



unesco

Intergovernmental
Oceanographic
Commission

Exposure & Vulnerability People & Critical Facilities

Session 1.4

By Ignacio Aguirre Ayerbe

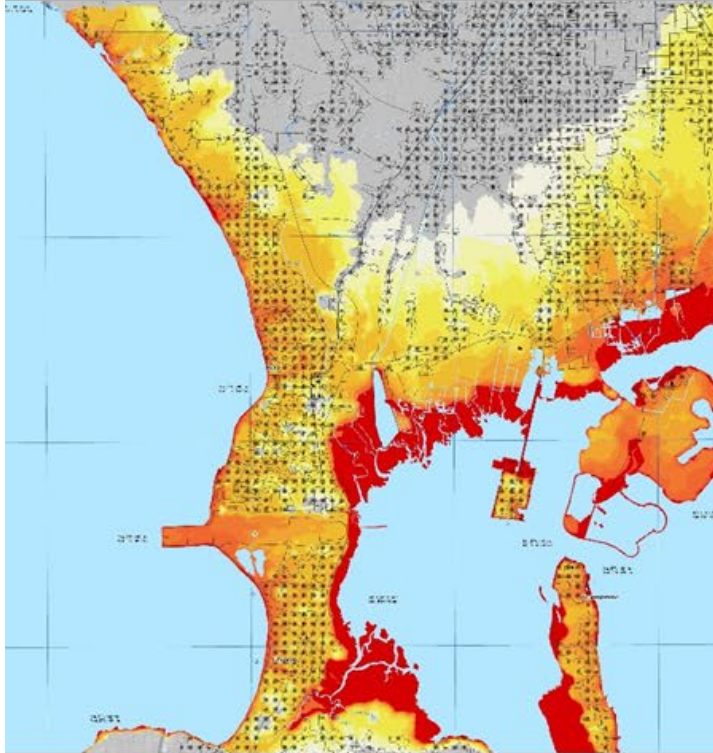
IHCantabria

ICG/NEAMTWS

aguirrei@unican.es

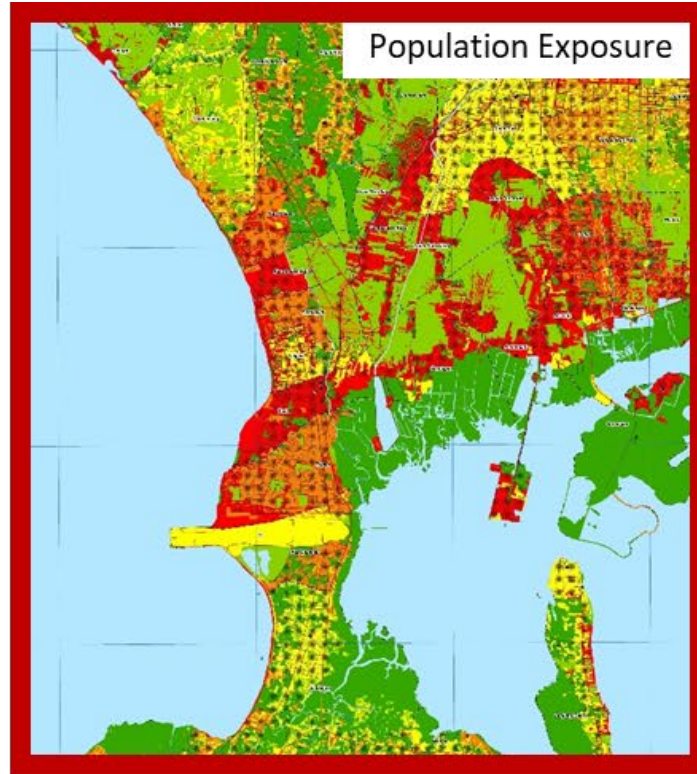
*North-West Indian Ocean Regional Workshops on
Tsunami Inundation Mapping and Evacuation Planning
Muscat, 21-25 April 2024*

Understanding the Risk

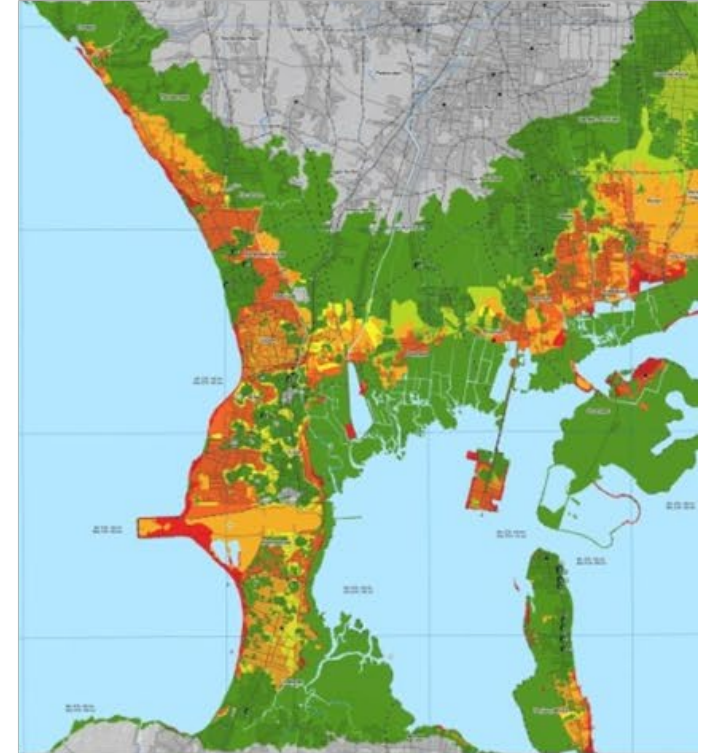


Hazard

+



Exposure / Vulnerability



Risk

Understanding the Risk

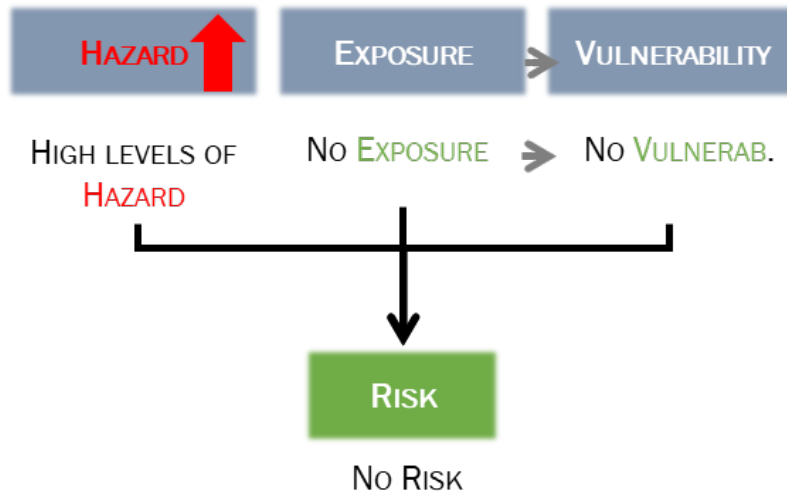
$$R = f(\text{Hazard/s}, \text{Exposure}, \text{Vulnerability})$$



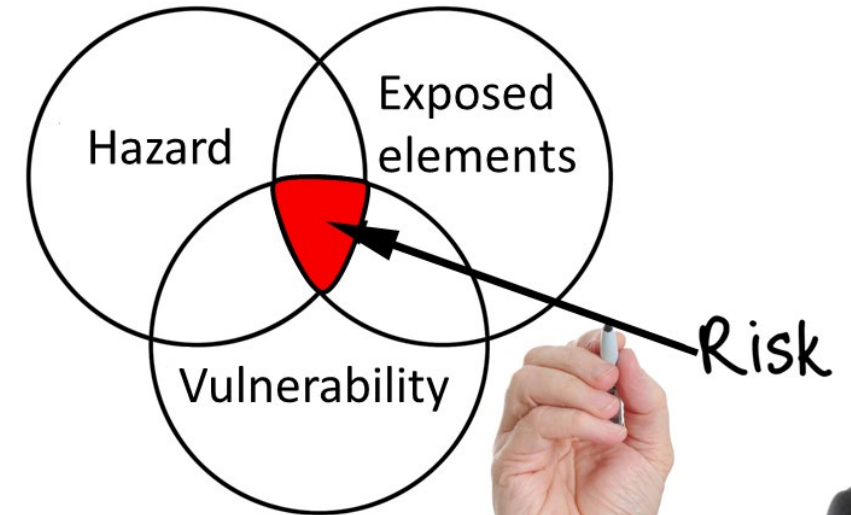
Understanding the Risk



Yukon flats, Canada



$$R = f(\text{Hazard/s}, \text{Exposure}, \text{Vulnerability})$$



It is essential to specify and clarify the concepts in any study conducted.

Understanding the Risk

Exposure, is the presence of people, infrastructure, housing, production capacities, species or ecosystems, and other tangible human assets in locations and environments that could be adversely affected by one or more hazards. Exposure can vary in space and time, for example, when people move between their place of work and home.

(IPCC, 2014; UNDRR, 2024)

Vulnerability, refers to the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

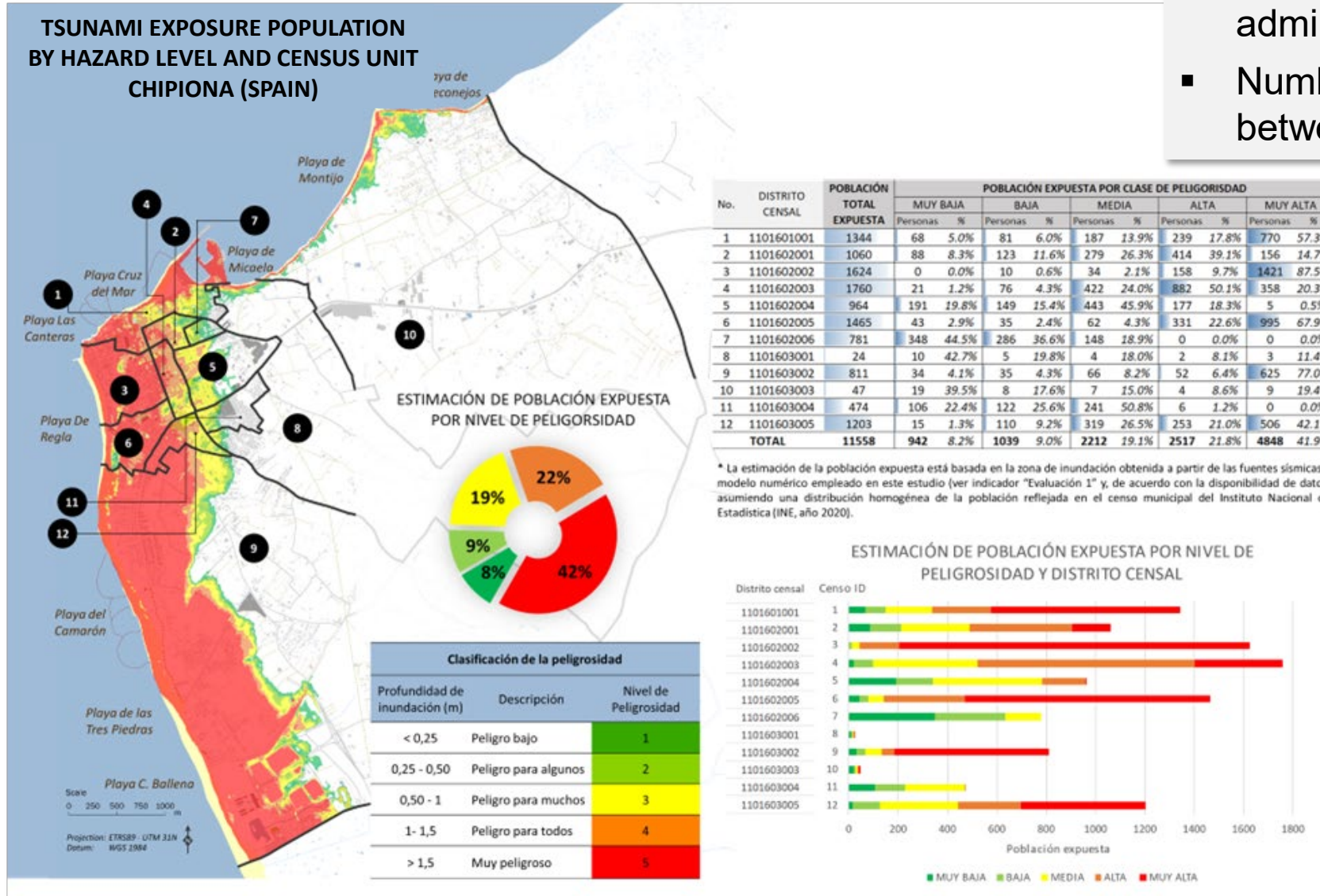
Vulnerability encompasses a number of concepts including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

(IPCC, 2014; UNDRR 2024).

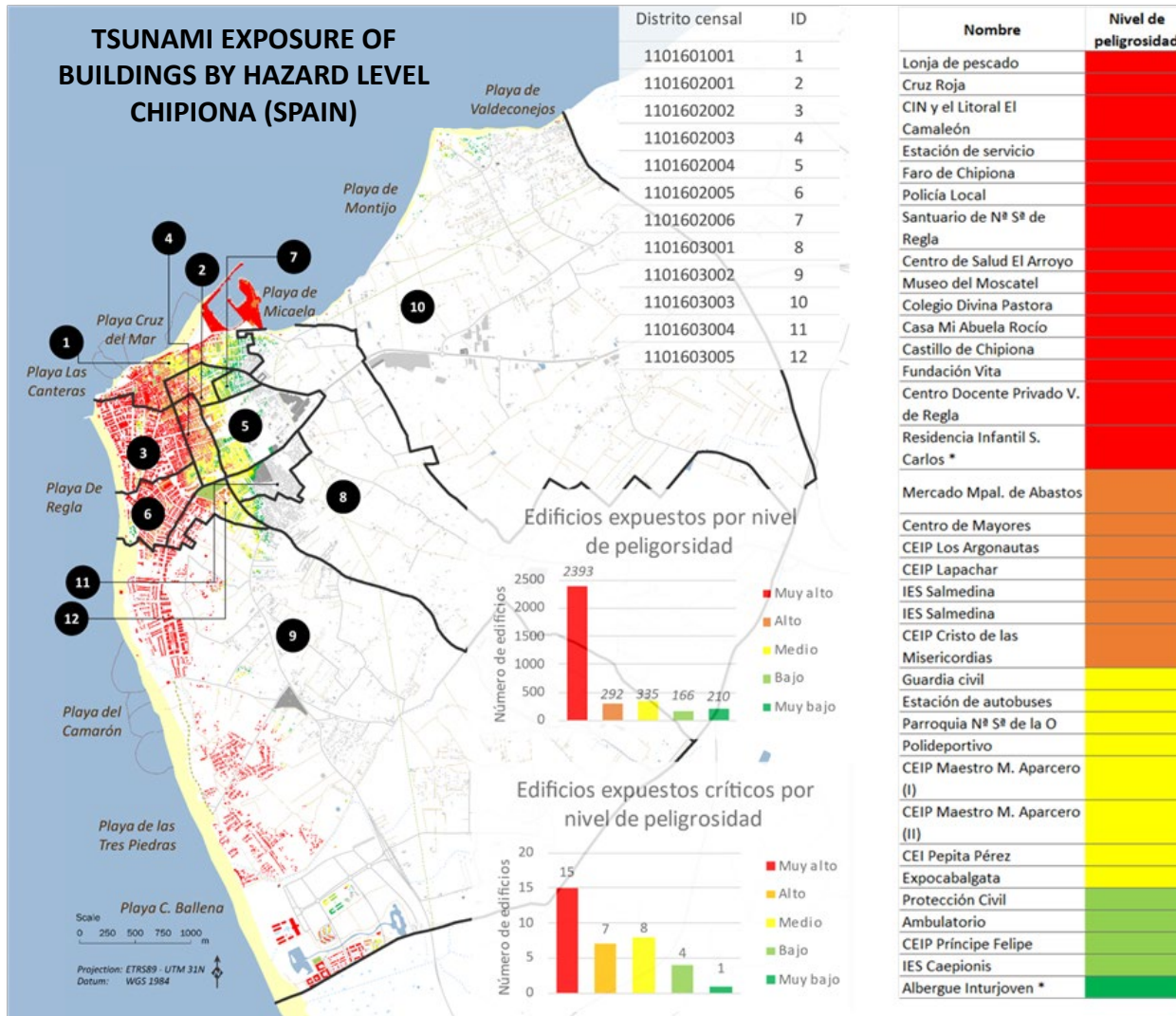


Who and what is exposed?

- 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

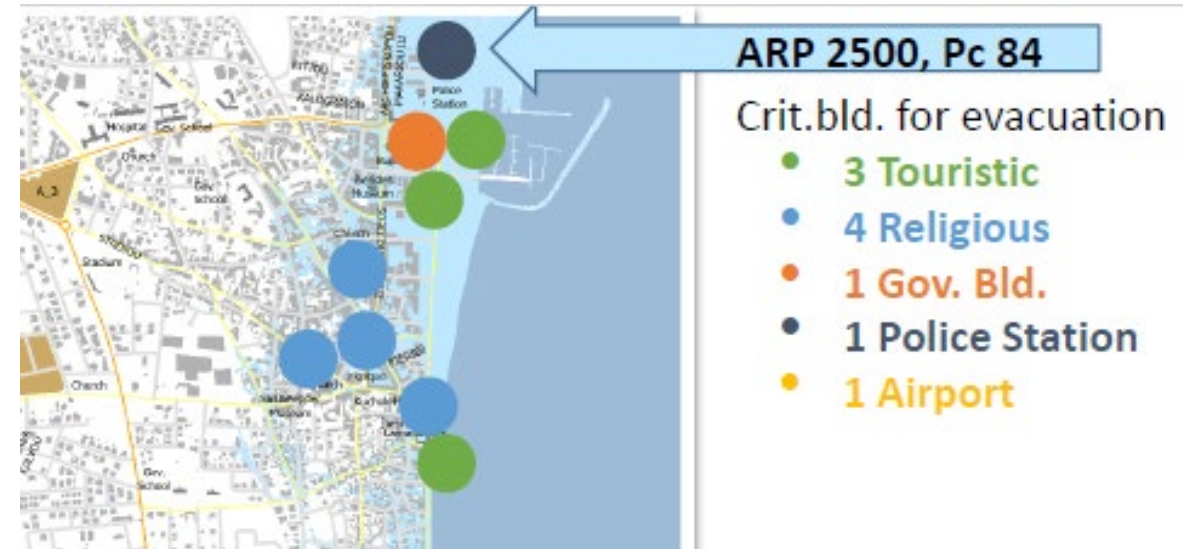
Which facilities require special attention in the TEP?

Hosting a large amount of population, and/or vulnerable population

- Schools, education facilities, nursery schools
- Hospitals, clinics
- Religious buildings (Mosques, churches)
- Markets, shopping areas
- Tourism facilities, public beaches, hotels
- Supply/Power plants, water reservoir, etc.
- Train and bus stations, harbours, airports

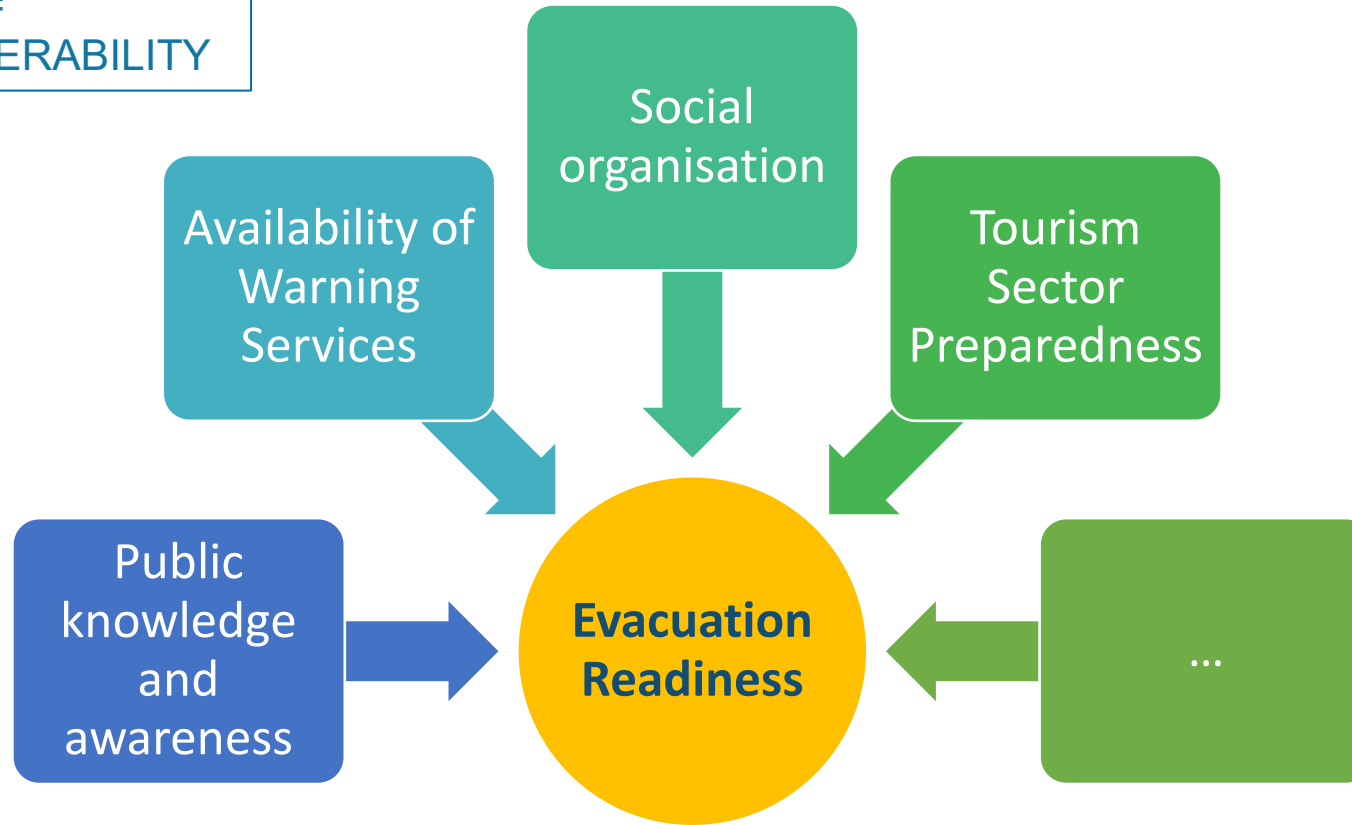
Relevant buildings for emergency management

- Police, Civil Protection HQ, Fire Brigade, etc.



How good is the overall readiness to evacuate?

COPING CAPACITY =
DECREASE IN VULNERABILITY





THANK YOU