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*PEER Indonesia Forum 2017: Apply The Science
Jakarta August 1-3, 2017*



From Science To Policy Change

PEER Science Cycle 3

Integrated Local Emergency Operation & Response Policy Improvement and Capacity Building for Advance-Early Warning System in the Face of Near-Field Tsunami Risk



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Who am I ?

Name: Harkunti P. Rahayu



Affiliation:

- ❑ **City and Regional Planning - School of Architecture, Planning, and Policy Development, Institute Technology of Bandung**
- ❑ **Research Center for Disaster Mitigation, Institute Technology of Bandung**
- ❑ **Chair of Indonesian Disaster Expert Association (2017-2020)**
- ❑ **Chair of Working Group 1 Indian Ocean Tsunami Warning and Mitigation System (2015-2019)**

Experience:

- ❑ **National Technical Guidelines for Tsunami Countermeasures (2014 – 2016)**
- ❑ **National Task Team for Indonesian Tsunami Early Warning System Indonesia (2005-2008)**
- ❑ **Coordinator for National Tsunami Exercise in Bali 2006 and Cilegon 2007**


Peta Risiko Tsunami


(National Geographic Edisi Maret 2005)

Pantai Padat dan Rawan

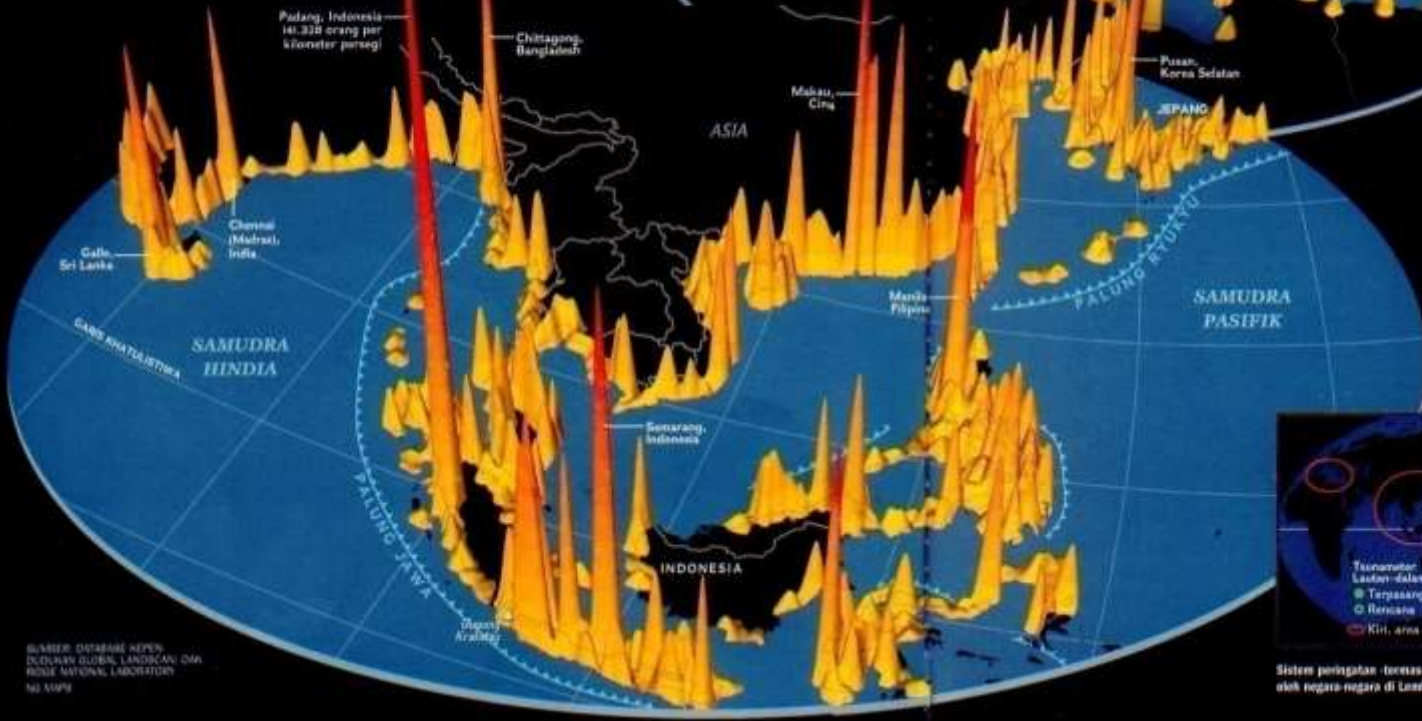
Tsunami Samudra Hindia diakibatkan oleh gempa bumi yang luar biasa kuatnya. Ia mengingatkan bahwa setiap garis pantai dalam zona aktif tektonik mempunyai risiko. Korban jiwa besar mengancam daerah-daerah pesisir berpenduduk padat di dataran rendah. Samudra Pasifik paling rawan terhadap tsunami. Pada abad lalu saja, ia telah mengalami tsunami sebanyak 800 kali.

Kepadatan penduduk sejauh 2 kilometer dari garis pantai dan di ketinggian kurang dari 10 meter

-  Lebih dari 75.000 orang per kilometer persegi
-  30.000 sampai 75.000
-  Kurang dari 30.000

 Zona Subduction (potensi pemicu tsunami)

Padang



Barat Laut Pasifik-Alaska
Gempa bumi berkekuatan tinggi di kawasan Alaska merupakan salah satu sebab utama tsunami seluas samudra. Daerah juga memerit seras Cascadia, kawasan Barat Laut Pasifik. Bila berkeput, dalam 15 menit gelombang memulikan akan menghantam penduduk pesisir.

Piyan de Tijana
26.000 orang per kilometer persegi

Tripoli, Libya
33.792 orang per kilometer persegi

Luas Tengah
Permasalahan tsunami ada sejak 3.000 tahun lalu di Laut Tengah. Wilayah ini 10 kali lebih rawan terhadap gelombang perusak dibanding Atlantik. Gempa sekitar Yunani, Itali, Turki, memicu tsunami.

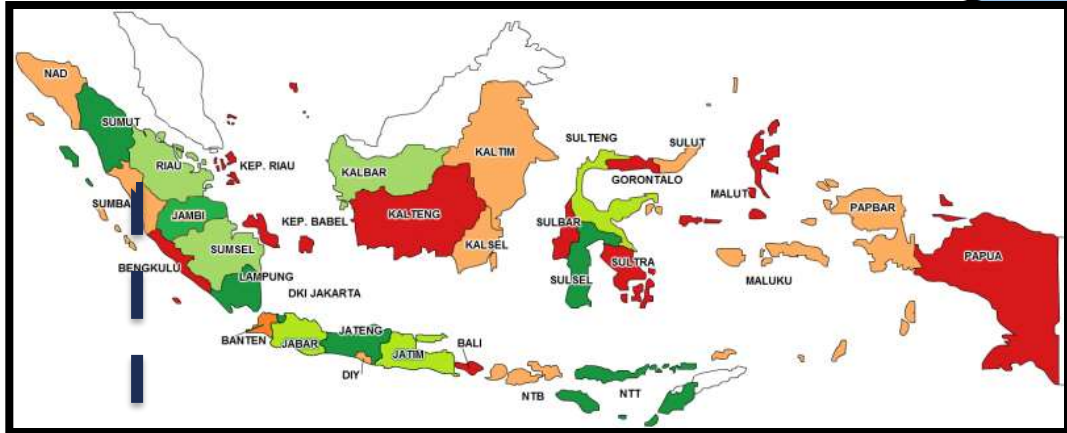
Risiko Pasifik
Jepang dan Indonesia, garis pantai penduduknya padat penduduk, merupakan bangsa paling terancam tsunami di dunia. Sekitar 22 persen tsunami Pasifik yang terancam berasal dari dekat. Jepang, Meksiko mempunyai sistem peringatan yang canggih.



Sistem peringatan tsunami di laut yang dalam dipasang oleh negara-negara di Lautan Pasifik pada pertengahan abad 20.

SUMBER: BUREAU OF OCEANOGRAPHY, NATIONAL GEOPHYSICAL LABORATORY, NOAA

Case Study Locations



Year 1:

- 1. Agam Regency
- 2. Pariaman City

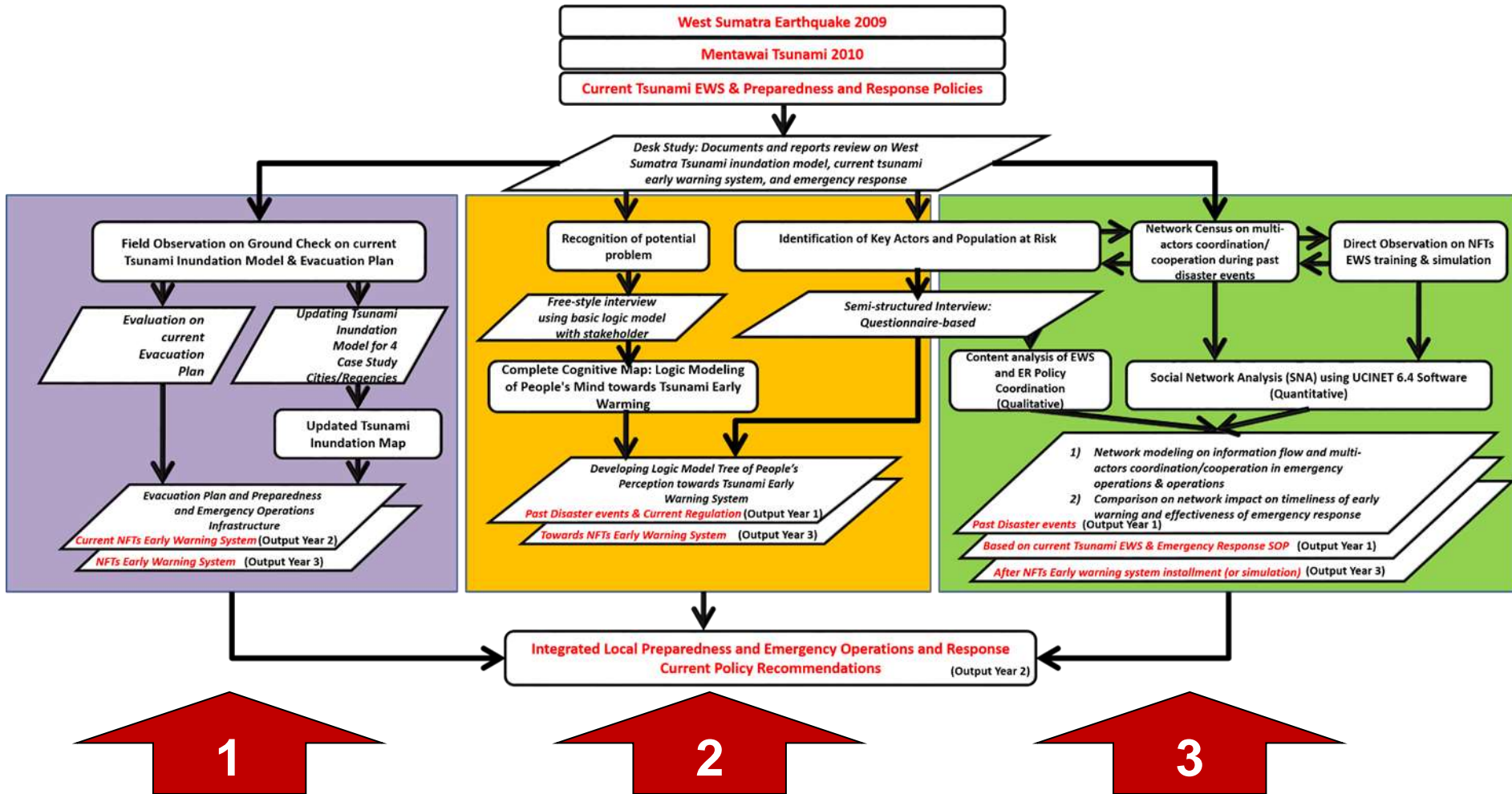
Year 2:

- 1. Padang City
- 2. Painan Town – Pesisir Selatan Regency

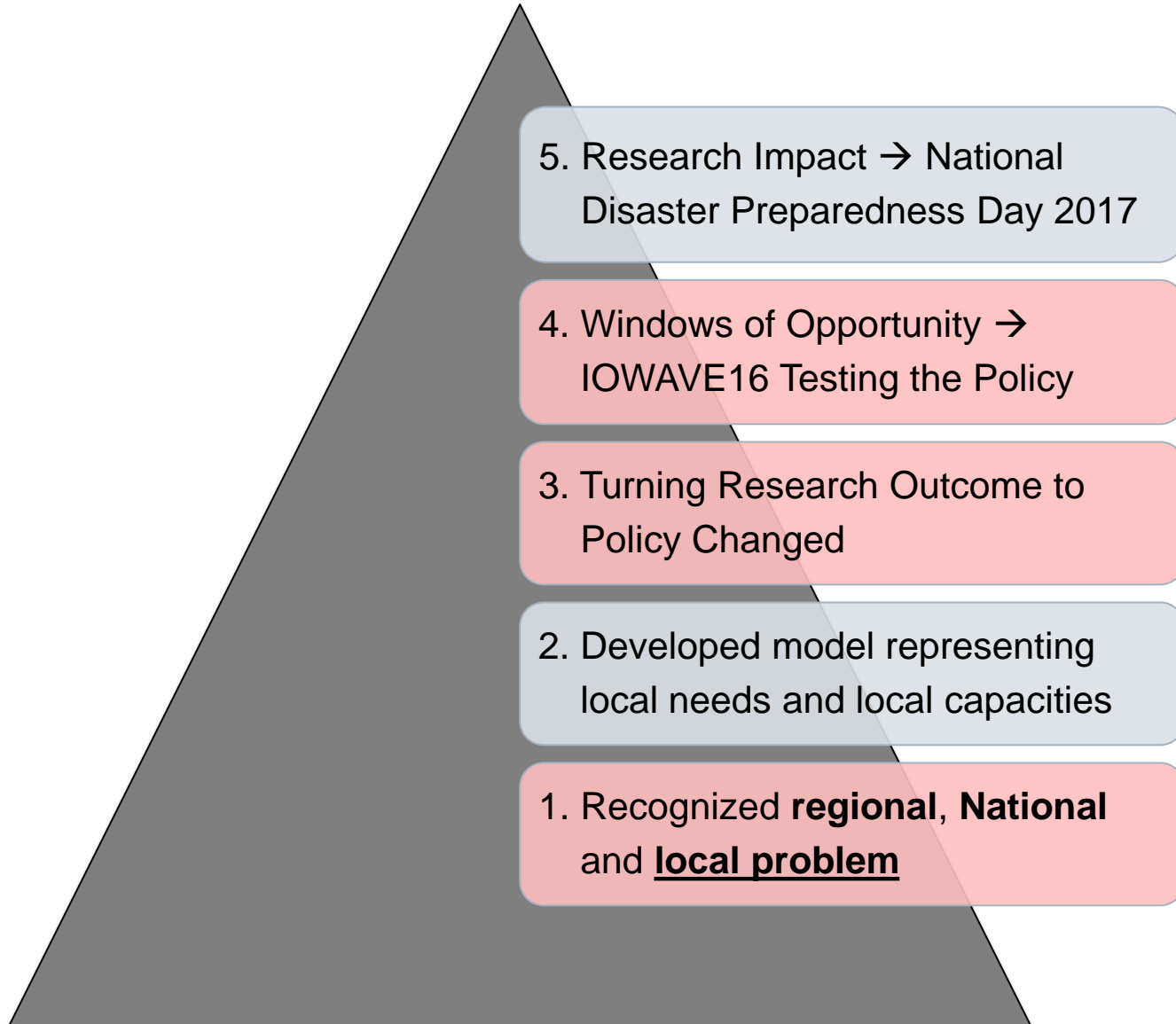
Landscape of Padang City → Vulnerable to Tsunami Disaster



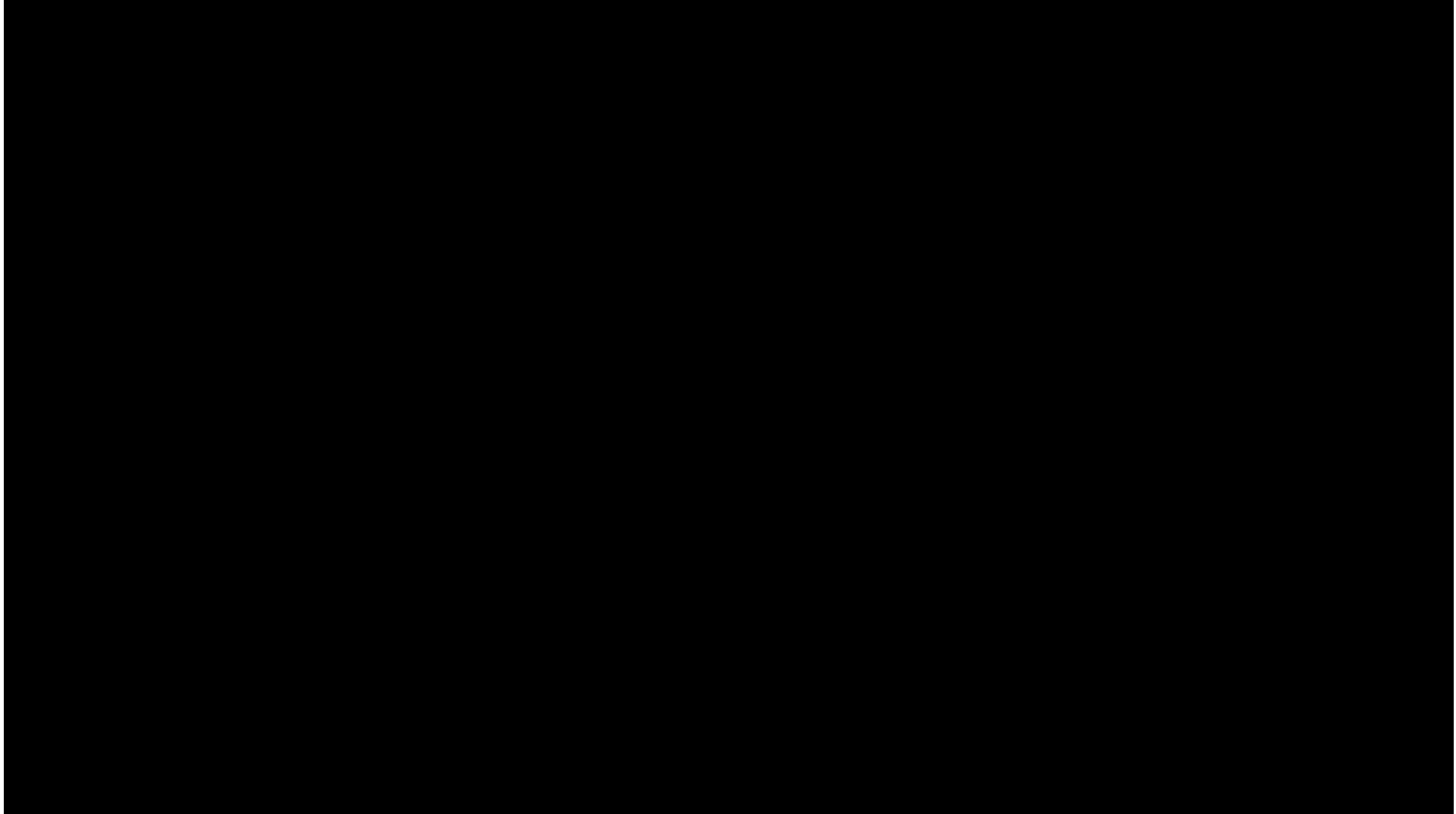
Research Components



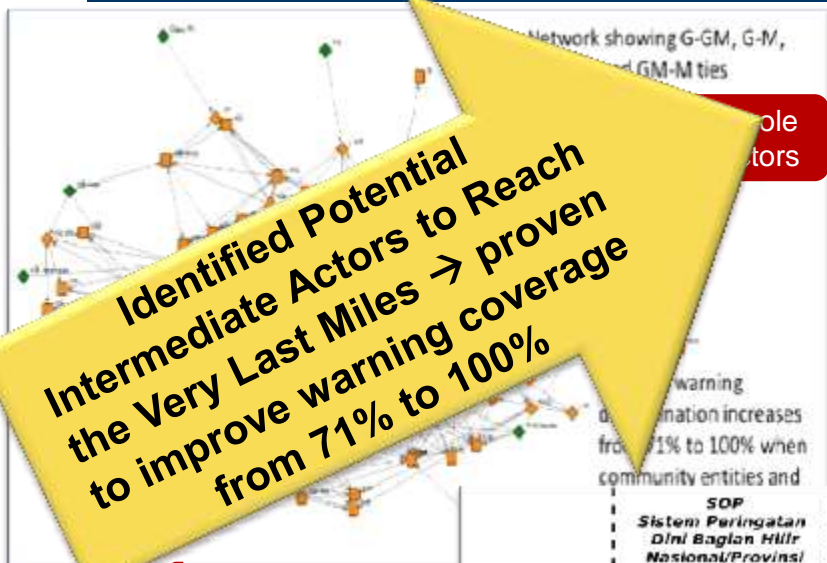
The Road of Good Research To Policy Change



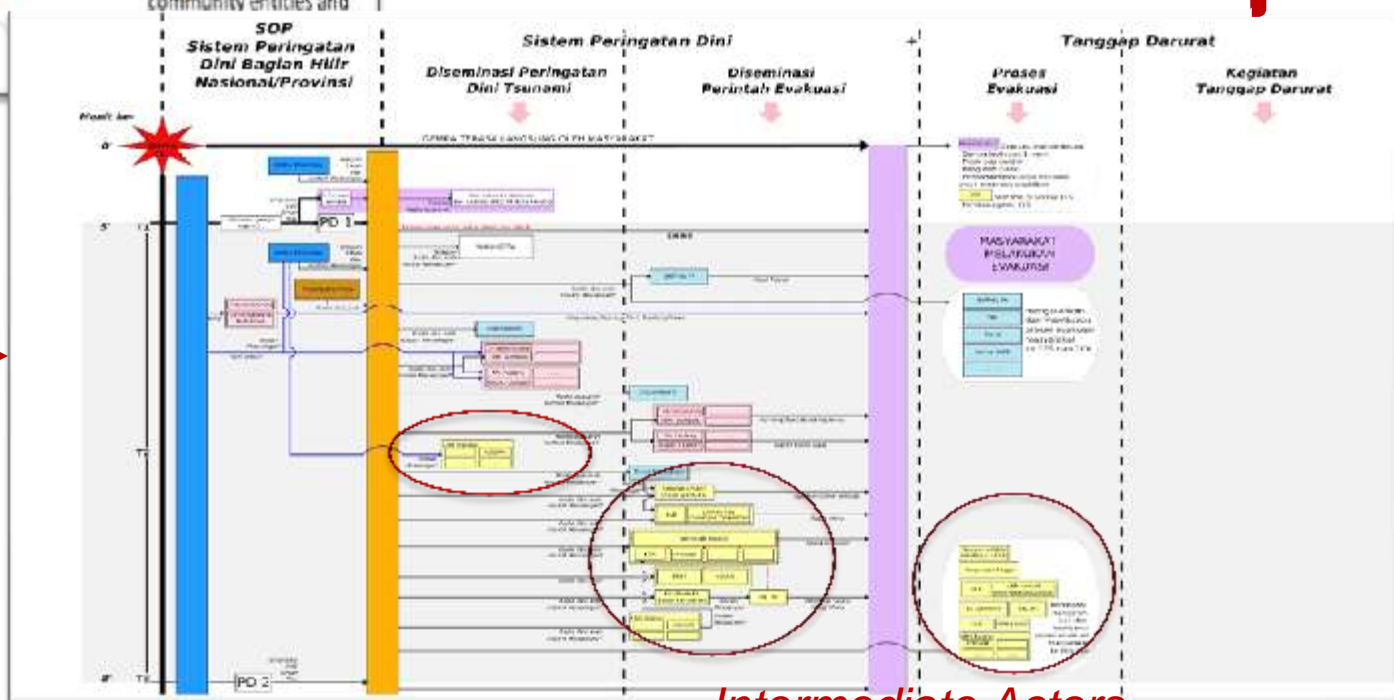
1 to 3 of Turning Good Research To Policy Change



Improved Downstream Warning Chain of TEWS



Identified Potential Intermediate Actors to Reach the Very Last Miles → proven to improve warning coverage from 71% to 100%



Intermediate Actors

New TVES built in 2015 in Padang City



Trust Changed Land Use and Land Price

Science Technology and Culture (Input for Local Policy and Regulation):

1. Disaster Management Plan
2. Spatial Plan (20 years)
3. Mid Term Development Plan (5 years)

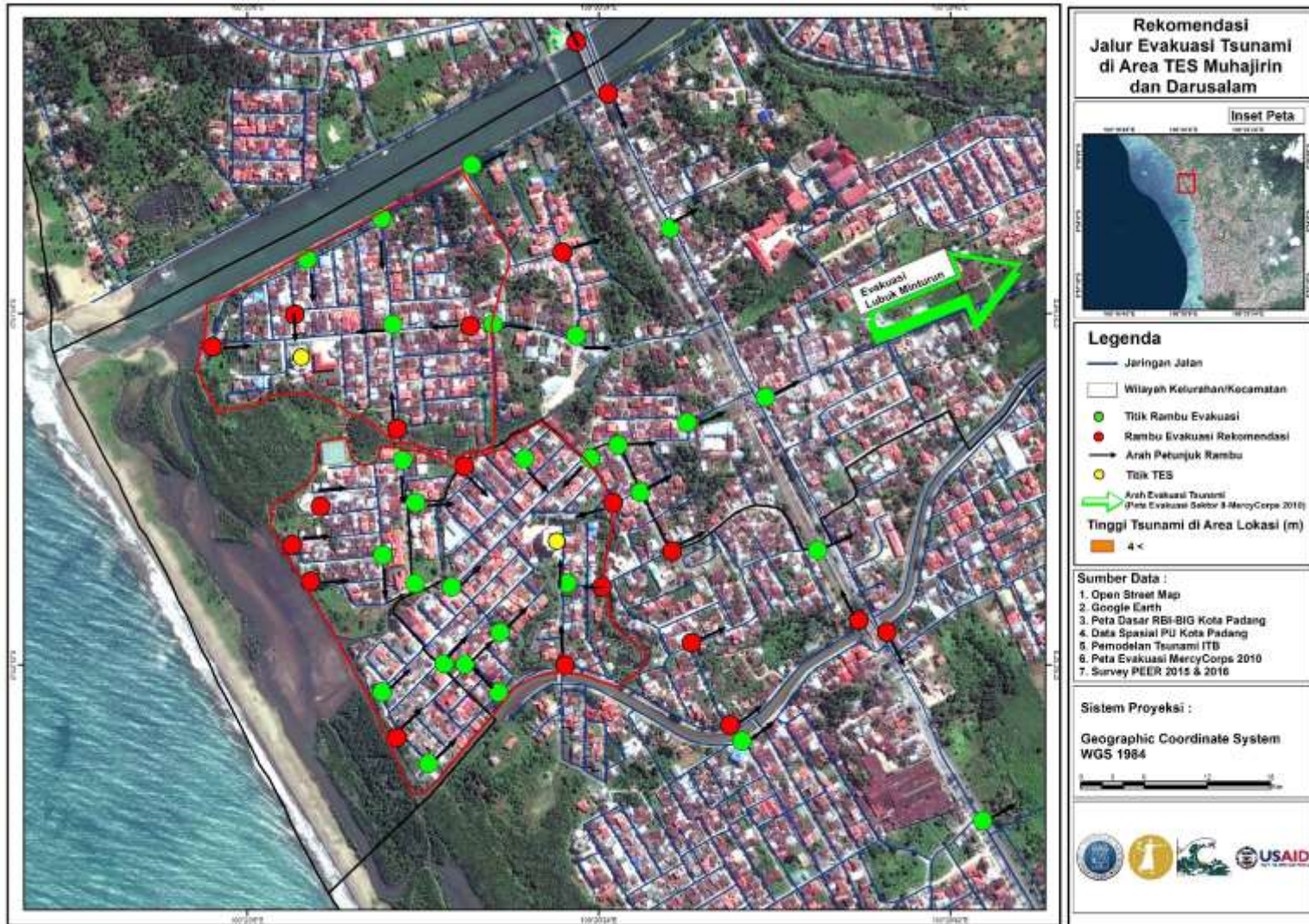
Channel through:

1. Working closely
2. Focus Group Discussion (Multi Stakeholder and Inter-sectoral Participatory)
3. Public Engagement using Media/Social Media
4. Personal networking
5. Opportunity to International Exposure

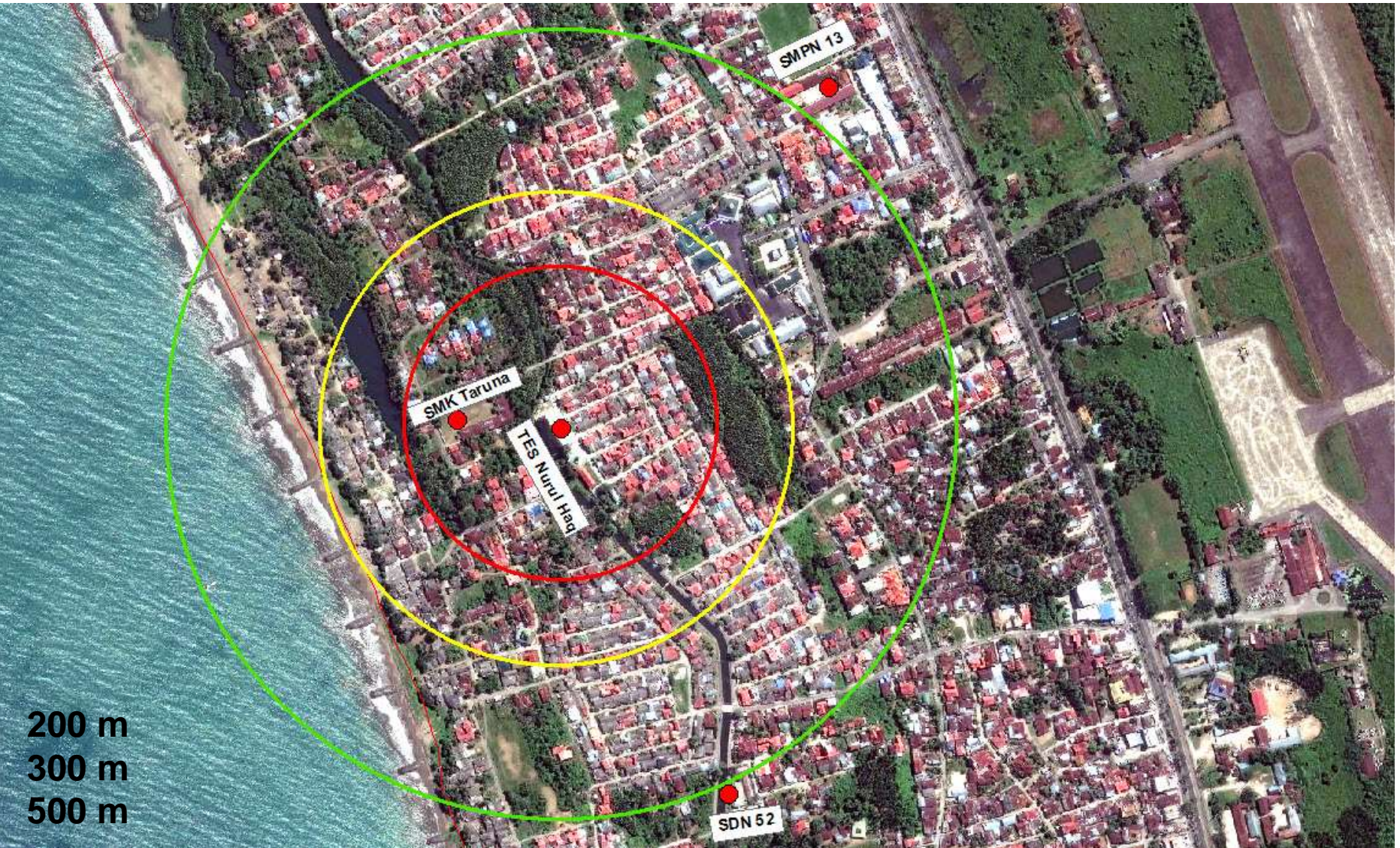
Before 2015

After 2015

Impact of Trust to DRR Intervention → Changing Evacuation Plan



Focus of IOWAVE16 Exercise



IOWave 16 SOP - Reaching the Very Last Mile

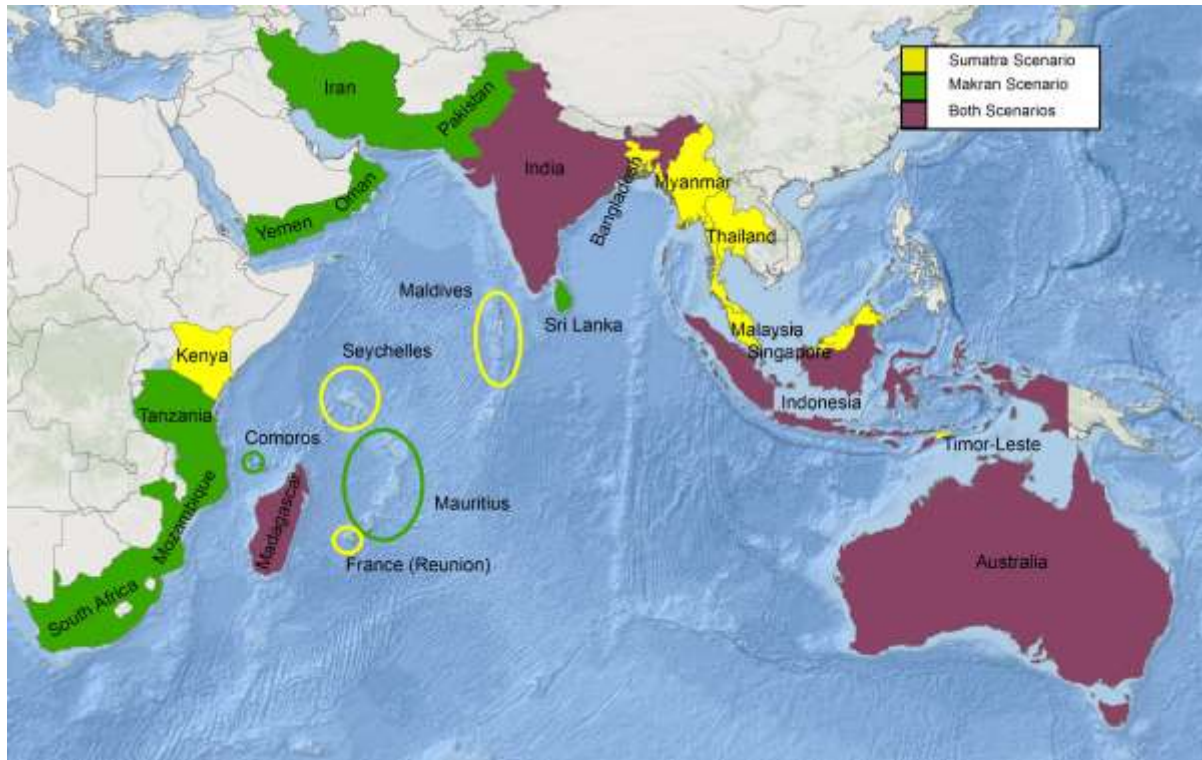


IOWAVE 2016



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IOWAVE 2016 in Numbers



24 Indian Ocean Member States participated in the exercise

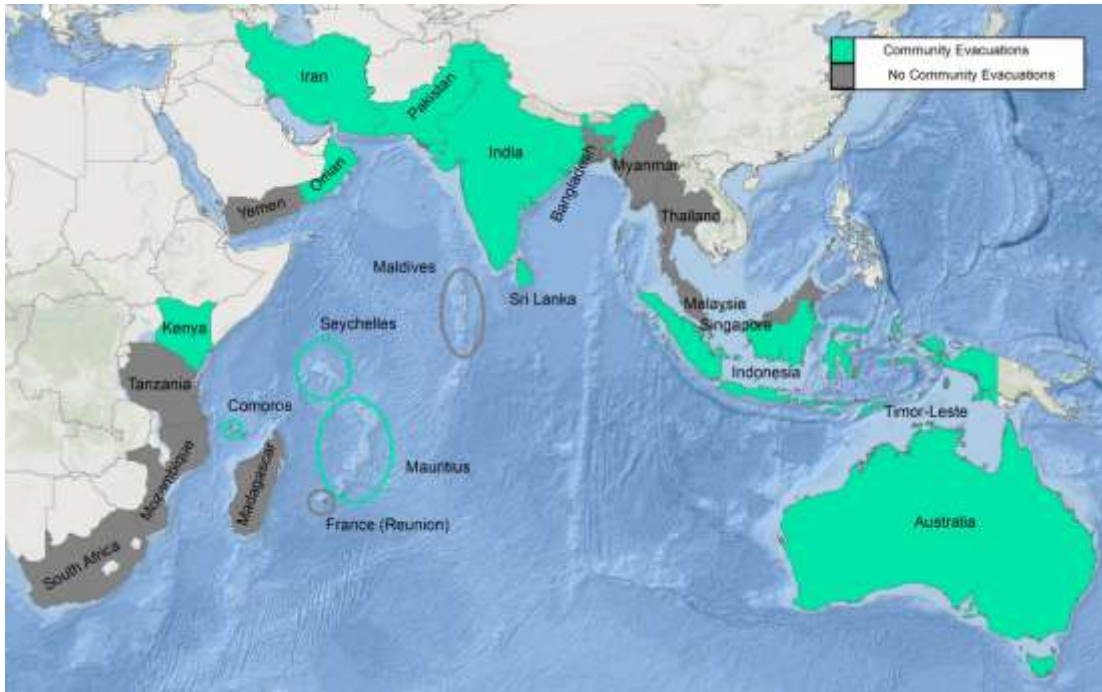
11 Member States participated in the Sumatra scenario

9 Member States participated in the Off Pakistan Coast scenario

4 Member States participated in both scenarios

Regional Perspectives

IOWAVE 2016 in Numbers



12 Countries conducted community evacuations

- Australia
- Comoros
- India
- Indonesia
- Iran
- Kenya
- Mauritius
- Oman
- Pakistan
- Sri Lanka
- Seychelles
- Timor Leste

59.000

People of 390 communities participated in the exercise including those who evacuated

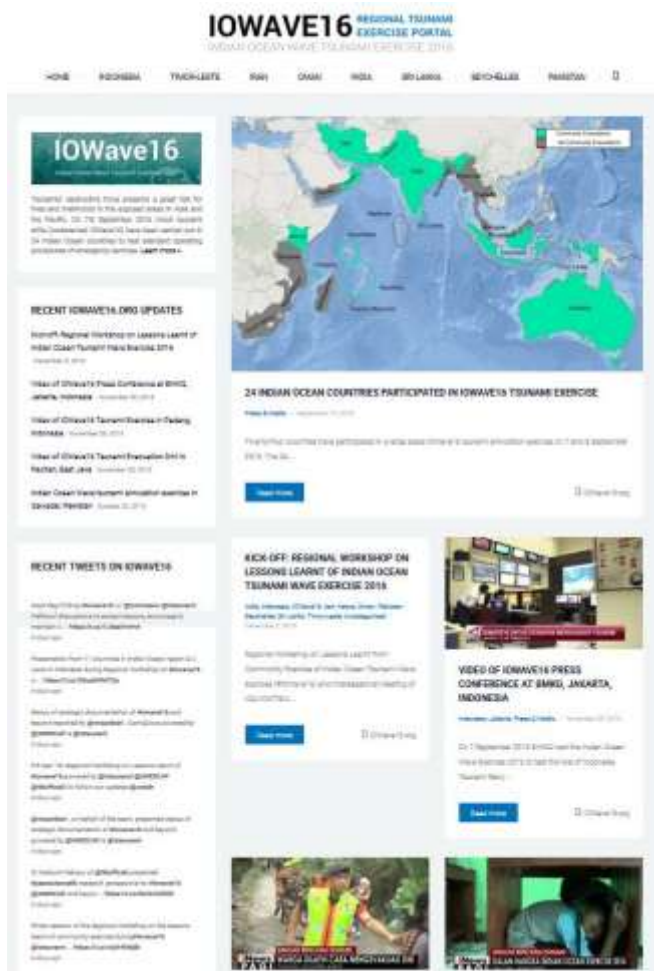
22

National Disaster Management Offices Involved in the exercise

19

Local Disaster Management Offices Participated in the exercise

World Wide Media Coverage



40 Giga-byte records accumulated and documented

>160 Media Coverage (Print, Electronic / Broadcasting Media, and Online Media, and Social Media)

>30 Videos on IOWave16 (Official and un-official)

Official Website: www.iowave16.org

Twitter: @IOWave16

5. Research Impact → National Disaster Preparedness Day April 2017

- ❖ 98,000 people movement
- ❖ 80 shelter → observed
- ❖ Testing the SOP
- ❖ Testing the Infrastructures

Pemkot Padang Libatkan 98.000 Orang Meriahkan HKBN

Jumat, 7 April 2017 10:48 WIB

Pewarta : M R Denya Utama



Wali Kota Padang, Mahyeldi Ansharullah. (Antara)

Hotel Mercure Padang



National Disaster Preparedness Day April 2017



SMP N 25



Key Issues

- ❖ Policy can be changed using **good research**
- ❖ **Inspiration** on how to use the field as living laboratory to recognize and solve the problem for saving lives
- ❖ Through participatory process able to **build trust**
- ❖ Through participatory process, not only to make a **positive change** in policy but also action and implementation
- ❖ **Public engagement** in maintaining and optimizing the use of vertical shelter

Thank you ...