Coastal Hydrogeological Model in the Iron Ore Prospect Area of Widarapayung Coastal, Cilacap Regency Based on 2D-Resistivity Data

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Author Order	2 of 3
Accreditation	2
Abstract	The coastal hydrogeological model of iron ore prospect area in Widarapayung coastal, Cilacap Regency, has been designed and performed based on the 2D-resistivity data. The background of this research is potentiality of iron sand in this area and its prospect to be mined. Mining activities in large-scale may lead into surface decreasing, triggering damage to the aquifer, abrasion, and saltwater intrusion in the coastal area. The acquisition of 2D-resistivity data has been performed on five trajectories including of WP-01 up to WP-05. Based on the modeling results, it can be concluded that the sub-surface rocks resistivity profile consists of WP-01 with the values of 1.93-114.00 ÃƒÂŽÃ‚Â©m; WP-02 with the values of 3.67-121.00 ÃƒÂŽÃ‚Â©m; WP-03 with the values of 3.86-78.40 ÃƒÂŽÃ‚Â©m; WP-04 with the values of 1.79-100.00 ÃƒÂŽÃ‚Â©m; and WP-05 with the values of 2.61-86.20 ÃƒÂŽÃ‚Â©m. After interpretation, it is found that the hydrogeological profile of sub-surface rocks consists of sand inserted with gravels (topsoil); sand containing iron ore granules inserted with silt (topsoil and shallow aquifer); clayey sand (semi-aquifer layer); sandy clay (semi-impermeable layer); and sand (deep aquifer which is intruded by salt water). Based on the analysis, the sand containing iron ore is part of the shallow aquifer, so the mining activities of iron sand is potential to damage and reduce aquifer function in storing and flowing the groundwater in the research area.
Publisher Name	Universitas Negeri Surabaya
Publish Date	2018-12-31
Publish Year	2018
Doi	DOI: 10.26740/jpfa.v8n2.p71-83
Citation	
Source	Jurnal Penelitian Fisika dan Aplikasinya (JPFA)
Source Issue	Vol 8, No 2 (2018)
Source Page	71-83
Url	https://journal.unesa.ac.id/index.php/jpfa/article/downloadSuppFile/3297/482
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