

SARI

Wilayah Sungai Progo memiliki sumber daya pasir batu yang saat ini sedang dilakukan aktivitas penambangan, salah satu contohnya berada di Desa Trimurti dan sekitarnya. Penambangan dilakukan begitu saja tanpa mengetahui karakteristik pasir batu secara lebih detail. Pengetahuan akan karakteristik pasir batu yang akan ditambang dapat memberikan nilai lebih dalam pemanfaatannya lebih lanjut. Penelitian ini bertujuan untuk mengetahui karakteristik endapan pasir dan karakteristik batu di daerah penelitian, mengetahui persebaran ukuran butir pasir di daerah penelitian, dan memberikan rekomendasi pemanfaatan pasir batu di daerah penelitian. Observasi lapangan pada skala 1: 5000 serta pengambilan sampel pasir dan batuan dilakukan untuk keperluan analisis laboratorium. Analisis granulometri dilakukan untuk mengetahui karakteristik endapan yang meliputi nilai rerata ukuran butir, sortasi, *skewness*, dan kurtosis. Morfologi butir yang meliputi bentuk, *sphericity*, dan *roundness*, serta komposisi mineral penyusun dianalisis melalui pengamatan menggunakan mikroskop. Berdasarkan hasil observasi lapangan dan analisis laboratorium terhadap 40 sampel pasir, diketahui karakteristik endapan pasir di wilayah penelitian yang sebagian besar merupakan dataran banjir memiliki rata-rata ukuran butir pasir kasar ($1/2 - 1$ mm) hingga pasir sangat halus ($1/16 - 1/8$ mm), sortasi *moderately sorted - poorly sorted*, *skewness very coarse-skewed - very fine skewed*, dan kurtosis *very platykurtic - very leptokurtic*. Morfologi butir pasir bervariasi *bladed*, *equant*, dan *prolate* dengan *sphericity equant - very equant* serta *roundness* subangular - *subrounded*. Komposisi mineral pada pasir yaitu mineral ringan berupa kuarsa, feldspar, litik, dan mineral lempung serta mineral berat berupa mineral magnetit, pirit, hornblenda, piroksen, hematit, dan olivin dalam jumlah minor. Endapan batu memiliki ukuran *cobble - boulder*, *roundness* subangular - *subrounded* dengan komposisi mineral plagioklas, klinopiroksen, hornblenda, dan mineral opak. Distribusi ukuran butir pasir menunjukkan bahwa ukuran butir pasir kasar berada di dekat tubuh sungai, dan ukuran butir semakin halus menjauhi tubuh sungai. Endapan pasir di daerah penelitian memiliki potensi pemanfaatan sebagai agregat halus untuk pembuatan beton.

Kata kunci : Endapan pasir, Analisis granulometri, Sungai Progo

ABSTRACT

Progo River area has sand deposit resources that are currently under mining activities, one of the examples is in Trimurti and its surroundings. Sand mining are carried out without proper knowledge about its detailed characteristics. Knowledge of the characteristics of sand and rock deposit in this area can provide more value in its further use. This study aims to find out the characteristics of sand and rock deposits, their grain size distribution in the study area, and recommendations of utilization. Field observations at a scale of 1: 5000 accompanied by sand and rock sampling were carried out for laboratory analysis purposes. The granulometric analysis was inducted to find out the characteristics of the deposits which included the mean grain size, sortation, skewness, and kurtosis. Grain morphology which includes shape, sphericity, and roundness, as well as the composition of the constituent minerals, were analysed using a microscope. Based on the results of field observations and laboratory analysis of 40 sand samples, it was found that the characteristics of sand deposits in the study area, which are mostly floodplains, have an average grain size of coarse sand (1/2 - 1 mm) to very fine sand (1/16 - 1/8 mm), moderately sorted - poorly sorted, very coarse-skewed - very fine skewed, and very platykurtic - very leptokurtic. The sand grains morphology varies from bladed, equant, and prolate with equant - very equant sphericity and subangular - subrounded. Sand deposit composed of light minerals (i.e. quartz, feldspar, lithic, clay minerals) and heavy minerals (i.e. magnetite, pyrite, hornblende, pyroxene, hematite, olivine). The rock deposits have cobble-boulder size, subangular-subrounded with plagioclase, clinopyroxene, hornblende, and opaque mineral compositions. The grain size distribution shows that coarse sand develops on the banks of the Progo River, and the farther from the river banks, the sand tends to be finer. Sand deposit in the research area has the potential to be used as a fine aggregate for concrete manufacture.

Keywords : Sand deposits, Granulometry analysis, Progo river