AOGS 2006

The Effect of Inundation Height of December 2004 Tsunami on the Damage of Structural Buildings in Banda Aceh City

AGUSSALIM SALIM[1], ZOUHRAWATY A. ARIF[1], HUZAIM [1]

[1] *Dept. of Civil Engineering Syiah Kuala University*

December 2004 earthquake and tsunami attacked the costline of Aceh Province Indonesia about 800 km length from the East cost to the West coast. There are Banda Aceh City, Calang City and Meulaboh City were destroyed heavily. The affected area in the city were about three to five kilometers from the coastline. Banda Aceh as the capital of Aceh Province Indonesia has the region of 61 sequare kilometer. The coastline of Banda Aceh City is about 12 kilometer from the North to the West sides. The inundation depths of tsunami in Banda Aceh varied from 5-9 meter in the area of 0.50 to 2.00 kilometer distance from the coastline and 2 – 5 meter in following area from 2.00 to 4.50 kilometer. Based on the study conducted by the Departement of Civil Engineering of Syiah Kuala University in cooperation with Japan International Cooperation Agency (JICA), the inundation depth of tsunami resulted in a variation of damage of infrastructures and lifelines. In particular the degree of damage of structural buildings (limited to two to four story of reinforced concrete building structures) was affected by depth of tsunami water level. In this study the tsunami inundation depth was the average height of tsunami level. There were also have the maximum tsunami level in the mayority area of Banda Aceh City. The debris load also affected the damage of structural buildings from heavy damage to destroyed condition. When the tsunami inundation depth decrease resulted in reducing the degree of damage of structural buildings, where the debris were affected also. The method to collect data of tsunami height were manually measured by survey team of our lectures and students. Also the secondary data was collected through the existing and the baseline condition from the local government.