

## Downward Vertical Evacuation for Disabilities People from Tsunami Using Escape Bunker Technology

**Authors :** Febrian Tegar Wicaksana, Niqmatul Kurniati, Surya Nandika

**Abstract :** Indonesia is one of the countries that have great number of disaster occurrence and threat because it is located in not only between three tectonic plates such as Eurasia plates, Indo-Australia plates and Pacific plates, but also in the Ring of Fire path, like earthquake, Tsunami, volcanic eruption and many more. Recently, research shows that there are potential areas that will be devastated by Tsunami in southern coast of Java. Tsunami is a series of waves in a body of water caused by the displacement of a large volume of water, generally in an ocean. When the waves enter shallow water, they may rise to several feet or, in rare cases, tens of feet, striking the coast with devastating force. The parameter for reference such as magnitude, the depth of epicentre, distance between epicentres with land, the depth of every points, when reached the shore and the growth of waves. Interaction between parameters will bring the big variance of Tsunami wave. Based on that, we can formulate preparation that needed for disaster mitigation strategies. The mitigation strategies will take the important role in an effort to reduce the number of victims and damage in the area. It will reduce the number of victim and casualties. Reducing is directed to the most difficult mobilization casualties in the tsunami disaster area like old people, sick people and disabilities people. Until now, the method that used for rescuing people from Tsunami is basic horizontal evacuation. This evacuation system is not optimal because it needs so long time and it cannot be used by people with disabilities. The writers propose to create a vertical evacuation model with an escape bunker system. This bunker system is chosen because the downward vertical evacuation is considered more efficient and faster. Especially in coastal areas without any highlands surround it. The downward evacuation system is better than upward evacuation because it can avoid the risk of erosion at the ground around the structure which can affect the building. The structure of the bunker and the evacuation process while, and even after, disaster are the main priority to be considered. The power of bunker has quake's resistance, the durability from water stream, variety of interaction to the ground, and waterproof design. When the situation is back to normal, victim and casualties can go into the safer place. The bunker will be located near the hospital and public places, and will have wide entrance supported by large slide in it so it will ease the disabilities people. The technology of the escape bunker system is expected to reduce the number of victims who have low mobility in the Tsunami.

**Keywords :** escape bunker, tsunami, vertical evacuation, mitigation, disaster management

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