

## Seismic Microzonation Analysis for Damage Mapping of the 2006 Yogyakarta Earthquake, Indonesia

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**Abstract :** In 2006, a large earthquake ever occurred in the province of Yogyakarta, which caused considerable damage. This is the basis need to investigate the seismic vulnerability index in around of the earthquake zone. This research is called microzonation of earthquake hazard. This research has been conducted at the site and surrounding of Prambanan Temple, includes homes and civil buildings. The reason this research needs to be done because in the event of an earthquake in 2006, there was damage to the temples at Prambanan temple complex and its surroundings. In this research, data collection carried out for 60 minutes using three component seismograph measurements at 165 points with spacing of 1000 meters. The data recorded in time function were analyzed using the spectral ratio method, known as the Horizontal to Vertical Spectral Ratio (HVSr). Results from this analysis are dominant frequency ( $F_g$ ) and maximum amplification factor ( $A_g$ ) are used to obtain seismic vulnerability index. The results of research showed the dominant frequency range from 0.5 to 30 Hz and the amplification is in interval from 0.5 to 9. Interval value for seismic vulnerability index is 0.1 to 50. Based on distribution maps of seismic vulnerability index and impact of buildings damage seemed for suitability. For further research, it needs to survey to the east (Klaten) and south (Bantul, DIY) to determine a full distribution maps of seismic vulnerability index.

**Keywords :** amplification factor, dominant frequency, microzonation analysis, seismic vulnerability index

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