

Urban heat islands mitigation by Green Open Space (GOS) canopy improvement : a case of Yogyakarta Urban Area (YUA), Indonesia

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20326561&lokasi=lokal>

Abstrak

ABSTRACT

The growth of the Yogyakarta Urban Area (YUA) has led to an increasing of the microclimate, characterized by elevated temperatures. One of the efforts to decrease temperature is by establishing the development of Green Open Space (GOS). According to Law Number 26/2007 about Spatial Planning, a minimum of 30% of the total area must be designated as green open space. IKONOS satellite images taken in 2009 showed that GOS represented 43.36% of the total area for YUA. However, there are still areas which are characterized by high temperatures (more than 36.5oC). By applying Geographical Information System (GIS) analysis with an overlay technique among three factors such as canopy, building and population density, the priority zone for GOS development was identified. Based on the analysis, 38.82% of the area was designated as low priority for GOS development, 32.38% as middle priority, and 28.80% as very high priority to be developed as GOS. The land conversion is bigger and has high potency on private sector. GOS development needs to be established in the public sector, such as the creation of urban parks. Community empowerment strategies, application of incentive - disincentive mechanisms, and efforts towards GOS productivity improvement can encourage implementation.