URBANISATION AND THERMAL COMFORT CHANGE; THE CASE OF COLOMBO METROPOLITAN REGION.

A dissertation submitted to the University of Moratuwa
As a Partial Fulfilment of the requirements for the Degree of
Master of Science in Architecture.

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ABSTRACT

It appears that urban process (Urbanisation) itself has great contribution to its own microclimate. In urban design/planning point of view urbanisation must then be essential to recognise and deal as physical urban element change (built areas, tree covered areas, green/grass areas, streets and paved areas, and bare lands) to identify its effect on its microclimate while that change occurred in a particular area, then being calculated as thermal comfort change.

Since the research study is framed on Time Rate Change Method; series of aerial photographs from the Survey Department at different intervals, over respective time period of 50 years, provide information regarding urban physical element change. Day and night temperature humidity values taken from the meteorological department provide basis to calculate monthly day and night thermal comfort indices a particular area.

The study concentrated on three segments of Colombo Metropolitan Region, namely Colombo City, Katunayake, and Rathmalana. Each areas studied include at 0.5-Km radius circle around the meteorological stations. Data was collected for the period of 1956-1999.

The study high lights the urban physical element changes occurred due to such process during the studied period contributed to thermal comfort variation. Finally this research point out some of the very important relationships between urban physical change and thermal comfort change. The three areas have been ranked, according to thermal comfort change in order to identify the future urbanisation and thermal comfort scenarios of that particular areas.
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