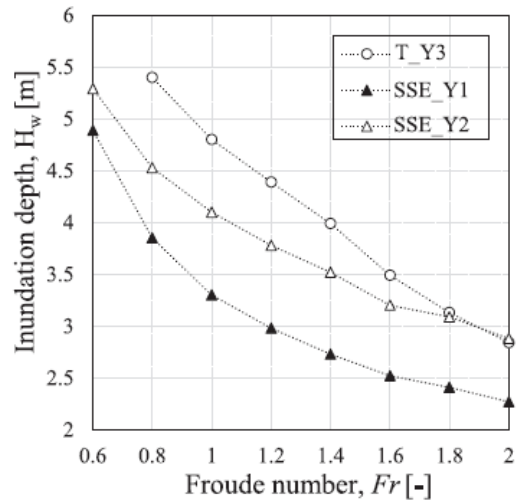
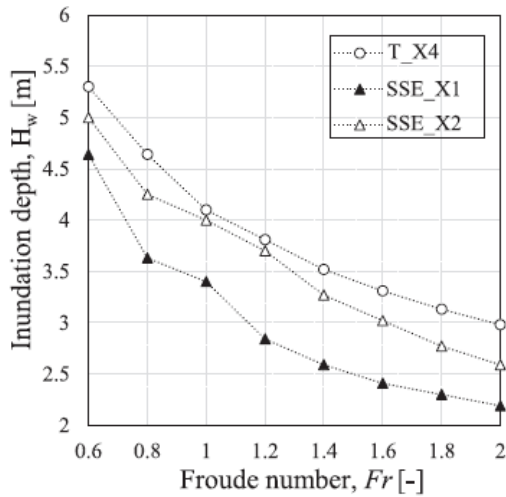
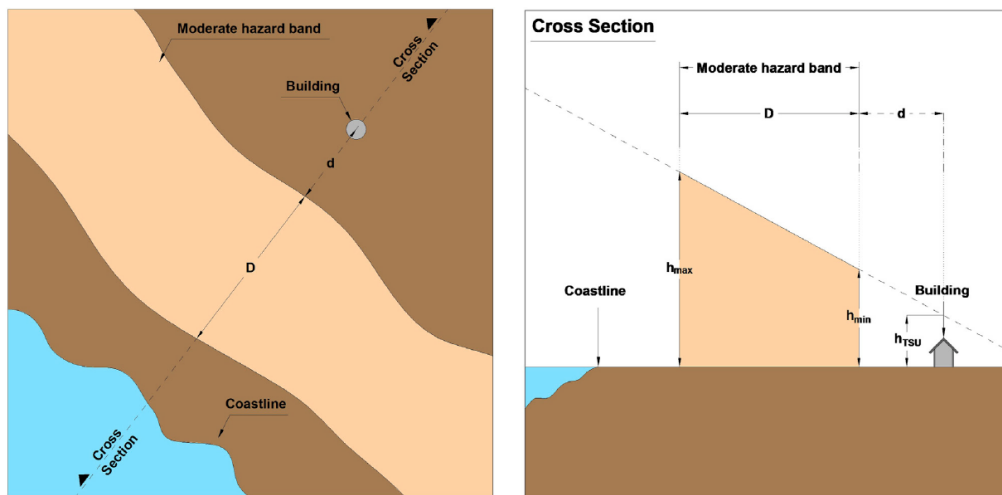


## Resilience of structures under natural forces and hazards

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Limiting inundation depths for tsunami loading on typical two storey Sri Lanka school buildings in the longitudinal (left) and transverse (right) directions.



Using the grade line method for estimating inundation depth at a building from the tsunami hazard maps maintained by the Disaster Management Centre (DMC)

- Tsunami resilience continues to be an important research area worldwide, to which Sri Lankan experience can contribute because of it experienced the Indian Ocean tsunami of 2004. This work is being carried out in collaboration with University College, London. Research outputs to date include numerical simulations of a typical Sri Lankan school building, accounting also for the influence of infill walls; and a methodology for calculating a relative risk index for hospital buildings, inclusive of functional and operational aspects.
- Even though Sri Lanka is not located in a seismically active region the possibility of an earthquake of low to moderate severity cannot be completely ruled out. Therefore, it is important to examine the effects of such an earthquake on critical structures in the country. In this research finite element simulations are used to study the performance of some of the major dams in the country in order to assess the potential for structural damages/failures.



Experimental setup of a wind tunnel experiment

- The effect of nearby boundary walls on the wind pressure of buildings is investigated. Many of the wind loading standards do not provide specifications for the wind pressure in the presence of boundary walls. Wind pressure on buildings strongly depends on such small-scale objects and makes evaluating wind loads on buildings more complicated. Wind tunnel simulations and CFD simulations are carried out on low rise to find out the effect of surrounding on mean and fluctuating wind pressure components.