UNIVERSITI TEKNOLOGI MARA

THE INFLUENCE OF URBAN LANDSCAPE ON THE URBAN HEAT ISLAND (PHENOMENON) IN PUTRAJAYA

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of the requirements for the degree of
Master of Science

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AUTHOR'S DECLARATION

I declare that the work of this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution or non-academic institution for any other degree or qualification.

I, hereby, acknowledge that i have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

In hot-humid tropical cities, the outdoor open spaces directly are exposed to the high intensity of solar radiation and resulted in the occurrence of Urban Heat Island (UHI) phenomenon, thus contributing to the outdoor thermal discomfort of urban dwellers. This thesis aims to investigate the variability of temperature, relative humidity and wind speed distribution and the effects of different urban landscape on the formation of UHI in Putrajaya. The research methodology designed is based on data obtained from field measurement, site observations and processing of satellite imagery (SPOT-5). Results indicated that the climatic parameters (temperature, relative humidity and wind speed) showed variations in different urban landscapes. The measured data demonstrated that the temperature taken at vegetated areas were consistently low by an average difference of 3.6 to 6.5°C. The differences of relative humidity and wind speed distributions between green areas and built-up areas were 8.6 to 13.5% and 0.5 to 0.6 ms^{-1}, respectively. The findings indicated that the urban landscape morphology provide strong influence on the presence of UHI where it influences the variability of temperature, relative humidity and wind speed in the study area. The outcome of the research will contribute towards better understanding on the interrelationship of urban land use/cover, urban planning and landscape design, and its implication to the urban climate and outdoor environment. Hence, it could assist the professionals especially the landscape architects to identify the most appropriate and relevant landscape approaches that can be utilised as an effective way to mitigate the UHI effects.

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