Analisis dan Karakterisasi Zona Likuifaksi melalui Pendekatan Indeks Potensi Likuifaksi, Studi Kasus Wilayah Palu dan Indralaya-Bengkulu = Analysis and Characterization of Liquefaction Zone through Liquefaction Potential Index Approach: A Case Study of The Palu and Indralaya-Bengkulu Area

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Abstrak

Indonesia terletak pada pertemuan tiga lempeng tektonik besar yaitu lempeng Indo-Australia, Indo-Cina dan Pasifik sehingga berpotensi terjadinya gempa bumi. Di beberapa daerah, terutama yang didominasi oleh lapisan tanah pasir lepas, pengaruh gempa ini dapat menimbulkan fenomena alam yang disebut likuifaksi. Identifikasi awal yakni untuk menentukan daerah dengan tingkat likuifaksi, salah satunya adalah peta zona likuifaksi. Penelitian ini bertujuan untuk mempelajari karakteristik kondisi tanah di daerah penelitian terhadap likuifaksi. Metode penelitian menggunakan analisis potensi likuifaksi dengan dua cara, yaitu analisis data uji laboratorium dan perhitungan empiris berdasarkan data Uji Penetrasi Standar (SPT). Selanjutnya dilakukan karakterisasi untuk menghasilkan zona likuifaksi. Objek penelitian difokuskan pada penyusunan zonasi likuifaksi di wilayah Palu dan Indralaya-Bengkulu. Untuk mengetahui sifat dinamis tanah digunakan 35 data SPT yang tersebar di wilayah Palu dan 51 data SPT di jalur Indralaya-Bengkulu. Hasil analisis menunjukan kerentanan indeks likuifaksi daerah Palu dominan berkisar antara moderate (66%) hingga high (29%) sedangkan jalur Indralaya-Bengkulu memiliki keberagaman dari high (14%), moderate (43%), low (27%), very low (6%) dan non-liquefiable (10%).
.....Indonesia is located at the confluence of three large tectonic plates, namely the Indo-Australian, Indo-Chinese and Pacific plates so that it has the potential for earthquakes. In several areas, especially those dominated by loose sand soil layers, the effect of this earthquake can cause another natural phenomenon called liquefaction. Initial identification is needed for determining areas with the level of liquefaction, one of which is a liquefaction zone map. This research was purposed to study the characteristics of the soil conditions in the study area regarding liquefaction. The research method used liquefaction potential analysis in two ways, namely analysis of laboratory test data and empirical calculations based on Standard Penetration Test (SPT) data. Furthermore, characterization was carried out to produce a zone of liquefaction. The object of research focused on the preparation of liquefaction zoning in the Palu and Indralaya-Bengkulu areas. To determine the dynamic properties of soil, 35 SPT boreholes spread across Palu region and 51 SPT boreholes between Indralaya-Bengkulu were used. The analysis shows that The vulnerability index of the Palu liquefaction index is dominant, ranging from moderate (66%) to high (29%) while the Indralaya-Bengkulu route has a diversity of high (14%), moderate (43%), low (27%), very low (6%) and non-liquefiable (10%).