

KAJIAN KUALITAS AIR SUNGAI WINONGO KECIL BERDASARKAN METODE INDEKS PENCEMARAN SEBAGAI AIR IRIGASI LAHAN PERTANIAN

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ABSTRAK

Sungai Winongo Kecil merupakan anak sungai dari Sungai Winongo yang berada di Kabupaten Bantul, Daerah Istimewa Yogyakarta, Indonesia. Sungai ini mengalir dari wilayah Glondong, Tirtonirmolo, Kasihan, Bantul hingga bermuara di Sungai Opak. Sungai ini digunakan sebagai saluran irigasi primer untuk area pertanian di sekitarnya. Namun, pertumbuhan penduduk yang pesat serta pembangunan kota telah berkontribusi terhadap peningkatan pencemaran air, terutama dari limbah cair domestik yang belum diolah. Penelitian ini bertujuan untuk menilai kualitas air Sungai Winongo Kecil yang dimanfaatkan untuk irigasi pertanian berdasarkan metode Indeks Pencemaran. Penelitian ini menggunakan metode survei lapangan dan analisis laboratorium. Pengambilan sampel air dilaksanakan di 5 lokasi menggunakan metode *purposive sampling*. Parameter yang diuji meliputi pH, Daya Hantar Listrik (DHL), *Total Suspended Solids* (TSS), *Biochemical Oxygen Demand* (BOD), *Chemical Oxygen Demand* (COD), *Dissolved Oxygen* (DO), nitrat, total fosfat, dan bakteri *fecal coliform*. Analisis data dilakukan dengan perhitungan Indeks Pencemaran untuk mengetahui tingkat pencemaran di setiap titik pengambilan sampel. Hasil penelitian menunjukkan adanya variasi spasial dalam kualitas air di sepanjang sungai. Pada hulu Sungai Winongo memiliki nilai indeks 8,48 dan di hilir dengan nilai 5,54, keduanya tergolong dalam cemar sedang. Selanjutnya sampel di hulu Sungai Winongo Kecil, area pemukiman, dan pertanian memiliki indeks masing-masing 10,13, 11,32, dan 10,15 dikategorikan dalam cemar berat.

Kata Kunci: Sungai Winongo Kecil, kualitas air, Indeks Pencemaran, air irigasi, pencemaran air

THE STUDY WINONGO KECIL RIVER WATER QUALITY BASED ON POLLUTION INDEX METHOD AS IRRIGATION WATER OF AGRICULTURAL LAND

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ABSTRACT

The Winongo Kecil River is a tributary of the Winongo River located in the Bantul District, Yogyakarta Special Region, Indonesia. It flows from Glondong, Tirtonirmolo, Kasihan, and discharges into the Opak River. This river serves as a primary irrigation channel for surrounding agricultural areas. However, rapid population growth and urban development have contributed to increased water pollution, primarily from untreated domestic wastewater. This study aimed to assess the water quality of the Winongo Kecil River for agricultural irrigation purposes using the Pollution Index method. The research involved field surveys and laboratory analyses. Water samples were collected at five selected sites using purposive sampling. The tested parameters included pH, Electrical Conductivity (EC), Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Dissolved Oxygen (DO), nitrate, total phosphate, and Fecal coliform bacteria. Data analysis was conducted by calculating the Pollution Index to determine the pollution level at each sampling point. The results indicated spatial variation in water quality along the river. Sample at upstream of the Winongo River had an index value of 8.48, and sample at downstream had a value of 5.54, both classified as moderately polluted. Furthermore, samples upstream of the Winongo Kecil River, at residential area, and at agricultural area recorded index values of 10.13, 11.32, and 10.15, respectively, indicating a heavily polluted status.

Keywords: Winongo Kecil River, water quality, Pollution Index, irrigation water, water pollution