

SARI

Pulau Jawa merupakan bagian dari busur vulkanik aktif yang terbentuk akibat penunjaman Lempeng Indo-Australia ke bawah Lempeng Eurasia. Proses tektonik ini menghasilkan keragaman litologi di wilayah Jawa, termasuk di Kecamatan Sempor, Kabupaten Kebumen yang menjadi lokasi penelitian. Penelitian ini bertujuan untuk mendeskripsikan dan menganalisis litofasies yang berkembang di daerah penelitian, menginterpretasi mekanisme sedimentasi, dan merekonstruksi lingkungan pengendapannya. Berdasarkan data lapangan dan analisis fasies, ditemukan lima litofasies utama, yaitu breksi tufan (BX), batupasir tufan bergradasi (GSS), batupasir tufan masif (MS), turbidit klasik (CT), dan batulanau tufan masif (SL). Analisis dilakukan dengan mengacu pada model fasies kipas laut dalam Walker (1978) dan model fasies Mutti (1992), yang menunjukkan bahwa mekanisme sedimentasi didominasi oleh *sediment gravity flows* yang bervariasi dari *hyperconcentrated flow* hingga *low-density turbidity current*. Proses-proses tersebut mencerminkan perubahan energi dalam sistem kipas bawah laut serta keterlibatan aktivitas vulkanik primer dan proses *reworking* material piroklastik. Lingkungan pengendapan relatif didapatkan berupa *upper fan (channel fill)*, *smooth to channeled on mid fan*, *channel portion of suprafan lobes on mid fan*, *smooth portion of suprafan lobes on mid fan* dan *lower fan*.

Kata kunci: Litofasies, Batuan vulkaniklastik, Aliran gravitasi sedimen, Kipas bawah laut, Model fasies Walker–Mutti

ABSTRACT

Java Island is part of an active volcanic arc formed by the subduction of the Indo-Australian Plate beneath the Eurasian Plate. This tectonic activity has produced a diverse range of lithologies, including in the Sempor District, Kebumen Regency, the area of this study. The research aims to describe and analyze the lithofacies that developed in the study area, interpret the sedimentation mechanisms, and reconstruct the depositional environments. Field observations and facies analysis identified five main lithofacies: volcanoclastic breccia (BX), graded tuffaceous sandstone (GSS), massive tuffaceous sandstone (MS), classical turbidite (CT), and massive tuffaceous siltstone (SL). The analysis refers to the submarine fan facies models by Walker (1978) and Mutti (1992), which indicate that the dominant sedimentation mechanisms are sediment gravity flows, ranging from hyperconcentrated flows to low-density turbidity currents. These processes reflect energy variation within a submarine fan system and involve both primary volcanic activity and the reworking of pyroclastic material. The interpreted depositional environments include the upper fan (channel fill), smooth to channeled mid fan, channel portion of suprafan lobes, smooth portion of suprafan lobes, and the lower fan.

Keywords: Litofacies, Volcanoclastic rocks, Sediment Gravity Flows, Submarine fan, Walker–Mutti facies model