

## SARI

*Lokasi penelitian yang berada pada Kali Widoro di Desa Bunder, Kecamatan Patuk, Kabupaten Gunung Kidul, Provinsi DI Yogyakarta merupakan salah satu daerah yang termasuk ke dalam Formasi Sambipitu di Zona Pegunungan Selatan. Susunan batuan ini diinterpretasikan oleh beberapa peneliti sebagai endapan aliran gaya berat di lingkungan laut dalam yang dikontrol oleh arus turbid. Berdasarkan observasi awal terdapat mekanisme aliran gaya berat lain yang berperan lebih pada sistem laut dalam selain arus turbid. Untuk mengetahui mekanisme apa saja yang mungkin hadir di Formasi Sambipitu maka perlu dilakukan penelitian stratigrafi dan sedimentologi dengan skala besar. Maksud dari penelitian ini adalah untuk melakukan pengukuran stratigrafi secara detail dengan skala 1:10 serta identifikasi karakteristik batuan dengan dukungan analisis sedimentologi, petrografi, dan paleontologi. Berdasarkan analisis litofasies, batuan di lokasi penelitian dibedakan menjadi 17 fasies, yaitu: yaitu Fasies A (Batupasir masif dengan laminasi silang planar & gelembur); Fasies B (Batupasir bergradasi dengan lensa); Fasies C (Batupasir bergradasi dengan sebaran keping karbon); Fasies D (Batupasir bergradasi normal); Fasies E (Batupasir laminasi paralel); Fasies F (Batugamping laminasi paralel); Fasies G (Batulanau); Fasies H (Batupasir lentikuler dengan laminasi); Fasies I (Batupasir masif); Fasies J (Batupasir masif dengan klastika besar mengambang); Fasies K (Batupasir gradasi terbalik-gradasi normal); Fasies L (Batupasir laminasi bergelombang & silang palung); Fasies M (Batupasir slump); Fasies N (Batupasir masif dengan lensa); Fasies O (Batupasir masif dengan sebaran keping karbon); Fasies P (Batulanau dengan lensa pasir); dan Fasies Q (Batupasir masif dengan lapisan keping karbon). Berdasarkan data paleontologi umur batuan berkisar antara N7-N8 dan terbentuk di daerah slope (batial tengah). Mekanisme sedimentasi yang berperan pada pengendapan batuan terdiri dari 6 mekanisme, yaitu sandy debris flow, muddy debris flow, sandy slump, pengendapan suspensi, arus traksi, dan arus turbid. Asosiasi mekanisme sedimentasi dapat dikelompokkan menjadi fasies mekanisme, yaitu: Fasies aliran plastis – arus traksi, Fasies aliran plastis – pengendapan suspensi, Fasies arus traksi – pengendapan suspensi, Fasies arus traksi, Fasies pengendapan suspensi, Fasies aliran newtonian, Fasies aliran plastis, dan Fasies transportasi massa plastis. Berdasarkan karakter fisiknya, batuan di daerah penelitian didominasi oleh endapan sandy debris flow, endapan arus traksi, dan endapan suspensi, namun minor oleh endapan arus turbid.*

Kata kunci: Formasi Sambipitu, Kali Widoro, Mekanisme sedimentasi, Fasies mekanisme, Aliran debris, Arus turbid.

## ABSTRACT

*The location of this research is located at Widoro River, Bunder Village, Patuk District, Gunung Kidul, DI Yogyakarta Province. This area is geologically located in Sambipitu Formation of the Southern Mountains Zone. According to numerous researchers, the rock layout is a density flow deposit in deep marine which was controlled by turbidity currents. Based on pre-observations, there was another density flow mechanism that affects more on the marine system than turbidity currents. To determine the mechanism that conducted in Sambipitu Formation, stratigraphy and sedimentology research in a big scale were needed. The purpose of this research is to conduct detailed stratigraphy measurements in 1:10 scale, and also to identify rock characteristics by doing sedimentology, petrography, and paleontology analysis. Based on lithofacies analysis, the rocks in this research area are divided into 17 facies, which are: Facies A (massive sandstone with planar cross laminated & rippled-top), Facies B (graded sandstone with lenses), Facies C (graded sandstone with random carbon slag), Facies D (graded sandstone), Facies E (parallel lamination sandstone), Facies F (parallel lamination limestone), Facies G (siltstone), Facies H (lenticular sandstone with laminated top), Facies I (massive sandstone), Facies J (massive sandstone with large floating clast), Facies K (inversed to normal graded sandstone), Facies L (wavy & trough-cross lamination sandstone), Facies M (slump sandstone), Facies N (massive sandstone with lenses), Facies O (massive sandstone with random carbon slag), Facies P (siltstone with sand lenses), and Facies Q (massive sandstone with carbon slag layer). Based on paleontology data, the rocks are aged N7 to N8 and were formed in the slope area (mid bathyal). The sedimentation mechanism that occurred during deposit consists of multiple mechanism, which are; sandy debris flow, muddy debris flow, sandy slump, bottom current reworking, suspended settling, and turbidity current. The associated sedimentation mechanism can be divided into a few mechanism facies, which are; plastic flow – traction current facies, plastic flow – suspended settling facies, traction current – suspended settling facies, traction current facies, suspended settling facies, newtonian flow facies, plastic flow facies, and plastic mass transport facies. Based on its physical properties, the rock in this research area is dominated by sandy debris flow deposits, traction current deposits, and suspended deposits, but minorly by turbidity current deposits.*

*Keywords: Sambipitu Formation, Widoro River, Sedimentation mechanism, Facies mechanism, Debris flows, Turbidity currents.*