INTISARI

Mata air Clereng merupakan sumber air baku yang dikelola oleh PDAM Tirta Binangun untuk memproduksi AMDK bermerek AirKu. Pemetaan zona bahaya pencemaran air tanah didasarkan faktor kerentanan air tanah terhadap pencemaran metode Hoelting dan faktor pencemaran metode Johansson dan Hirata. Tujuan penelitian adalah: (a) menentukan zonasi kerentanan air tanah; (b) mengidentifikasi sumber pencemar air tanah; dan (c) menentukan zonasi bahaya pencemaran air tanah. Kerentanan air tanah metode Hoelting berdasarkan: (a) imbuhan air tanah (W); (b) perlindungan tanah penutup (Ps); ketebalan sub-soil penutup (T); dan (d) perlindungan sub-soil penutup (Pr). Faktor kontaminan metode Johansson dan Hirata berdasarkan: (a) kelas zat pencemar; (b) modus disposisi;(c) intensitas zat pencemar; dan (d) jangka waktu dan peluang masuknya zat pencemar. Penyusunan peta bahaya pencemaran air tanah dilakukan dengan teknik tumpang susun. Zona kerentanan air tanah daerah penelitian terdiri atas sedang (27,53%) dengan ketebalan zona tidak jenuh air mencapai rerata ±55 m serta litologi berupa perlapisan batugamping *grainstone* – *packestone*; tinggi (14,40%) dengan ketebalan zona tidak jenuh air mencapai rerata ±41 m serta litologi berupa breksi andesit; dan sangat tinggi (58,07%) dengan ketebalan zona tidak jenuh air mencapai rerata ±25 m serta litologi berupa batugamping *grainstone* dengan retakan dan karsifikasi intensif. Zona potensi sumber dan beban pencemar agak tinggi (35,29%) berasal dari pemukiman dan peternakan sedangkan potensi sumber dan beban pencemar tinggi (64,71%) berasal dari persawahan dan perkebunan. Zona bahaya pencemaran air tanah yakni sedang (12,64%) dengan kandungan rerata nitrat berkisar 7,2 mg/L; tinggi (50,41%) dengan kandungan rerata nitrat berkisar 86 mg/L dan sangat tinggi (36,95%) kandungan rerata nitrat berkisar 132,8 mg/L.

Kata Kunci : mata air Clereng, kerentanan air tanah, faktor pencemaran air tanah, nitrat (NO_3^-), bahaya pencemaran air tanah.

ABSTRACT

The Clereng spring is a water source managed by PDAM Tirta Binangun to produce the bottled water named AirKu. The mapping of the groundwater pollution hazard zone is carried out around the Clereng spring. It is based on the groundwater susceptibility factors of the pollution by Hoelting, and contaminant factors by Johansson and Hirata's method. This study aims to (a) determine the groundwater vulnerability zone, (b) identify the groundwater pollutants, and (c) determine the groundwater pollution hazard zone. The vulnerability of groundwater Hoelting method based on (a) groundwater recharge (W), (b) cover land protection (Ps), (c) thickness of cover sub-soil (T), and (d) cover sub-soil protection (Pr). Johansson and Hirata's contaminant factors are based on (a) pollutant class, (b) disposition mode, (c) intensity of pollutants, (d) the duration and opportunity for the entry of pollutants. Compilation of hazard maps for groundwater pollution is using overlaying method. Groundwater vulnerability zone in research area consist of medium zone (27,53%) which has unsaturated zone approximately in ±55 m and the litology is interbeded between *grainstone – packestone*; high zone (14,40%) which has unsaturated zone approximately in ±41 m and the litology is andesite breccia; and very high zone (58,07%) which has unsaturated zone approximately in ±25 and the litology is cracked and intens karstification of *grainstone*. Groundwater contaminant source and load zone which slightly high (35,29%) is come from residence area and farm where as source potential and contaminant load which high (64,71%) is come from paddy field and garden. Groundwater pollution hazard zone is divided in medium (12,64%) with nitrat around 7,2 mg/L averagely; high zone (50,41%) with nitrat around 86 mg/L averagely and very high zone (36,95%) with nitrat around 132,8 mg/L averagely.

Keywords: Clereng spring, the groundwater vulnerability, the groundwater pollution factor, nitrate (NO_3^-), groundwater pollution hazard.