

# Arsenic Contamination of the Coastal Aquifers in the North Coast of Java, Indonesia

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## Abstrak

Pesatnya perkembangan industri dan aktivitas domestik di daerah pantai utara Jawa mendorong perlunya dilakukan penelitian tentang kemungkinan adanya pencemaran logam Arsen (As) di akifer dangkal kota-kota Jakarta, Semarang dan Surabaya. Tiga puluh contoh air dari sumur-sumur yang berasal dari zona pemukiman di daerah pesisir dianalisis kandungan logam As dengan menggunakan teknik Atomic Absorption Spectrophotometer. Hasil analisis menunjukkan rata rata kandungan logam As di Jakarta, Semarang and Surabaya adalah  $15,19 \pm 18,79$ ;  $1,25 \pm 2,05$  and  $0,59 \pm 0,26 \mu\text{gL}^{-1}$ . Terdapat korelasi yang nyata antara logam As dengan Fe di air tanah. Tingkat kandungan logam As di daerah akifer pantai utara Jawa masih berada di bawah ambang yang dipersyaratkan oleh Indonesian Drinking & Domestic Water Quality Standard for Ground Water and WHO's (World Health Organization) Guideline Values for Drinking Water, kecuali untuk stasiun 6 dari Jakarta dengan konsentrasi  $59,65 \mu\text{gL}^{-1}$ .

**Kata kunci:** Arsen (As), kontaminasi, akifer pantai.

## Abstract

A study was conducted to assess the Arsenic (As) metal contamination of the shallow aquifers in Jakarta, Semarang, and Surabaya city of Java and its relation to the highly developed industrial and domestic activities in the coastal region. Arsen was assayed in the waters of 30 wheels throughout the terrestrial cities, in residential zones using Atomic Absorption Spectrophotometer technique. The mean and standard deviation of As in Jakarta, Semarang and Surabaya were  $17.19 \pm 19.08$ ,  $1.78 \pm 2.28$  and  $0.59 \pm 0.26 \mu\text{gL}^{-1}$ , respectively. The r As concentration of groundwater shows in correlation with Fe significantly. The levels of As in some investigated three Indonesian metropolis cities were below the maximum allowable concentrations of metals recommended by Indonesian Drinking & Domestic Water Quality Standard for Ground Water and WHO's (World Health Organization) Guideline Values for Drinking Wate, except for station 6 of Jakarta were concentration  $59,65 \mu\text{gL}^{-1}$ .

**Key words:** Arsenic (As), contamination, coastal aquifer