

Hydrogeology of Limestone Formation of Sepingtiang, Lahat-Indonesia Abstract n°2445

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The research documented here is a report of karst hydrogeology study in Sepingtiang Formation in bid of finding an area for limestone quarry. Sepingtiang Formation is one of the oldest limestone formation in Indonesia. The formation is characterized by very hard crystalline limestone of Late Jurassic-Cretaceous. The limestone belongs to Woyla Group that is considered to be the basement of Sumatra Island. The research mostly conducted through field survey. It includes geological survey, sinkhole, sinking stream, resurgence identification, as well as hydrochemistry measurement. The results show that, the limestone outcrop of Sepingtiang Formation is inlier within younger sedimentary rocks in the slope of block faulted Barisan Range of Sumatra. The hydrogeological condition of the area is governed by allogenic recharge from the upper slope of Barisan Range. The sinking streams cross the limestone formation for about two up to 5 km in south slope and end to resurgences in the northern slope. Three subterranean river systems were found in the area namely Sungai Putih, Kepayang Kasat, and Cawang. The hydrogeological condition is mostly characterized by conduit flow component. Conduit flow with allogenic recharge is also confirmed by low HCO₃⁻ content compared to generally limestone spring of which the concentration is less 4 mmol l. Diffuse flow from epikarst is also found in the smaller spring which situated in the higher altitude from the resurgence. Secondary cavities in the epikarst zone do not develop very well. Diffuse recharge mostly comes from soils which is considerably thick for limestone formation. The depth of the soil is between one up to 1.5 meter. Based on those results, it is recommended that limestone quarry should not be located in the area.

