Chengdu Forum on UN-GGIM, 15-17 October 2013, Chengdu, China

Development & Applications in Urban Hazard Mapping

Session 2: Hazard and Risk Modelling Applications

Indonesia Scenario Assessment for Emergencies (InaSAFE)

Dr. Trevor Dhu, Co-Director,

Australia-Indonesia Facility for Disaster Reduction, Indonesia

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AUSTRALIA-INDONESIA FACILITY FOR DISASTER REDUCTION

Australia-Indonesia Facility for Disaster Reduction (AIFDR)

- 2008: Agreement to form a partnership for regional disaster reduction involving Australian and Indonesian collaboration on innovative scientific solutions and forward-looking analysis to build more effective disaster mitigation, preparedness and response
- Australia-Indonesia facility was launched by the Australian and Indonesian governments at a special ceremony on 15 July 2010

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AUSTRALIA-INDONESIA FACILITY FOR DISASTER REDUCTION

Australia-Indonesia Facility for Disaster Reduction (AIFDR)

- Is a joint initiative between the governments of Australia and Indonesia
- A partnership between AusAID and Indonesia's Disaster Management Agency (BNPB)
- Designed to strengthen Indonesia's ability to reduce the impact of disasters

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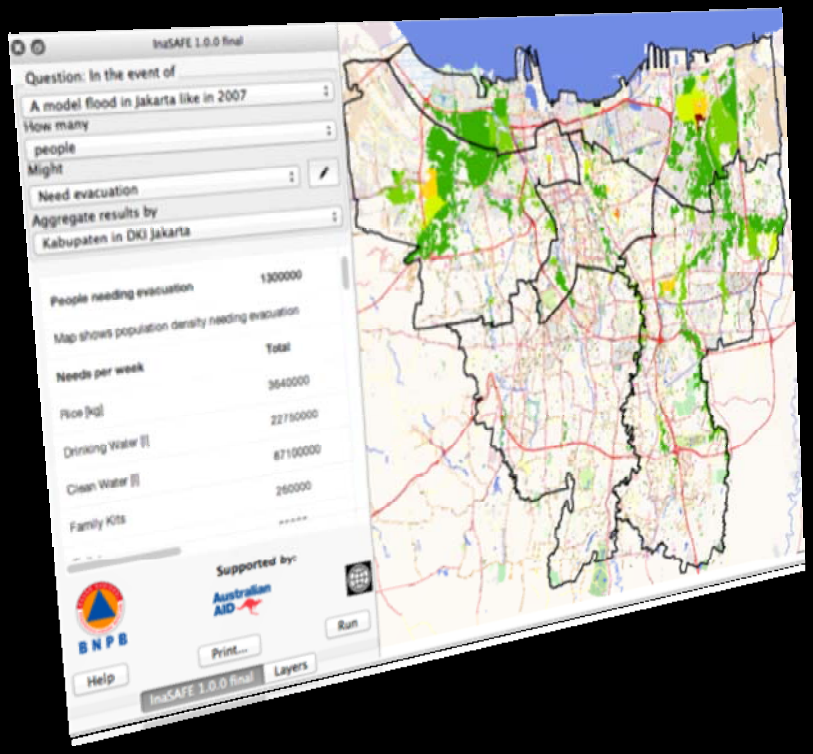
AUSTRALIA-INDONESIA FACILITY FOR DISASTER REDUCTION

- AIFDR uses Australian and Indonesian science and data to better identify natural disaster hazards and risks in Indonesia. This is used to support development activities, including training and planning exercises for disaster management at the national and provincial level, to build Indonesia's capacity to self-manage disasters

- AIFDR works in partnership with BNPB and with key community sector organisations (CSOs) and non-government organisations (NGOs) to ensure vulnerable communities are better prepared for disasters. Outcomes are also shared with the region through partnerships with ASEAN and the United Nations



InaSAFE

Indonesia Scenario Assessment For Emergencies

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Better planning saves lives

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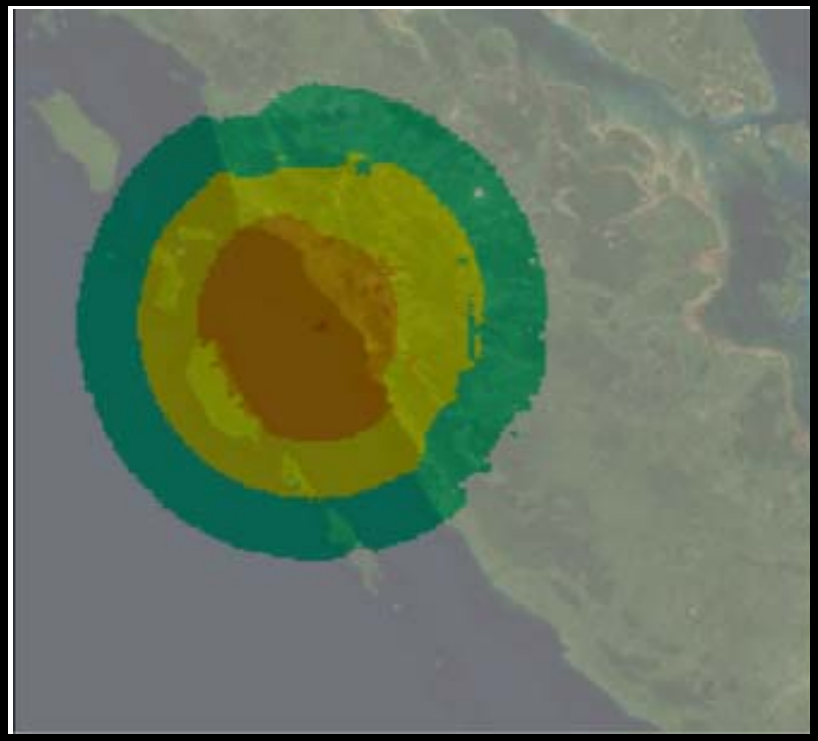
How can we improve our contingency planning?



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Target Audiences

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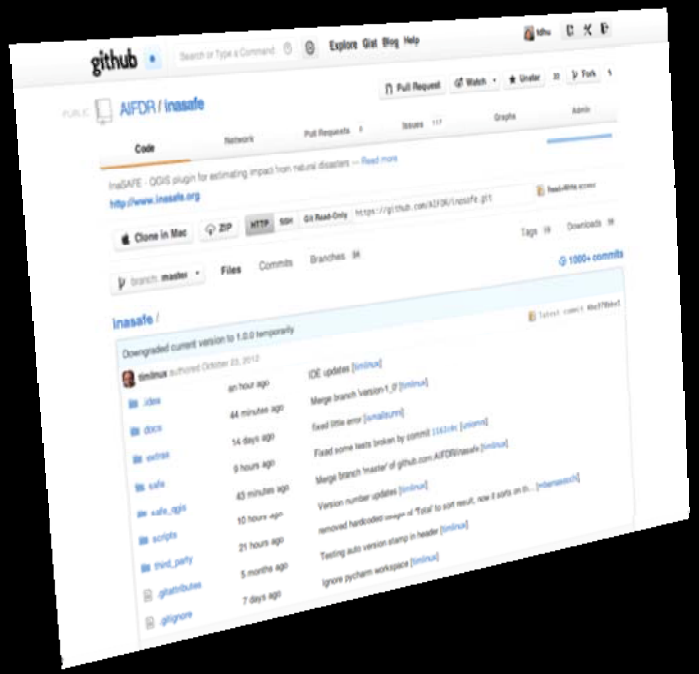
InaSAFE is free, open and dynamic



www.inasafe.org

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InaSAFE Concept

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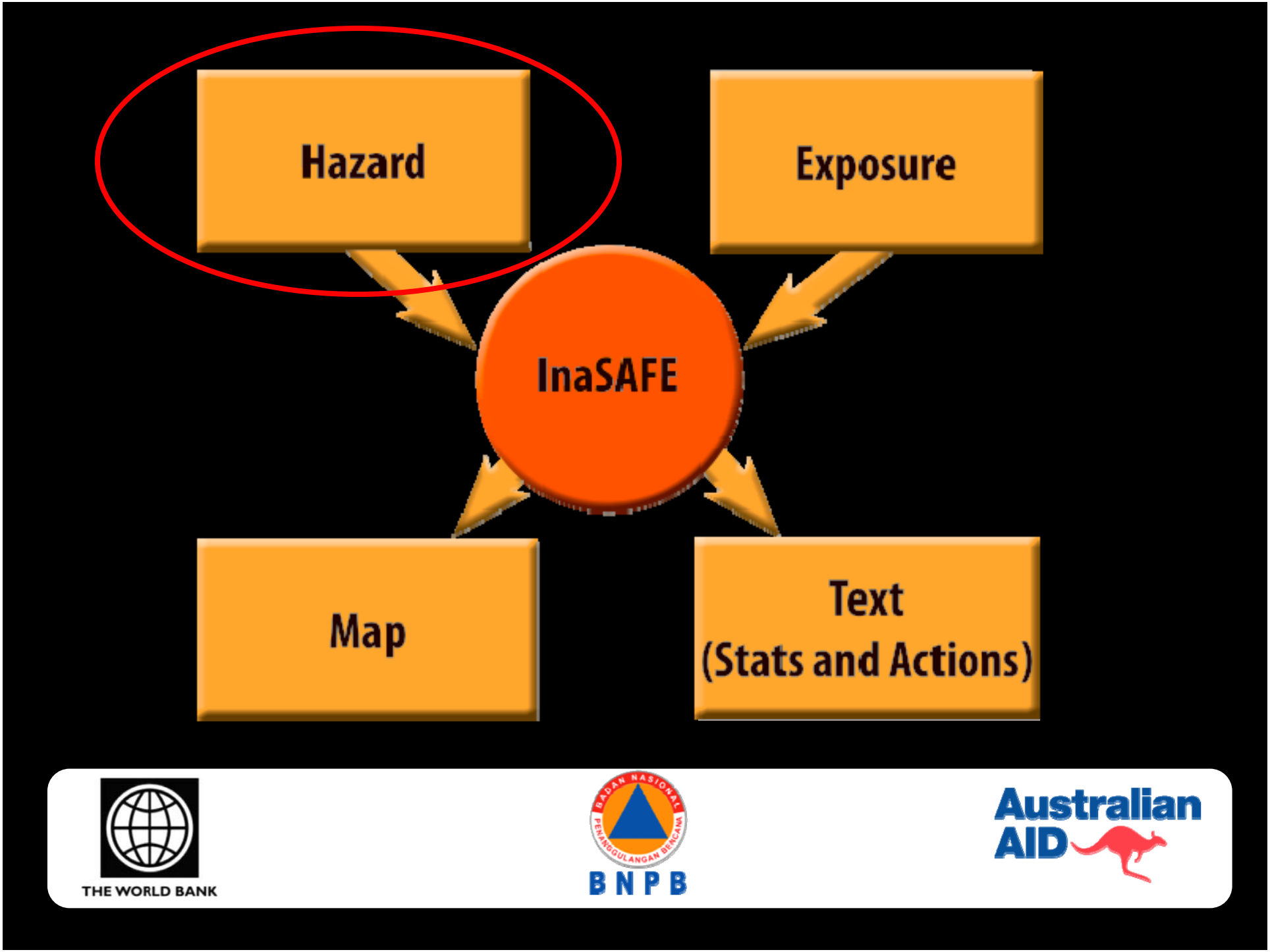
Hazard
Exposure
InaSAFE
Map
Text
(Stats and Actions)
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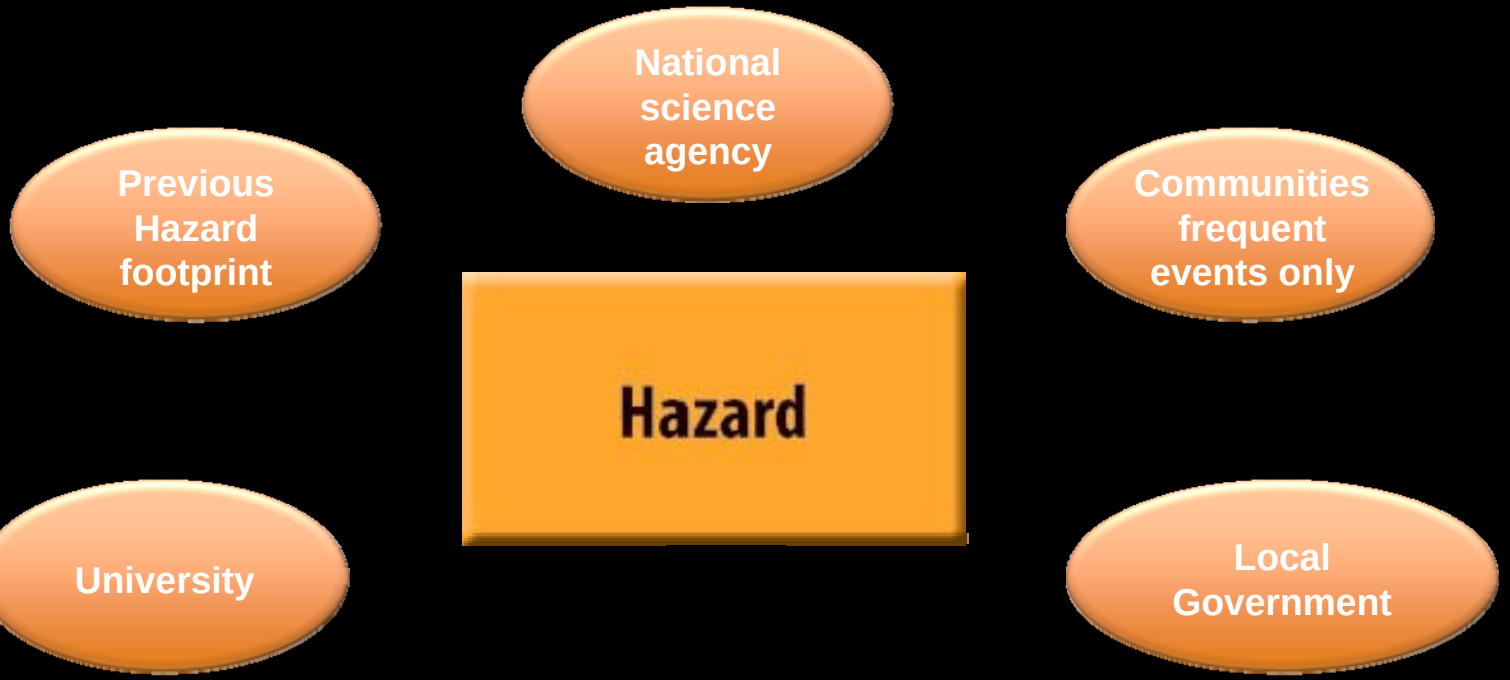
Where do I find hazard information?



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Hazard

- InaSAFE refers to a singular disaster scenario:
  - Mw 7.8 earthquake
  - Volcanic Eruption

Hazard	Modelled	Footprints
Earthquake	MMI (shakemap)	-
Tsunami	Max depth in Meters	-
Volcanic Eruption	ash load (kg^2/m^2)	Hazard Zones
Flood	Max depth in Meters	Flood prone areas
*Landslide		Hazard Zone
*Bush Fire		Hazard Zone
*Cyclone/Tornado		

*To come in future version of InaSAFE

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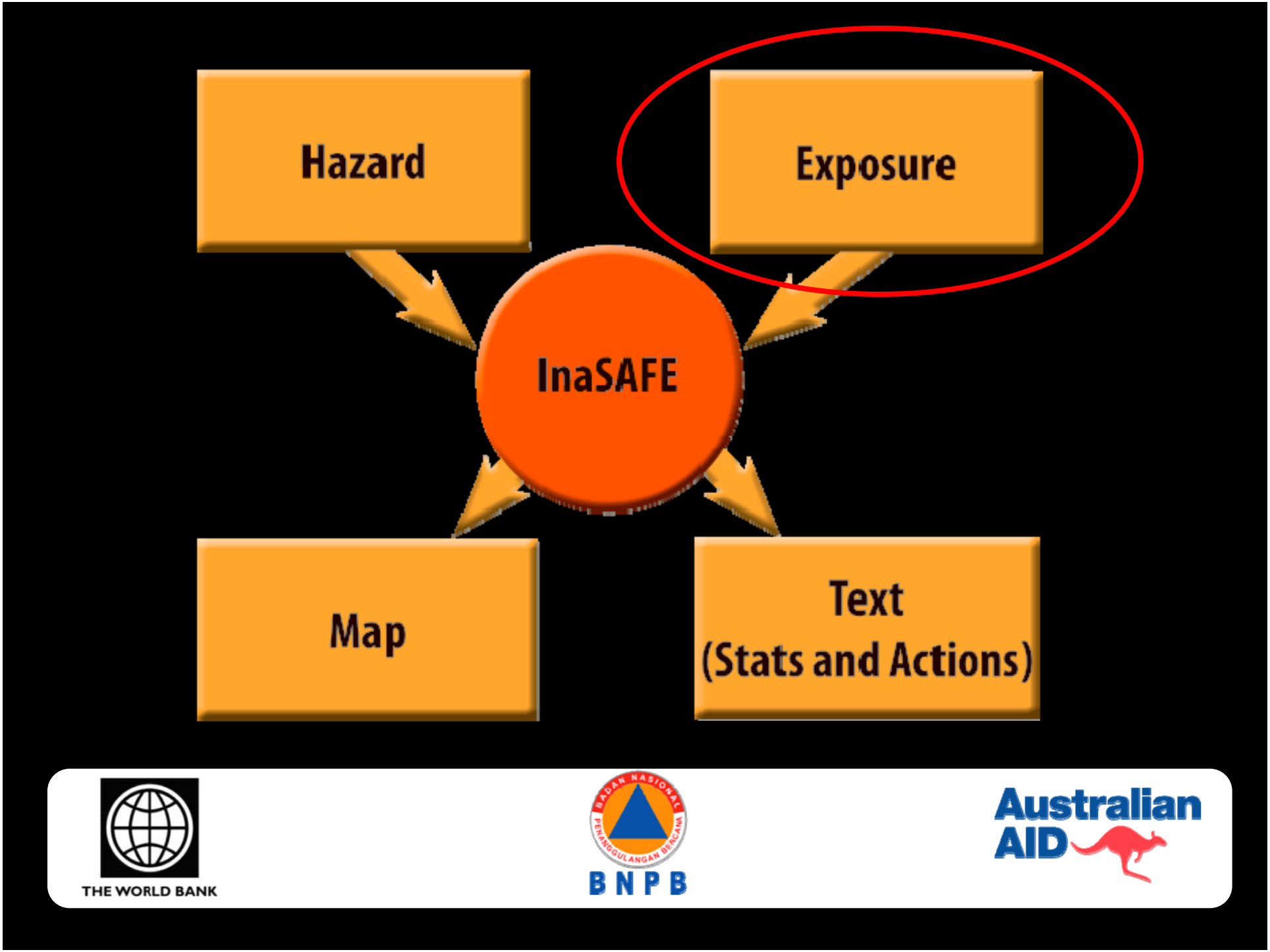

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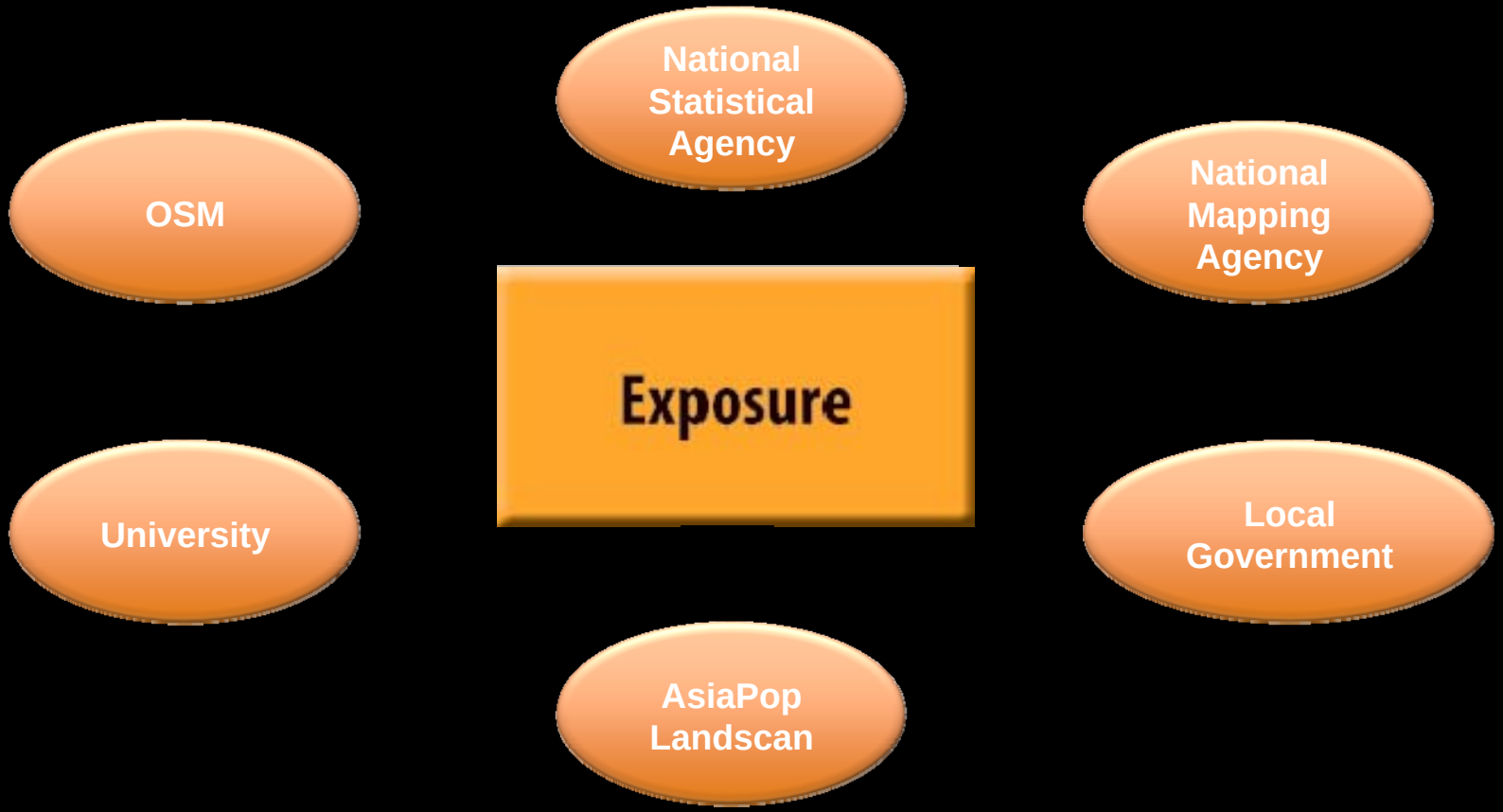
Where do I find exposure information?



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Exposure

- InaSAFE refers to:
  - Population density - number of people found in a certain area
  - Important infrastructure - buildings, bridges, etc.

Exposure	Type
Population	Density (people/units^2)
Buildings	Schools, Hospitals
Other Man-made structure	Bridges, telecommunications
*Roads	major, minor
*Landuse	Agriculture, Industrial

** To come in future versions of InaSAFE*

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Impact Functions

- The core to InaSAFE is its capability of having multiple Impact Functions specific to the input data

In the event of	How many	might	Output
Earthquake	People	die or be displaced	Number of People dead or displaced
Earthquake	Buildings	be affected	Number of buildings affected
Flood	People	need evacuating	Number of people affected and Number of people needing evacuation
Flood	Buildings	be affected	Number of buildings affected
Tsunami	People	need evacuating	Number of people affected and Number of people needing evacuation
Tsunami	Buildings	be affected	Number of buildings affected
Volcano	People	need evacuating	Number of people affected and Number of people needing evacuation
Volcano	Buildings	be affected	Number of buildings affected

** This is not the complete list of Impact functions currently in InaSAFE.*

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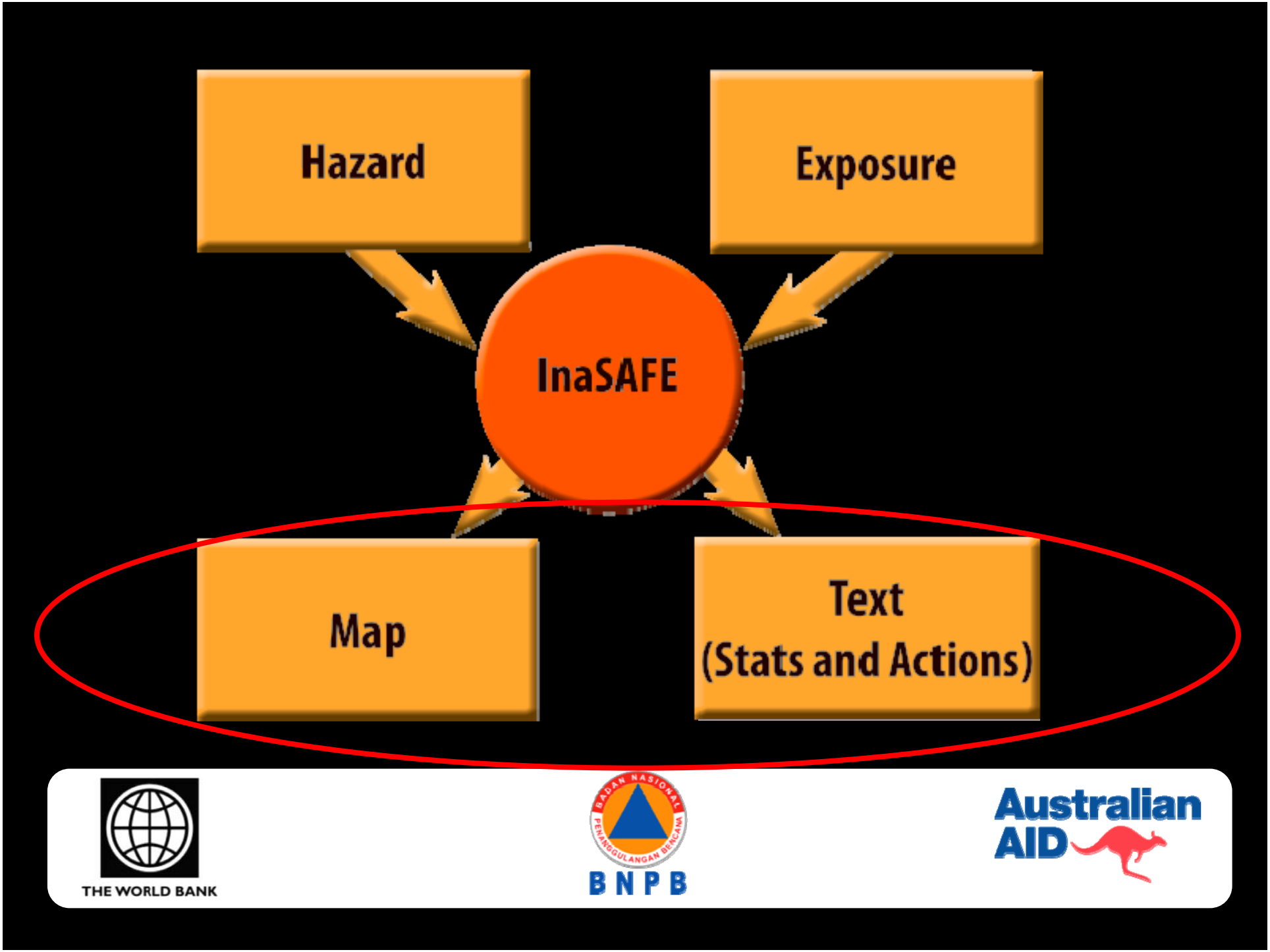
Hazard
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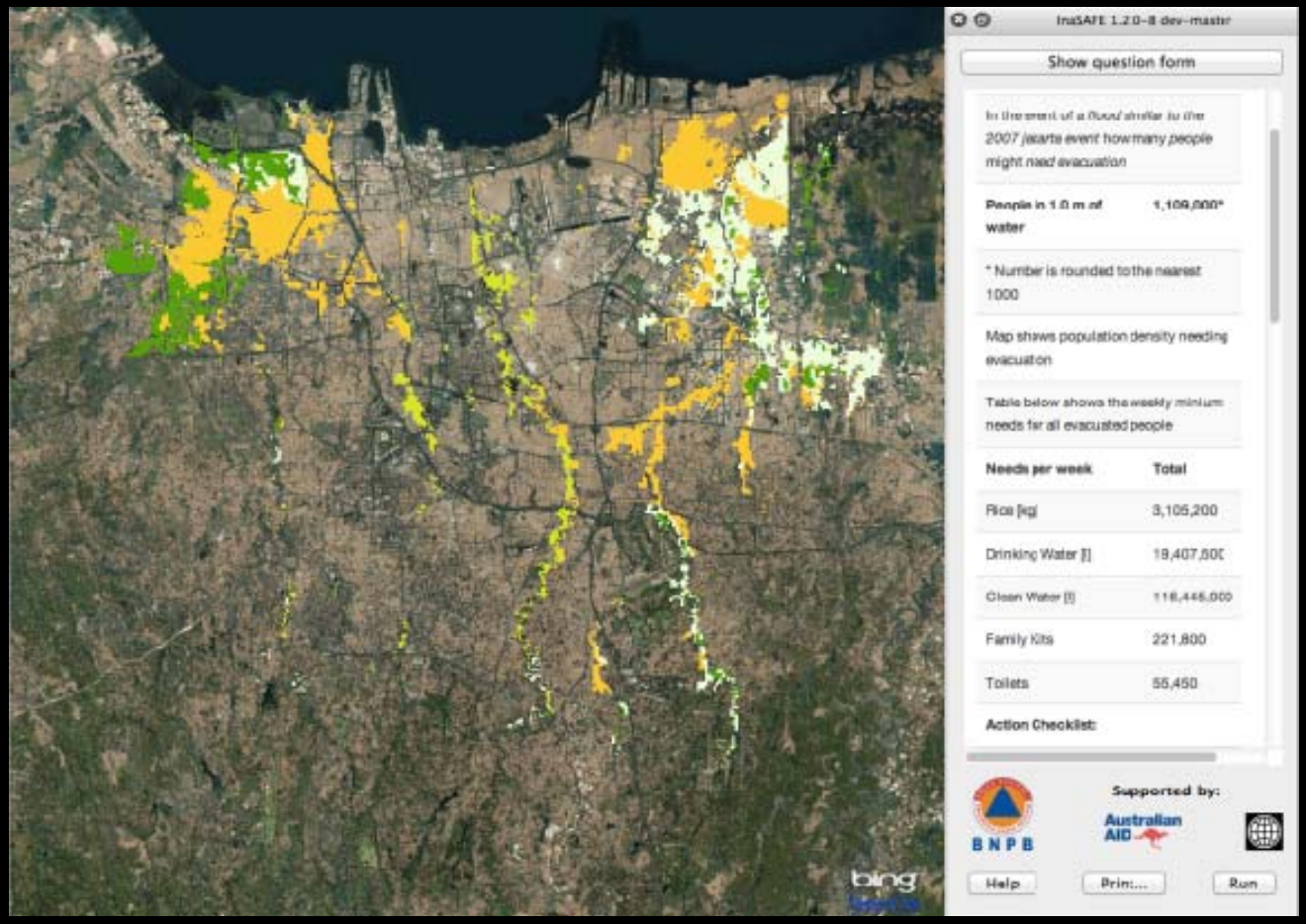
InaSAFE Output

Impact calculation produces an output layer representing potential damages or losses of affected exposure



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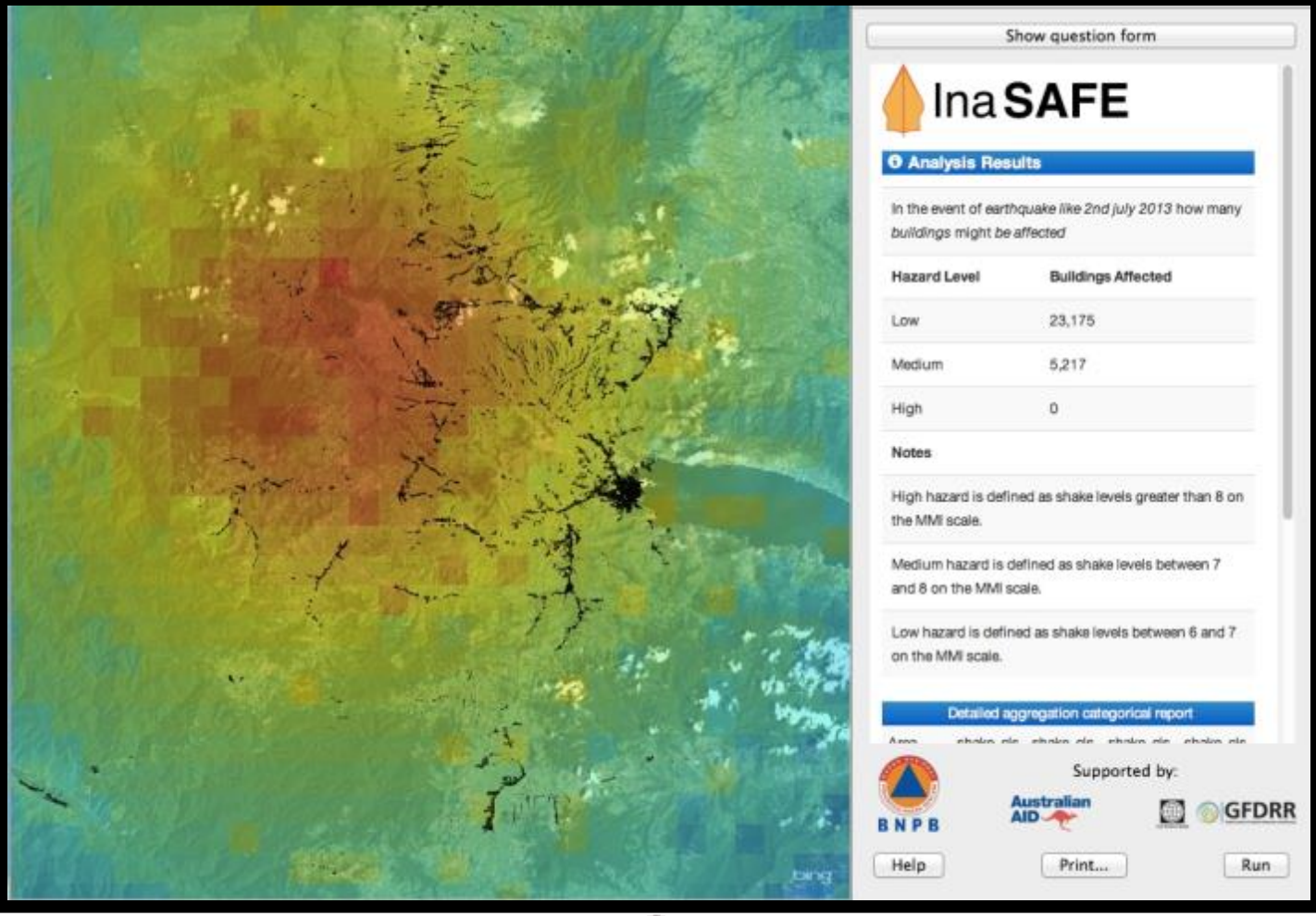
InaSAFE Output



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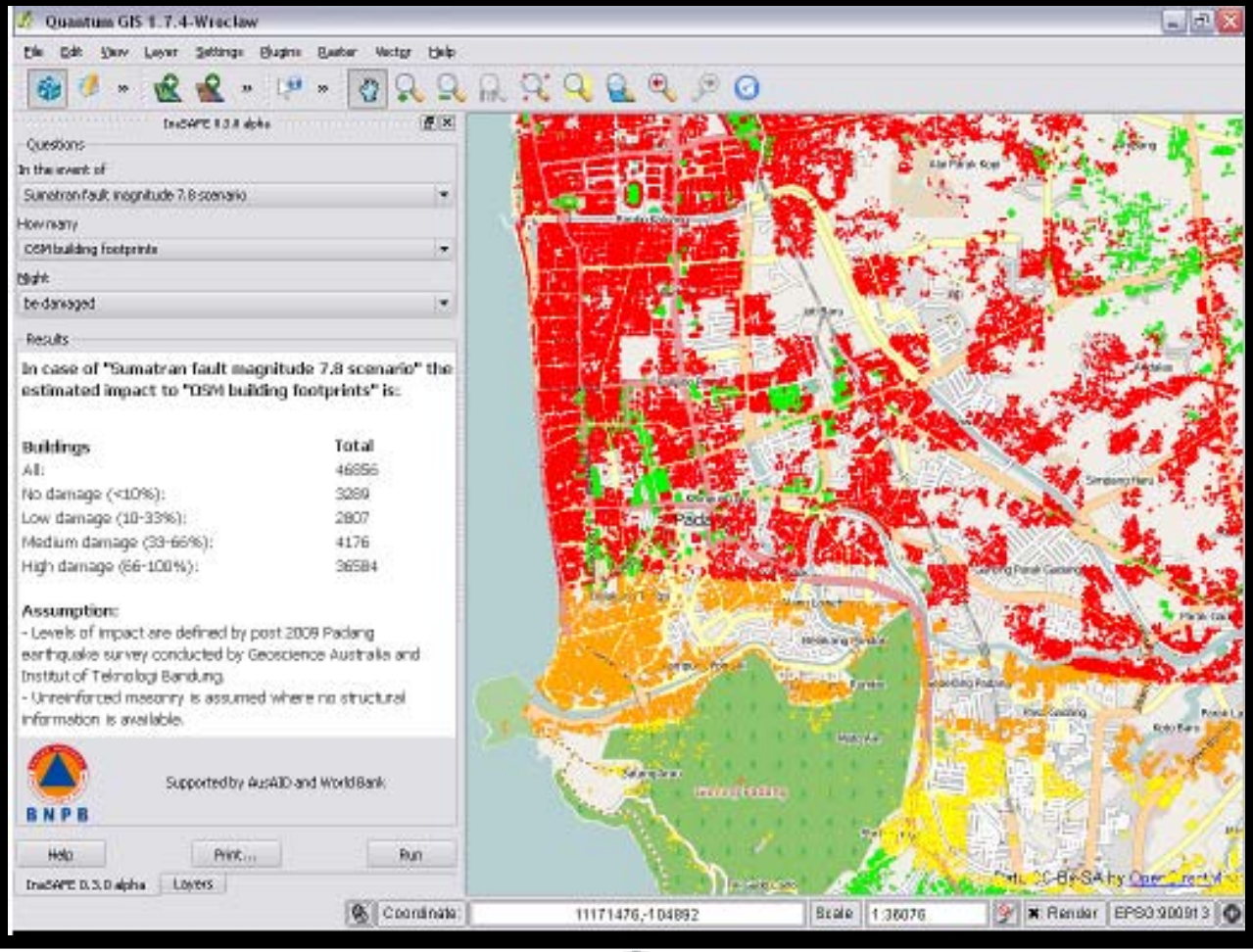
InaSAFE Output



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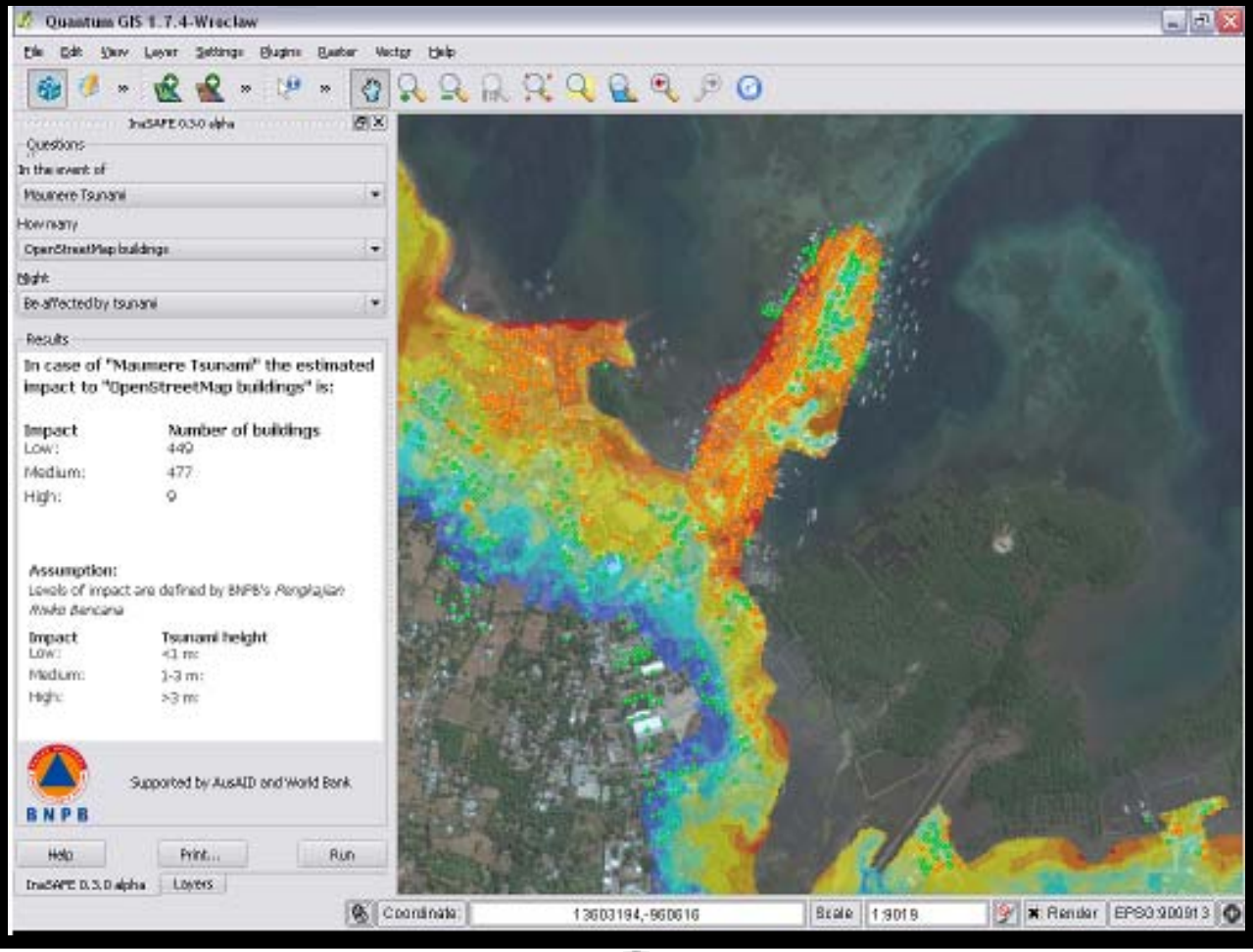
InaSAFE Output



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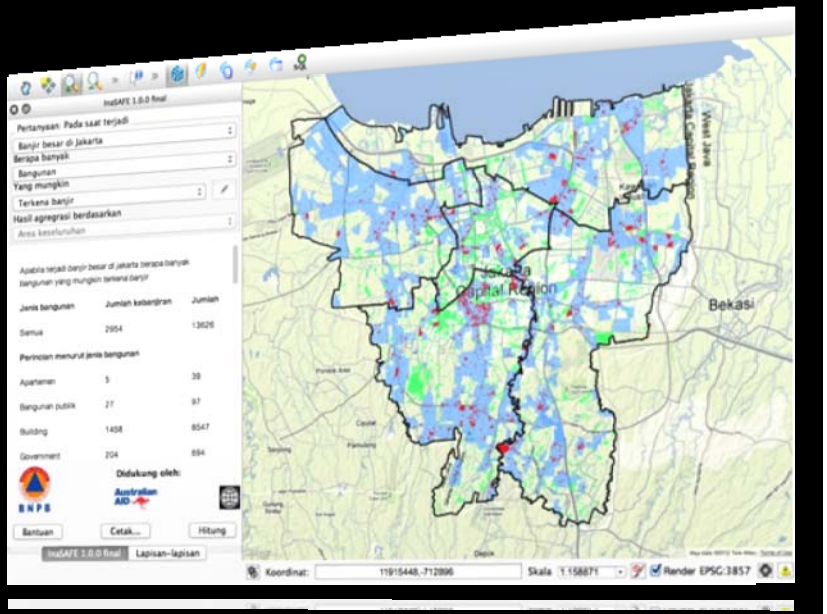

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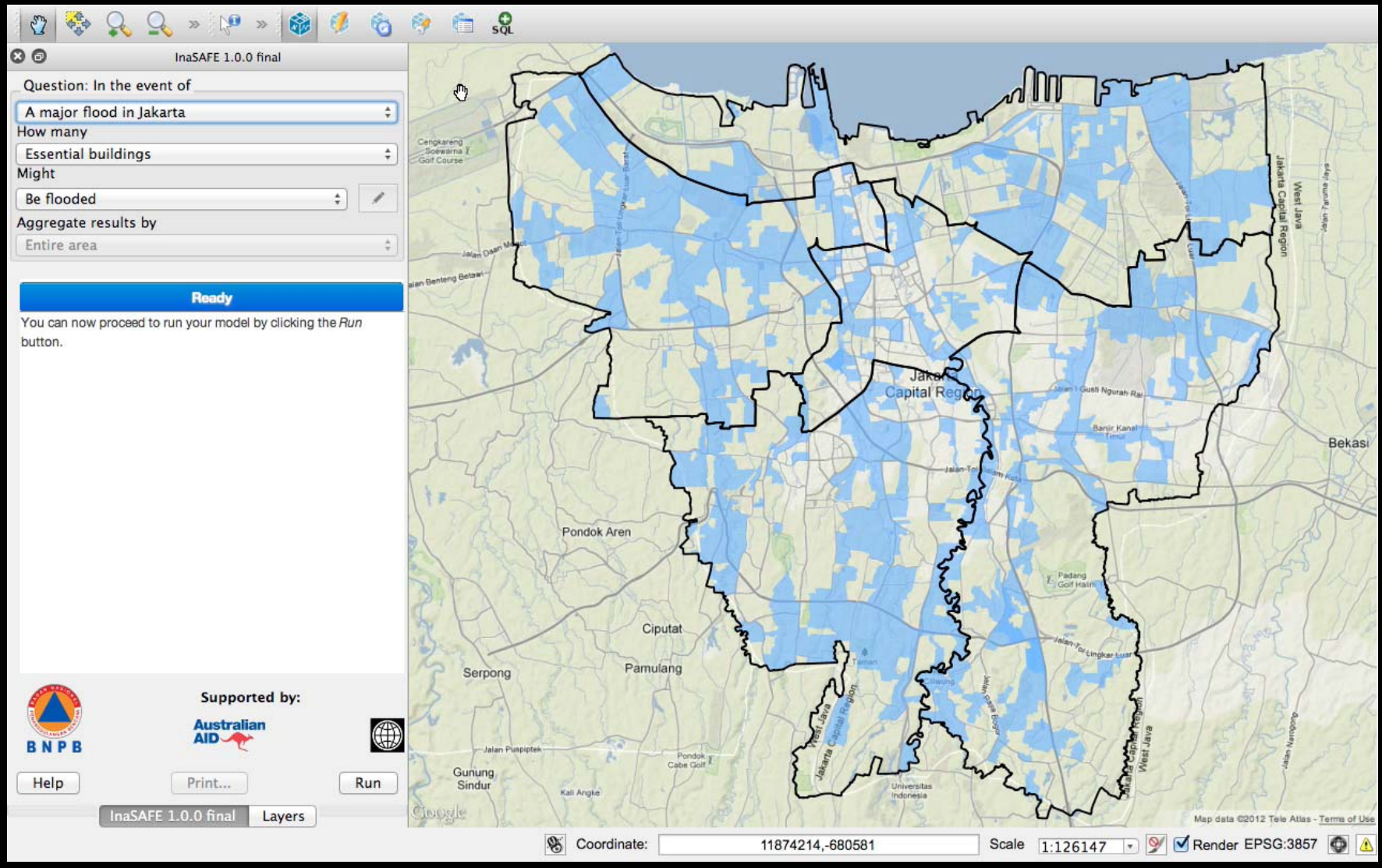

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Scenario Development for Contingency Planning

- BNPB and AusAID through Australia-Indonesia Facility for Disaster Reduction (AIFDR) is developing training material for disaster mangers

- The training includes data collection through OpenStreetMap and data analysis through QuantumGIS (open source GIS software) and InaSAFE

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OpenStreetMap (OSM)

- Is a collaborative project to create a free editable map of the world
- AusAID has piloted OSM in Indonesia through the Humanitarian OpenStreetMap Team (HOT)
- Over 1,200,000 buildings have been mapped in Indonesia

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Mapping DKI Jakarta

- To map sub-village administration boundaries for DKI (the capital city district) of Jakarta
- To map all important buildings in DKI Jakarta
- To introduce OpenStreetMap to Village representatives
- To provide Village representatives with an understanding of how this data can be beneficial in preparing for disasters

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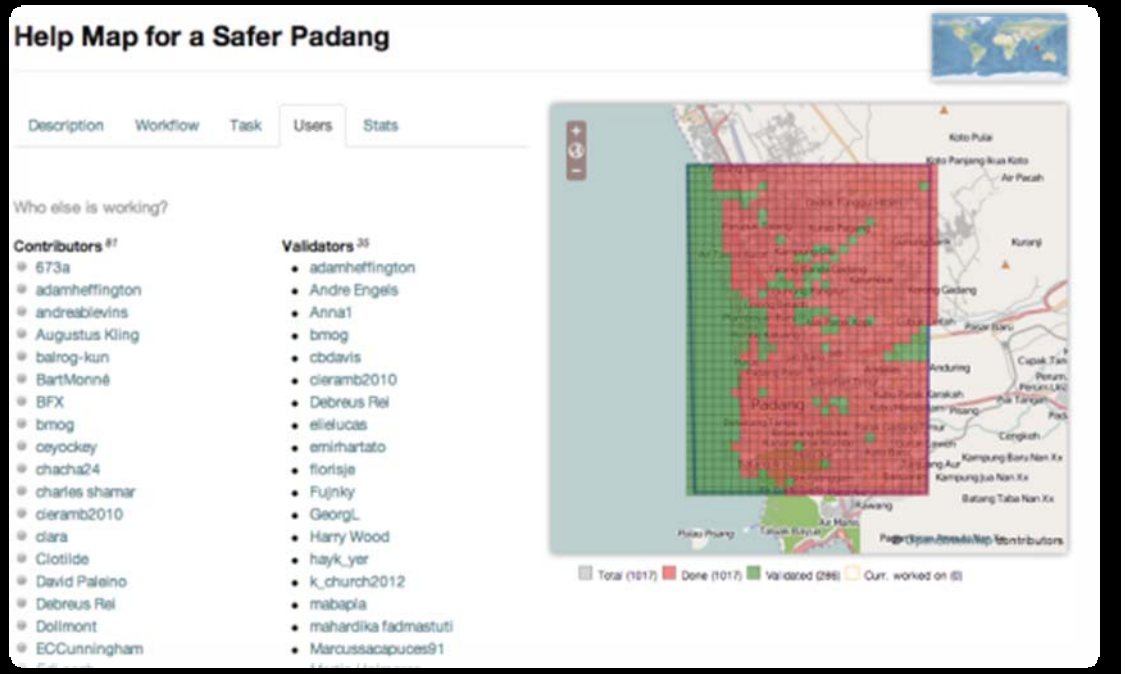
Mapping Padang

- OSM Tasking Server
- International effort
- Through digitising Microsoft Bing imagery
- Over 95,000 buildings mapped
- Downfall - no information about the buildings – just the spatial location



http://tasks.hotosm.org/

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Indonesia

OpenStreetMap 2011-2012

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