

Analisis kualitas saluran air dan bau studi kasus di Tebet Eco Park Selatan = Waterways quality and odor analysis in South Tebet Eco Park case study

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Abstrak

Air sungai di wilayah DKI Jakarta memiliki kandungan pencemar organik dan anorganik yang tinggi. Berdasarkan pemantauan yang dilakukan DLH DKI Jakarta pada tahun 2018- 2022, parameter pencemar utama yang mencemari sungai adalah fecal coliform, total coliform, klorin bebas, BOD, hidrogen sulfida, COD, dan amonia. Hidrogen sulfida dan amonia merupakan pencemar yang dapat menimbulkan bau di air sungai, sehingga dapat mengganggu kenyamanan di ruang terbuka. Melalui penelitian ini, persepsi pengunjung taman terhadap timbulan bau dan kualitas air di saluran air Tebet Eco Park dapat diketahui. Persepsi pengunjung didapatkan melalui kuesioner, pengujian timbulan bau di saluran air dilakukan dengan menggunakan SNI 06-6860-2002, dan pengujian pH, suhu, TDS, COD, amonia, total coliform dilakukan berdasarkan SNI Kualitas Air dan Air Limbah. Hasil kuesioner persepsi pengunjung menunjukkan bahwa 43% pengunjung tidak mencium bau, sedangkan 57% pengunjung yang lain mencium bau dalam intensitas yang berbeda. Dari hasil pengujian kualitas air menunjukkan bahwa parameter COD, amonia, dan total coliform tidak memenuhi standar baku mutu kelas 4 dari Peraturan Pemerintah Republik Indonesia Nomor 22 Tahun 2021 dan standar WHO dengan masing- masing parameter memiliki konsentrasi tertinggi sebesar 98 mg/L, 13 mg/L, dan 9.200.000 MPN/100 mL. Rekomendasi untuk meningkatkan kualitas air diberikan melalui perancangan sistem pengolahan air yang terdiri dari Bioretention Basin, Cascade Aerator, dan Constructed Wetland yang mampu menyisihkan konsentrasi COD, amonia, dan total coliform masing-masing sebesar 96,72%, 99,25%, dan 99,58%.

.....The river water in Jakarta has high levels of organic and inorganic pollutants. Based on monitoring conducted by DLH DKI Jakarta from 2018-2022, the main pollutant contaminating the rivers are fecal coliform, total coliform, free chlorine, BOD, hydrogen sulfide, COD, and ammonia. Hydrogen sulfide and ammonia are pollutants that can cause odor in the river water and might affecting comfort in open spaces. Through this study, the perception of park visitors regarding odor and the water quality in the Tebet Eco Park waterways can be understood. Visitor perceptions were obtained through questionnaires, while odor tests in the waterways were conducted using SNI 06-6860-2002, and tests for pH, temperature, TDS, COD, ammonia, and total coliform were conducted based on SNI Water and Wastewater Quality Standards. The results of the visitor perception questionnaires showed that 43% of visitors did not detect any odor, while 57% of visitors detected odors of varying intensity. The results of the water quality tests showed that COD, ammonia, and total coliform did not meet the class 4 quality standards of Peraturan Pemerintah Republik Indonesia Nomor 22 Tahun 2021 and WHO Standards, with the highest concentrations for each parameter being 98 mg/L, 13 mg/L, and 9.200.000 MPN/100 mL, respectively. Recommendations for improving water quality were provided through the design of a water treatment system consisting of a Bioretention Basin, Cascade Aerator, and Constructed Wetland, which are capable of reducing COD, ammonia, and total coliform concentrations by 96.72%, 99.25%, and 99.58%, respectively.