Training/Workshop on

Tsunami Evacuation Maps, Plans, and Procedures and the UNESCO-IOC Tsunami Ready Recognition Programme for the Indian Ocean Member States

Hyderabad - India, 15-23 April 2025

UNESCO-IOC Tsunami Ready Indicators

TRRP 03: Assessment Indicator 1

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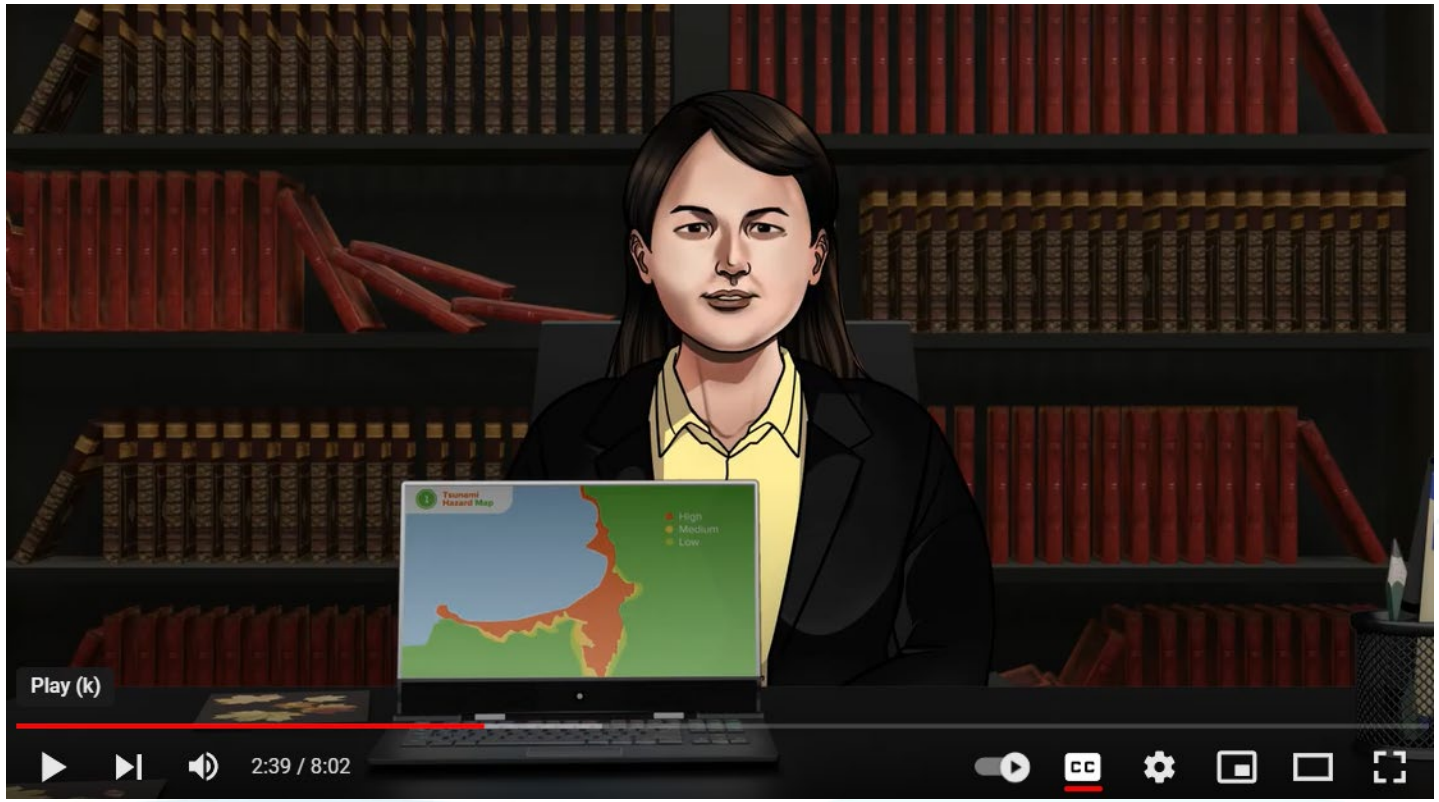
- *Dr. Laura Kong, ITIC IOC-UNESCO*
- *Tony Elliott, IOC-UNESCO Consultant*

ASSESS-1: Tsunami hazard zones are mapped and designated



https://youtu.be/hl3IHS544ZAVideo

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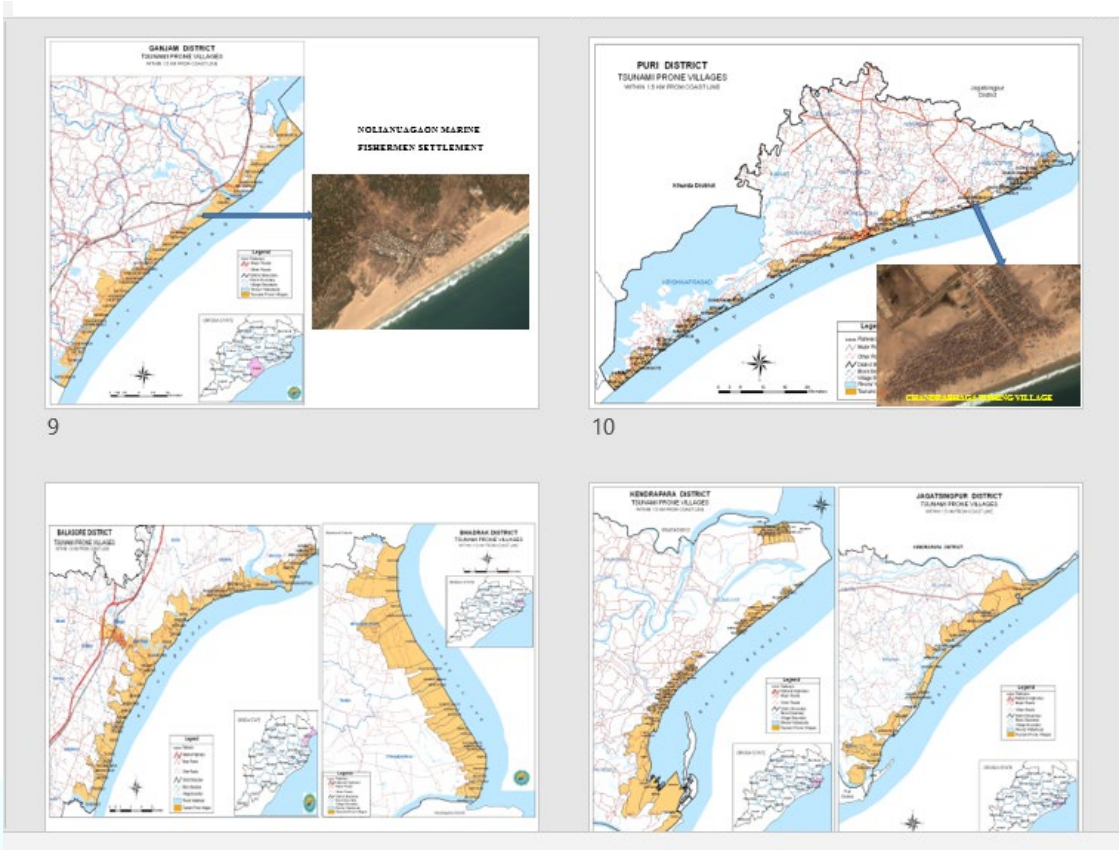
ASSESS-1: Tsunami hazard zones are mapped and designated

Community needs to have information, knowledge, and understanding of its **tsunami hazard.**

- **Tsunami hazard zones** depict the areas that are prone to tsunami inundation.
- The primary source for mapping potential tsunami hazard zones is **inundation modelling**, which illustrates expected areas to be flooded.
- For inundation modelling, a high resolution coastal **Digital Elevation Model (DEM) is necessary**.
- In the absence of high-resolution DEM, a **“bathtub” approach** can be used to conservatively define the hazard zones.



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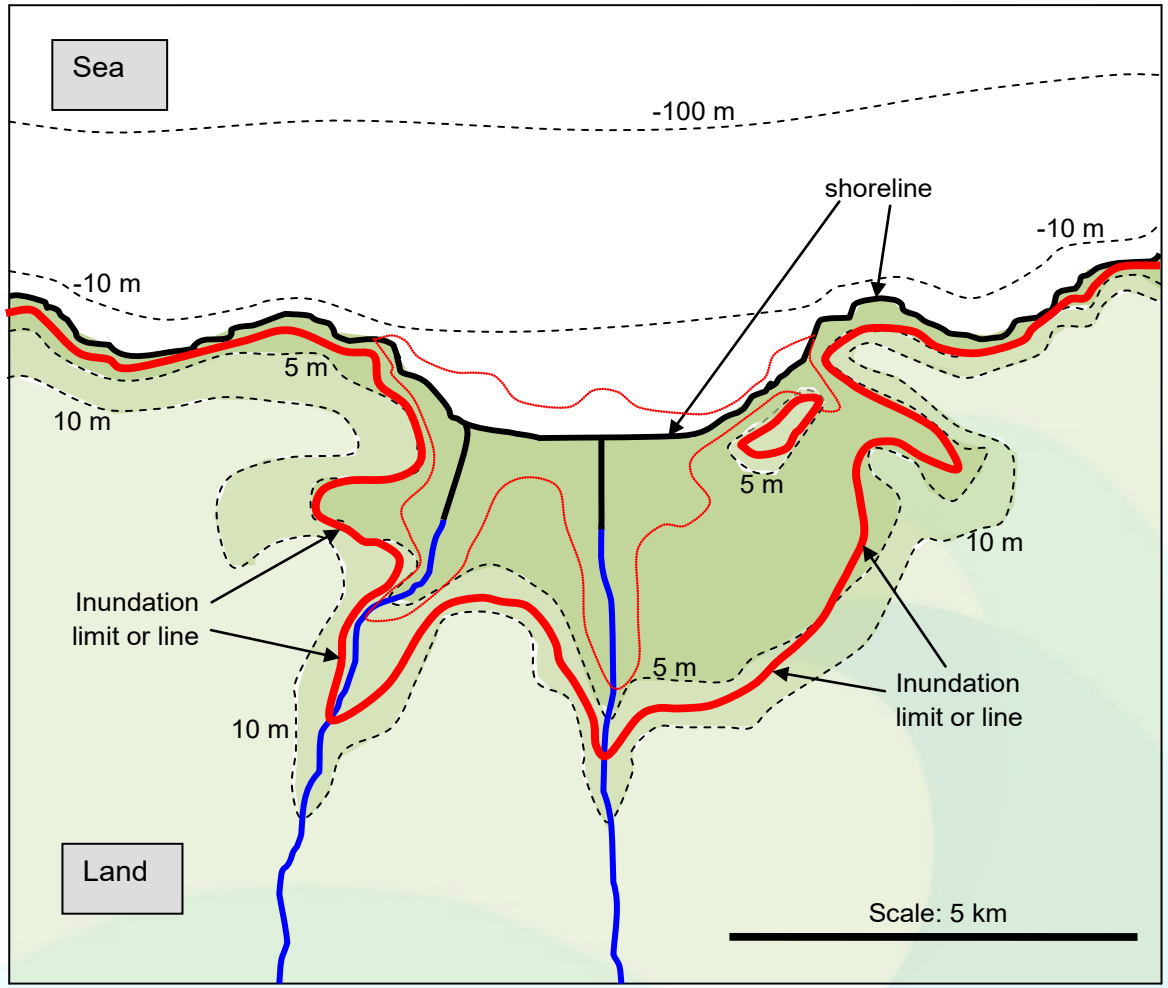
Why is this the first step?

- Tsunami hazard maps are the **basis for planning evacuation** routes and location of tsunami shelters.
- Mapping the hazard zone **raises awareness** of the tsunami hazard in the community
- **Prepares the community** for tsunami events.
- Helps and **guides the emergency response** agencies on evacuation planning.
- **Guides mitigation measures** to minimize the impact of tsunamis

Tsunami hazard zone

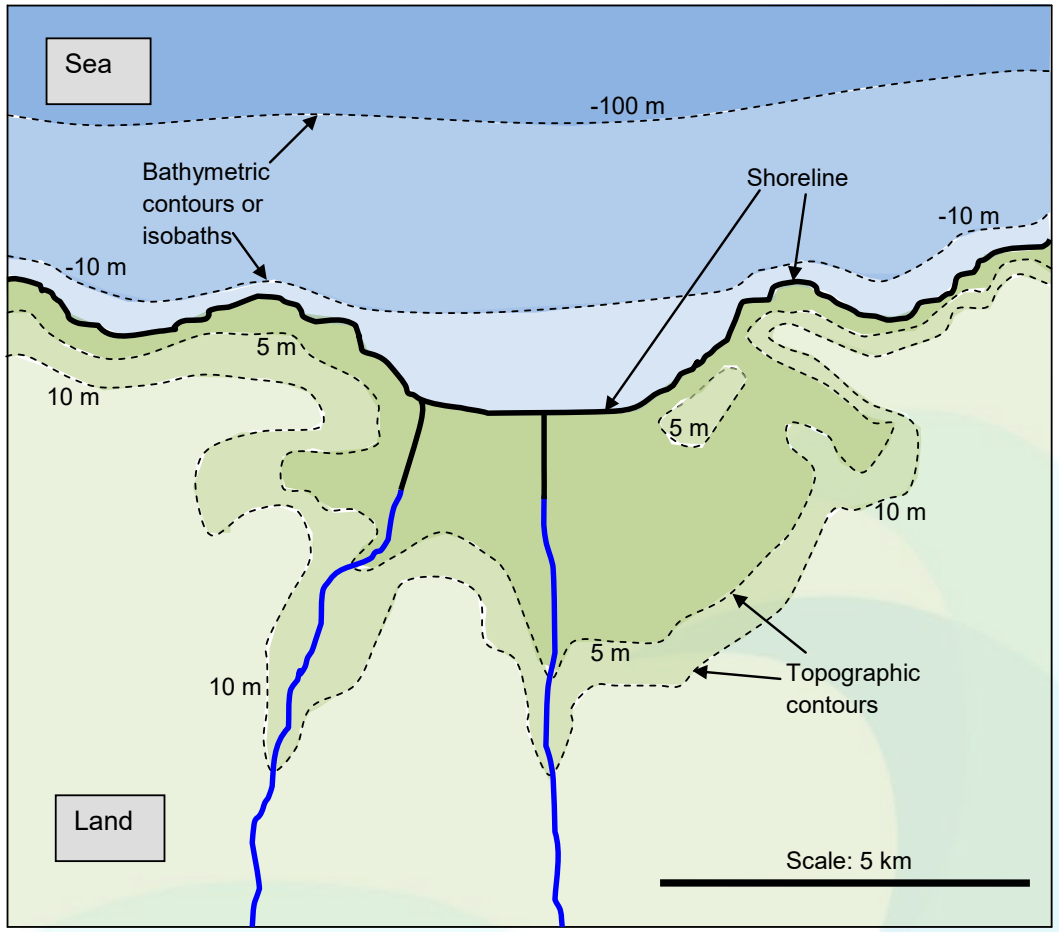
- The result of an inundation modelling study is the **tsunami inundation map** depicting the tsunami hazard zone
- **Tsunami hazard maps** depict the areas that may be flooded by a tsunami usually based on a worst-yet-credible case scenario (the worst tsunami that can impact the area)



Inundation mapping (training exercise). The red line marks the maximum horizontal penetration of the tsunami. Source: UNESCO IOC and UNDP, 2009

Topography and bathymetry

Inundation modelling requires detailed coastal topography and near shore bathymetry data ideally combined in a Digital Elevation Model (DEM)



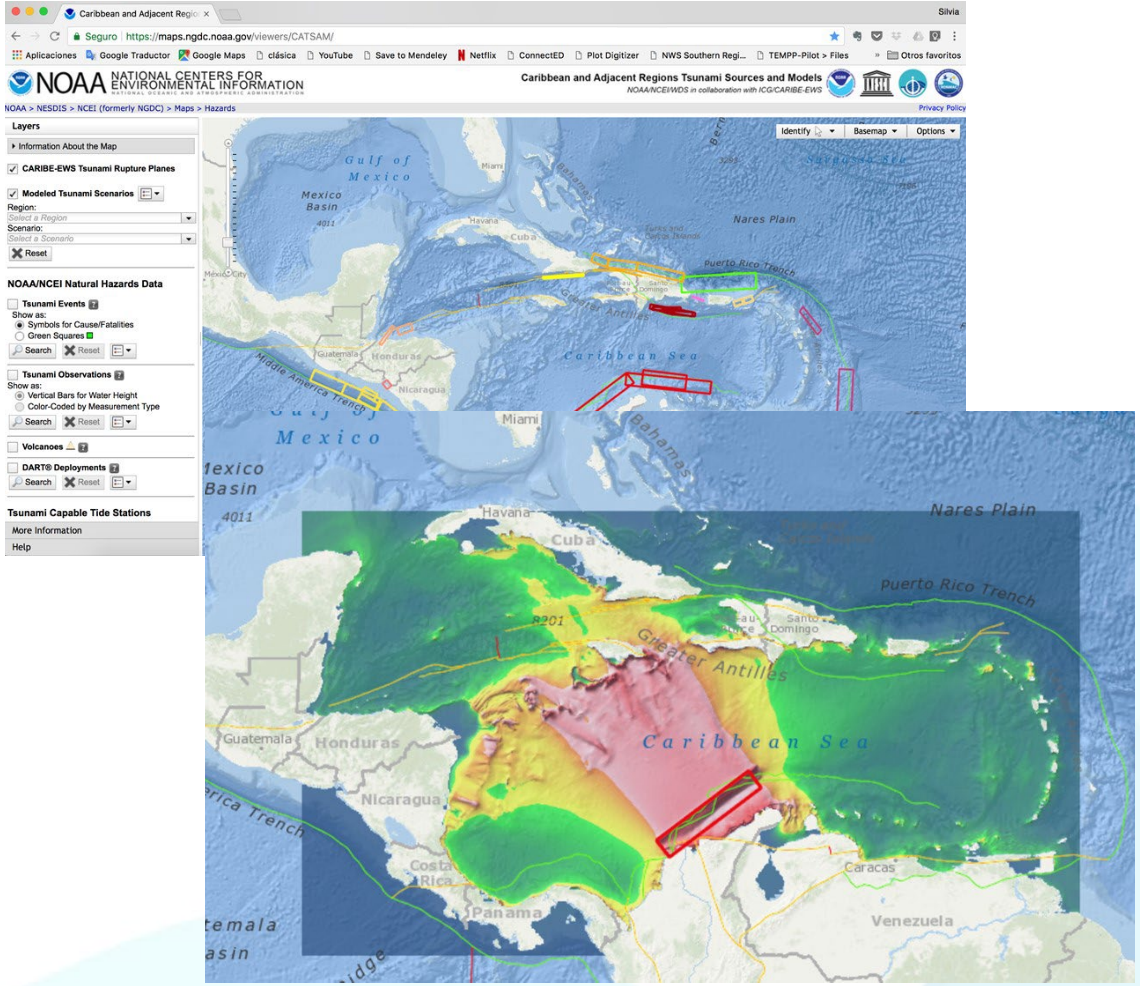
Bathymetry and topography (training exercise). Source: UNESCO IOC and UNDP, 2009

Data requirements

Tsunamigenic earthquake source information

- Sources: historical archives, tsunami researchers, seismologists at local universities
- If no credible earthquake source information available, worst-case scenarios need to be estimated

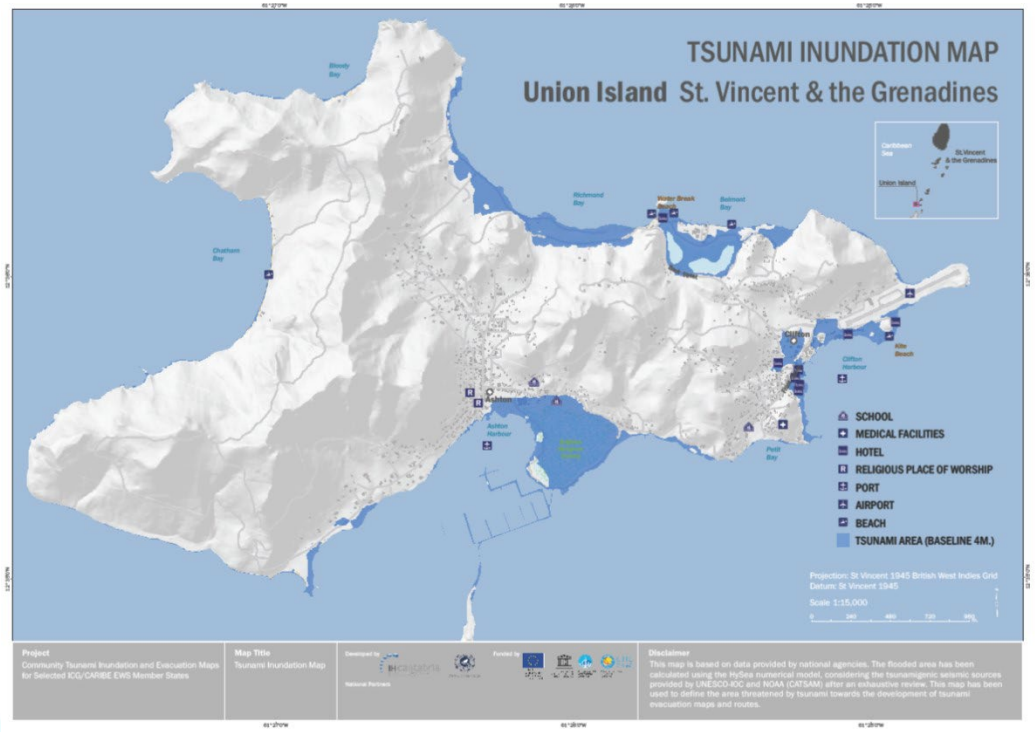
Detailed topographic and near shore bathymetry data ideally combined in a Digital Elevation Model (DEM)



What if DEM data and inundation models are not available?

A community may not have access to high resolution digital bathymetry and/or topographic data and may not have the necessary skills to set up and run numerical inundation models.

- A “Bathtub” model approach can be used. This assumes that an area with an elevation less than a projected runup level will be flooded like a “bathtub”. A basic topographic map will still be required to map out inundation areas.
- Alternatively, external experts (DMOs, universities, academics, researchers and consultants) can assist in establishing the tsunami hazard zone.



Thank you

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