Pemodelan Spasial dan Kajian Perkembangan Permukiman Berbasis Kenyamanan di Kota Semarang dan Sekitarnya = Spatial Modeling and Livability-Based Settlement Development Study in Semarang City and Its Surroundings

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Abstrak

Kota Semarang mengalami pertumbuhan pesat yang mendorong perluasan ke pinggiran kota bahkan melewati batas administrasi. Pembangunan yang tidak terencana dapat menimbulkan masalah lingkungan dan dampak negatif seperti banjir, longsor, dan polusi. Dalam perencanaan pengembangan permukiman, diperlukan analisis kondisi fisik wilayah dan aspek kenyamanan agar pemanfaatan ruang optimal, aman, dan berkelanjutan. Penelitian bertujuan menganalisis hasil pemodelan lokasi-lokasi yang sesuai untuk perkembangan permukiman berbasiskan kenyamanan, menganalisis prediksi perkembangan kota, dan mensintesa perbandingan prediksi perkembangan tersebut dengan rencana tata ruang wilayah. Digunakan metode AHP dan SMCA dalam membangun model lokasi-lokasi yang sesuai untuk perkembangan permukiman, CA-Markov untuk melakukan prediksi perkembangan ke depan dan windrose untuk menganalisis arah perkembangan kota, serta olah crosstab tumpang susun SIG untuk perbandingannya terhadap rencana tata ruang. Secara keseluruhan hampir setengah cakupan kajian (41,5%) memiliki kelas kesesuaian yang sesuai seluas 381.7 km2, dan 21,1% sangat sesuai seluas 194 km2. Dari 2000-2022 hingga prediksi 2040, terdapat perkembangan seluas 214,21 km2 (97,51 km2 dan 116.74 km2), dengan arah perkembangan ke pinggiran Kota Semarang arah Selatan dan Tenggara. Dari simulasi pertumbuhan 2040 terdapat 39,75 km2 area yang berpotensi bias dari rencana tata ruangnya, selain itu hanya sedikit (3,01 km2 atau 2,7%) rencana permukiman belum terbangun yang memiliki kesesuaian lahan permukiman yang buruk. .....Semarang is experiencing rapid growth which is driving expansion to the outskirts of the city and even beyond administrative boundaries. Unplanned development can cause environmental problems and negative impacts such as flooding, landslides, and pollution. In planning of residential development, an analysis of the physical conditions of the area and aspects of livability is needed so that land utilization is optimal, safe, and sustainable. The study aims to analyze the results of modeling locations suitable for livability-based residential development, analyze predictions of urban development, and synthesize comparisons of these development predictions with spatial plans. AHP and SMCA methods were used in building models of locations suitable for residential development, CA-Markov to predict future development, and windrose to analyze the direction of urban development, as well as SIG overlay crosstab analysis for comparison with landuse plan. Almost half of the study area (41.5%) has suitable suitability classes covering 381.7 km2, and 21.1% are very suitable covering 194 km2. From 2000-2022 to the 2040 projection, there are 214.21 km2 development area (97.51 km2 and 116.74 km2), with the direction of development to the outskirts of Semarang City south and southeast. From the 2040 growth simulation there are 39.75 km2 areas that have the potential to bias from landuse plan, besides that there are only a few (3.01 km2 or 2.7%) planned residential areas that have not been built which have poor residential land suitability.