

INTISARI

Sungai Progo merupakan sungai terbesar yang mengalir di Provinsi D.I. Yogyakarta. Sungai ini memiliki banyak manfaat bagi masyarakat sekitar, salah satunya penambangan pasir. Pasir tersebut digunakan untuk kegiatan konstruksi dan pembangunan infrastruktur di daerah D.I. Yogyakarta dan sekitarnya. Studi ini untuk mengetahui karakteristik granulometri, morfologi, dan mineralogi pasir Sungai Progo, serta korelasinya dengan nilai kuat tekan mortar untuk menentukan parameter-parameter yang berpengaruh. Sampel pasir diambil pada *point bar* sungai. Granulometri butir pasir sungai ini dari hulu – hilir memiliki *mean* berubah dari pasir kasar ke pasir sedang, sortasi *poorly sorted*, *skewness very fine skewed* ke *very coarse skewed*, dan *kurtosis* relatif *very leptokurtic*. Morfologi butir pasir hulu – hilir memiliki urutan bentuk butir dominan *equant*. *Sphericity* butir relatif tinggi yaitu *equant – very equant*. *Roundness* kuarsa berubah dari dominan *very angular – subrounded* menjadi *angular – subrounded*, sedangkan feldspar, litik dan mineral berat dominan *very angular – subrounded* menuju *angular – well rounded*. Kelimpahan mineral ringan kuarsa semakin tinggi ke arah hilir, feldspar mengalami kenaikan hingga STA 4 kemudian turun, dan kelimpahan litik semakin rendah ke arah hilir. Mineral berat magnetit, hematit, dan ilmenit memiliki kelimpahan semakin tinggi ke arah hilir, sedangkan piroksen dan olivin sebaliknya. STA 2 memiliki kelimpahan mineral lempung jauh lebih tinggi. Nilai kuat tekan baik memiliki korelasi dengan *skewness fine – very fine skewed* dengan pengecualian pada saat distribusi frekuensi butir dominan kelas tertentu, *roundness* semakin *angular*, dan kelimpahan lempung rendah.

Kata kunci: pasir, Sungai Progo, karakteristik butir, mortar, kuat tekan

ABSTRACT

The Progo River, located in the Special Region of Yogyakarta, Indonesia, is the largest river in the region. It holds significant value for the surrounding communities, including its utilization for sand mining purposes. The extracted sand serves as a crucial resource for construction activities and infrastructure development in the Yogyakarta area and its vicinity. This study focuses on comprehending the granulometric, morphological, and mineralogical characteristics of the Progo River sand, while establishing correlations with mortar compressive strength values. The aim is to identify influential parameters. Sand samples were obtained from the river's point bar. The granulometric analysis reveals a downstream shift from coarse to medium sand, coupled with poorly sorted sorting, a transition from very fine skewed to very coarse skewed skewness, and a relatively very leptokurtic kurtosis. Regarding the morphological aspect, the dominant grain shape of the sand exhibits an equant sequence from upstream to downstream. The grains demonstrate a relatively high sphericity, ranging from equant to very equant. While the roundness of quartz grains shifts from predominantly very angular to subrounded, feldspar, lithic, and heavy minerals transition from predominantly very angular to subrounded, progressing towards angular to well-rounded shapes. The downstream trend shows an increasing abundance of light mineral quartz, a rise in feldspar abundance until STA 4 followed by a decrease, and a decreasing abundance of lithic minerals. Conversely, heavy minerals such as magnetite, hematite, and ilmenite exhibit an increasing downstream abundance, while pyroxene and olivine display the opposite pattern. STA 2 indicates significantly higher clay mineral abundance. The compressive strength values exhibit correlations with fine to very fine skewed skewness, angular roundness, and low clay mineral abundance, with exceptions observed during the size distribution only dominant in specific classes.

Keywords: sand, Progo River, grain characteristics, mortar, compressive strength