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The Institution of  
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Global Alliance for  
Disaster Reduction



MONASH University



## Guide to Disaster Reduction on Coasts

### Objective

This guide addresses the needs of coastal communities at risk of inundation from floods, storm surges associated with tropical cyclones, earthquakes, tsunami and rising sea levels. These needs include

- The ability to survive inundation from any of the abovementioned causes without loss of life or injury, and with acceptable physical damage to housing and infrastructure, any of the abovementioned events having a return period of 50 years
- The minimization of the loss of life and injury and damage to essential services while accepting significant physical damage to housing and infrastructure, any of the abovementioned events having a return period of 500 years
- The reduction of loss of life, injury and livelihood, and asset damage through the introduction of robustness to structures, hazard identification, reduction of vulnerability, communication and evacuation systems subjected to extreme events with a return period greater than 1,000 years.
- The capacity for the communities themselves to implement the disaster reduction program.

Interpretation of these needs will take into account the effectiveness of early warning systems against inundation from any source, as well as rising sea levels in the future.

This guide only indirectly addresses post disaster reconstruction. It is directed to all coastal communities to assist them in reduction of risk from disasters, whether they have been affected by the tsunamis of 26<sup>th</sup> December 2004 or not. However, some of the recommendations regarding buildings and protection of essential services are relevant to current reconstruction.

### Use of the Guide

The Guide is intended to be used by coastal communities assisted by disaster reduction experts, without immediate need of further professional advice. The recommendations contained in the Guide require the input of the geographic location of the community, local information about the terrain, the location of buildings and essential services within that terrain, evacuation routes and the proximity of safe refuges (if available), and details of the construction of dwellings and other structures.

With this information the safety and risks of whatever is being reviewed can be derived from the Guide. If the risks are unacceptable alternative strategies for risk reduction will be indicated.

### Collaboration

Production of the Guide requires the collaboration of meteorologists for probabilistic models of cyclones, storm surges, and shore crossings, geophysicists for earthquakes, subsea landslides, volcanic eruptions and tsunami generation, coastal and hydrodynamic engineers to model run up and inundation loads on structures, structural engineers to establish safety and risk of structures, engineers from the regions to characterize regional buildings and infrastructure, and risk engineers to evaluate the options including structural modification, evacuation and relocation, which reduce disaster to an acceptable level of risk. All the science and technology needs to be integrated into feasible implementation in collaboration with the humanities, geographers and social scientists.

Support for the production of this Guide comes from many institutions and national groups around the world. The number of participant groups is increasing rapidly so that the Guide can claim international endorsement.

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