



ASSESS-2: Number of people at risk in the tsunami hazard zone is estimated

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Introduction

Knowing the number of people in the hazard zone is necessary for estimating the response effort and for planning to build evacuation shelters and define evacuation routes.

The assessment should include local residents, vulnerable populations (people with disabilities, elderly, young, etc.) and the approximate number of temporary workers and tourists (non-residents) that are at risk.

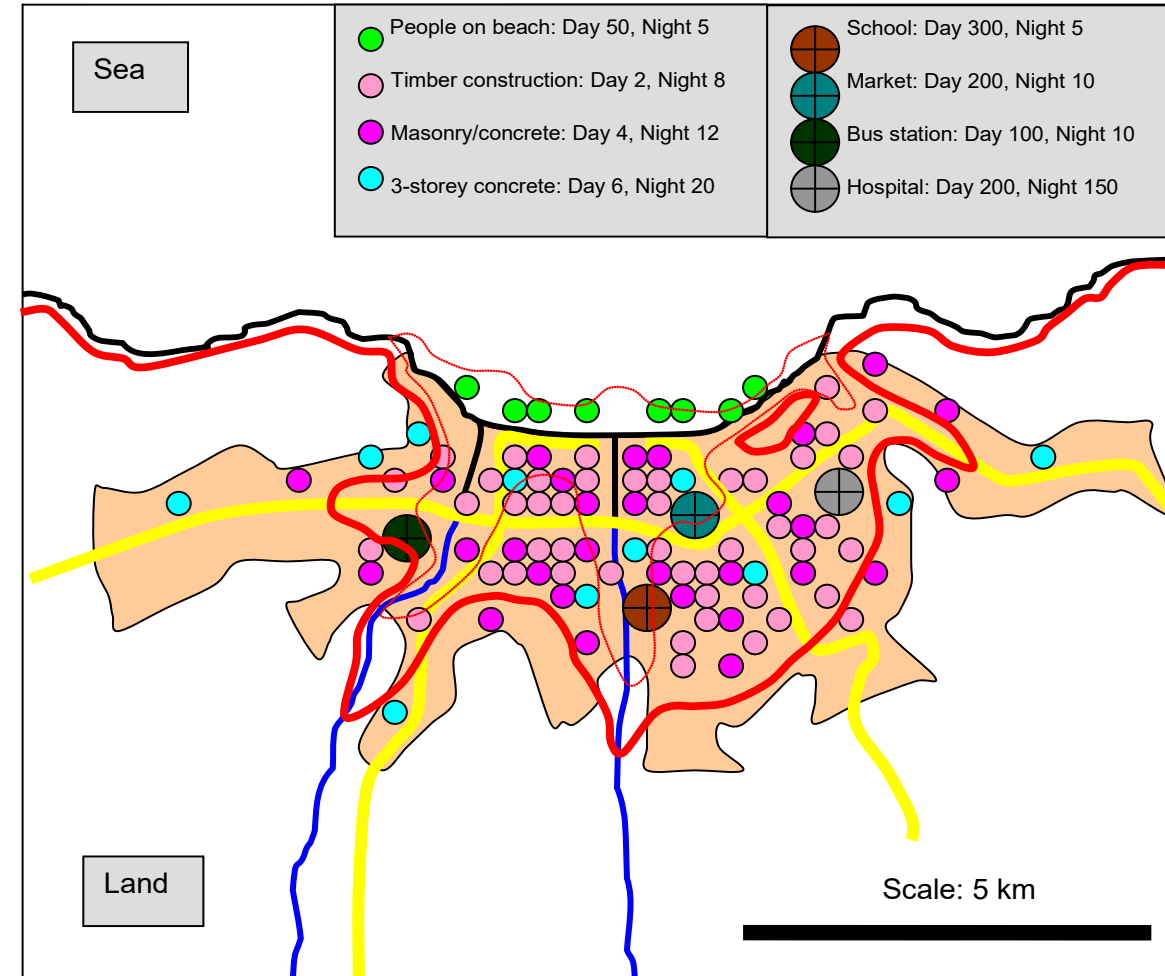
Both daytime and nighttime population in the hazard zone should be estimated as well as population during summer and winter seasons and mass gatherings.

The local census, the emergency operations plan, municipal data or information from the Disaster Management Office can be good references to obtain this initial estimate



Steps to estimating the number of people at risk

1. Start with hazard zone map for a specified tsunami scenario to define geographical limits. Might be worst case or baseline scenario
2. Create a census and asset database for people and their supporting systems within and adjoining the modelled inundation zone
3. Create an exposure database of people and their supporting systems, assets and critical infrastructure for specified tsunami scenarios
4. Produce maps of population distribution classified by vulnerability and exposure for specified tsunami scenarios. Larger towns may be subdivided into districts, quadrants or segments



Exposure map and database (training exercise). Source: UNESCO IOC and UNDP, 2009

Considerations

Take into account all activities, not just residential accommodation. eg. schools, community centres, offices, markets, beaches, hotels, mosques and churches etc

Pay particular attention to identifying vulnerable people who will require assistance during evacuation. For example, elderly people, people with disabilities.

Hospitals in the hazard zone will require specific measures to protect the safety of patients and staff

Also take into consideration differences between daytime and nighttime populations, and seasonal variations in workers and tourists

Sources of information

Depends on size of community and availability of existing data

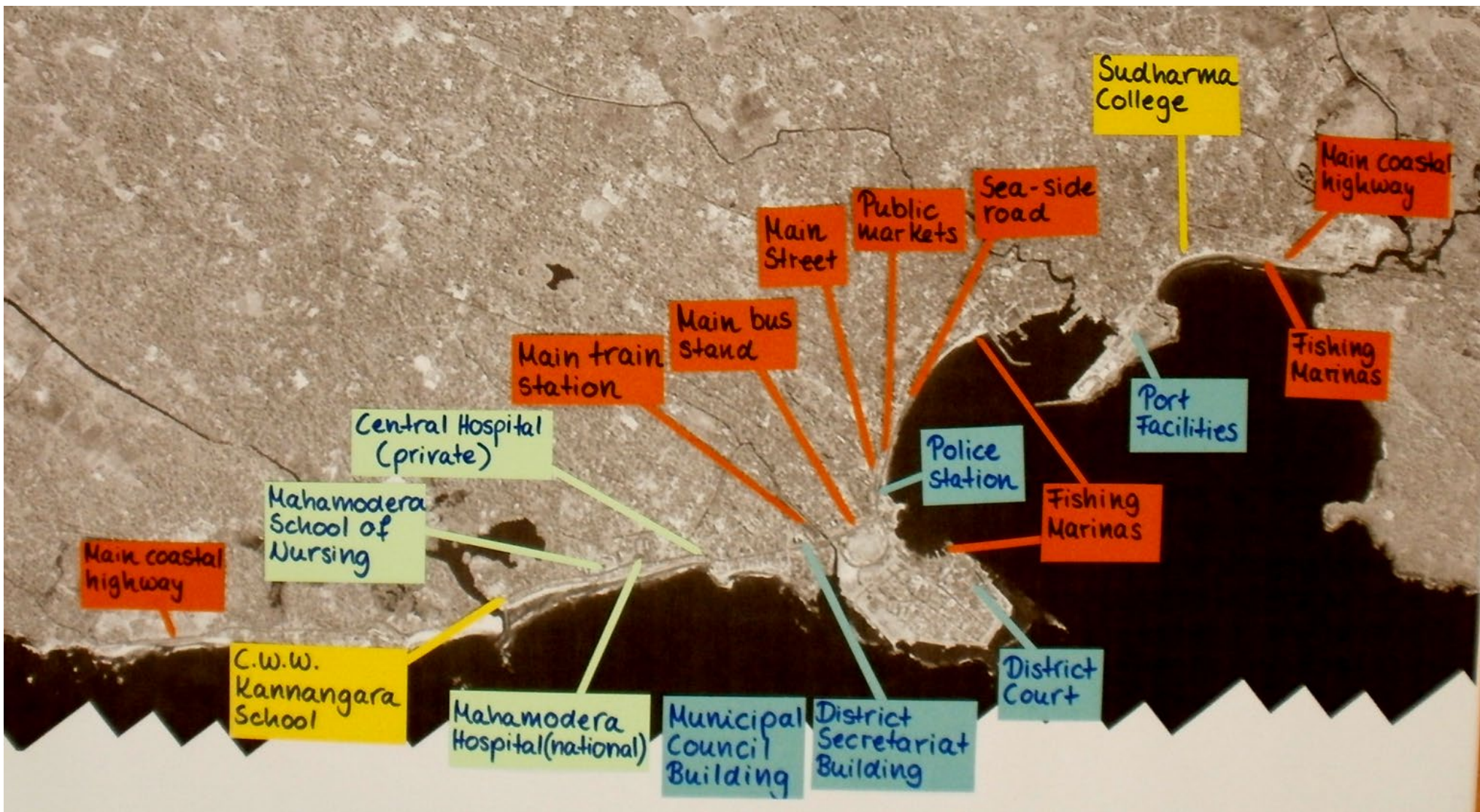
Census data is a good starting point, if available (population distribution, socio-economic status, statistics such as age, occupation, disability and education)

Other sources include provincial or municipal data or information from the DMO for existing Emergency Operation Plans

For smaller communities or where official data is not available, on-the-ground surveys and questionnaires will be required to obtain information on population distribution. Satellite imagery and apps such as Google Maps are also useful for planning such surveys

Even when using official information such as census data it is advisable to conduct ground-truthing surveys to check the accuracy of the data, as populations can be dynamic and change over time in response to a range of socio-economic factors





Satellite image of the City of Galle, Sri Lanka indicating the location of critical infrastructure exposed to tsunamis.

Source: Satellite image by GeoEye through European Space Imaging. Copyright: European Space Imaging, ESI, GMBH

Summary of ASSESS-2

- ✓ It is necessary to know the number of people in the tsunami hazard zone for estimating the response effort, planning evacuation shelters and defining evacuation routes
- ✓ All community activities should be considered including schools, community centres, offices, markets, beaches, hotels, mosques and churches as well as residential areas
- ✓ Particular attention should be paid to identifying vulnerable people who will require special assistance during evacuation. Any hospitals in the hazard zone will require specific measures to ensure the safety of patients and staff
- ✓ Differences in daytime and nighttime populations and seasonal variations in workers and tourists should also be accounted for
- ✓ Official census data, if available, is a good starting point for obtaining information on population distribution and demography. For smaller communities or where official data is not available, on-the-ground surveys will be required to obtain estimates of the number of people in the tsunami hazard zone