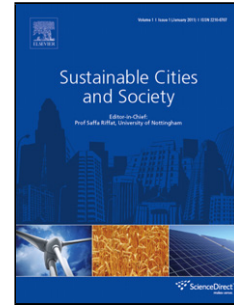


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19 **ABSTRACT**

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21 In this paper, the negative impact of Urbanization over a time and its effect on increasing trend of temperature
22 and degradation of urban ecology was assessed using the Landsat thermal data and field survey of Lucknow city,
23 India. Land surface temperature (LST) estimation has been carried out using Mono-window algorithm, temporal
24 land use change map, assessment of vegetation cover through Normalized Difference Vegetation Index (NDVI),
25 and ecological evaluation of the city was carried out using the Urban Thermal Field Variance Index (UTFVI).
26 Results indicated that the spatial distribution of the land surface temperature was affected by the land use- land
27 cover change and anthropogenic causes. The mean land surface temperature difference between the years 2002
28 and 2014 was found is 0.75°C. The observed results showed that the central portion of the city exhibited the
29 highest surface temperature compared to the surrounding open area, the areas having dense built-up displayed
30 higher temperatures and the areas covered by vegetation and water bodies exhibited lower temperatures. Strong
31 correlation is observed between Land surface temperatures with Normalized Difference Vegetation Index
32 (NDVI) and UTFVI. The observed LST of the area also validated through the Google Earth Images. Ecological
33 evaluation of the area also showed that the city has worst ecological index in the highly urbanized area in the
34 central portion of the city. The present study provides very scientific information on impact of urbanization and
35 anthropogenic activities which cause major changes on eco-environment of the city.

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