

## Summer is coming, and Indian cities are going to feel the heat island effect

Leafy neighbourhoods can no longer be seen as a luxury | Photo Credit: [K. Murali Kumar](#)

In Westeros, the fictional world of the *Game of Thrones*, 'winter is coming' is a foreboding of hard times to come. In real life India, 'summer is coming' evokes a similar sense of dread. Summer is indeed coming, or rather, has already arrived early in some parts of the country, promising to be a real scorcher this time.

In the cities particularly, there is a mad scramble among the privileged to get the ACs serviced. For the others, well, they'll sweat it out, and somehow survive. Once the preserve of the wealthy, climate-controlled lives are now within the reach of many. Such cocoons hide an alarming reality of urban life in India — it's getting unbearably warm in the cities, and there's no relief in sight.

### It's evident

In summer, not all places are equally hot. Some are hotter. This is especially true of cities, and localities within a city, as anyone who has lived in one knows. These are the heat islands of the modern era, cities and neighbourhoods where temperatures are as much as 2-5 degrees Celsius higher than surrounding areas. Unlike forests rich in trees, the concrete jungles we are growing across the country absorb and retain enormous amounts of heat.

There is no doubt that Indian cities, and some neighbourhoods within them, are much warmer than the countryside. And the trend is evident more at night than day. In Delhi during 2001-11, the difference between maximum and minimum has been [steadily shrinking](#), which means heat stress has been rising rapidly.

In central and north Chennai, temperatures have [risen consistently](#) in the 60 years till 2010. The significant existence of an urban heat island is evident from the urban-rural temperature differences in the Chennai metropolitan area, during both day and night, says a [2016 study](#) published in the *Indian Journal of Science and Technology*. Studies on heat islands for [Bhubaneswar](#), [Bengaluru](#), [Guwahati](#) and [Thiruvananthapuram](#) show a similar trend.

### Intense storms

One intriguing fact of the urban heat island effect is that night temperatures can be much higher compared with surrounding rural areas. Although it might seem that warmer nights are less dangerous than maximum temperatures, high [minimum temperatures](#), which typically occur at night, is a stronger predictor of heat-related mortality. Urban heat islands also make for [more frequent](#) and [more intense storms](#).

Heat stress is harmful to human health, particularly among the children, old and infirm. We become heat stressed when our bodies absorb more heat than is tolerable. If body temperatures rise above 37°C, heatstroke can result.

The human body can use its cooling system — sweating — to maintain a safe temperature, but only to an extent. If the heat index, a measure of how hot it really feels when relative humidity is factored in with actual air temperature, rises above 40°C, things start getting out of hand.

In 2013 and 2015, India saw episodes of intense heat waves that killed thousands across the country, mostly in cities. Since then, there have been several more deadly heat waves, including the most intense in recorded history in May 2016, when maximum temperatures in the desert city

of Jaisalmer scaled a scalding 52.4°C.

City authorities are slowly waking up to the realities of urban heat islands. In 2016, Ahmedabad became the first city in India to implement a heat action plan, which consists mainly of raising awareness on avoiding heat strokes and priming emergency healthcare response. Today, there are 13 cities in 11 states that have a heat action plan, but implementation is tardy.

### Heat-smart cities

When it comes to building smart cities, a coinage that has become fashionable of late, much more needs to be done to fight stress while living on heat islands, especially among migrant labour and poor people, who are the ones most vulnerable to it. From what we have seen so far, smart cities are not being developed in a heat-smart manner.

Besides cladding our cities in concrete and tar, we need to pay more attention to developing tree corridors, parks and low-lying areas such as wetlands that soak up water, which are necessary within built environments to reduce heat risks. If the examples of southern Chennai or eastern Kolkata are anything to go by, we are miserably failing to save our urban wetlands.

There are also many innovative ideas being tried out globally to counter the effects of heat islands. Some researchers say that if dark heat-absorbing surfaces are warming our cities, we can negate the effect by [installing white roofs](#) and other light-coloured surfaces to reflect back the sun's rays. Others affirm what we have always known — plant more trees to bring down temperatures. Leafy neighbourhoods can no longer be [seen as a luxury](#), but as a necessary step to better public health.

Till that happens, banishing the heat from our homes, cars and offices with ACs would only delay the inevitable. The heat demon is lurking just outside our windows, and it's growing ever more menacing.

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