

## **EVALUASI KUALITAS AIR SUNGAI WINONGO DAERAH ISTIMEWA YOGYAKARTA**

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### **INTISARI**

Sungai Winongo yang mengalir di Kota Yogyakarta memiliki potensi tercemar dan penurunan kualitas air yang tinggi disebabkan oleh dinamika penduduk di sepanjang Sungai Winongo. Sementara pemanfaatan air didasarkan pada baku mutu kualitas air menurut peruntukannya. Penelitian dilakukan di aliran Sungai Winongo yang melalui Kecamatan Tegalrejo (Jembatan Tegalrejo) dan Kecamatan Wirobrajan (Jembatan Tamansari), Kota Yogyakarta. Tujuan penelitian ini adalah menganalisis kualitas serta perubahan sifat mutu air Sungai Winongo berdasarkan parameter fisik (kecepatan arus, suhu, kejernihan, dan TSS), kimia (pH, DO, BOD, COD, amoniak, dan Pb), dan biologis (*total coliform* dan kelimpahan plankton), kemudian menganalisis pengelolaan kualitas air dan pengendalian pencemaran berdasarkan hasil pengukuran kualitas air tersebut.

Penelitian meliputi pengambilan sampel uji air sungai dilanjutkan analisis data dilakukan pada bulan Oktober hingga November 2022 di 2 stasiun pengambilan data yang berbeda. Setiap titik dilakukan pengulangan pengukuran sebanyak 5 kali. Tolok ukur yang digunakan dalam menganalisis pencemaran air sungai yaitu Baku Mutu Air dari Pergub DIY Nomor 20 Tahun 2008 dan metode STORET.

Hasil penelitian menunjukkan kualitas air Sungai Winongo di Kota Yogyakarta berbeda di tiap lokasi penelitian bergantung pada faktor lingkungannya. Parameter DO dan *total coliform* di Jembatan Tegalrejo dan Jembatan Tamansari tidak memenuhi baku mutu untuk peruntukan air kelas II. Selanjutnya, parameter BOD dan fosfat pada perairan di Jembatan Tegalrejo memenuhi baku mutu sedangkan di perairan Jembatan Tamansari tidak memenuhi baku mutu. Untuk parameter lain yaitu suhu, TSS, pH, COD, Nitrat, Amoniak bebas, dan timbal pada kedua lokasi memenuhi baku mutu. Meskipun demikian, kualitas air Sungai Winongo memenuhi baku mutu untuk peruntukan kelas III dan IV pada parameter uji lain selain *total coliform*. Nilai indeks keanekaragaman plankton yang diperoleh adalah sebesar 2,6442 pada Jembatan Tegalrejo dan 2,6945 pada Jembatan Tamansari. Status mutu air Sungai Winongo di kedua lokasi dihitung dengan metode STORET tergolong cemar berat. Kemudian untuk Pengelolaan kualitas air dan pengendalian pencemaran air yang telah dilakukan yaitu pengelolaan DAS Terpadu pada Daerah Aliran Sungai Opak, pembuatan IPAL komunal, pembangunan RTH Jatimulyo, relokasi kawasan kumuh, Program Merti Kali dan Sekolah Sungai Winongo.

Kata kunci: Sungai Winongo, kualitas air, pengelolaan kualitas air, pencemaran air, pengendalian pencemaran.

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## **EVALUATION OF WATER QUALITY IN WINONGO RIVER, SPECIAL REGION OF YOGYAKARTA**

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### **ABSTRACT**

The Winongo River which flows in the City of Yogyakarta has the potential to be polluted and a high decline in water quality is caused by the dynamics of the population along the Winongo River. Meanwhile, water utilization is based on water quality standards according to its designation. This research was conducted on the Winongo River, which passes through the Tegalrejo District (Tegalrejo Bridges) and Wirobrajan District (Tamansari Bridges), Yogyakarta. The purpose of this study was to analyze the water quality of the Winongo River based on physical parameters (current velocity, temperature, clarity, and TSS), chemical (pH, DO, BOD, COD, ammonia, and Pb), and biological (total *coliform* and abundance of plankton), then analyze water quality management and pollution control based on the results of these water quality measurements.

The research included taking river water test samples followed by data analysis carried out was carried out from October to November 2022 at 2 different data collection stations. Each point was repeated 5 times. The benchmarks that the author uses in analyzing river water pollution are the Water Quality Standards from the Governor of DIY No. 20 of 2008 and the STORET method.

The results showed that the water quality of the Winongo River in the City of Yogyakarta was different depending on environmental factors. The DO and total *coliform* parameters at the Tegalrejo Bridge and Tamansari Bridge did not meet the quality standards for class II. Furthermore, the BOD and phosphate parameters in the waters of the Tegalrejo Bridge met the quality standards while those in the waters of the Tamansari Bridge did not. For other parameters, namely temperature, TSS, pH, COD, Nitrate, Ammonia, and lead at both locations met the quality standards. However, the water quality of the Winongo River still meet the norms set for water quality class III and IV except for total *coliform* parameter. Then for the value of the plankton diversity index was 2.6442 at the Tegalrejo Bridge and 2.6945 at the Tamansari Bridge. The water quality status of the Winongo River at the Tegalrejo Bridge and Tamansari Bridge calculated using the STORET method is classified as heavily polluted. Management of water quality and control of water pollution that has been carried out is the integrated watershed management in the Opak River Basin, making communal WWTPs, build Jatimulyo green open space, relocating slum areas, the Merti Kali program and the Winongo River School.

**Keywords:** Winongo River, water quality, water quality management, water pollution, pollution control.

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