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

Harkunti P. Rahayu, PhD
Bandung Institute of Technology
Indonesia
harkunti@pl.itb.ac.id
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 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)
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

1. West Sumatra Earthquake 2009
   Mentawai Tsunami 2010
   Current Tsunami EWS & Preparedness and Response Policies

   Desk Study: Documents and reports review on West Sumatra Tsunami inundation model, current tsunami early warning system, and emergency response

2. Field Observation on Ground Check on current Tsunami Inundation Model & Evacuation Plan
   Updating Tsunami Inundation Model for 4 Case Study Cities/Regions
   Updated Tsunami Inundation Map
   Evacuation Plan and Preparedness and Emergency Operations Infrastructure
   Current NFTs Early Warning System (Output Year 2)
   NFTs Early Warning System (Output Year 3)

3. Recognition of potential problem
   Free-style interview using basic logic model with stakeholder
   Complete Cognitive Map: Logic Modeling of People’s Mind towards Tsunami Early Warning
   Developing Logic Model Tree of People’s Perception towards Tsunami Early Warning System
   Past Disaster events & Current Regulation (Output Year 3)
   Towards NFTs Early Warning System (Output Year 3)

4. Identification of Key Actors and Population at Risk
   Semi-structured Interview: Questionnaire-based
   Content analysis of EWS and ER Policy Coordination (Qualitative)

5. Network Census on multi-actors coordination/ cooperation during past disaster events
   Social Network Analysis (SNA) using UCINET 6.4 Software (Quantitative)
   1) Network modeling on information flow and multi-actors coordination/cooperation in emergency operations & operations
   2) Comparison on network impact on timeliness of early warning and effectiveness of emergency response

6. Direct Observation on NFTs EWS training & simulation
   Based on current Tsunami EWS & Emergency Response SOP (Output Year 1)
   After NFTs Early warning system installment (or simulation) (Output Year 3)

7. Integrated Local Preparedness and Emergency Operations and Response
   Current Policy Recommendations (Output Year 2)
The Road of Good Research To Policy Change

1. Recognized regional, National and local problem

2. Developed model representing local needs and local capacities

3. Turning Research Outcome to Policy Changed

4. Windows of Opportunity → IOWAVE16 Testing the Policy

5. Research Impact → National Disaster Preparedness Day 2017
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%
New TVES built in 2015 in Padang City

National Technical Guideline developed by PEER and Hazard SEES Team 2014
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
Impact of Trust to DRR Intervention → Changing Evacuation Plan
Focus of IOWAVE16 Exercise
IOWave 16 SOP - Reaching the Very Last Mile
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
People of 390 communities participated in the exercise including those who evacuated.

<table>
<thead>
<tr>
<th>Countries conducted community evacuations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
</tr>
<tr>
<td>Comoros</td>
</tr>
<tr>
<td>India</td>
</tr>
<tr>
<td>Indonesia</td>
</tr>
<tr>
<td>Iran</td>
</tr>
<tr>
<td>Kenya</td>
</tr>
<tr>
<td>Mauritius</td>
</tr>
<tr>
<td>Oman</td>
</tr>
<tr>
<td>Pakistan</td>
</tr>
<tr>
<td>Sri Lanka</td>
</tr>
<tr>
<td>Seychelles</td>
</tr>
<tr>
<td>Timor Leste</td>
</tr>
</tbody>
</table>

National Disaster Management Offices Involved in the exercise: 22

Local Disaster Management Offices Participated in the exercise: 19
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 10:49 WIB

Pewarta: M R Denya Utama

Wali Kota Padang, Mahyeldi Ansharullah. (Antara)
National Disaster Preparedness Day April 2017
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 ...