

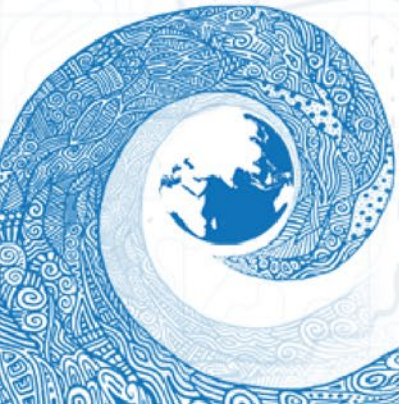
# Tsunami Hazard and Risk in the Makran Region

*Rick Bailey*

*Head of the Secretariat for the*

*IOC-UNESCO Indian Ocean Tsunami Warning & Mitigation System  
(IOTWMS)*

*7 September 2021*

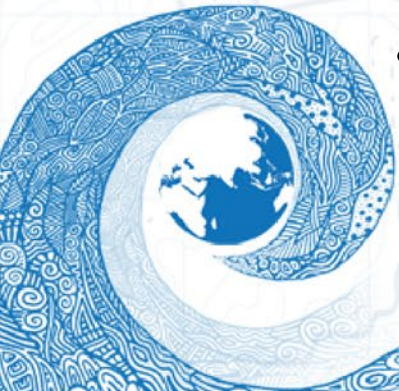


Regional Advisory Office for  
Disaster Risk Reduction and Early Warning



# The Tsunami Threat

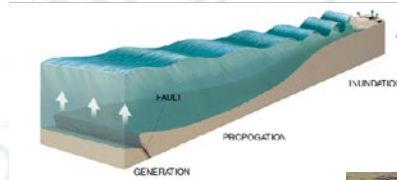
- Hard to predict
- Hard to characterise
- Very fast moving
- Difficult to monitor
- Hard to warn
- Challenge to educate



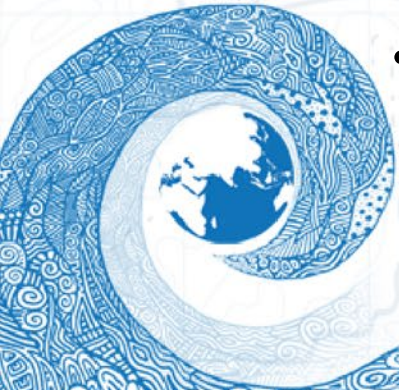
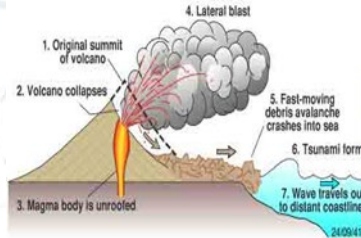
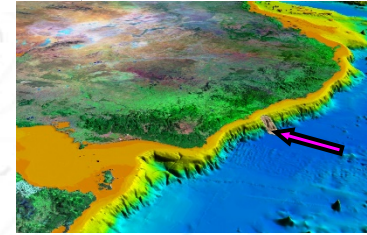


# Sources of Tsunami

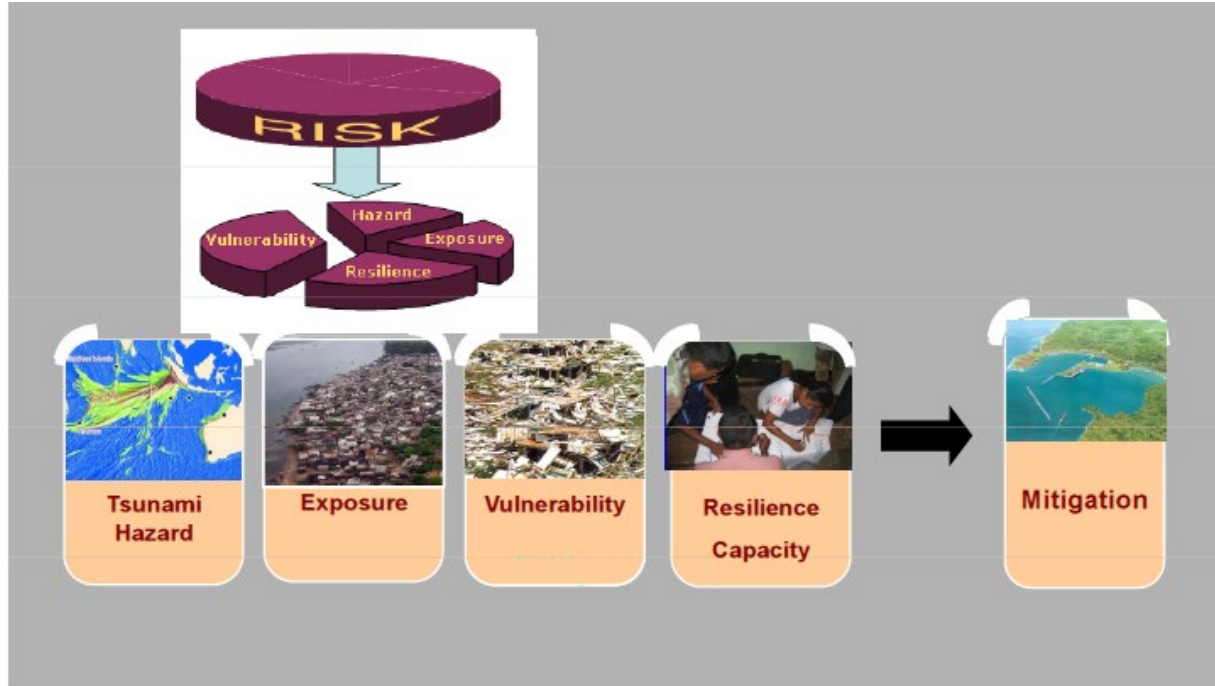
- Earthquakes along subduction zones (most common cause)
- Undersea landslides
- Volcanoes
- Meteorites



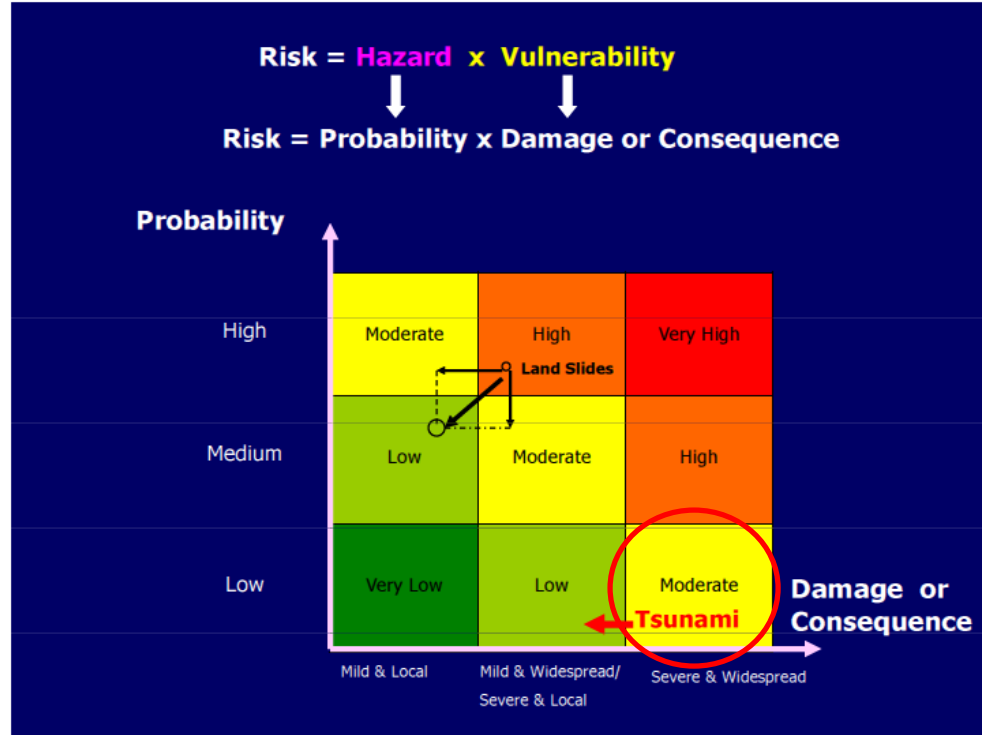
80%



# Tsunami Risk



# Challenge of Tsunami Risk

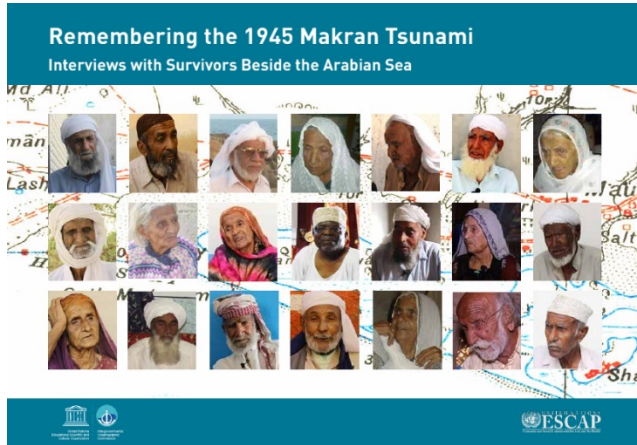


# Hazard: Different Levels of **Threat**

- **Land Threat:** Life threatening and devastating land inundation impacts
- **Marine Threat:** Damaging ocean currents and surges, plus potential minor land inundation, leading to serious economic impacts



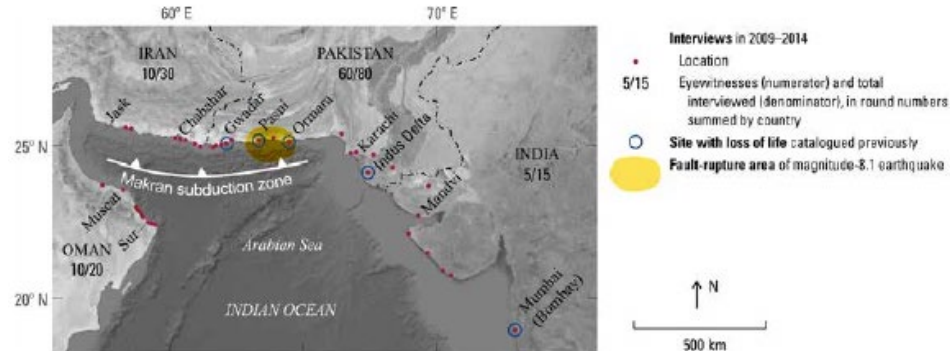
# Historical Near-Field Impacts



## Makran Source Zone

Carried out by Drs. D.M. Kakar, G. Naeem, et al. [2015]

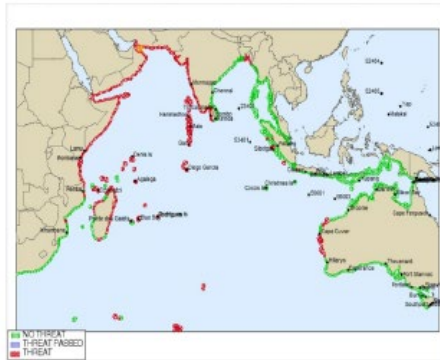
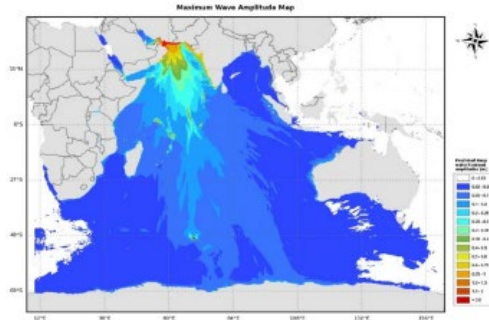
Up to 4,00 deaths





# Near-Field and Far-Field Tsunami Threats to NWIO

Makran Trench Scenario  
9.0 Mw, 10 km depth  
4 September 2018



Sunda Trench Scenario  
9.3 Mw, 10 km depth  
5 September 2018

