

ANALISIS KINERJA DAERAH ALIRAN SUNGAI BERDASARKAN KRITERIA LAHAN DAN PEMANFAATAN RUANG WILAYAH PADA DAS BULELENG.

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ABSTRAK

Penelitian ini bertujuan untuk menganalisis kinerja Daerah Aliran Sungai (DAS) Buleleng berdasarkan kriteria lahan dan pemanfaatan ruang wilayah yang meliputi Persentase Lahan Kritis (PLK), Persentase Penutupan Vegetasi (PPV), Kawasan Lindung (KL), dan Kawasan Budidaya (KB). Penelitian dilatarbelakangi oleh adanya tekanan terhadap kondisi DAS Buleleng akibat perubahan penggunaan lahan, perkembangan kawasan permukiman, aktivitas perkotaan, serta perubahan kondisi lingkungan. Penelitian ini menggunakan metode deskriptif kuantitatif dengan pendekatan spasial. Data dianalisis menggunakan Sistem Informasi Geografis (SIG), citra Copernicus Sentinel-2, serta data pendukung berupa erosi, curah hujan, kemiringan lereng, penggunaan lahan, dan jenis tanah. Analisis dilakukan berdasarkan parameter Peraturan Menteri Kehutanan Nomor P.61/Menhut-II/2014 melalui teknik overlay dan analisis Normalized Difference Vegetation Index (NDVI). Hasil penelitian menunjukkan bahwa Persentase Lahan Kritis (PLK) DAS Buleleng sebesar 83,41% dan termasuk dalam kelas sangat tinggi dengan skor 1,5. Persentase Penutupan Vegetasi (PPV) sebesar 50,95% pada tahun 2017 dan menurun menjadi 50,72% pada tahun 2025, menunjukkan kondisi penutupan vegetasi yang relatif stabil dengan perubahan distribusi tingkat kerapatan vegetasi. Persentase Kawasan Lindung (KL) sebesar 96,05% pada tahun 2017 dan 96,02% pada tahun 2025, yang termasuk dalam kategori sangat baik dan menunjukkan bahwa fungsi ekologis kawasan lindung masih relatif terjaga. Sementara itu, Persentase Kawasan Budidaya (KB) sebesar 93,23% berada pada kelas sangat rendah dengan skor 0,5, yang menunjukkan bahwa sebagian besar kawasan budidaya berada pada kemiringan lereng 0–25%. Secara keseluruhan, wilayah hilir DAS Buleleng menunjukkan adanya tekanan akibat tingginya aktivitas pemanfaatan ruang, terutama perkembangan permukiman, meskipun kondisi tutupan vegetasi dan kawasan lindung masih relatif stabil. Oleh karena itu, diperlukan pengelolaan DAS secara terpadu melalui pengendalian perubahan penggunaan lahan, konservasi vegetasi, serta pemanfaatan ruang yang memperhatikan keseimbangan antara kebutuhan sosial ekonomi dan fungsi ekologis DAS.

Kata kunci: Daerah Aliran Sungai, kinerja DAS, lahan kritis, penutupan vegetasi, kawasan lindung, kawasan budidaya.

ANALYSIS OF WATERSHED PERFORMANCE BASED ON LAND CRITERIA AND SPATIAL UTILIZATION IN THE BULELENG WATERSHED

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ABSTRACT

This study aims to analyze the performance of the Buleleng Watershed based on land and spatial utilization criteria, including the Percentage of Critical Land (PLK), Vegetation Cover Percentage (PPV), Protected Areas (KL), and Cultivation Areas (KB). The study was motivated by the pressure on the condition of the Buleleng Watershed resulting from land-use changes, residential development, urban activities, and changes in environmental conditions. This study employed a descriptive quantitative method with a spatial approach. The data were analyzed using Geographic Information Systems (GIS), Copernicus Sentinel-2 imagery, and supporting data including erosion, rainfall, slope, land use, and soil types. The analysis was conducted based on the parameters of Minister of Forestry Regulation Number P.61/Menhut-II/2014 through overlay techniques and the Normalized Difference Vegetation Index (NDVI) analysis. The results showed that the Percentage of Critical Land (PLK) in the Buleleng Watershed was 83.41%, classified as very high, with a score of 1.5. The Vegetation Cover Percentage (PPV) was 50.95% in 2017 and decreased slightly to 50.72% in 2025, indicating relatively stable vegetation cover conditions with changes in the distribution of vegetation density levels. The Protected Area Percentage (KL) was 96.05% in 2017 and 96.02% in 2025, indicating that the ecological function of the protected areas remained relatively well maintained. Meanwhile, the Cultivation Area Percentage (KB) was 93.23%, classified as very low, with a score of 0.5, indicating that most of the cultivation areas were located on slopes of 0–25%. Overall, the downstream area of the Buleleng Watershed is experiencing pressure due to intensive spatial utilization, particularly residential development, although vegetation cover and protected areas remain relatively stable. Therefore, integrated watershed management is needed through land-use change control, vegetation conservation, and spatial utilization that considers the balance between socio-economic needs and the ecological functions of the watershed.

Keywords: Watershed, watershed performance, critical land, vegetation cover, protected areas, cultivation areas