SARI

Perluasan Kota Semarang ke arah selatan, khususnya Kecamatan Gunungpati, menyebabkan terjadinya perubahan tata guna lahan menjadi kawasan permukiman. Perubahan ini menyebabkan menurunnya kualitas daerah resapan air di Kecamatan Gunungpati, karena meningkatkan *impervious zone* di daerah tersebut. Penelitian ini bertujuan untuk menganalisis persebaran tingkat kekritisan daerah resapan air di Kecamatan Gunungpati bagian selatan. Metode penelitian yang digunakan adalah analisis spasial yang dikombinasikan dengan dua pendekatan, yaitu *Analytical Hierarchy Process* (AHP) dan Permen LHK No.10 Tahun 2022. Hasil pemodelan berupa peta persebaran tingkat kekritisan daerah resapan air diuji validitasnya dengan menggunakan *receiver operating characteristics* (ROC) *analysis* berdasarkan titik genangan di lokasi penelitian. Parameter yang digunakan dalam penelitian ini adalah laju infiltrasi, litologi, tata guna lahan, kemiringan lereng, dan kedalaman muka air tanah. Berdasarkan hasil pendekatan *Analytical Hierarchy Process* (AHP) dan Permen LHK No.10 Tahun 2022, diketahui bahwa terdapat 6 kelas tingkat kekritisan daerah resapan air, yaitu baik, normal alami, mulai kritis, agak kritis, kritis, dan sangat kritis. Hasil pendekatan *Analytical Hierarchy Process* (AHP) menunjukkan bahwa kelas agak kritis yang paling dominan dengan persentase luas 51,56% dari total luas lokasi penelitian, yang tersebar di hampir seluruh lokasi penelitian. Sedangkan hasil pendekatan Permen LHK No.10 Tahun 2022 menunjukkan bahwa kelas normal alami yang paling dominan dengan persentase luas 37,63% dari total luas lokasi, yang tersebar hampir di seluruh lokasi penelitian, banyak terkonsentrasi di bagian timur sampai ke barat. Berdasarkan *receiver operating characteristics* (ROC) *analysis*, diketahui model persebaran tingkat kekritisan daerah resapan air menggunakan pendekatan *Analytical Hierarchy Process* (AHP) memiliki nilai *area under curve* (AUC), yaitu 0,716, sedangkan untuk Permen LHK No.10 Tahun 2022 memiliki nilai *area under curve* (AUC), yaitu 0,586. Hal ini menjukkan bahwa kualitas model dari *Analytical Hierarchy Process* (AHP) lebih baik daripada Permen LHK No.10 Tahun 2022.

Kata Kunci: Persebaran, Daerah Resapan Air, Gunungpati

ABSTRACT

Semarang city expansion to the southern area, specifically on Gunungpati District caused land use change becoming urban area. Land use change in this area caused declining water catchment area quality in Gunungpati District which correlate with increasing impervious zone in this area. This research aims to find out distribution of water catchment area criticality in southern part of Gunungpati District. In this research, spatial analysis was carried out and combined with two approaches, namely Analytical Hierarchy Process (AHP) and Environmental and Forestry ministerial regulation number 10 on 2022. Modelling result of this research is water catchment area criticality distribution map where its validity was tested with Receiver Operating Characteristics (ROC) analysis based on puddle points in research location. Several parameters were used in this research namely infiltration rate, lithology, land use, slope, and groundwater table depth. Based on Analytical Hierarchy Process (AHP) and Environmental and Forestry ministerial regulation number 10 on 2022, there are six classes of water catchment criticality level from good, naturally normal, started to be critical, moderately critical, critical, very critical. From AHP methods also known bit of critical class dominating with 51.56% of total research area and it distributes evenly. On the other hand, from ministerial regulation, natural normal is dominating with 37.63% of total research area, which distributes evenly but concentrates in eastern to western area. Based on *Receiver Operating Characteristics* (ROC) *analysis*, water catchment criticality distribution model with AHP methods has area under curve (AUC) score 0.716 while the minestrial regulation has 0.586 AUC score. Based on ROC analysis, quality of AHP distribution model is better than minestrial regulation.

Keyword: Distribution, Water Catchment area, Gunungpati