

## ABSTRAK

Kegiatan eksplorasi sumber air tanah di kawasan daerah aliran sungai (DAS) Serayu Desa Sokawera Kecamatan Somagede Kabupaten Banyumas telah dilakukan menggunakan metode geolistrik resistivitas *sounding* . Sebanyak 7 (tujuh) lintasan pengukuran berhasil dibentangkan dengan jarak AB/2 sejauh 100 meter. Penelitian ini bertujuan untuk mengetahui struktur lapisan batuan bawah permukaan berdasarkan nilai resistivitas yang diperoleh dan mengetahui potensi air tanah di dalam akuifer berdasarkan korelasi masing-masing titik pengukuran. Hasil inversi menunjukkan terdapat enam jenis batuan yang menyusun struktur bawah permukaan. Lapisan-lapisan tersebut adalah lapisan lempung sebagai tanah penutup (*top soil*) dengan nilai resistivitas berkisar 30,13-69,94 ohmmeter, lapisan lempung pasir dengan nilai resistivitas berkisar 14,01-21,54 ohmmeter, lapisan pasir lempungan dengan nilai resistivitas berkisar 41,29-93,87 ohmmeter, lapisan pasir, kerikil dan kerakal agak mampat dengan nilai resistivitas berkisar 4,40-8,44 ohmmeter, perselingan batupasir, batulempung dan tuf dengan nilai resistivitas berkisar 10,03-22,53 ohmmeter dan lapisan batupasir dengan rentang resistivitas berkisar 1,93-7,97 ohmmeter. Sumber air tanah paling potensial terdapat pada lapisan kelima, yaitu batupasir.

**Kata kunci:** geolistrik, resistivitas *sounding*, DAS Serayu, Sokawera



## ***ABSTRACT***

The exploration for groundwater sources using geoelectrical resistivity survey was carried out in the Serayu watershed area in Sokawera Village, Somagede District, Banyumas Regency. Seven lines of *Schlumberger* configuration were performed with an AB/2 separation 100 m. This study aims to determine the structure of the subsurface layer based on the resistivity value that acquired and to determine aquifer potency based on the correlation of each measurement point. The inversion using computer program shows that there are six rock types that build up the subsurface structures. All layers are comprising by clay as a top soil with resistivity values between 30,13-69,94 ohmmeter, sandy clay with resistivity values between 14,01-21,54 ohmmeter, clayey sand layer with resistivity values between 41,29-93,87 ohmmeter. The next layer is sand, gravel, and pebble with variations of consolidation with resistivity values between 4,40-8,44 ohmmeter. Alternating of sandstones and claystones partly marl and tuf layer with resistivity values between 10,03-22,53 ohmmeter, The last layer is sandstones with resistivity values between 1,93-7,97 ohmmeter. The most potentially groundwater sources is found in the fifth layer, which is the sandstones layer.

**Keywords:** Geoelectrical resistivity survey, *Schlumberger*, Serayu watershed, Sokawera

