Local-Source Tsunami Response Best Practice

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1.0 Local-Source Tsunami Priorities

- **Self Evacuation –** Key to Surviving Local Tsunamis with very short lead times
- **Official Warnings Supplementary to Natural Warnings** – Official warnings reinforce self-evacuations & assist all-clear decisions
- **Official warning systems** – Must have fast and simple warning chains, conservative, pre-scripted products, don't delay

2.0 Warning Types

- **Natural –** Strong ground shaking and/or rapidly receding sea-level, NZ "long, strong, get gone"

- **Official** – Issued by TSPs and/or NTWCs
  - Designed to reinforce natural warnings
  - Released within 10 minutes
  - Be Conservative
  - Regular warning updates, cancellation
  - All Clear – what it is, how it is communicated
  - Multi-media, redundant
  - Consistent (same alert, same mechanism)

- **Unofficial –** Word-of-mouth, Social Media

3.0 Public Awareness and Education

- **Effective, comprehensive and Continuous Public Education Programs** – what to expect form official wanring, how to recognize and respond to natural warnings
- **Exercises –** Local, Regional, National
- **Debriefings and post-event public response analysis** – learn and improve locally and internationally, SOPs
- **Communication Tests**

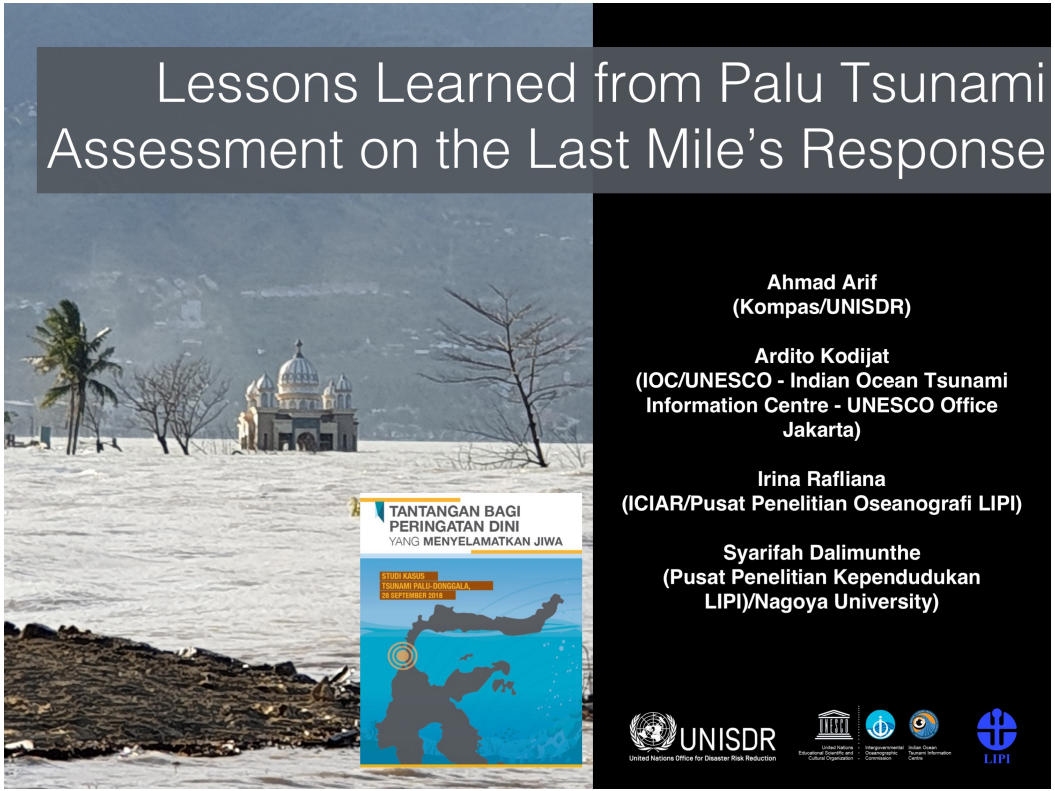
4.0 Detection and Characterization

- **Ground Shaking –** Strength and Intensity/Duration. Proxy but depends on source location and person feeling
- **Magnitude Threshold Tables** – Agree before. Follow during actual event. Conservative
- **Refine With more Information –** Procedures should be in place as to how updates are managed and communicated
- **Regular SOP Training and Exercising**

5.0 For Future Consideration

- **Inclusion of False Alarms in 3.0** – need to maintain confidence and ensure proactive action
- **Dealing with non-tectonic events** (landslides, volcanoes) **or slow earthquakes** (long shaking, not abrupt, but large tsunami)
- **Refinement of definition of Natural Warnings**
- **Recommendations on communications channels.**

Local Response
28 Sept 2018 Palu Earthquake and Tsunami



Background

The New York Times

What Went Wrong With Indonesia's Tsunami Early Warning System

By ANJALI SINGHVI, BEDEL SAGET and JASMINE C. LEE OCT. 2, 2018

Indonesia's geophysics agency under fire for lifting tsunami warning

Warning lifted after 34 minutes, with agency saying it had no data at the town of Palu, where hundreds died

18:06 Local Tsunami Arrives at Wani (3:30 min after EQ (CCTV of Mr. Andi

Chronology Upstream and Downstream
28 September 2018

Earthquake of 5.9 Mw — 15:00 WITA

15:00 WITA — Earthquake felt by people in Donggala and Palu

Many received SMS blast of the BMKG EQ Information (Ministry of Communication and Information)

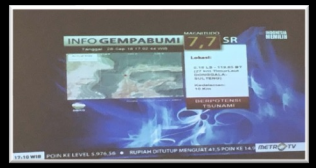
Communities in Labean villages evacuated to the hills

Earthquake of 7.7 Mw — 18:02 WITA

18:02 WITA — Strong shaking, difficult to stand still

BMKG Bulletin 1
Advisory in Palu and Warning in Donggala — 18:07 WITA

18:04 — Electricity and Communication cut off in Donggala and Palu



TEWS Breaking News in Metro TV — 18:10 WITA

18:06 — Tsunami Arrives Wani (CCTV Mr. Andi)
➔ 3:30 min after EQ

Tsunami hits Palu coast
Estimated 18:10 – 18:13

6 cm Tsunami observed in Mamuju tide gauge (±300km South) — 18:27 WITA

BMKG Bulletin 4
End of Warning for the 7.7 EQ in Donggala — 18:36 WITA

Tsunami hits Palu videos go viral on Social Media

Thank You

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