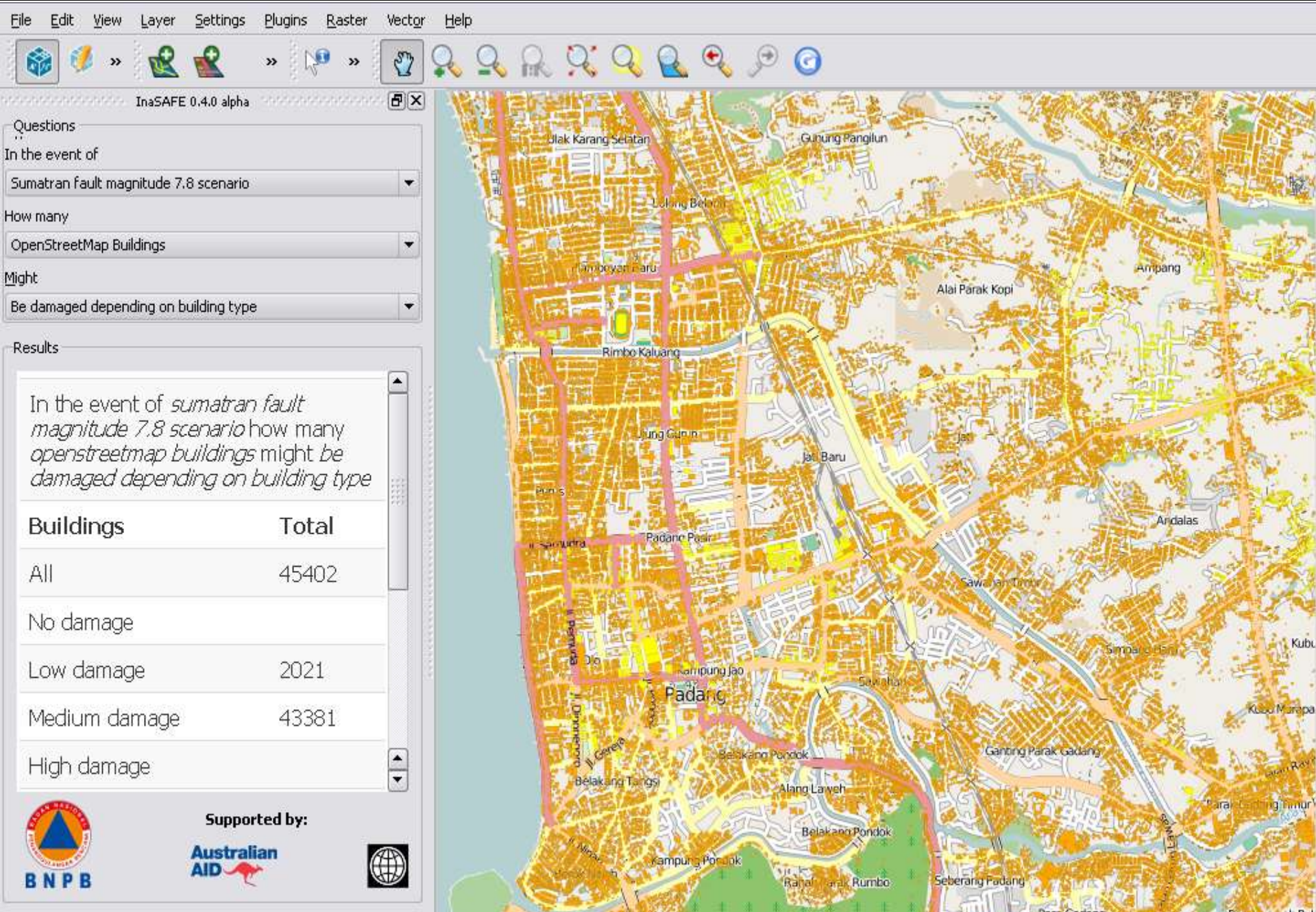
In the event of **flood in Jakarta like in 2007** how many **people** might need to be **evacuated**?

Example 2: Buildings in RW's that had floods in 2007



Jenis bangunan	Kebanjiran	Jumlah
Jumlah	3766	13812
Apartement	2	29
Bangunan publik	35	99
Bank	8	26
Gereja	224	684
Hotel	15	53
Industri	43	75
Kantor	24	71
Kantor pemerintah	29	75
Komersial	14	26
Komplek perumahan	17	42
Lain	2081	9456
Perguruan tinggi	22	55
Polisi	19	53
Pos kebakaran	5	27

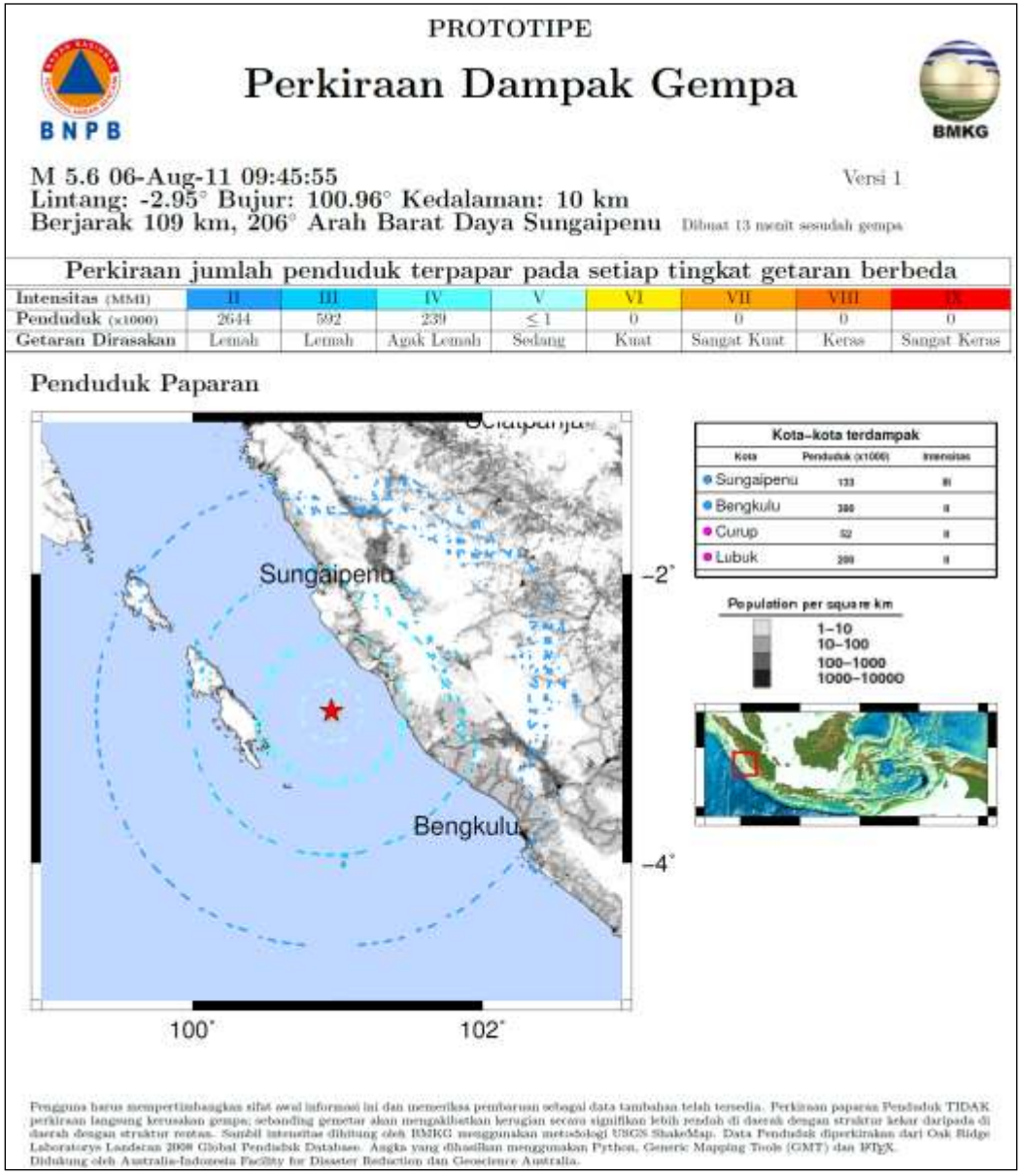
Example 3: Buildings impacted by earthquake



InaSAFE – Realtime

It can also do real time analysis, and provide impact analysis within minutes after an earthquake

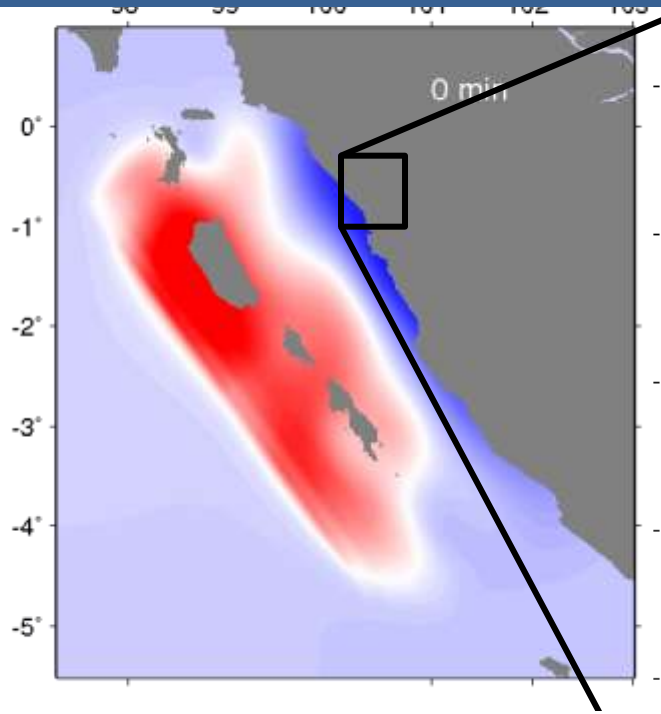
www.bnpb.go.id



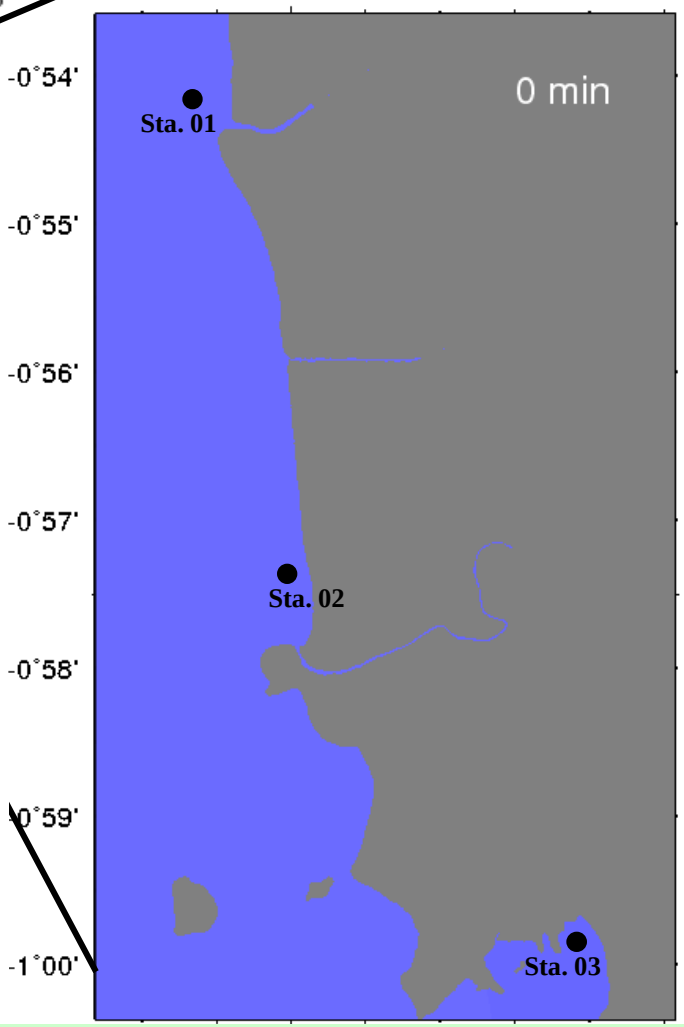
Challenges

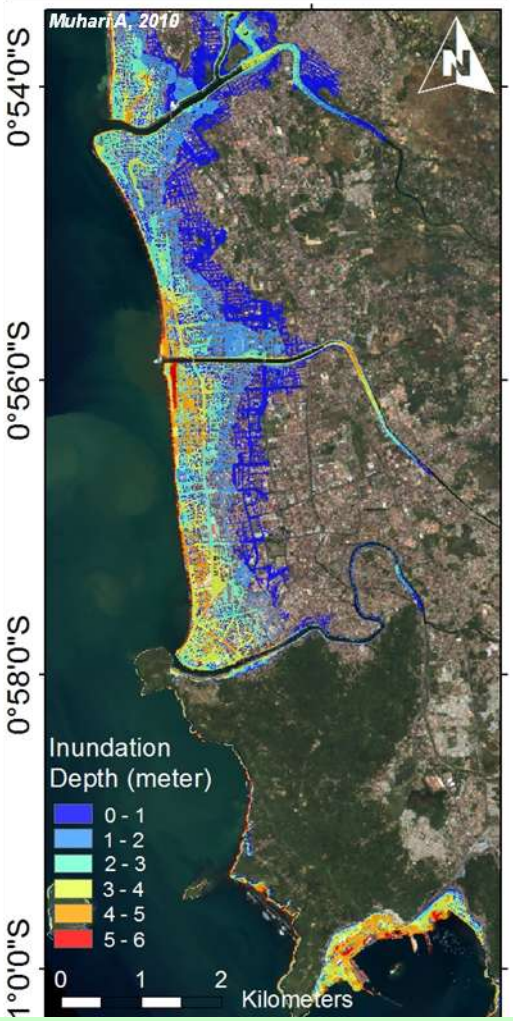
- Hazard and exposure data must exist and be available to disaster managers
- Format, metadata and distribution methods must be standardised
- Initiatives like Open Street Map can help!

National of Priority for Anticipation from Megathrust Mentawai In 2013 - 2014

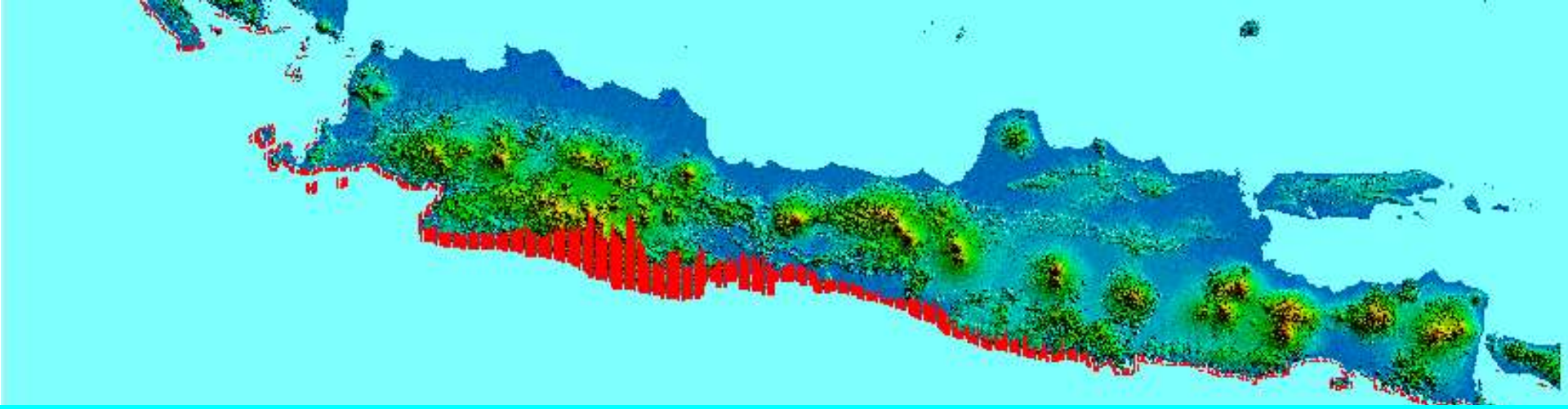


8,9 SR of earthquake potential in west Sumatera and follow by tsunami with high 10 meter after 20 minute will hit Padang and Mentawai coastal

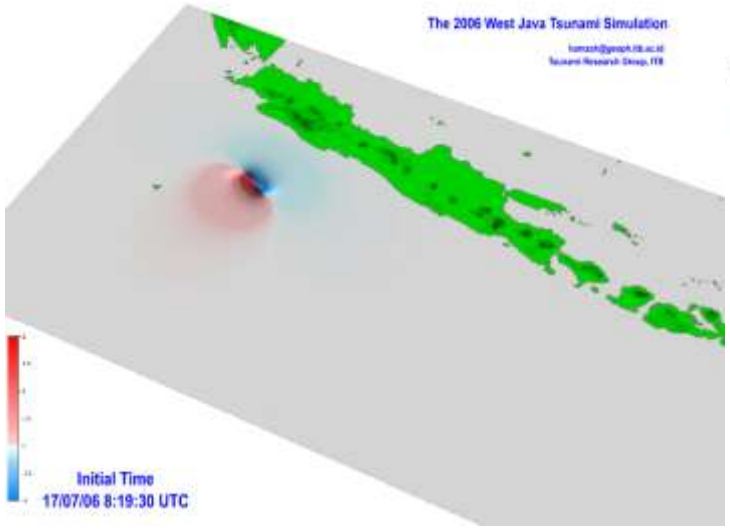




There are about 1.3 million people live in this area. Worst scenario of geospatial analysis, shows that tsunami will caused **39.321** dead and **52.637** loss. Many infrastructure i.e. Teluk Bayur harbor, Minangkabau Airport, etc. will be damaged.



Modeling Tsunami in Coastal of South Java



The coastal of South Java have potential hit by tsunami with more 10 meters height trigger from 8,2 SR earthquake. The tsunami will damaged settlements, infrastructures, tourist locations.

Shelter and Siren Tsunami will Construct in that Area

Closing

Indonesia Tangguh

- The extent of the disaster-prone region of Indonesia with 13 types of disasters require geospatial and tools such as InaSAFE to process it in quickly, effectively and efficiently.
- BNPB still require cooperation with various parties to provide and analyze geospatial and remote sensing data / information in quickly, effectively and efficiently.
- End-to-End in disaster response is From-Person-To-Person, that will resulted a resilient disaster communities.

InaSAFE 0.4.0 soft launch today - available for download at:
http://tinyurl.com/inasafe-install

Ngiyabonga
Dankie
Thank You

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