

## **ABSTRACT**

*Bandar Lampung, a city located in the south of Sumatra Island is prone to tsunami caused by volcanic eruptions, under sea landslides and high waves from Indonesian ocean. Based on historical records, a massive tsunami struck the coast of Bandar Lampung been caused by the eruption of Krakatoa in 416 AD and August 27, 1883 that killed more than 36,000 people. Bumi Waras and South Teluk Betung Subdistrict is a coastal lowland area in Bandar Lampung which has the highest population density. This makes the area has a high disaster risk especially coupled with settlement within about 1-2 meters from the shore. Therefor it is necessary to do a study to determine the coastal community preparedness to face the Bandar Lampung tsunami, so the effective evacuation route and safe areas can be determined to minimize the loss of life caused by the tsunami.*

*In this simulation numerical method simulations is used by Evacuware Software Version 2.0-2011. The simulation model is not specified the evacuation route but agents allowed to move freely towards the shelter. Two main shelter are based on regulation of Bandar Lampung City No. 10-2011 about Bandar Lampung Spatial Planning in 2011-2030, as well as two alternative vertical evacuation building shelter. There are two types of scenarios used, the first scenario without changing the shelter value and the second scenario with changing the shelter value. For the first scenario 3 kinds of simulations are carried out, namely simulations with one shelter, two shelters, and four shelters, while the second scenario do 2 simulations, namely two and four shelters. All simulations were carried out only during the day.*

*The results of this study showed, the changes of shelter value have a significant effect in the simulation process. It can be seen from the results of simulations where the number of agents (residence) who survived in the simulation without changing the shelter value is smaller than the simulation results with changes in shelter value. So that community preparedness in the face of disaster, it is important by carrying out simulation exercises, preparing officers controller, giving comfort to the shelter as a strategic location and a high position, and make a good early warning system so that people can be more saved. And all the way, can be represented by the shelter value in the simulation program.*

**Keywords:** *tsunami, simulation of preparedness, evakuasi, multi agent*