

Supporting the Decision Maker

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Australian Government
Geoscience Australia



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DISASTER REDUCTION



Acknowledgements

Colleagues at AIFDR & Geoscience Australia

Partners at World Bank & BNPB

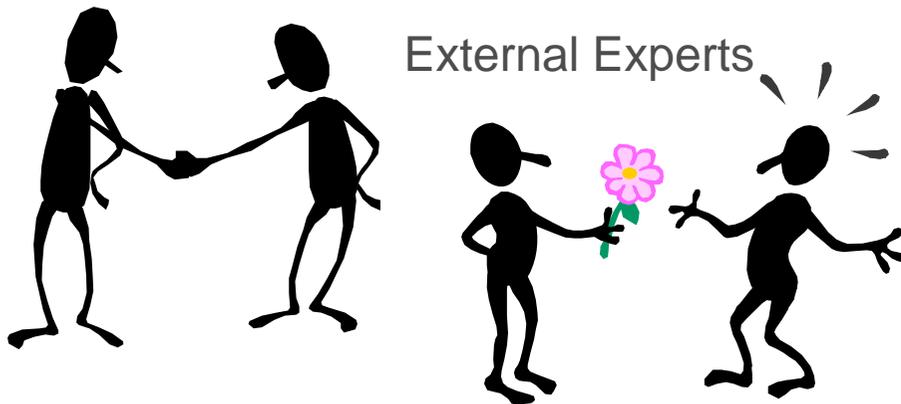
Open source enthusiasts at HOT OpenStreetMap & Kartoza



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External Experts

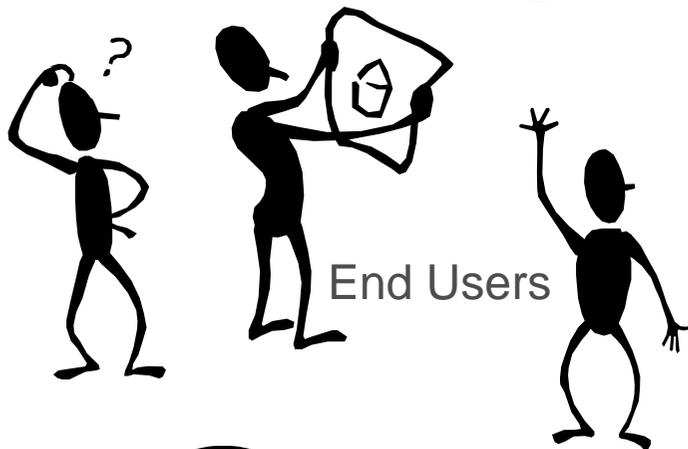


Team Leader



Team Members

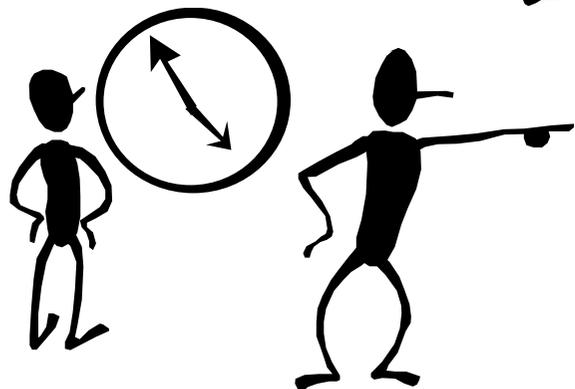
End Users



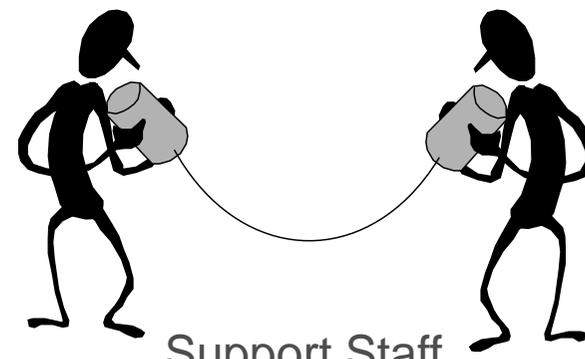
Product Owner



Senior Partners

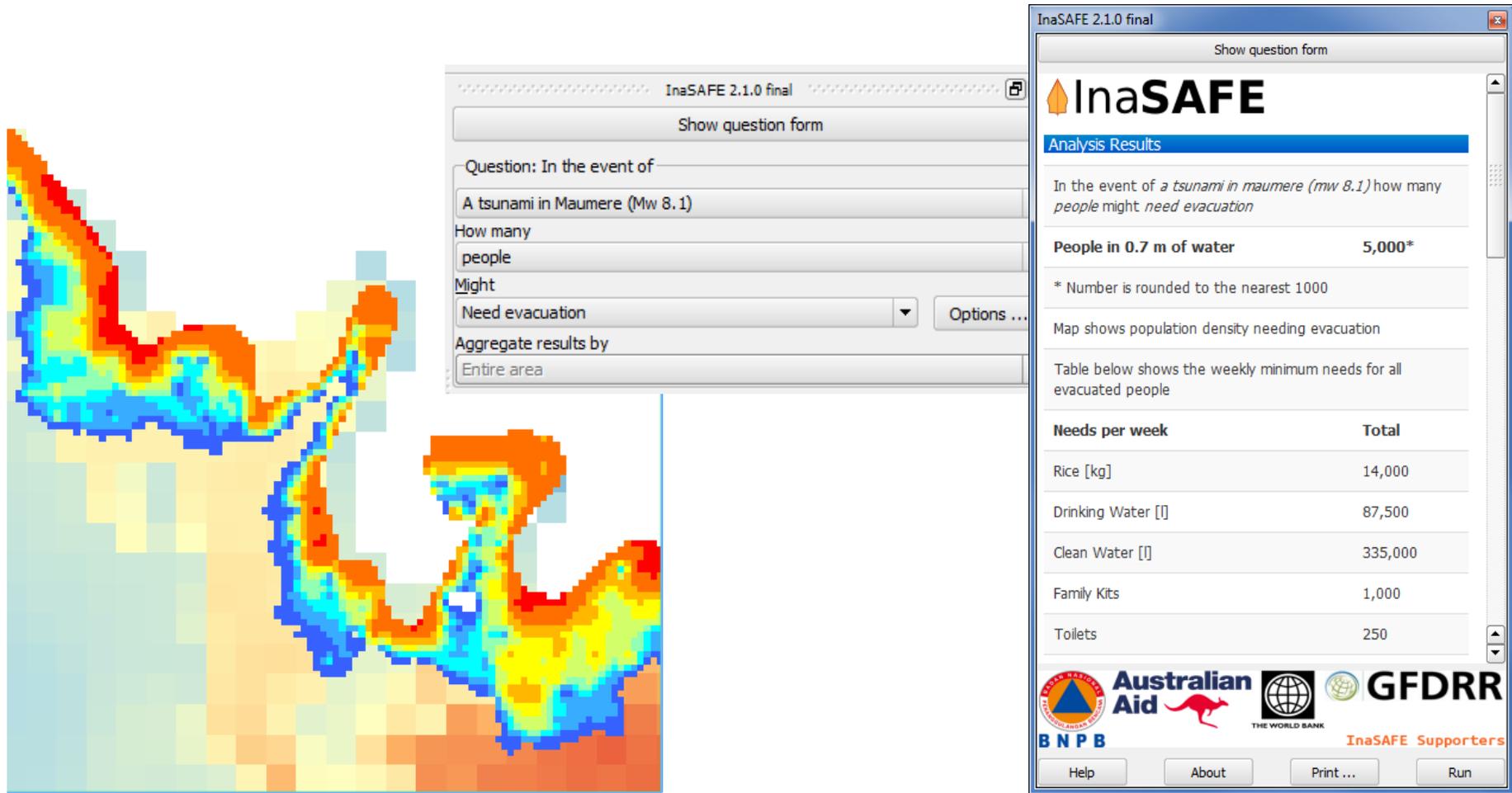


Support Staff



InaSAFE – the basics

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



Hazard: Maumere Tsunami Inundation Model – AIFDR (25m)

Exposure: Population Model – WorldPop (100m) | Buildings - OSM

Data + Analysis + Results = Decisions +/- Resilience

We have the data, we have the analysis & we have the results.

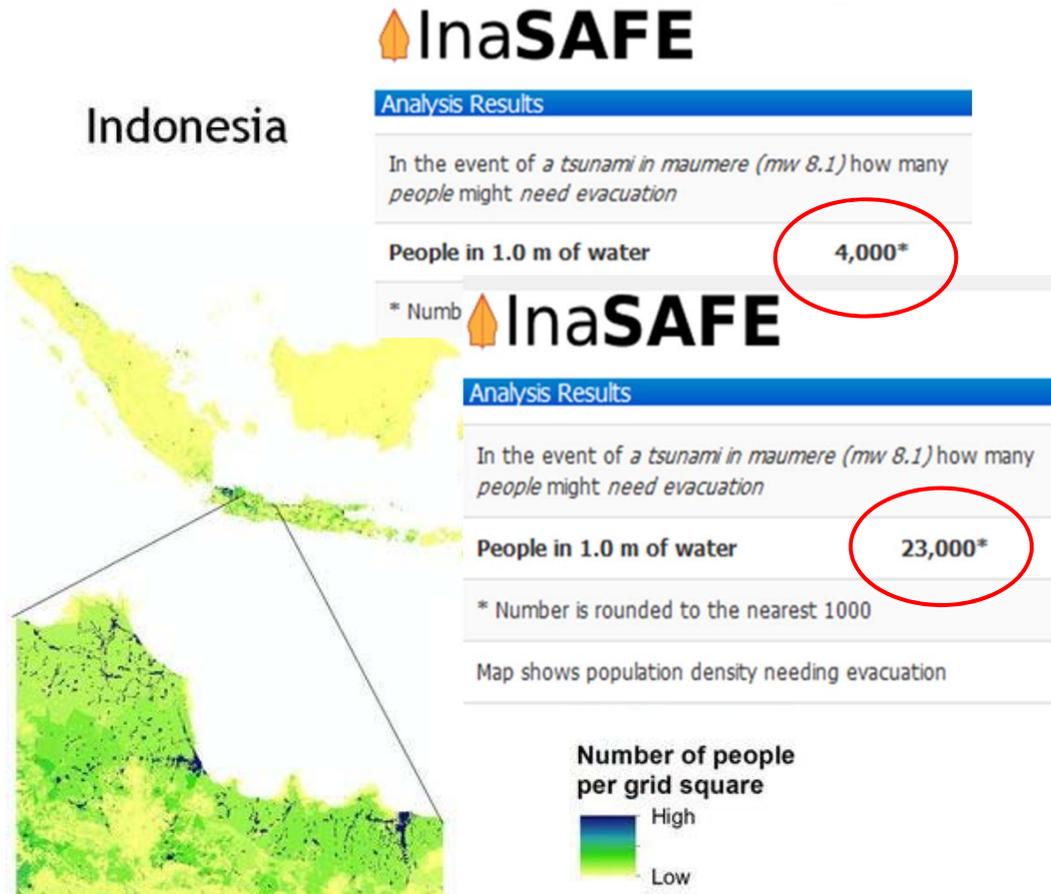
But:

- Is InaSAFE being used to make decisions?
- Is the community better prepared?
- Is the hazard science getting to the community?

Would you use InaSAFE to make a decision?

Issues - data sources

AsiaPop (www.asiapop.org) dataset details



DATASET: Alpha version 2010 and 2015 estimates of numbers of people per grid square, with national totals adjusted to match UN population division estimates (<http://esa.un.org/wpp/>) and remaining unadjusted.

REGION: Asia

SPATIAL RESOLUTION: 0.000833333 decimal degrees (approx 100m at the equator)

PROJECTION: Geographic, WGS84

UNITS: Estimated persons per grid square

Population count in WGS84

based, as FR, Linard C, Jia P and Tatem AJ, 2013, High resolution population distribution maps for Southeast Asia in 2010 and 2015, PLoS ONE, 8(2): e55882
 FORMAT: Geotiff (zipped using 7-zip (open access tool): www.7-zip.org)
 FILENAMES: Example - VNM_popmap10adj_v2.tif = Vietnam (VNM) population count map for 2010 (popmap10) adjusted to match UN national estimates (adj), version 2 (v2).
 DATE OF PRODUCTION: January 2013

Dataset construction details and input data are provided here: www.asiapop.org and here: <http://www.plosone.org/article/info:doi/10.1371/journal>

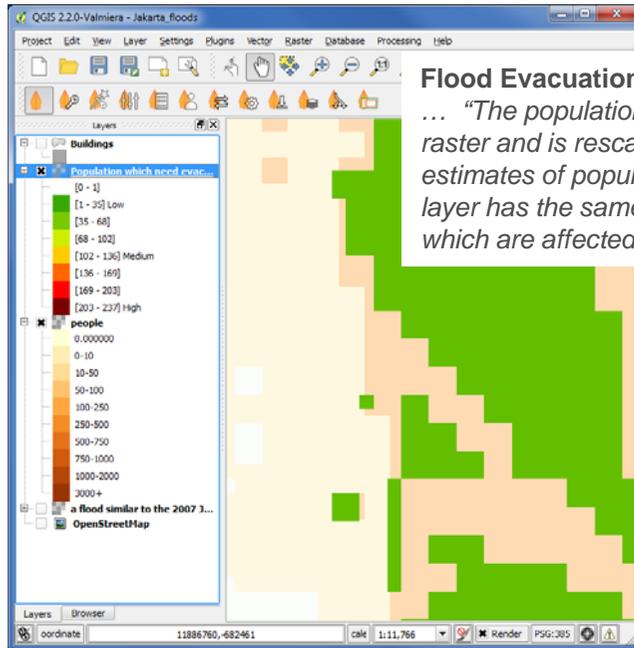
More than 5 times bigger

Obtaining good population data in a raster format that can be used in InaSAFE is a high priority

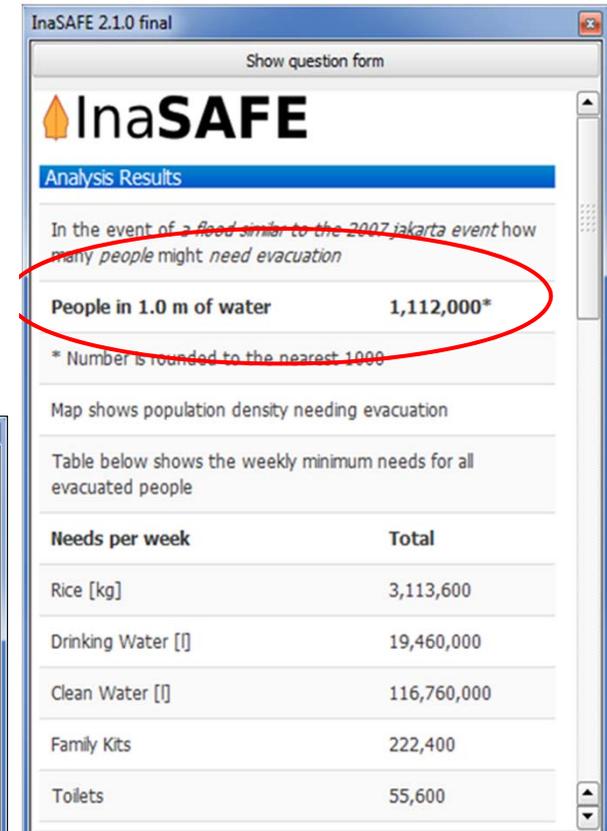
There are hazard data sets available that have not been used to help communities be better prepared

Issues – rounding the number of people affected

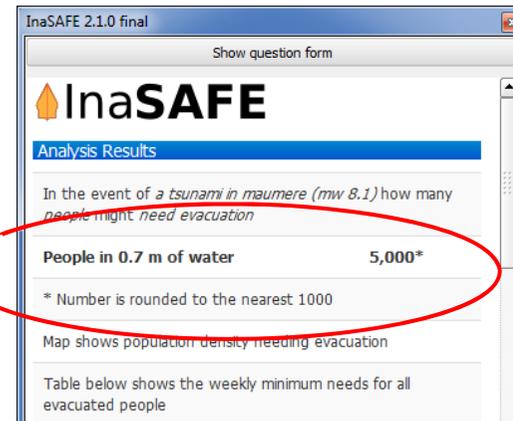
The next step is for the information to be used by disaster managers and communities to build resilience



+/- 0.1 %



+/- 20 %



Can disaster managers use the results to make decisions?

Will communities be better prepared & more resilient?

Issues – identifying affected buildings

Layers

- Buildings
- Estimated buildings affected
 - Not Inundated
 - Inundated
- Roads
- A tsunami in Maumere (Mw 8.1)
 - 0.01 - 0.25
 - 0.26 - 0.50
 - 0.51 - 0.75
 - 0.76 - 1.00
 - 1.01 - 1.50
 - 1.51 - 2.00
 - 2.01 - 3.00
 - 3.01 - 6.00
 - 6.00 +
- Population which need evacuati... people

Flood Building Impact Function

“The inundation status is calculated for each building (using the centroid if it is a polygon) based on the hazard levels provided. if the hazard is given as a raster a threshold of 1 meter is used. ...”

Feature	Value
1	
A tsunami in Maumere (Mw 8.1)	
(Derived)	
(clicked coordinate)	122.19618992, -8.60160581005
Band 1	0.6978999972343445
Estimated buildings affected	
NAME	NULL
(Actions)	
View feature form	
(Derived)	
(clicked coordinate)	122.19618992, -8.60160581005
Area	102.177 m ²
feature id	68
Perimeter	42.371 m
ADMIN	NULL
AMENITY	NULL
BUILDING	yes
CAPACITY	NULL
depth	0.698100162470210
FULL_ADDRE	NULL
INUND/LEISUR	
LEVELS	NULL
NAME	NULL

Water depths

0.6890000104904175

0.691100001335144

0.5647000074386597

0.4020000100135803

Building depth

0.670313277998572

Action Checklist:

Are the critical facilities still open?

Which structures have warning capacity (eg. sirens, speakers, etc.)?

Which buildings will be evacuation centres?

Where will we locate the operations centre?

Where will we locate warehouse and/or distribution centres?

Should the information be used by disaster managers to make decisions?

Is this going to help communities to identify if critical infrastructure are still open?

Is InaSAFE supporting the decision maker?

Limitations:

- The quality and availability of exposure data,
- The way some of the InaSAFE impact functions work
- The way the results are presented,
- The relevance of the results for communities and disaster managers.

Opportunities:

- Make better use of the available hazard data
- Obtain relevant exposure data (population)
- Improve the analyses to make them more relevant
- Improve the documentation to include limitations and assumptions
- Make things easier for disaster managers.

Disaster managers and communities are making decisions and have been for a long time.

Discussion – questions - comments