

## **KERENTANAN INTRINSIK DAN SPESIFIK AIRTANAH TERHADAP PENCEMARAN DI KECAMATAN BANJARNEGARA DAN SEKITARNYA**

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### **Intisari**

Airtanah merupakan sumber air bersih yang penting bagi manusia. Keberadaan airtanah saat ini mulai terancam akibat aktivitas manusia, khususnya terkait dengan kegiatan yang menghasilkan limbah. Tujuan penelitian kerentanan airtanah terhadap pencemaran adalah untuk mengetahui persebaran tingkat kerentanan airtanah intrinsik dan spesifik di Kecamatan Banjarnegara dan Sekitarnya. Tujuan kedua mengetahui kondisi kualitas airtanah berdasarkan parameter nitrat.

Metode yang digunakan dalam mengkaji kerentanan airtanah terhadap pencemaran adalah Susceptibility Index (SI). Parameter SI yang digunakan untuk proses pengolahan adalah kedalaman muka airtanah, imbunan airtanah, media akuifer, kemiringan lereng, dan penggunaan lahan. Kelima parameter tersebut diolah menjadi indeks kerentanan SI Spesifik berdasarkan sistem skoring dan pembobotan. Kerentanan SI Intrinsik tanpa parameter penggunaan lahan. Validasi kerentanan airtanah terhadap pencemaran dilakukan dengan membandingkan dengan hasil uji kualitas airtanah berdasarkan parameter nitrat..

Kerentanan airtanah intrinsik di Kecamatan Banjarnegara dan Sekitarnya terdiri atas tiga klasifikasi yaitu rendah, sedang, dan tinggi. Klasifikasi rendah memiliki luasan 2.063 Ha, sedang 187 Ha, dan tinggi 4.700 Ha. Sebaran kerentanan airtanah spesifik metode SI di Kecamatan Banjarnegara mengikuti satuan penggunaan lahan. Kerentanan airtanah spesifik metode SI diperoleh tiga klasifikasi yaitu rendah, sedang, dan tinggi. Klasifikasi rendah memiliki luasan 1.965,49 Ha, sedang 2.357,34 Ha, dan tinggi 2.631,87 Ha. Sebaran kualitas airtanah berdasarkan parameter nitrat dilokasi kajian terdiri atas tiga kelas rendah (0-5 mg/liter), sedang (5-10 mg/liter), dan tinggi (> 10 mg/liter). Kelas tersebut mengacu pada PP No 82 Tahun 2001. Dominasi kelas tinggi dan sedang berada pada morfologi datar. Kerentanan rendah dominan pada morfologi perbukitan. Validasi kerentanan intrinsik diperoleh keakuratan sebesar 53,65% dan spesifik 56%. Hasil validasi tersebut dibawah batas minimum keakuratan metode SI sebesar 63% menurut Boufekane dan Saighi.

**Kata Kunci :** Airtanah, Kerentanan Intrinsik, Kerentanan Spesifik, *Susceptibility Index*, Validasi.

## INTRINSIC AND SPECIFIC GROUNDWATER VULNERABILITY TO CONTAMINATION IN BANJARNEGARA SUB DISTRICT AND IT'S SURROUNDINGS

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### Abstract

*Groundwater is an important source for human life. Groundwater existence nowadays has been threatened by human activity, especially those which related to waste product. The purpose of this research was to know intrinsic and specific groundwater vulnerability distribution in Banjarnegara Sub District and it's surroundings. Second purpose of the research is to know groundwater quality from nitrate parameters.*

*The method used to test groundwater vulnerability to contamination is Susceptibility Index (SI). SI parameters is used for processing stage are depth to water table, groundwater recharge, aquifer media, slope, and land use. Those five parameters is processed by weight and rating factor for specific vulnerability. Intrinsic vulnerability is processed without land use parameters. Validation groundwater vulnerability to contamination by comparing with the result of groundwater quality from nitrate parameters.*

*Groundwater intrinsic vulnerability to contamination in Banjarnegara Sub District and it's Surroundings consists of three classifications, which is low, medium, and high. Low vulnerability has 2.063 Ha in width, medium vulnerability has 187 Ha in width, and high vulnerability has 4.700 Ha in width. Distribution of specific groundwater vulnerability SI methods in Banjarnegara Sub district and it's Surroundings follows the land unit from land use parameters. Specific groundwater vulnerability consists of three classifications, which is low, medium, and high. Low vulnerability has 1.965,49 Ha in width, medium vulnerability has 2.357,34 Ha in width, and high vulnerability has 2.631,87 Ha in width. The distribution of groundwater quality based on nitrat parameters in research area consists of three classifications, whih is low (0-5 mg/liter), medium (5-10 mg/liter), and high (> 10 mg/liter). The nitrate classification refers to PP No 82 Tahun 2001. The dominance of high grade and medium in the flat morphology. Low vulnerability dominant in the hills morphology. Validation of Specific groundwater vulnerability has 53,65% in accuracy and Intrinsic groundwater Vulnerability has 56 % in accuracy. The validation has underestimate accuration from Boufekane dan Saighi 63%.*

*Key words : groundwater, intrinsic vulnerability, specific vulnerability, Susceptibility Index, validation*