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Geospatial Software Engineer
GFDDR Consultant, WB

InaSAFE
www.inasafe.org

What is it?

Free software that produces realistic natural hazard impact scenarios for better planning, preparedness and response activities.

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How does it work?

Simple but **rigorous** way to combine data from communities, local governments and scientists.

Helps assess the possible **impact** of future disaster events on communities, assets and infrastructure.

Calculates the **resources required** to support affected populations.

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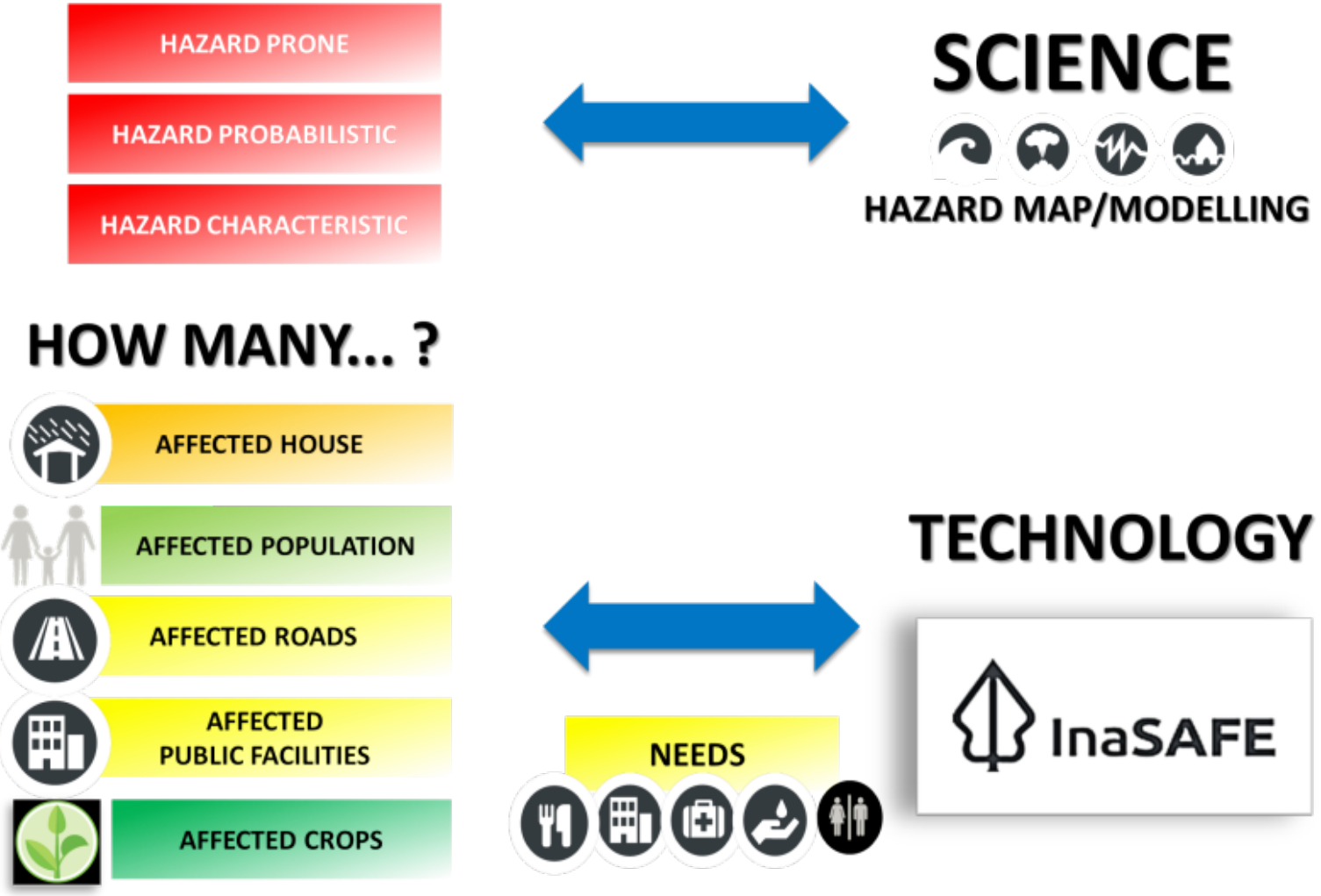
Meeting the needs



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The data?

Designed to use and combine **existing** and **new** data from communities, local governments and science agencies.

Where spatial data doesn’t exist, external tools such as OpenStreetMap are available for communities and disaster managers to map assets that are important to them.

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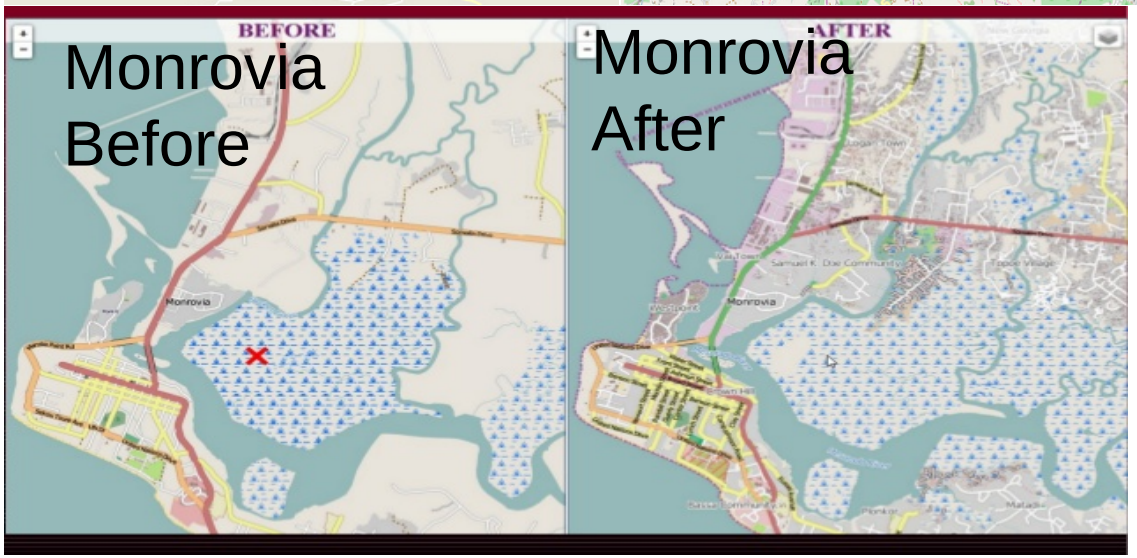
Digression: Croudsourced OpenData (OSM)



2010 Haiti EQ (7.0Mw):

> 600 volunteers from 29 countries

> 1.2 million edits

~1 year of work completed in 20 days

West Africa Ebola:

>2,000 volunteers

>12 million edits

>62 km of roads

>11,000 places

>500,000 buildings

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Who can use it?

Anyone with **basic** computer **skills** can learn to use InaSAFE.

The software **guides the user through the process** of locating their data, choosing an impact function and assessing the likely impact that a disaster will have on a selected community.

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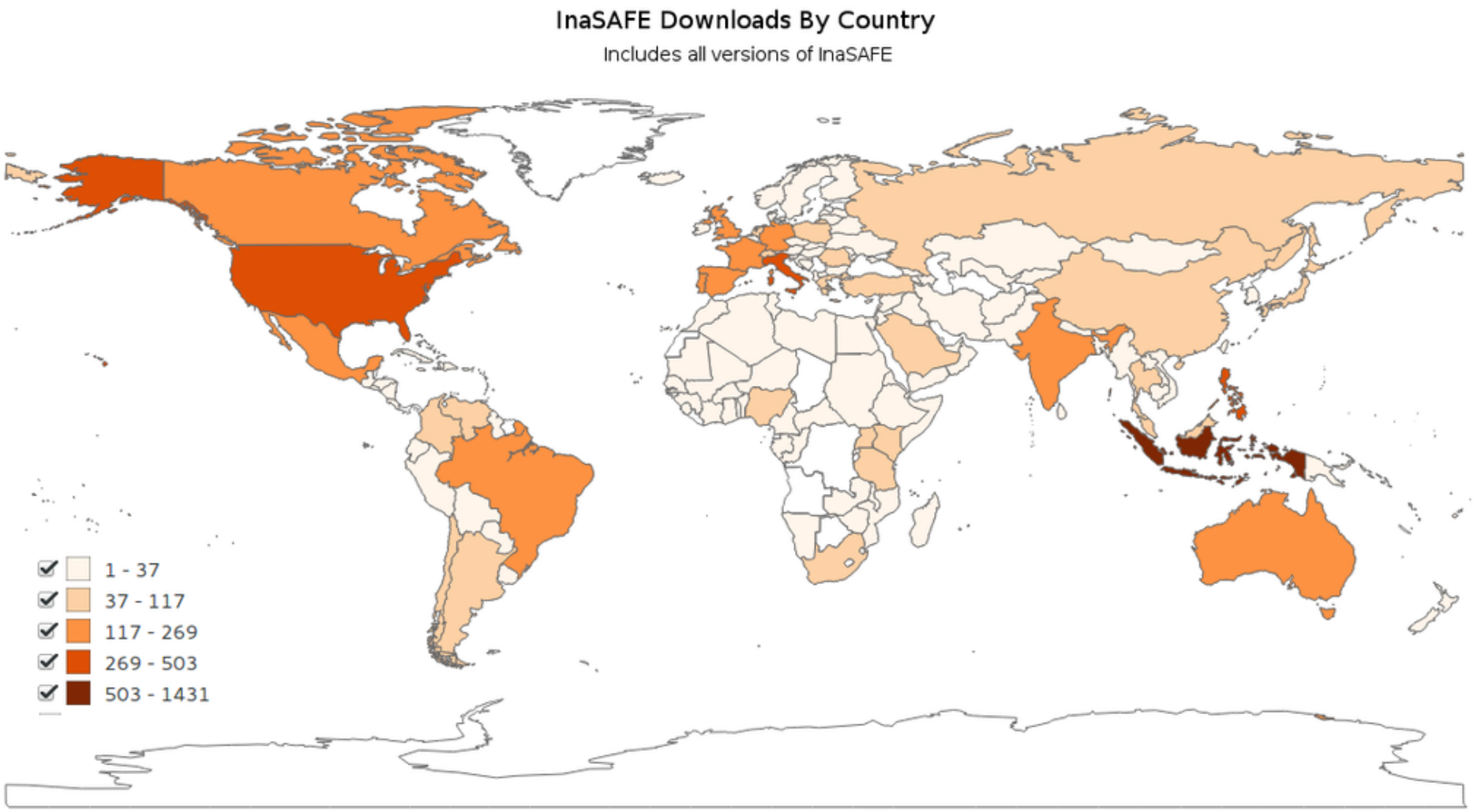
Global project



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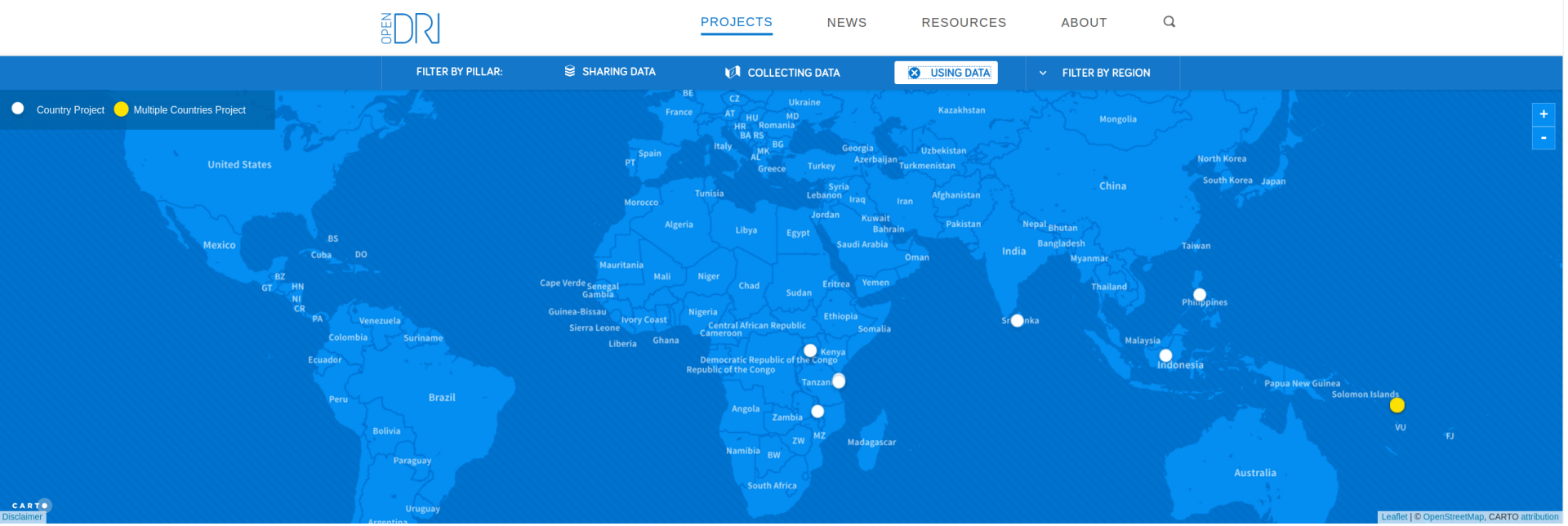
Global project



Project initiators (Indonesia)

Australian Aid

WORLD BANK GROUP
GFDRR
Global Facility for Disaster Reduction and Recovery

BADAN NASIONAL PENANGGULANGAN BENCANA
BNPB

Pacific project

THE WORLD BANK

PacSAFE

SPC Secretariat of the Pacific Community

PacSAFE has initially been developed to enable hazard data and asset data, such as the Pacific Catastrophic Risk and Financing Initiative (PCRAFI) asset database, to be used to general impact information to assist planning, preparedness and response activities for Pacific Island Countries. It is based on InaSAFE and QGIS.

Australian Government
Geoscience Australia

PacSAFE Project

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Concept

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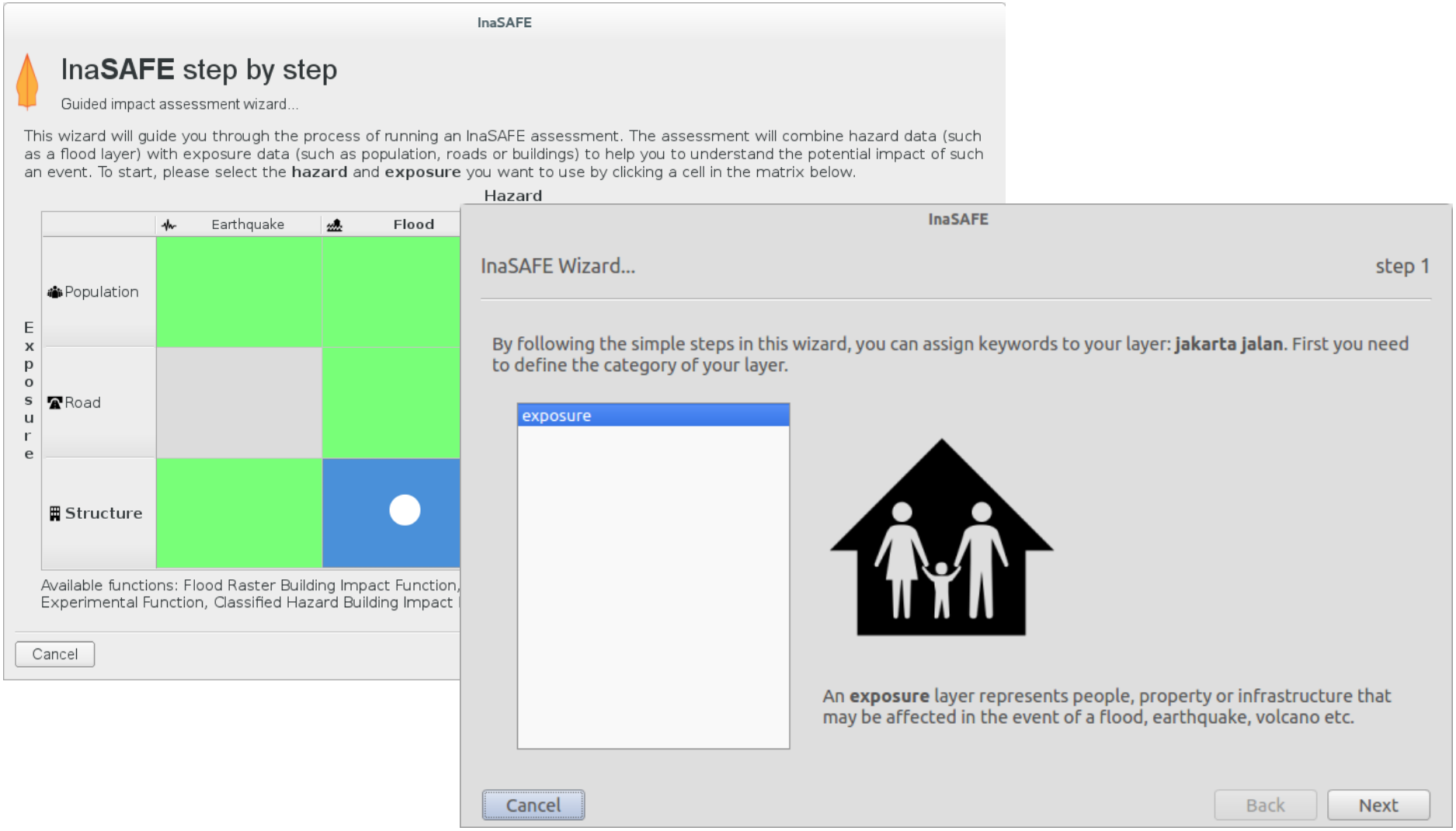
Platforms

- QGIS Plugin
- Realtime
- CLI
- Headless – Celery
- Django app for geonode (GeoSAFE)

Example: Jakarta Flood



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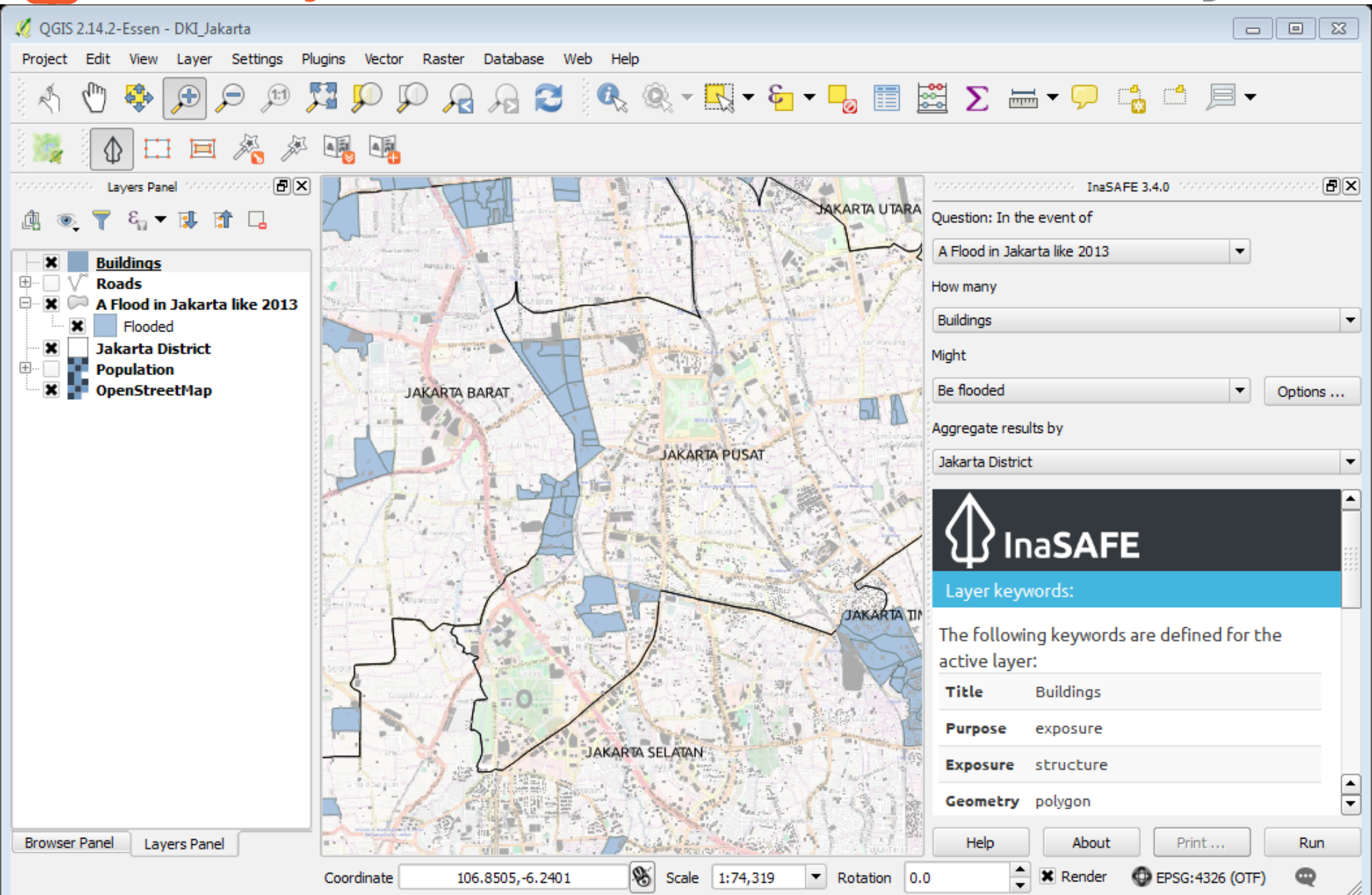
Run analysis



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Affected buildings

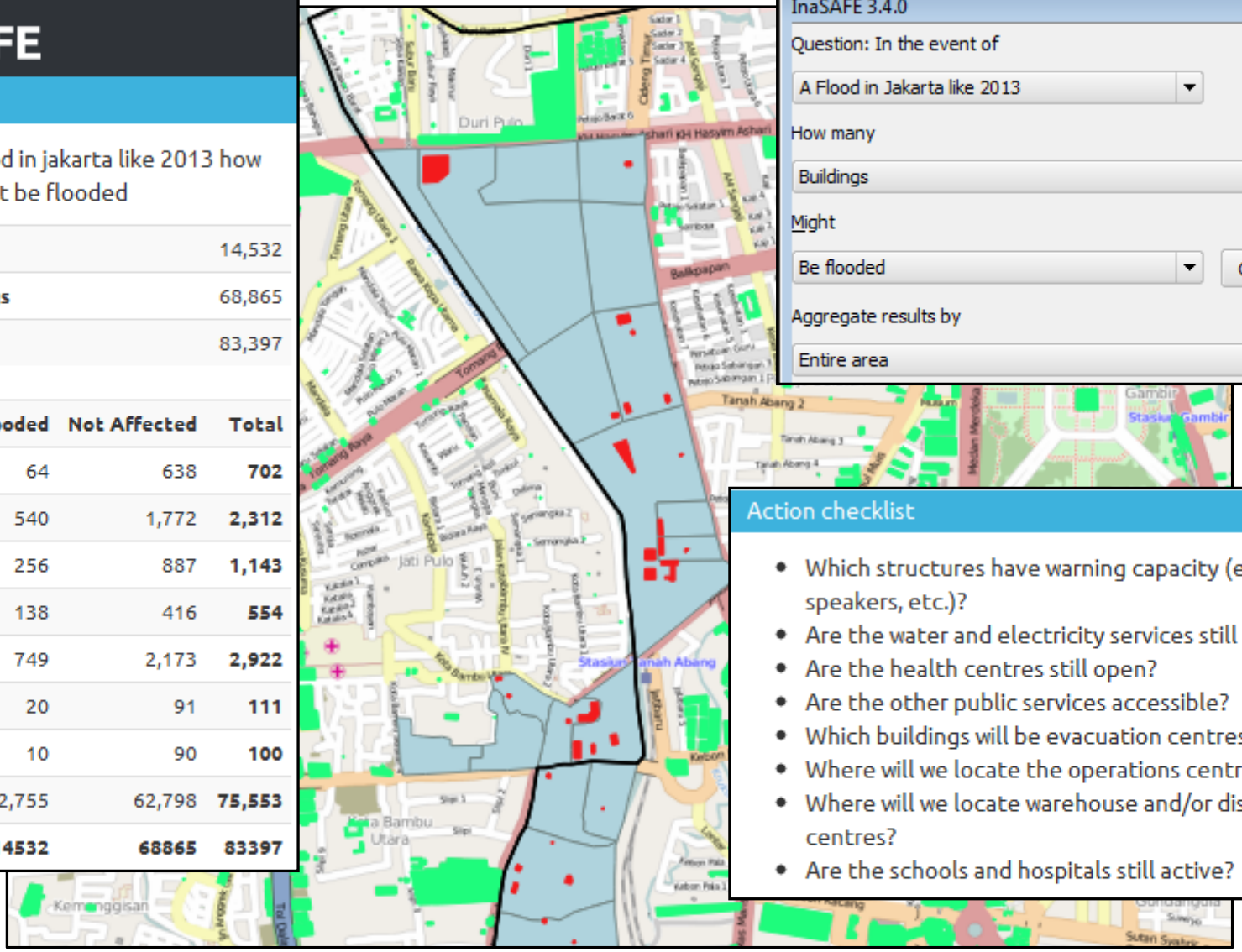
InaSAFE

Analysis Results

In the event of a flood in jakarta like 2013 how many buildings might be flooded

Flooded	14,532
Not affected buildings	68,865
Total	83,397

Building type	Flooded	Not Affected	Total
Commercial	64	638	**702**
Education	540	1,772	**2,312**
Government	256	887	**1,143**
Health	138	416	**554**
Place of worship	749	2,173	**2,922**
Public facility	20	91	**111**
Recreation	10	90	**100**
Residential	12,755	62,798	**75,553**
Total	**14532**	**68865**	**83397**



InaSAFE 3.4.0

Question: In the event of

A Flood in Jakarta like 2013

How many

Buildings

Might

Be flooded

Options ...

Aggregate results by

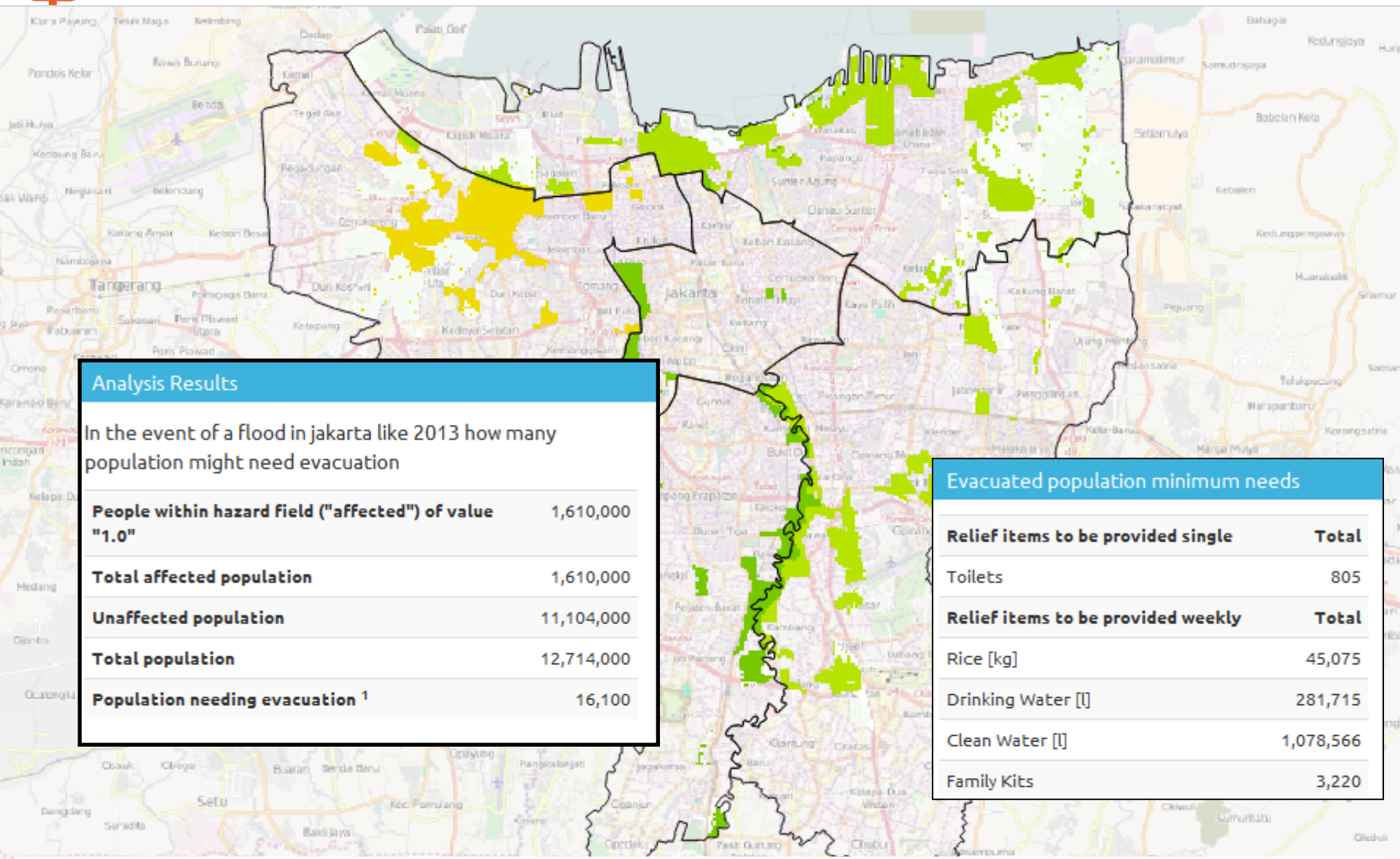
Entire area

Action checklist

- Which structures have warning capacity (eg. sirens, speakers, etc.)?
- Are the water and electricity services still operating?
- Are the health centres still open?
- Are the other public services accessible?
- Which buildings will be evacuation centres?
- Where will we locate the operations centre?
- Where will we locate warehouse and/or distribution centres?
- Are the schools and hospitals still active?

Hazard: Jakarta Flood January 2013 – BPBD DKI Jakarta | Exposure: Buildings – OSM | InaSAFE 3.4

Minimum needs



Analysis Results

In the event of a flood in jakarta like 2013 how many population might need evacuation

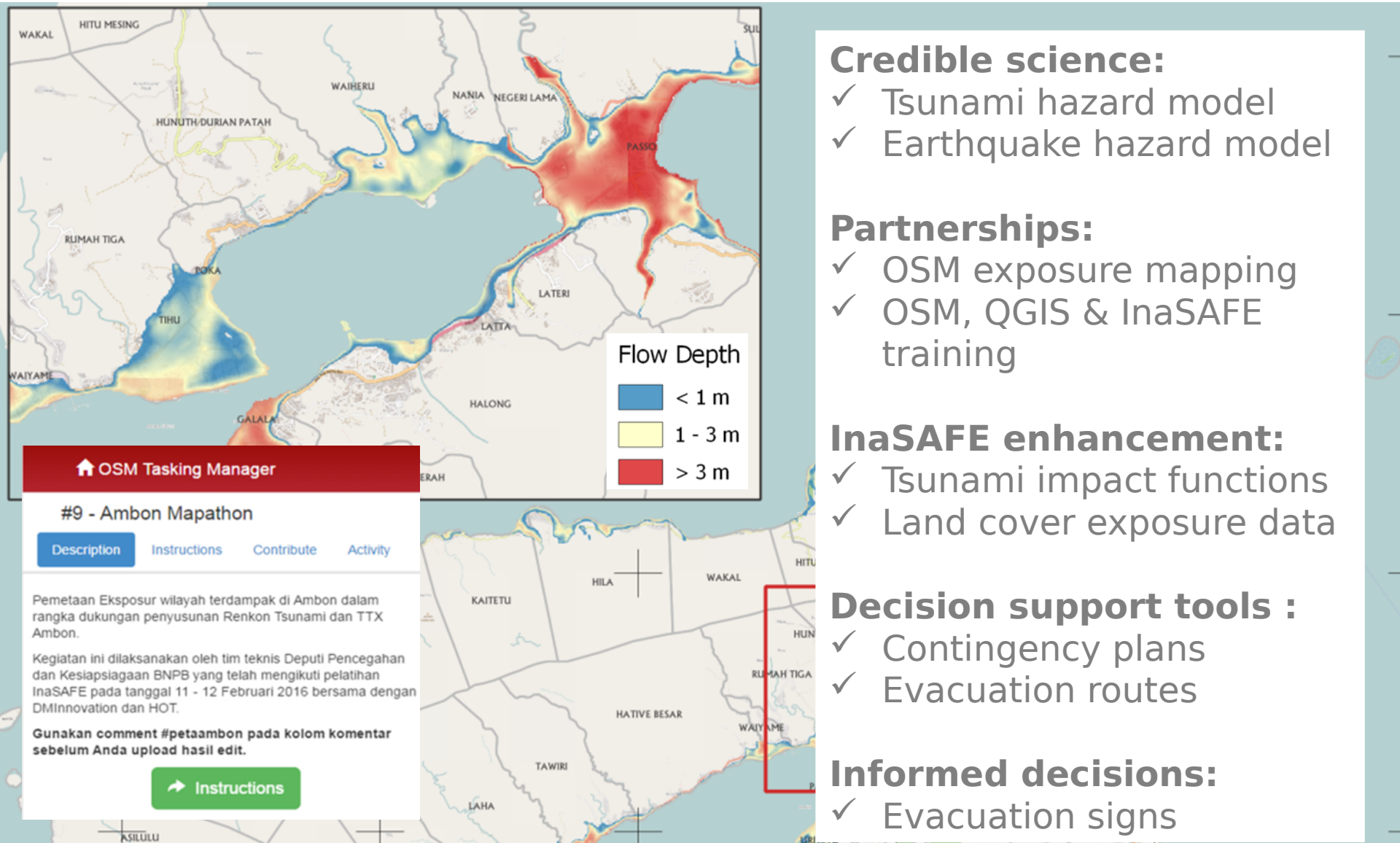
People within hazard field ("affected") of value "1.0"	1,610,000
Total affected population	1,610,000
Unaffected population	11,104,000
Total population	12,714,000
Population needing evacuation [1]	16,100

Evacuated population minimum needs

Relief items to be provided single	**Total**
Toilets	805
Relief items to be provided weekly	**Total**
Rice [kg]	45,075
Drinking Water [l]	281,715
Clean Water [l]	1,078,566
Family Kits	3,220

Hazard: Jakarta Flood January 2013 – BPBD DKI Jakarta | Exposure: Population - WorldPop | InaSAFE 3.4

Example: BNPB Ambon



Credible science:

- ✓ Tsunami hazard model
- ✓ Earthquake hazard model

Partnerships:

- ✓ OSM exposure mapping
- ✓ OSM, QGIS & InaSAFE training

InaSAFE enhancement:

- ✓ Tsunami impact functions
- ✓ Land cover exposure data

Decision support tools :

- ✓ Contingency plans
- ✓ Evacuation routes

Informed decisions:

- ✓ Evacuation signs

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Example: BNPB Ambon

Australia and Indonesia have strengthened links between people and institutions in DRR

OSM buildings
OSM roads
BIG land cover
BPS population

ITB tsunami hazard model
BMKG earthquake scenario

partnerships

Exposure

Hazard Scenario

credible science

collaboration

InaSAFE
QGIS plugin

decision support tools

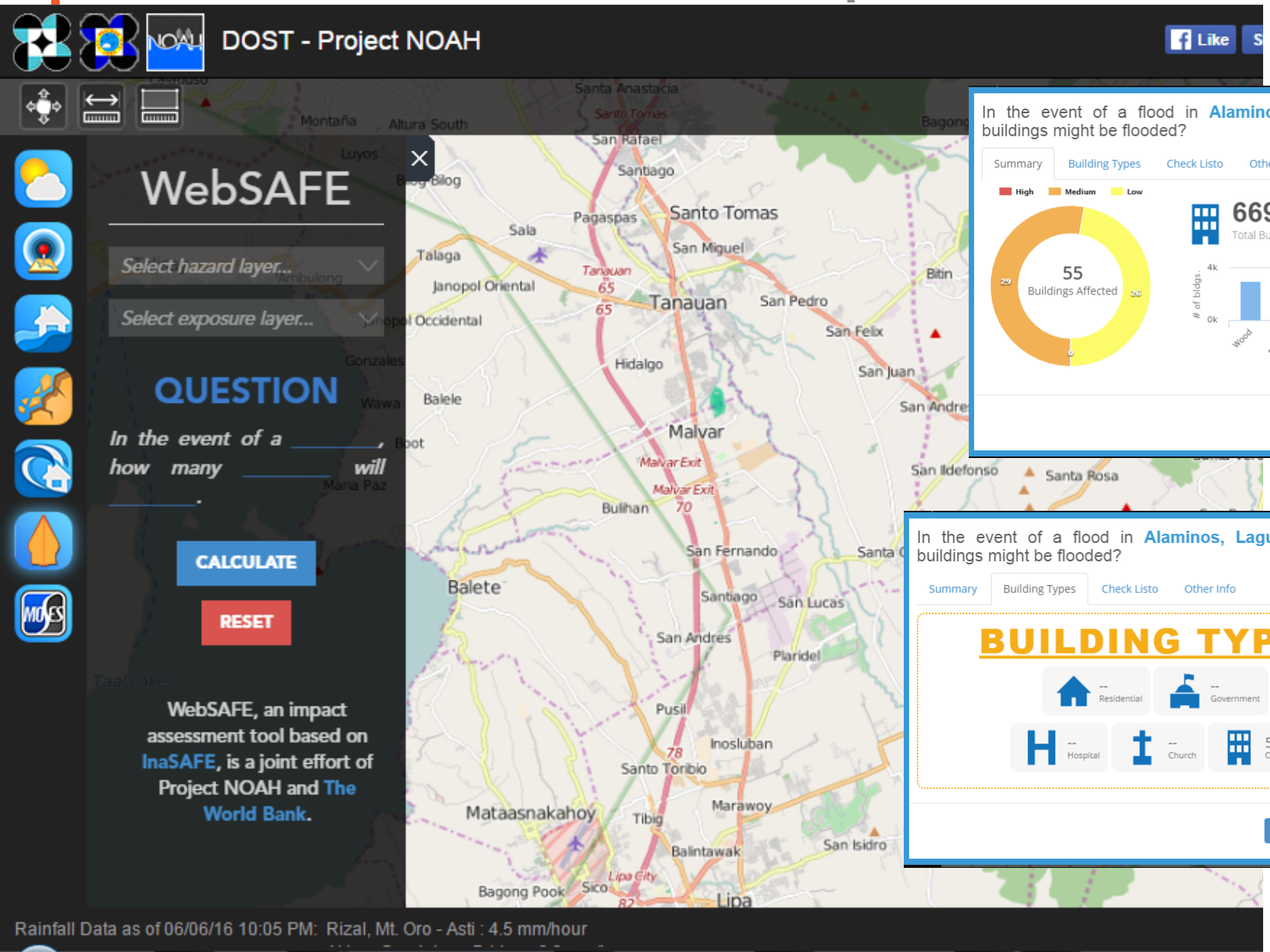
Risk Assessment

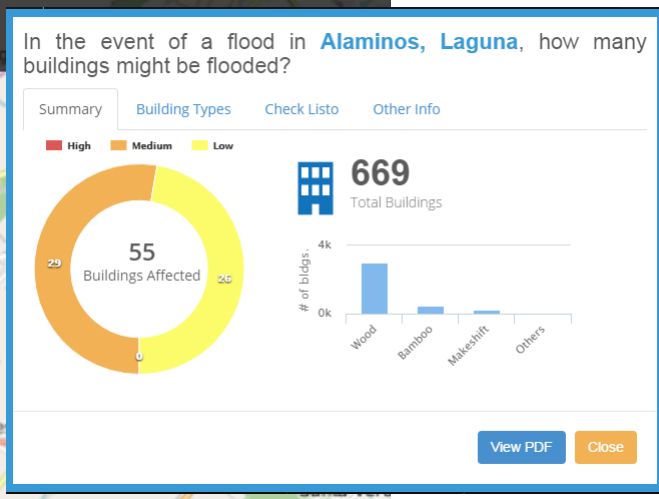
Contingency Plan

informed community

The Indonesian Government has the strength and capability to make informed DRR decisions

Example: NOAH PH





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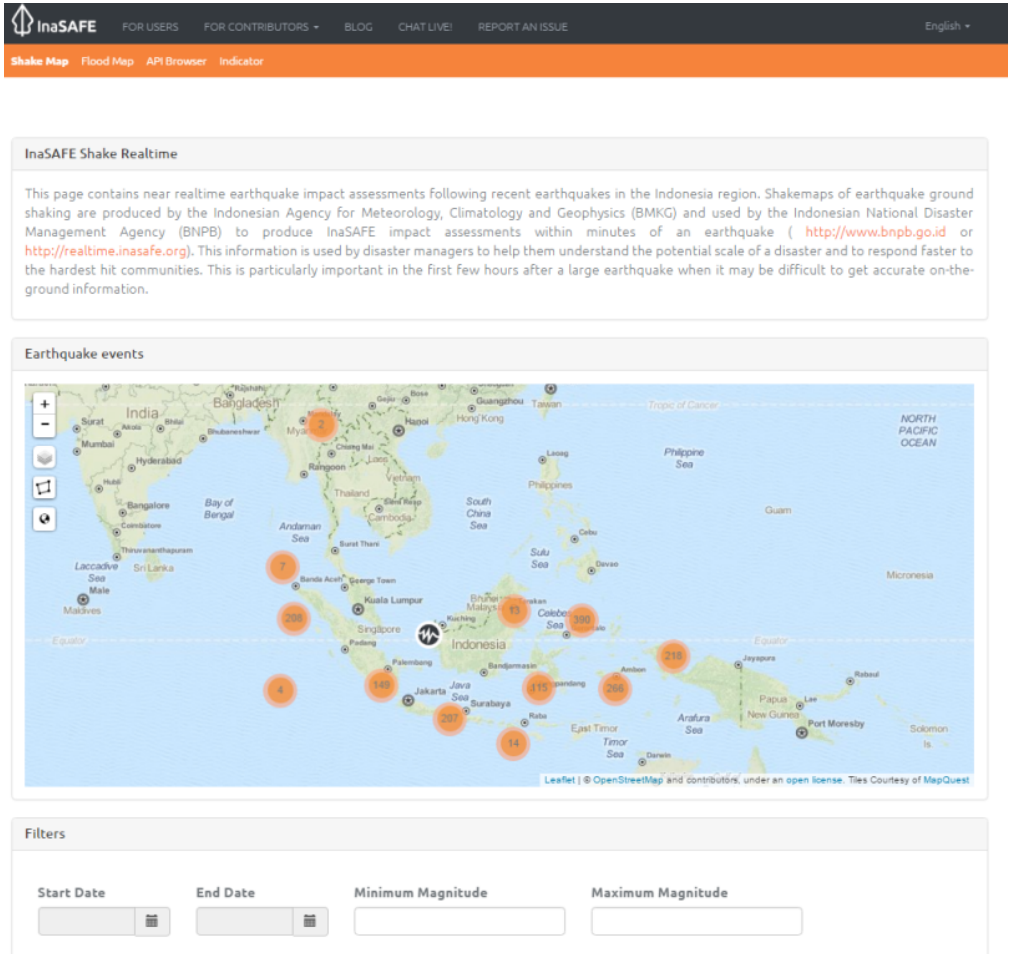
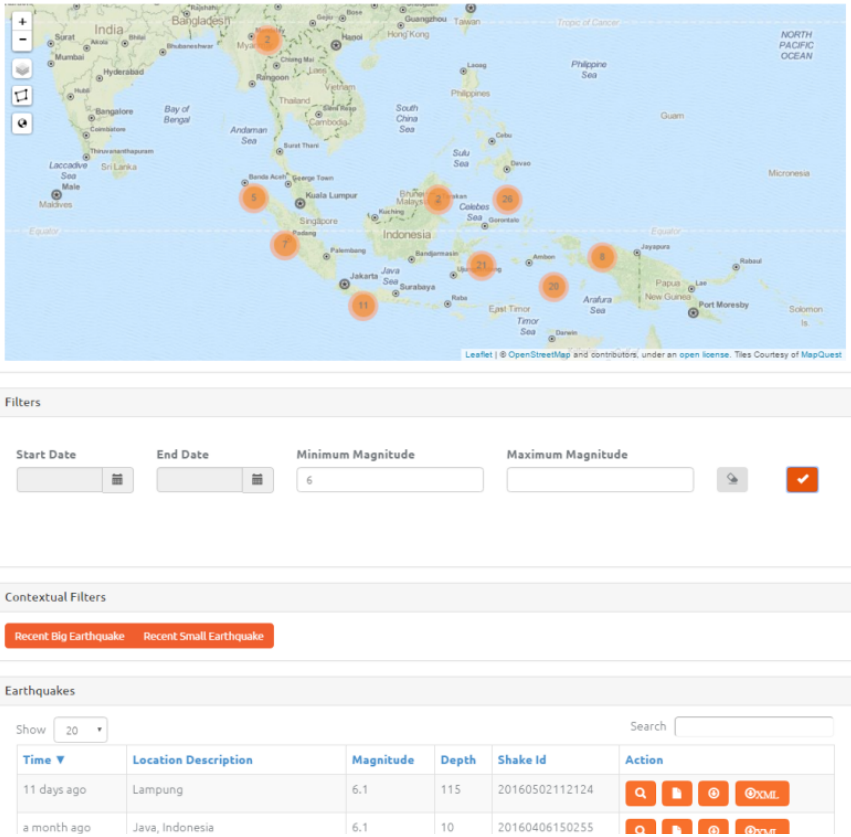
Example: Realtime

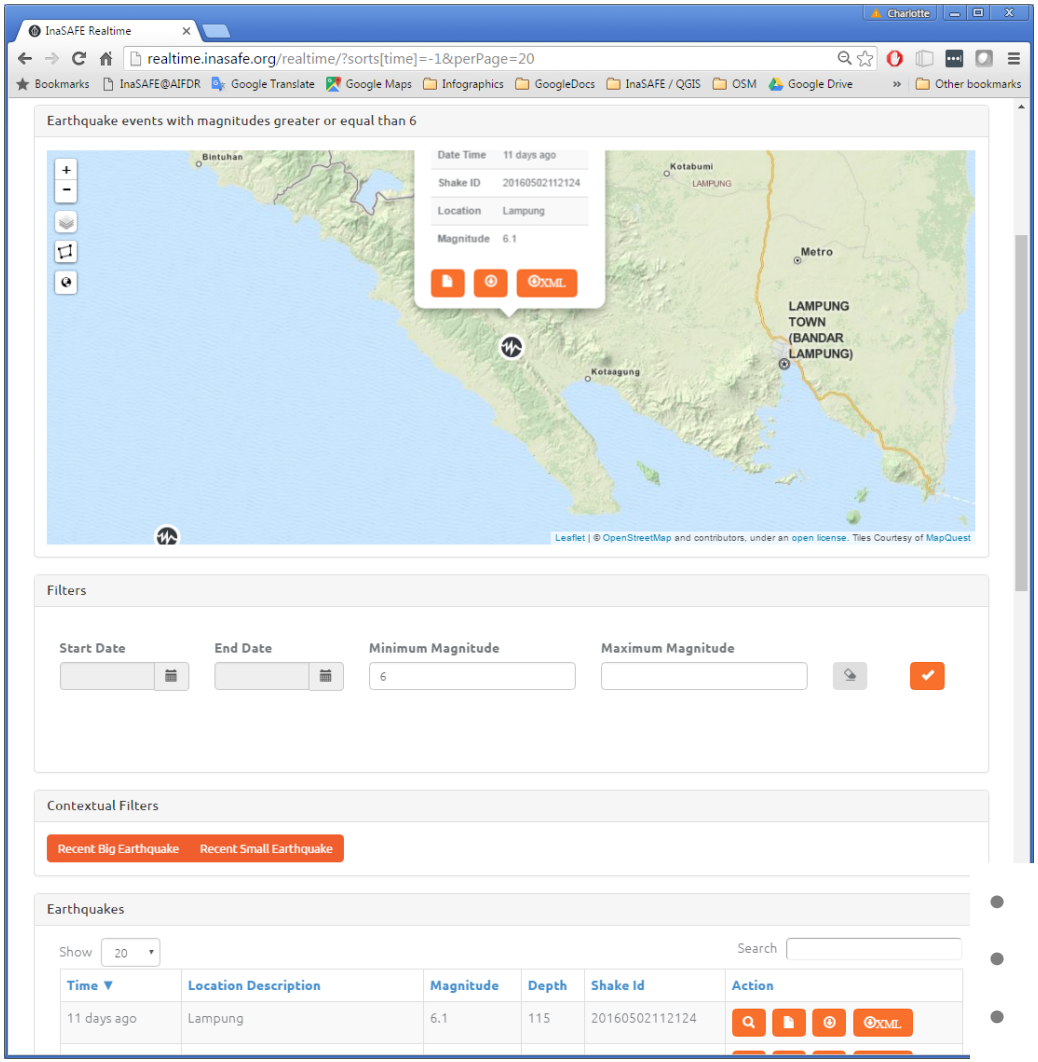


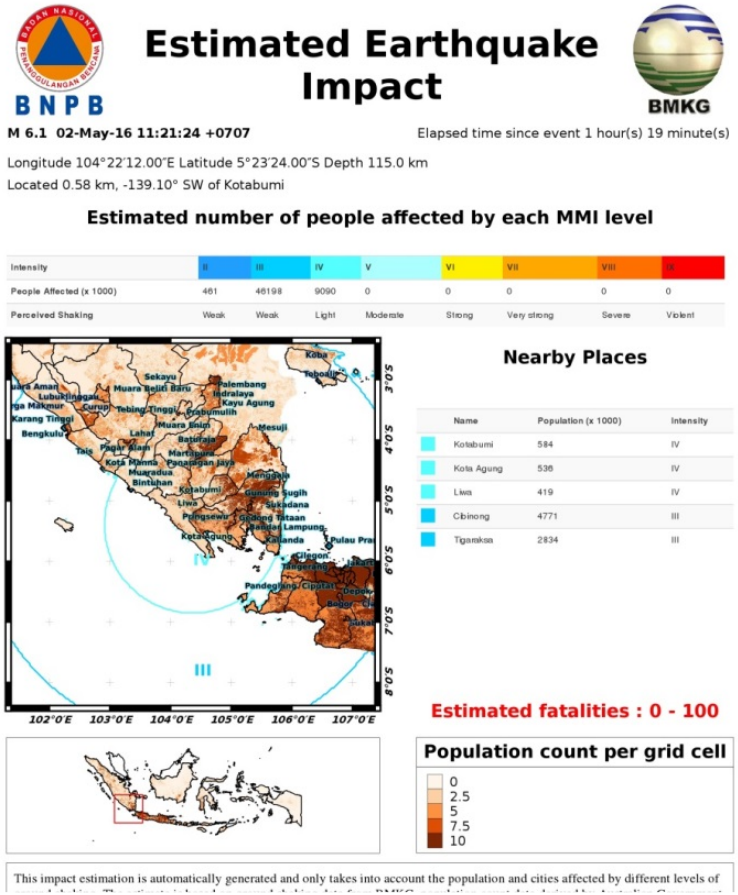


- Map and list of events
- Filter and zoom tools
- Open reports
- Download reports and data

realtime.inasafe.org

Earthquake Realtime





- BMKG shake maps
- Impact on people
- InaSAFE earthquake fatality function
- Each event has a unique ID


inaware.bnpb.go.id/inaware/
Bookmarks
InaSAFE@AIFDR
Google Translate
Google Maps
Infographics
8th Australasian Nat...
Other bookmarks
InAWARE
Didukung oleh DisasterAware v5.2.4 GA
BNPB
H&P
interoperability
Hazards & Products » #6018
Gempabumi - 5.7 - 95 km BaratDaya TERNATE-MALUT
EARTHQUAKE WATCH
Reported: 03 Hrs 08 Min ago
Updated: 02 Hrs 15 Min ago
Search
Default Layers (4)
InaSAFE Estimated Earthquake Impact - EN
by d2p2
01 Hrs 57 Min ago
InaSAFE Perkiraan Dampak Gempa - ID
by d2p2
01 Hrs 57 Min ago
BMKG Info Detail (Text)
by d2p2
01 Hrs 57 Min ago
BMKG Shakemap
by d2p2
01 Hrs 57 Min ago
4 products | 1 products are hidden
Baru
Tobelo
NORTH MALUKU
Halmahera
Ternate
Mare
Maba
Weda
Halmahera Sea
Baru
Poan
Fluk
Search Location
50 mi
100 km
SCALE
1 : 4 666 083
Google
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Report a map error
MGRS: 52NDF15815007
Lat: 0.769
Lon: 128.243

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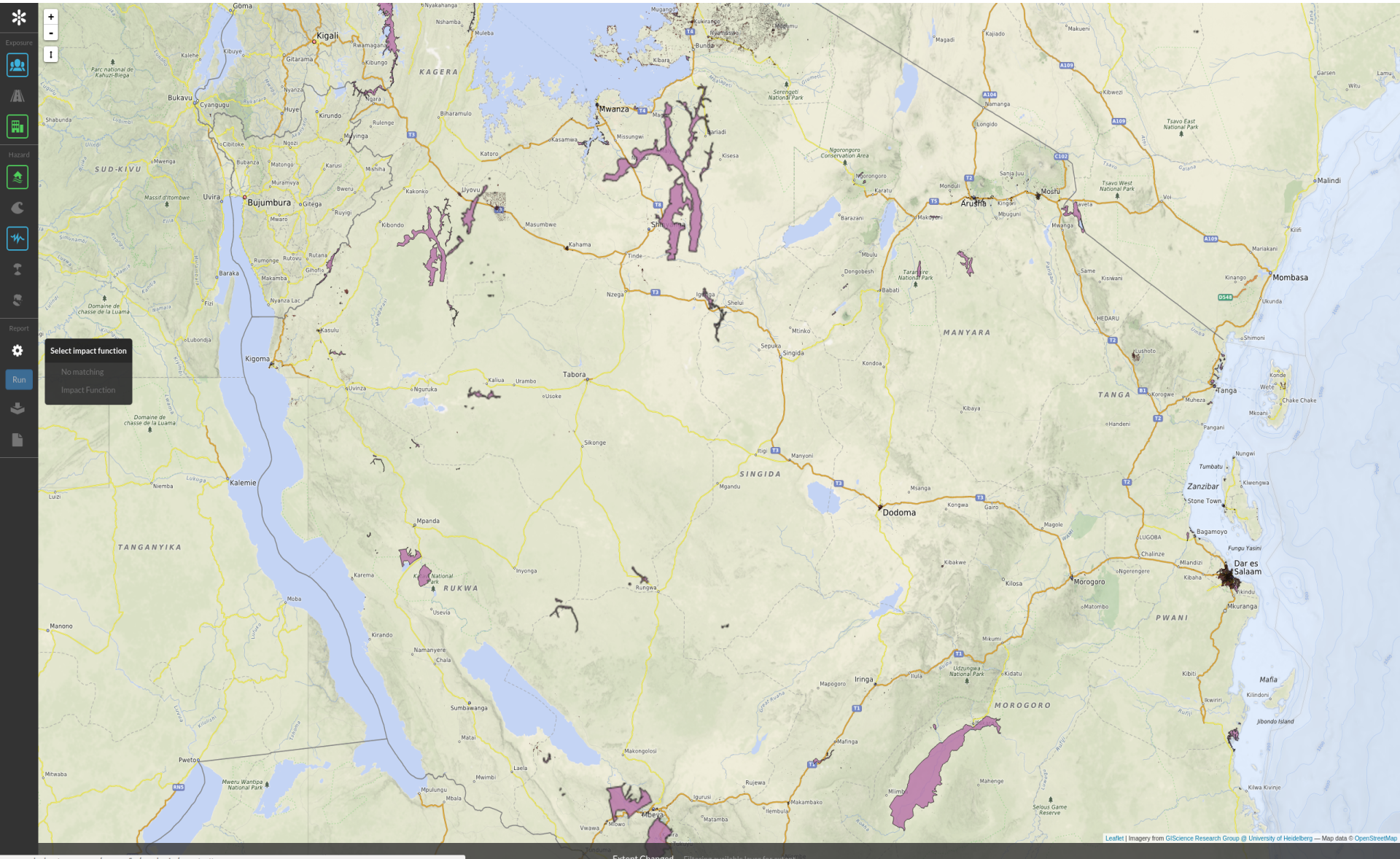
GeoSAFE - Data selection



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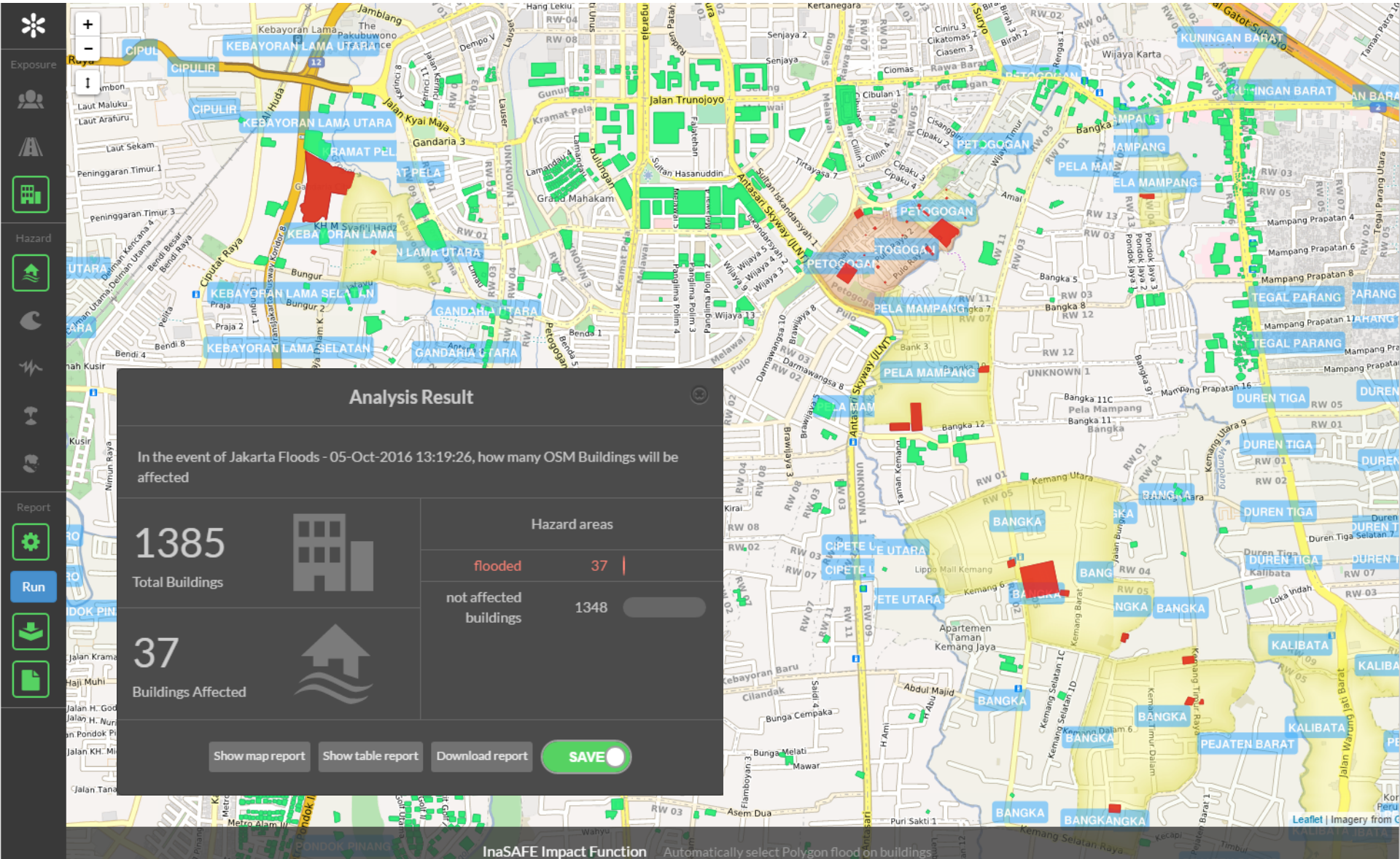
GeoSAFE – Result



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Future

- Vesion 4.0
  - Metadata driven impact functions
  - More interoperability
  - Infographics reporting
- Global PSC
- Regional working groups

In the event of a flood in Jakarta like 2007;

Jakarta population
12.7 million

Affected population
1.113 million

= 8.7% of Jakarta population

the affected population will need:

3 million kg rice

19 million litres drinking water

each week,

and

55,000 toilets

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Open Source Communities

Humanitarian Information Unit

More and more users and contributors every day

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Vinaka!

Questions?

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