Pacific Tsunami Warning System
A half-century of protecting the Pacific, 1965-2015

Trans-oceanic Deadly Tsunamis

Dr. Laura Kong
Director, UNESCO/IOC-NOAA
International Tsunami Information Center (ITIC)
DEADLY TSUNAMIS

Geographic distribution of deadly Pacific tsunami sources. Credit: NGDC

- Japan: 38%
- S America: 15%
- Indonesia: 12%
- S Pacific Islands: 11%
- N and Central America: 10%
- Asia: 6%
- Alaska: 5%
- Russia: 4%
- Hawaii: 2%

Distribution of causes for deadly Pacific tsunamis. Credit: NGDC

- Earthquake: 76%
- Earthquake generated Landslide: 1%
- Volcanic Eruption: 8%
- Landslide: 1%
- Other: 3%

- 76% in Pacific Ocean and Marginal Seas
- 99% fatalities from Local or Regional Tsunamis
End-to-End Tsunami Warning

EQ Tsunami

Country Alert System

Emergency Alert System & Mass Media

DMO – Public Safety Evacuate / All-Clear

Natl / Local Govt

Public

Aware and Prepare, Act

ITIC, SeismicReady Consulting 2009 after Japan Cabinet Office 2005
Reducing Risk: know hazard - know warning - know what to do

- Hazard Map, Early Warning
- Alerting, Evacuation
- Awareness, Education
- Indigenous Knowledge
- Exercises, Training
Tsunami Evacuation Maps, Plans, and Procedures (TEMPP)

... communities knowing what to do and where to go

ITIC Essential Community Preparedness
Capacity Building, Honduras, Central Amer, 2015-16
=> AWARE by PREPARING
=> Communities make Evacuation Maps

‘TOWN-WATCHING’
✓ Local stakeholder workshops
✓ GIS-facilitated maps
✓ Critical facilities, Schools, Hospitals, Special needs
✓ Safe Assembly areas
✓ Practical routes, Signage
✓ Time of day, year
✓ Walk routes, Practice

### INTERNATIONAL TSUNAMI READY (I-TR) DONE

<table>
<thead>
<tr>
<th>MITIGATION (MIT)</th>
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<tbody>
<tr>
<td>MIT-1. Have designated &amp; mapped tsunami hazard zones</td>
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<td>MIT-2. Have a public display of tsunami information</td>
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<th>PREPAREDNESS (PREP)</th>
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<tr>
<td>PREP-1. Produce easily understood tsunami evacuation maps as determined to be appropriate by local authorities in collaboration with communities</td>
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<td>PREP-2. Develop and distribute outreach and public education materials</td>
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<td>PREP-3. Hold at least three outreach or educational activities annually</td>
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<td>PREP-4: Conduct an annual tsunami community exercise</td>
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<th>RESPONSE (RESP)</th>
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<td>RESP-1. Address tsunami hazards in the community’s emergency operations plan (EOP)</td>
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<td>RESP-2. Commit to supporting the emergency operations center (EOC) during a tsunami incident if an EOC is opened and activated</td>
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<td>RESP-3. Have redundant and reliable means for a 24-hour warning point (and EOC if activated) to receive official tsunami threats</td>
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<tr>
<td>RESP-4. Have redundant and reliable means for 24-hour warning point and/or EOC to disseminate official tsunami alerts to the public</td>
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**STRATEGY:**
Be Aware, Be Prepared

**FRAMEWORK:**
International Tsunami Ready (I-TR) (UNESCO-IOC 2016)
Performance-based Community Recognition

**ACTION:**
National programs empower Communities

**GLOBAL MEASURE**

(IG/CARIBE-EWS Guidelines, 2015)
Thank You

Dr. Laura Kong
Director
International Tsunami Information Center
laura.kong@noaa.gov

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