

ABSTRAK

ANALISIS KERENTANAN TANAH DAN KETEBALAN LAPISAN SEDIMEN MENGGUNAKAN METODE *HORIZONTAL TO VERTICAL SPECTRAL RATIO* (HVSr) DI KABUPATEN MUSI BANYUASIN, SUMATERA SELATAN

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Telah dilakukan penelitian tentang kerentanan tanah dan ketebalan lapisan lunak di daerah Tungkal Jaya Kabupaten Musi Banyuasin dengan tujuan untuk menentukan nilai frekuensi dominan (f_0), amplifikasi (A_0), periode dominan (T_0), indeks kerentanan tanah (K_g) dan ketebalan sedimen (H), menganalisis nilai frekuensi dominan, nilai faktor amplifikasi, indeks kerentanan tanah dan ketebalan lapisan sedimen pada daerah penelitian, serta menganalisis penampang lapisan lunak dan lapisan keras pada daerah penelitian. Metode yang digunakan dalam penelitian ini yaitu metode *Horizontal To Vertical Spectral Ratio* (HVSr) yang dapat mengidentifikasi resiko bencana gempa melalui analisis parameternya. Hasil dari penelitian ini mendapatkan nilai frekuensi dominan berkisar 2 Hz sampai 18 Hz, amplifikasi berkisar 1.6 kali sampai 5.2 kali, periode dominan berkisar 0.04 sekon sampai 0.38 sekon, indeks kerentanan tanah berkisar 0.2 cm/s² sampai 3.2 cm/s² dan ketebalan lapisan sedimen berkisar 3 meter sampai 27 meter. Daerah penelitian mempunyai resiko gempa bumi yang rendah. Berdasarkan korelasi setiap parameter tersebut maka daerah penelitian memiliki nilai frekuensi dominan yang tinggi dan nilai amplifikasi yang rendah serta nilai indeks kerentanan tanah yang rendah. Berdasarkan komparasi nilai frekuensi dominan dan ketebalan lapisan lunak maka penentuan zona rekomendasi lokasi pembangunan yang paling aman dan ekonomis dilakukan dengan pertimbangan: kerentanan tanah yang rendah dan ketebalan sedimen yang tipis. Dari analisa diperoleh daerah yang paling aman dan ekonomis berada di barat laut, barat, tengah, selatan dan timur tenggara.

Kata kunci : HVSr, Musi Banyuasin, Kerentanan Tanah, Ketebalan Sedimen

ABSTRACT

ANALYSIS OF SOIL VULNERABILITY AND SEDIMENT LAYER THICKNESS USING HORIZONTAL TO VERTICAL SPECTRAL RATIO (HVSR) METHOD IN MUSI BANYUASIN DISTRICT, SOUTH SUMATRA

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Research has been carried out on soil vulnerability and soft layer thickness in the Tungkal Jaya area, Musi Banyuasin Regency with the aim of determining the values of dominant frequency (f_0), amplification (A_0), dominant period (T_0), soil vulnerability index (K_g) and sediment thickness (H), analyzing the dominant frequency value, amplification factor value, soil vulnerability index and sediment layer thickness in the research area, as well as analyzing the cross-section of the soft layer and hard layer in the research area. The method used in this research is the Horizontal To Vertical Spectral Ratio (HVSR) method which can identify the risk of earthquake disasters through parameter analysis. The results of this research obtained dominant frequency values ranging from 2 Hz to 18 Hz, amplification ranging from 1.6 times to 5.2 times, dominant period ranging from 0.04 seconds to 0.38 seconds, soil vulnerability index ranging from 0.2 Cm/s^2 to 3.2 Cm/s^2 and sediment layer thickness ranging from 3 meters to 27 meters. The study area has a low risk of earthquakes. Based on the correlation of each parameter, the research area has a high dominant frequency value and a low amplification value as well as a low soil vulnerability index value. Based on a comparison of dominant frequency values and soft layer thickness, the safest and most economical development location recommendation zone is determined by considering: low soil vulnerability and thin sediment thickness. From the analysis it was found that the safest and most economical areas were in the northwest, west, center, south and east southeast.

Keywords: HVSR, Musi Banyuasin, Soil Vulnerability, Sediment Thickness