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Mufid Hayyu Nur Fahmi Arif, Dr. Andri Kurniawan, S.Si., M.Si.
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Disusun oleh:
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INTISARI

Perkembangan urbanisasi di kawasan peri-urban, khususnya Kawasan Sleman Tengah, telah mendorong konversi lahan vegetasi menjadi lahan terbangun yang berdampak pada peningkatan suhu udara dan penurunan kenyamanan termal. Penelitian ini bertujuan untuk menganalisis tingkat kenyamanan termal berdasarkan *Temperature Humidity Index* (THI), mengidentifikasi pola distribusi spasial, serta mengkaji hubungan autokorelasi spasial antara lahan terbangun dan kenyamanan termal, sekaligus merumuskan arahan kebijakan.

Metode penelitian yang digunakan adalah pendekatan kuantitatif dengan memanfaatkan data primer dan sekunder. Data primer berupa suhu udara dan kelembapan relatif diperoleh melalui pengukuran lapangan menggunakan thermohygrometer pada 67 titik sampel yang tersebar secara spasial. Data sekunder berupa luas lahan terbangun. Analisis dilakukan menggunakan perhitungan *Temperature Humidity Index* (THI), interpolasi spasial *Inverse Distance Weighted* (IDW), serta analisis autokorelasi spasial menggunakan Moran's I dan *Local Indicator of Spatial Autocorrelation* (LISA).

Hasil penelitian menunjukkan bahwa tingkat kenyamanan termal di Kawasan Sleman Tengah didominasi kategori cukup nyaman ($27 \leq THI \leq 29$) pada hari kerja maupun akhir pekan, dengan beberapa titik nyaman ($THI < 27$) di wilayah utara. Analisis spasial menunjukkan autokorelasi positif antara lahan terbangun dan nilai THI, dengan Moran's I sebesar 0,6040 pada hari kerja dan 0,6621 pada akhir pekan. Klaster High–High (lahan terbangun tinggi dan THI tinggi/kurang nyaman) terkonsentrasi di bagian tengah–selatan, sedangkan Low–Low (lahan terbangun rendah dan THI rendah/nyaman) dominan di bagian utara. Temuan ini menunjukkan bahwa hubungan lahan terbangun dan kenyamanan termal berpola spasial, sehingga diperlukan penguatan RTH, perlindungan vegetasi, penghijauan kawasan terbangun, serta pengendalian intensitas pembangunan.

Kata Kunci: kenyamanan termal, lahan terbangun, *Temperature Humidity Index* (THI), autokorelasi spasial, Moran's I

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ABSTRACT

Urbanization in peri-urban areas, particularly in Central Sleman Area, has encouraged the conversion of vegetated land into built-up areas, which affects increasing air temperature and changes in thermal comfort. This study aims to analyze the level of thermal comfort based on the Temperature Humidity Index (THI), identify spatial distribution patterns, examine the spatial autocorrelation between built-up land and thermal comfort, and formulate policy directions.

This research employed a quantitative approach using primary and secondary data. Primary data consisted of air temperature and relative humidity obtained through field measurements using a thermohygrometer at 67 spatially distributed sample points. Secondary data consisted of built-up land area. The analysis was conducted using the Temperature Humidity Index (THI) calculation, Inverse Distance Weighted (IDW) spatial interpolation, and spatial autocorrelation analysis using Moran's I and Local Indicator of Spatial Autocorrelation (LISA).

The results indicate that thermal comfort conditions in the Central Sleman Area were predominantly classified as moderately comfortable ($27 \leq THI \leq 29$) on both weekdays and weekends, with several comfortable locations ($THI < 27$) mainly found in the northern part of the study area. Spatial analysis revealed a positive spatial autocorrelation between built-up land and THI values, as indicated by Moran's I values of 0.6040 on weekdays and 0.6621 on weekends. High–High clusters (high built-up land and high THI values, indicating lower thermal comfort) were concentrated in the central and southern areas, whereas Low–Low clusters (low built-up land and low THI values, indicating higher thermal comfort) were predominantly located in the northern area. These findings demonstrate that the relationship between built-up land and thermal comfort exhibits a spatial pattern, highlighting the need to strengthen urban green open spaces, protect existing vegetation, promote greening in built-up areas, and control development intensity.

Keywords: *thermal comfort, built-up land, Temperature Humidity Index (THI), spatial autocorrelation, Moran's I*