




Abstract

Assessing the Impact of COVID-19 Lockdown on Surface Urban Heat Island and Normalized Difference Vegetation Index in Dhaka Megacity, Bangladesh [†]

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Abstract: Growing evidence has shown that rapid development and urbanization have been associated with the alteration of the thermal environment of the urban area. The massive burning of fossil fuels in the transportation, urban, and industrial sectors results in increased temperatures and a deterioration of air quality as a result of carbon emissions. However, the COVID-19-induced lockdown situation resulted in the shutdown of industries, transportation systems, and day-to-day regular operations and changes in air quality and weather. The reduction in the number of running cars and moving people on the road during the lockdown time reduced pollutants and had a direct beneficial effect on the urban environment. The present study examines the changes in land surface temperature (LST) and the normalized difference vegetation index (NDVI) during the lockdown period in Dhaka City, Bangladesh in the earlier periods (2017 to 2019) to compare the environmental status. The findings show that the LST of Dhaka City decreased, and the NDVI increased throughout the lockdown period, with the LST–NDVI connection becoming more negative. Additionally, the analysis demonstrates that the city’s climate improved during the lockdown. Numerous actions have been undertaken at global and regional levels to control increasing temperature and climate change, but no positive consequence has been achieved yet. While such a lockdown is temporarily detrimental to economic progress, it demonstrates the curative impact of urban climate. Thus, the findings of this study could provide a quantitative foundation for decision makers for surface heat island mitigation and public health care.

Keywords: urban heat island; urbanization; COVID-19 lockdown; NDVI; Dhaka City; Global South



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