

Why India Must Rethink Urban Heat Before It Is Too Late



BY EARTH NEWS POLITICAL DESK

It is only March, and yet Mumbai has already slipped into a season it once associated with the height of summer. An orange alert for a heatwave, issued weeks before the calendar would traditionally justify such concern, is not merely an anomaly—it is a warning. With temperatures touching 40 degrees Celsius, the city is confronting a new climatic normal that is arriving earlier each year, lingering longer, and hitting harder.

This is not an isolated episode. Across western and north-western India, early heat surges are becoming more frequent, mirroring a global trend in which urban centres are warming at a pace that outstrips the planetary average. What is unfolding is not just a meteorological shift, but a structural transformation in how cities experience climate. And nowhere is this transformation more stark—or more dangerous—than in densely built, unevenly governed urban landscapes.

At the heart of this intensifying heat lies a phenomenon long understood but insufficiently addressed: the Urban Heat Island Effect. Cities, by their very design, trap heat. Asphalt roads, concrete buildings, glass facades, and metal surfaces absorb and re-radiate solar energy, while the steady disappearance of vegetation removes the natural cooling provided by shade and evapotranspiration. The result is a city that becomes its own furnace, often recording temperatures several degrees higher than surrounding rural areas.

Yet, to describe this merely as an environmental concern would be to miss its most urgent dimension. Heat is increasingly a public health crisis. Studies indicate that extreme heat is already among the deadliest climate-related hazards, responsible for hundreds of thousands of deaths globally each year. In India, the toll is particularly severe, with estimates suggesting that heatwave conditions contribute to approximately 3,400 excess deaths per day. These are not abstract numbers. They represent lives cut short, often silently, often among those least equipped to cope.

The burden of this crisis does not fall evenly. It follows the familiar contours of inequality that shape Indian cities. Those who can retreat into climate-controlled interiors are shielded, at least temporarily, from the worst effects. Those who cannot—daily wage labourers, street vendors, sanitation workers, delivery personnel—remain exposed, their livelihoods tethered to the very conditions that threaten their health.

In this context, the rapid proliferation of air conditioning might appear to offer a straightforward solution. Indeed, market-driven cooling technologies have become the default response to rising temperatures, promising immediate relief and a semblance of control over an increasingly hostile environment. But this promise is deeply misleading.

Air conditioning, by its very nature, creates islands of comfort within oceans of heat. In India, only about a quarter of the population has access to such technology. This means that for the vast majority, particularly low-income households, cooling re-

mains a luxury rather than a necessity. Even among those who do have access, the cost is significant. Studies suggest that low-income families can spend up to 8 percent of their budgets on electricity for cooling, a burden that grows heavier as temperatures climb.

More troubling, however, is the paradox at the core of mechanical cooling. Air conditioners do not eliminate heat; they merely displace it. The heat extracted from indoor spaces is expelled into the surrounding environment, raising outdoor temperatures and intensifying the very conditions that necessitate cooling in the first place. On a larger scale, the energy required to power these systems contributes to greenhouse gas emissions, further accelerating global warming.

Globally, cooling appliances already account for nearly a fifth of electricity consumption in buildings—a share that is projected to rise sharply as urbanisation expands and temperatures increase. In effect, cities are caught in a feedback loop: the hotter they become, the more they rely on energy-intensive cooling, which in turn makes them hotter still.

This is not merely an environmental dilemma. It is a question of justice. The benefits of cooling are privatised, while the costs—both thermal and ecological—are externalised, disproportionately borne by those who have the least capacity to adapt. The result is a deeply unequal geography of thermal comfort, where the divide between the cooled interior and the overheated exterior mirrors broader social inequalities.

If the current trajectory is allowed to continue, Indian cities risk becoming increasingly unlivable for large segments of

their populations. The challenge, therefore, is not simply to cool cities, but to do so in a manner that is equitable, sustainable, and structurally transformative.

This requires a fundamental rethinking of how urban environments are designed and governed. Instead of relying primarily on energy-intensive technological fixes, cities must rediscover and reintegrate the natural systems that have historically moderated local climates. Among these, urban water bodies stand out as both underutilised and undervalued assets.

Lakes, wetlands, ponds, and rivers are not merely aesthetic features or remnants of a pre-urban landscape. They are dynamic ecological systems that play a critical role in regulating microclimates. Through the process of evaporative cooling, water bodies can reduce surrounding land surface temperatures by up to three degrees Celsius. Their influence can extend several hundred metres, creating pockets of relative coolness within otherwise heat-stressed environments.

But their benefits go far beyond temperature regulation. Healthy water bodies support groundwater recharge, sustain vegetation, improve air quality by reducing dust, and act as buffers during periods of intense rainfall. In an era defined by climate extremes, they offer a rare combination of cooling and resilience.

And yet, in city after city, these assets are being degraded, diminished, or erased altogether.

Consider Mumbai's Mithi River, once a vital drainage channel and ecological corridor. Today, it continues to receive untreated sewage and industrial discharge, despite repeated attempts at restoration. Its capacity to function as a cooling system—or even as a healthy waterway—has been severely compromised.

A similar story unfolds in Pune, where the Mula-Mutha River is burdened by high levels of pollution, affecting not only water quality but also the broader ecological processes that underpin climate regulation. These examples are not exceptions; they are emblematic of a wider pattern of neglect.

The scale of this neglect is striking. India's Waterbody Census of 2023 identifies more than 2.4 million water bodies across the country. Yet, only a small fraction—less than 3 percent—are located in urban areas. Even within this limited share, a significant proportion has been encroached upon, polluted, or allowed to dry up.

The reasons are not difficult to discern. In high-density cities, land is a premium commodity, and the pressure to convert every available parcel into real estate is immense. Wetlands are filled, ponds are reclaimed, and low-lying areas are built over, often with little regard for their ecological function. What is lost in the process is not just water, but the complex network of interactions that sustain urban climates.

The transformation of Bengaluru offers a cautionary tale. Over the past few decades, the city's built-up area has expanded dramatically, swallowing a vast majority of its once-extensive network of lakes. The consequences have been profound: declining groundwater levels, increased flooding, and a marked rise in local temperatures.

Concretisation, in particular, has had a devastating impact. By replacing permeable surfaces with heat-absorbing materials, cities have not only disrupted natural water cycles but also intensified the Urban Heat Island Effect. In some regions, land surface temperatures have increased by as much as 15 degrees Celsius over the past three decades.

Even when efforts are made to "restore" water bodies, they often fall short of their ecological potential. In many cities, lake rejuvenation projects prioritise visual appeal over functional integrity. Embankments are concretised, perimeters are fenced, and tourist infrastructure is installed. While these interventions may enhance accessibility and aesthetics, they frequently disrupt natural hydrological flows, reduce biodiversity, and increase heat absorption.

The redevelopment of Durgam Cheruvu in Hyderabad illustrates this tension. While the project has transformed the lake into a popular urban landmark, it has also drawn

criticism for compromising its ecological health. By enclosing and hardscaping the water body, such projects risk turning living ecosystems into static, heat-retaining features.

What is needed, therefore, is not cosmetic improvement but ecological restoration—an approach that recognises water bodies as active components of urban climate systems rather than passive backdrops.

This shift must begin at the level of policy and planning. At present, urban heat governance in India remains largely reactive. Heat Action Plans, where they exist, tend to focus on early warning systems, emergency response, and public advisories. While these measures are essential for immediate risk management, they do little to address the underlying drivers of heat.

A more effective approach would treat heat not as a temporary hazard, but as a structural condition shaped by land use, infrastructure, and ecological change. This, in turn, requires integrating heat mitigation into the core of urban planning.

Water bodies must be brought into this framework as critical infrastructure. This means embedding their protection and restoration into statutory planning instruments, from development plans to zoning regulations. It also means establishing clear metrics—such as minimum blue-green coverage, buffer zones, and the preservation of natural drainage channels—to guide decision-making.

At the neighbourhood level, the potential for intervention is considerable. Small-scale water features, when combined with tree cover, shaded public spaces, and permeable surfaces, can create localised cooling zones that improve thermal comfort. These interventions, though modest in isolation, can have a cumulative impact when implemented across a city.

On a larger scale, cities can adopt principles of Water-Sensitive Urban Design, treating water not as a constraint but as a central organising element. By creating interconnected networks of rivers, lakes, parks, and green corridors, it is possible to enhance air circulation, reduce surface temperatures, and manage stormwater more effectively.

International examples offer valuable lessons. In Medellín, Colombia, the development of green corridors has led to measurable reductions in urban temperatures. In Seoul, the restoration of the Cheong-gyecheon stream has not only revitalised the urban landscape but also significantly lowered local temperatures.

Closer home, the challenge is more complex, given the scale and density of Indian cities. Retrofitting ecological systems into already built-up environments is both politically and economically demanding. Yet, the cost of inaction is far greater.

There is also a need for institutional innovation. Cities could benefit from dedicated heat management offices, tasked with coordinating efforts across sectors and ensuring that heat considerations are integrated into building codes, transport planning, and urban design. The appointment of a Chief Heat Officer in regions such as Miami-Dade points to a growing recognition of heat as a governance issue in its own right.

Ultimately, the question is not whether Indian cities can afford to invest in such measures, but whether they can afford not to. As temperatures continue to rise, the limits of adaptation will be tested. Without structural changes, the urban poor will bear the brunt of this crisis, deepening existing inequalities and undermining the very idea of the city as a shared space.

Restoring urban water bodies as cooling commons offers a path forward. It is a path that acknowledges the interdependence of ecological health and human well-being, that prioritises long-term resilience over short-term gains, and that seeks to distribute the benefits of cooling more equitably.

The heat that has arrived early this year is unlikely to be an exception. It is, in all probability, a glimpse of what lies ahead. The response it demands must be equally forward-looking—grounded in science, guided by equity, and committed to reimagining the urban future before the window for meaningful action begins to close.

BEYOND AIR CONDITIONING

The New Frontline: How 2026 Sepsis guidelines are replacing "One-Size-Fits-All" Medicine



BY DR SURRENDER SODHI

Sepsis has long been the "silent killer" of the modern intensive care unit—a runaway immune response to infection that can

shut down organs in hours. For decades, the medical community fought this ghost with a rigid, "one-size-fits-all" playbook. But as of 2026, the game has changed. The Surviving Sepsis Campaign (SSC) has released its most transformative set of guidelines yet, ushering in an era of "precision resuscitation" that prioritizes the unique physiology of the individual over the broad demands of a protocol.

From "Flooding" to "Focusing" Perhaps the most significant shift in the 2026 guidelines involves how we use intravenous fluids. For years, the standard "30 mL/kg" bolus—a heavy dose of fluid meant to jumpstart a failing circulatory system—was the unquestioned law of the emergency room. However, recent data suggests that "fluid creep" (the accumulation of excess water in the lungs and tissues) can be just as deadly as the sepsis itself.

The 2026 update retains the initial

fluid bolus as a starting point for those in septic shock, but with a major caveat: personalization. Doctors are now urged to use "dynamic measures" rather than "static numbers." Instead of looking at a single blood pressure reading, clinicians are using bedside ultrasound (specifically the VExUS score) and "passive leg raises" to see if a patient's heart can actually handle more fluid. If the heart is struggling, the fluids stop, and the focus shifts immediately to medications that help the heart pump more effectively.

The "Golden Hour" Meets Modern Diagnostic Reality

In the world of sepsis, time is tissue. The 2026 guidelines reinforce the "Golden Hour" for patients in shock—a mandate to deliver broad-spectrum antibiotics within 60 minutes of recognition. However, the guidelines also reflect a growing concern over the global "superbug" crisis.

For patients who are sick but not yet in shock, the 2026 update allows for a brief, three-hour "diagnostic window." This allows physicians to run rapid tests, such as procalcitonin (PCT) or molecular rapid-pathogen ID, to ensure they aren't over-prescribing powerful antibiotics. This nuanced approach balances the urgency of the infection with the long-term necessity of antibiotic stewardship.

Rethinking the "Pressure"

When blood pressure bottoms out during sepsis, "vasopressors"—drugs that tighten blood vessels—are the lifeline. Traditionally, doctors waited to start these drugs until liters of fluid had been administered. The 2026 guidelines have flipped this script.

The latest recommendation supports early vasopressors, often started alongside the first fluid bag. This "catecholamine-sparing" strategy prevents the heart from being overwhelmed by

high doses of a single drug. Furthermore, in a move that will save lives in rural or underfunded clinics, the guidelines now officially support the short-term use of these drugs through a standard peripheral IV. Previously, many clinicians waited hours to insert a "central line" into a major vein before starting life-saving blood pressure support; now, that delay is a thing of the past.

The "Whole-Patient" Revolution

Perhaps the most heartening change in the 2026 update is its focus on what happens after the ICU. Sepsis is no longer viewed as a "one-and-done" event. Survivors often suffer from Post-Intensive Care Syndrome (PICS), a cocktail of cognitive decline, muscle wasting, and PTSD.

The 2026 guidelines mandate that discharge planning begins while the patient is still in the hospital. This includes "medication reconciliation" (ensuring the pharmacy list makes sense

for a recovering body) and specific screenings for mental health and physical rehabilitation needs.

The Bottom Line

The 2026 Surviving Sepsis Campaign guidelines represent a maturation of critical care. We have moved past the era of the "checklist" and into the era of the "clinician." By emphasizing balanced fluids, early vasopressors, and a focus on long-term recovery, the medical community is not just trying to help patients survive the night—they are trying to help them survive for a lifetime.

As we look toward the future of emergency medicine, the message is clear: the best way to treat a global killer is to treat the individual sitting right in front of you.

(The Author is a Consultant Critical Care, Greecian Superspecialty Hospital by Park, SAS Nagar, Mohali Punjab)