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Adapting Urban Neighbourhoods for Climate Change

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ABSTRACT:

The IPCC has warned that we have just over a decade to cap global warming at 1.5°C above pre-industrial levels, failing which we face the risk of irreversible consequences of climate change. Mitigation measures along with adaptation responses can minimise those adverse impacts.

This study demonstrates that adaptation responses to climate change need not be expensive or cutting-edge in order to be successful, and establishes a linkage between adaptation responses to carrying capacities of neighbourhoods. Among the various findings is the correlation between heat-index (HI) and energy usage wherein it was found that for every 1°C rise in HI, energy consumption for Mumbai increases by 1.74 million units which is about 3.1% of average daily requirement. It was also seen that vegetation has a significant effect on land surface temperature (LST) with treeless zones being 10–12°C warmer than densely wooded non-urban areas, and 4–6°C warmer than urban localities with mature tree cover.

The results of this study suggest that the business-as-usual policies that promote centralisation of infrastructure and increasing of FSI on a periodic basis are unsustainable; they make the entire region vulnerable to the negative effects of climate change. In order for the city to become resilient, policies need to be urgently reversed.

Keywords: Climate Change, Heat Index, Rainfall, Adaptation, Urban, Mumbai, Neighbourhood

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