Urban Heat Islands in Taipei: A Microclimate Field Study

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Abstract
This study investigates the urban heat island effect across selected districts in Taipei by collecting and analyzing surface temperature data in commercial, residential, and green spaces. Using field-based measurements and comparative analysis, the research identifies correlations between land use patterns and localized temperature variation. The findings suggest that increased vegetation coverage significantly mitigates heat accumulation, offering implications for urban planning and sustainability initiatives.

Introduction
Urban heat islands (UHIs) are metropolitan areas that experience higher temperatures than surrounding rural regions due to human activities. Taipei, a densely populated city, presents an ideal environment for studying microclimate variation. This study aims to quantify temperature differences across land use types and explore mitigation strategies.

Methodology
Temperature data were collected using handheld sensors across five districts. Measurements were taken at consistent intervals and times of day to ensure reliability. Data were analyzed using comparative statistical methods.

Results
Commercial zones exhibited the highest temperatures, while green spaces showed significantly lower readings. The average temperature difference between zones was approximately 3–5°C.

Conclusion
The results confirm that vegetation plays a critical role in reducing urban heat. These findings support increased urban greening initiatives as a viable strategy for mitigating UHI effects.