

## ABSTRACT

*The city of Cilegon in Banten Province is located in a coastal area and is close to several earthquake sources. One of the closest sources is the Sunda Strait Megathrust segment. This condition means that Cilegon has a high seismic hazard potential. This study aims to determine the level of earthquake hazard and map the distribution of ground acceleration using the Deterministic Seismic Hazard Analysis (DSHA) method. The analysis was conducted using data from the Sunda Strait Megathrust source and compared with two other sources, namely the Cimandiri Fault and the Semangko Graben Fault. The data was used to calculate the Peak Ground Acceleration (PGA) and Spectral Acceleration (SA) values for periods of 0.2 seconds and 1.0 seconds, which were then presented in the form of hazard maps. The results of the calculations show that the highest PGA and SA values originate from the Megathrust source at 0.226 g, the 0.2-second period SA of the Megathrust at 0.403 g, and the 1.0-second period SA, with the highest value from the Megathrust at 0.241 g. Based on the results, the Megathrust source contributes the most to seismic hazard in the Cilegon City area, equivalent to shaking intensity on the MMI VII scale, which falls under the category of high-level earthquake hazard..*

**Keywords:** *Seismic hazard, DSHA, PGA, Spectral acceleration, Cilegon City*