

The thermal comfort effects of urbanization: bio-climatic and land-use changes in the Colombo Metropolitan Region (CMR)

Research on the so-called “Urban Heat Island” (UHI) phenomenon has rapidly progressed from descriptive to complex spatial and temporal variability studies. But the effect of urbanization upon human comfort has received less attention. This is especially the case including cities, including those in Sri Lanka.

In this study, we evaluate the relationship between the UHI and land cover changes in “hard surface” and “green cover” categories in the CMR. Analysis is based on historic climate records from the three first-order weather stations in the CMR (Colombo city, Katunayake and Ratmalana) and land cover changes in these localities digitized from time-series aerial photographs.

It was found that statistically significant climate change has occurred in the CMR. The rate of change varies between the three weather stations in the region: the fastest change has occurred at the fastest increase in “hard” land cover. Based on this finding, policy implications and directions for further study are considered.