



*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*

# **Tsunami Evacuation Maps, Plans, and Procedures**

## ***TEMPP 04: Principles in Finalizing Tsunami Hazard Map***

**Nora Gale**

UNESCO-IOC ICG/IOTWMS Secretariat



**Acknowledgement:**

- Ardito M Kodijat, IOTIC IOC-UNESCO
- Ignacio Aguirre Ayerbe - IHCantabria
- Harald Spahn, UNESCO-IOC UNESCAP Consultant

# Inundation Map → Hazard Map

- **Definition:** A tsunami inundation map shows areas likely to be flooded by a tsunami, based on modelling scenarios.
- **Purpose:** Provides visual representation of tsunami flooding potential, helping with evacuation planning and risk assessment.
- **Components:**
  - Predicted flood zones
  - Estimated tsunami wave heights
  - Time frames for tsunami arrival

- **Definition:** A tsunami hazard map combines risk factors, including the probability of tsunami occurrence, impact, and vulnerability of coastal regions.
- **Purpose:** Helps in disaster preparedness, risk mitigation, and land-use planning by illustrating both the likelihood and severity of tsunami risks.
- **Components:**
  - Hazard zones (e.g., high, medium, low)
  - Vulnerability factors like population density and infrastructure

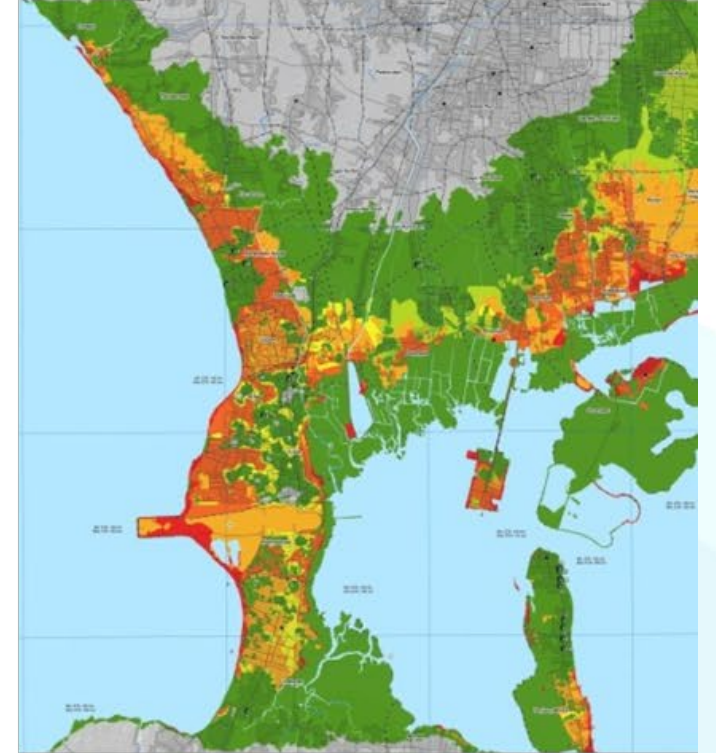
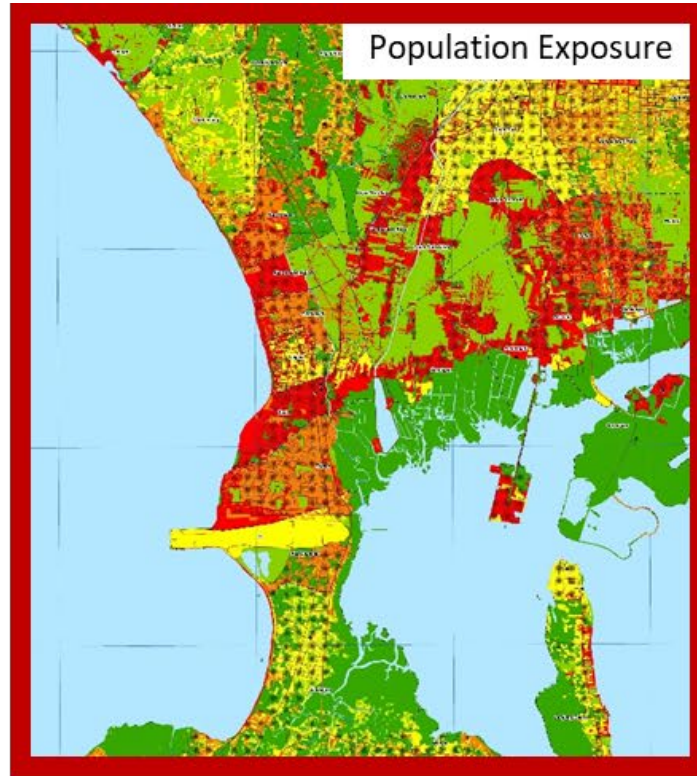
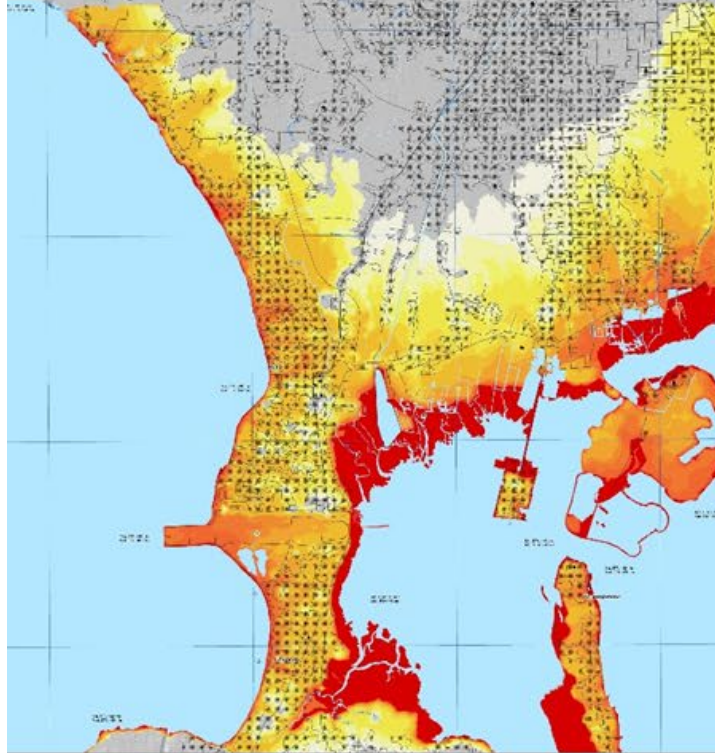
# Safety Factors

Consideration when drawing the Hazard Zone / Evacuation Zone line are:

- Proximity and location of high ground (hills, cliffs, man-made vertical refuges (berms, tall buildings, etc);
- Safety buffer for potential uncertainties in the inundation map;
- Knowledge of flood zones, types of roadways and locations;
- Availability of identifiable landmark locations for easier evacuation routing;
- Hazardous Materials (HAZMAT) sites and other potential hazards (secured gates or high fences, lumber yards or harbours with potential floating debris etc.) that could cause evacuation problems;
- Locations of special needs population in evacuation zone (i.e. hospitals, elder care or nursing facilities, schools, day care centres, non-English speakers, transient populations, etc.).



# Understanding the Risk



**Hazard**

**+**

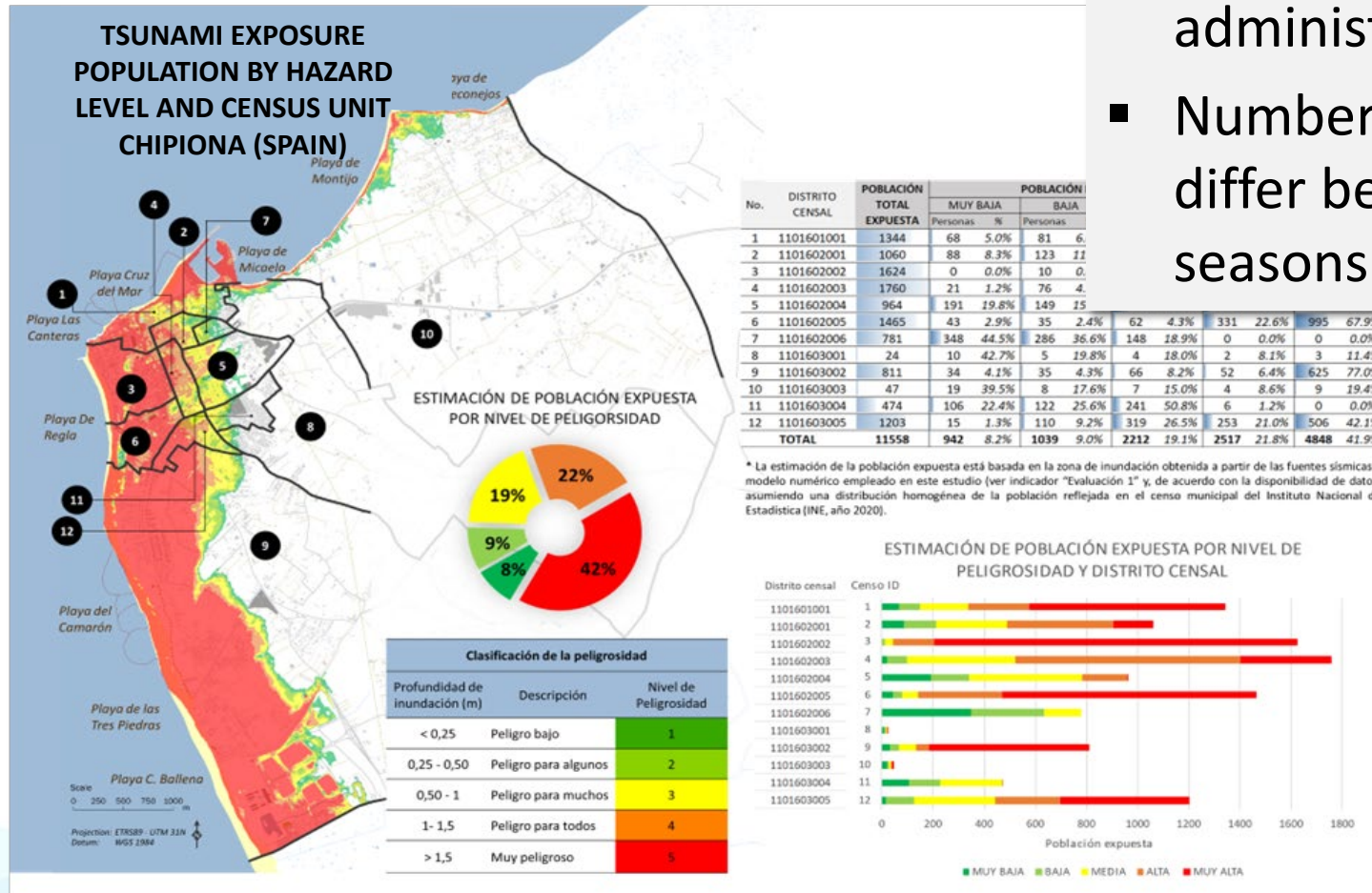
**Exposure / Vulnerability**



**Risk**

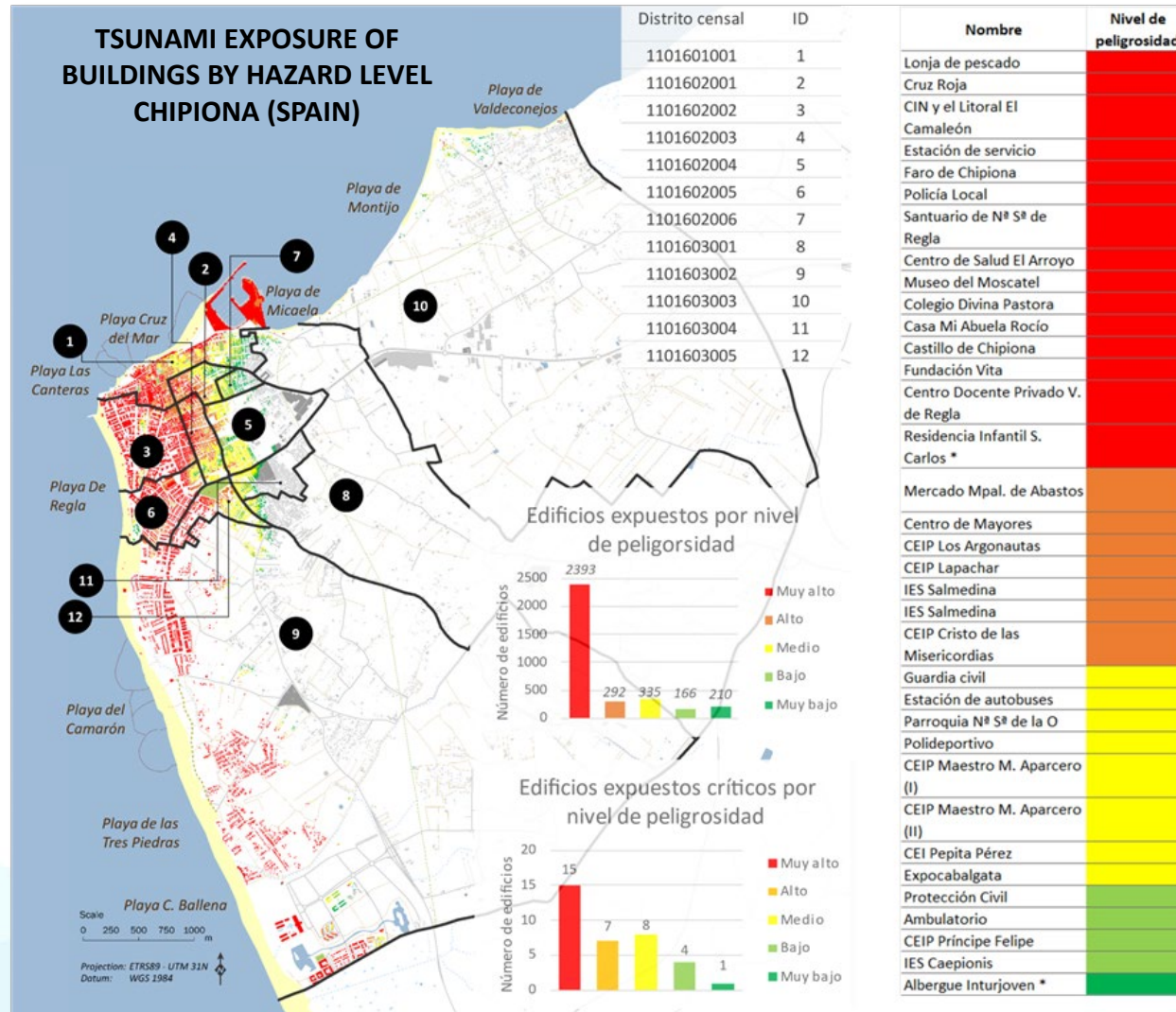
# Who and what is exposed?

- Inventory of the population data by administrative units
- Number of exposed people may differ between day and night or seasons.





# Who and what is exposed?



- Inventory of buildings and critical infrastructure by administrative units. “Critical” must be defined.

# Who is particularly vulnerable?

**Some people are less capable to evacuate and more likely to become victims than other**

- Elderly people and children
- Sick and handicapped people
- Illiterate people
- Fishermen, beach vendors, visitors, commuters

# Thank you



***IOC/UNESCO Indian Ocean Tsunami Information Centre  
IOTIC-BMKG Programme Office***

***Disaster Risk Reduction and Tsunami Information Unit  
UNESCO Jakarta Office***

## Please follow us on:



[iotic.ioc-unesco.org](http://iotic.ioc-unesco.org)  
[www.iotsunami.org](http://www.iotsunami.org)



[facebook.com/iotsunami](https://facebook.com/iotsunami)



[iotsunami](https://www.instagram.com/iotsunami)



[@iotsunami](https://twitter.com/iotsunami)



[youtube.com/iotsunami](https://youtube.com/iotsunami)



[iotic@unesco.org](mailto:iotic@unesco.org)



ESCAP  
Economic and Social Commission  
for Asia and the Pacific

