EL NIÑO AND HEAT INEQUALITY

The politics of staying cool in a warming Bangladesh

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As climate change accelerates, extreme heatwaves are no longer rare seasonal events; they have become a harsh, everyday reality across Bangladesh. While rising global temperatures affect the entire country, the physical, economic and social impacts of extreme heat are not shared equally. Heat inequality in Bangladesh occurs where poverty, poor spatial planning and policy failures intersect. This creates a dangerous situation in which the country's most vulnerable populations pay the heaviest price in terms of their health, social lives and livelihoods.

Urban areas in Bangladesh are now experiencing an unprecedented intensity of heatwaves, triggering a level of severe thermal distress never experienced before. In a densely populated megacity like Dhaka, which is home to around 2 crore people and has a population density of about 50,000 people per square kilometre, extreme heat severely disrupts everyday life. In wealthy, well-planned residential neighbourhoods like Gulshan, indoor temperatures can be easily managed with air conditioning. However, just one kilometre away, in the Korail slum, an informal settlement home to low-income families, houses are built with thin corrugated iron roofs and uninsulated walls. As a result, low-income residents experience the extreme summer heat in a completely different and much harsher way than their wealthy neighbours. This stark contrast highlights the reality of heat inequality among city dwellers, which directly affects public health and lowers the overall quality of life across urban areas in Bangladesh.



A rickshaw puller splashes water on his face near Tikatuli intersection after working in the sun. For daily-wage earners, resting during peak heat hours means an immediate loss of income.
PHOTO: ANISUR RAHMAN



A schoolgirl uses a portable fan while travelling to school by rickshaw near Holy Cross Girls' High School. Although rising temperatures affect the entire country, the physical, economic and social impacts of extreme heat are not shared equally.
PHOTO: PRABIR DAS

CURRENT CONTEXT OF EXTREME HEAT

Due to the compounding impacts of climate change and rapid urbanisation, urban temperatures across Bangladesh are steadily rising. This extreme heat situation has been further exacerbated this year by the El Niño phenomenon. The presence of El Niño, which significantly alters global and regional climate systems and can suppress monsoon rainfall, acts as a major risk multiplier for extreme thermal stress.

When an El Niño event develops and influences South Asia, it does not merely cause a uniform spike in regional temperatures; it also exposes and intensifies deep spatial and socioeconomic heat inequalities within the rapidly growing cities of Bangladesh, such as Dhaka, Chattogram, Khulna, Rajshahi, Cumilla and Mymensingh.

DYNAMICS OF HEAT INEQUALITIES IN BANGLADESH

In rapidly urbanising hubs like Dhaka, Chattogram and Khulna, the loss of green spaces and natural water bodies has severely intensified the urban heat island effect. However, this temperature increase is not felt equally across city wards. High-density, low-income neighbourhoods and informal settlements are overwhelmingly concentrated in areas with high levels of urban development and minimal green or open spaces. Homes in these settlements are largely constructed with corrugated iron sheets or thin asbestos roofing, which trap heat. Indoor temperatures in these informal settlements can soar significantly higher than those in nearby affluent residential zones like Gulshan or Baridhara, turning homes into literal ovens with little or no possibility of cross-ventilation.

OCCUPATIONAL AND ECONOMIC VULNERABILITY DUE TO HEAT

For millions of daily-wage earners, seeking shelter from dangerous heat on a summer day is an unaffordable luxury. Rickshaw pullers, street vendors, construction labourers and agricultural workers face prolonged, direct exposure to solar radiation and extreme heat, thereby increasing their risk of heatstroke and other health hazards. Choosing to rest during peak heat hours results in an immediate loss of daily wages. Studies show that street vendors and informal labourers can lose up to half of their daily earnings during days of extreme heat, simply due to reduced working capacity and heat exhaustion. Meanwhile, millions of ready-made garment and other industrial workers operate under intensive indoor conditions, where factory floors often reach oppressive temperatures, compounding occupational health hazards.

MACROECONOMIC TOLL OF URBAN HEAT

Dhaka loses $6 billion worth of labour productivity each year due to heat stress caused by extreme temperatures. This amounts to up to 8 per cent of the annual labour output in Dhaka, according to a study by the Adrienne Arsht-Rockefeller Foundation Resilience Center, a joint initiative of the Rockefeller Foundation and philanthropist Adrienne Arsht (The Daily Star, 2 October 2022). The study compared 12 cities across the globe and found that heat impairs labour productivity in Dhaka more than in any other city. Unless measures are taken to reduce global warming, the loss will rise to 10 per cent by 2050, according to the study. Despite not having the highest absolute temperatures globally, Dhaka exhibits a disproportionately high sensitivity to heat stress due to two systemic factors:

- **Labour-intensive economy:** A vast proportion of the city's workforce is concentrated in physically demanding, labour-intensive sectors (such as garment manufacturing, construction and informal transport) that require physical labour in environments without climate control.
- **Low rate of active cooling:** There is a critical deficit in cooling infrastructure. The majority of workspaces, industrial units and low-income residential areas lack access to affordable air conditioning or mechanised ventilation, trapping heat and accelerating physical fatigue.

CONTRASTING HEAT CONDITIONS IN URBAN NEIGHBOURHOODS

In informal settlements and low-income areas like Korail or Kamrangirchar in Dhaka, housing mostly consists of crowded, poorly ventilated structures made from corrugated iron sheets. Research on indoor heat shows that these metal sheets absorb and trap heat, driving indoor temperatures 3 to 5 degrees Celsius higher than the outdoor temperature. In contrast, wealthy residential areas feature concrete buildings with thick walls that help block heat, built-in shading and air conditioning.

THE LOSS OF BLUE AND GREEN INFRASTRUCTURE

High-income neighbourhoods are often able to preserve pockets of greenery, trees, parks and open spaces between buildings. On the other hand, unplanned, high-density urban areas have over 70 to 80 per cent of their land covered by concrete and buildings. These areas largely lack the natural cooling effects provided by urban trees, wetlands and open water bodies, which normally help lower temperatures through evaporation and evapotranspiration.

ENERGY DISPARITIES IN BANGLADESH

When extreme heat strikes, the national power grid often struggles to generate sufficient electricity because of fuel shortages and technical problems. However, the resulting power cuts are not distributed equally across the country. Rural areas bear a disproportionate share of these power cuts, revealing a major disparity in how electricity is distributed between urban and rural areas in Bangladesh.

URBAN-RURAL ENERGY DISPARITY

The biggest difference in electricity supply during a heatwave is between the capital city and the rest of the country. Power authorities have historically prioritised ensuring that Dhaka and other major cities maintain their electricity supply. They do this to protect government offices and major businesses, as well as to prevent political unrest. As a result, major cities usually receive most of the electricity they need, facing only short power cuts caused by local line faults.

In wealthy, well-planned residential neighbourhoods like Gulshan, indoor temperatures can be easily managed with air conditioning. However, just one kilometre away, in the Korail slum, an informal settlement home to low-income families, houses are built with thin corrugated iron roofs and uninsulated walls. As a result, low-income residents experience the extreme summer heat in a completely different and much harsher way than their wealthy neighbours.

Rural and semi-urban areas suffer the most from electricity shortages. The Rural Electrification Board (REB) provides electricity to over 75 per cent of the country's population, but during severe heatwaves, it receives 25 to 40 per cent less electricity than it actually needs. While someone in Dhaka might complain about a 30-minute power cut, families in villages have to endure 6 to 12 hours, and sometimes up to 15 hours, without electricity in extreme heat.

INTRA-CITY ENERGY DISPARITY

Even within major cities like Dhaka or Chattogram, electricity is not distributed equally among different neighbourhoods. Wealthy neighbourhoods, such as Gulshan, Banani and Dhanmondi, and commercial zones have better electricity infrastructure and rarely face planned power cuts. Moreover, expensive apartment buildings and corporate offices have large automatic generators or advanced battery backup systems (IPS). These systems ensure an uninterrupted electricity supply, allowing residents and office workers to remain comfortable.

Working-class areas and informal settlements (slums) are often connected to lower-priority electricity lines that experience frequent power cuts. When the electricity goes out in these areas, residents are trapped inside cramped homes with poor ventilation, increasing the risk of heatstroke and dehydration.

This inequality led to a major protest in mid-April 2026, when residents of Dhaka's Korail slum blocked a main road after going 48 hours without electricity. Angered by the prolonged power cut during a severe energy crisis, the protesters stopped traffic to demand the restoration of their electricity supply. Residents expressed deep frustration over the unequal distribution of electricity. Furthermore, informal settlements often rely on temporary or illegal electricity connections, making them particularly vulnerable to prolonged power cuts during the hot summer months.

SOCIOECONOMIC COSTS OF HEAT INEQUALITY

While wealthier citizens use air conditioning for comfort and luxury, rural and low-income populations suffer the physiological consequences of extreme heat because of the lack of electricity in their households. This contributes to a rise in heat exhaustion, heatstroke and dehydration, predominantly affecting vulnerable groups such as children, older people and outdoor day labourers. Frequent power cuts also disrupt critical rural activities, such as mechanised agricultural irrigation systems during peak crop-growing seasons. They also disrupt small cottage industries and other local economic activities.

Adaptation to extreme heat depends heavily on socioeconomic resources. While affluent segments of society protect themselves through facilities and infrastructure, such as energy-efficient air conditioning, better-quality housing and immediate access to healthcare, the urban poor remain largely excluded from these resources.

Furthermore, the use of air conditioners by wealthy urban residents imposes a heavy burden on poorer communities. Extensive use of private air conditioning releases waste heat into streets and surrounding areas, raising local outdoor temperatures and severely affecting middle- and lower-income populations.

AC USE: WIDENING POWER DISPARITIES

The surge in air conditioner (AC) usage among affluent households during heatwaves creates a form of "dual inequality". As there are no restrictions on the purchase of ACs in our country, excessive use of air conditioning by affluent households externalises both the thermal and financial costs onto ordinary people. When thousands of AC units operate simultaneously in upscale residential and commercial areas, they release massive amounts of heat into the surrounding environment, potentially increasing local temperatures by 2 to 4 degrees Celsius.

During peak heatwave days, space cooling can account for 40 to over 50 per cent of a city's total electricity demand. The grid becomes heavily overloaded in an effort to keep high-income areas artificially cool. Consequently, low-income citizens may be deprived of even a basic ceiling fan, often their only affordable defence against heat, while substantial amounts of electricity are consumed by high-wattage cooling systems elsewhere. A single 1.5-tonne air conditioner (AC) can consume as much electricity as 20 marginalised households using ceiling fans in low-income settlements.

The government's directive requiring all air conditioners in public, private and residential spaces to be set at a minimum temperature of 25°C or higher remains legally in force, but its implementation presents a completely different picture.

The directive reflects an attempt to curb cooling demand during the summer months. However, the policy faces severe structural and behavioural challenges in enforcement, making it largely symbolic for much of the population.

SOLUTIONS TO HEAT INEQUALITY

Designing and implementing Heat Action Plans (HAPs) for cities across Bangladesh is essential. Nature-based solutions and passive cooling strategies can also play an important role in addressing heat inequality.

NATURE-BASED SOLUTIONS AND PASSIVE COOLING MEASURES

- **Targeted urban green expansion:** Undertake large-scale, planned tree-planting initiatives, prioritising native, shade-providing species along major roads and within densely populated residential wards.
- **Blue-green infrastructure:** Enforce strict protection and restoration of existing urban wetlands, canals (khals) and flood flow zones. Open water bodies can significantly lower local temperatures through evaporative cooling.
- **Cool roof initiatives:** Promote or subsidise the application of reflective white cooling paint or the development of rooftop gardens, particularly in informal settlements where corrugated iron-sheet roofs act as thermal traps.

Spatial planning and green building codes

Formulating spatial plans for cities and regions and implementing green building codes could go a long way towards combating heatwaves in Bangladesh.

- **Ventilation corridors:** Regulate building layouts and the configuration of land subdivisions to preserve natural wind corridors, ensuring that air can circulate through densely populated urban areas.
- **Climate-responsive building materials:** Amend local building codes to discourage the inappropriate use of materials with high thermal mass in areas particularly vulnerable to extreme heat, while encouraging passive cooling designs, such as shaded façades, cross-ventilation and cavity walls.
- **Decentralised growth:** Reduce excessive population and development pressure on major cities by developing climate-resilient secondary cities, supported by strict land-use zoning that mandates a minimum of 20–25 per cent green space and 10–15 per cent water bodies.
- **Urban hydration networks:** Install high-capacity drinking water stations at major transport hubs, busy intersections and industrial areas, such as the ready-made garment (RMG) industrial zones in Dhaka, Gazipur and Narayanganj.
- **Adjusted working hours:** Institutionalise a "right to shade and rest" during peak heat hours, generally from 12 pm to 3 pm, for outdoor workers, including construction workers, while shifting working hours to early mornings or late evenings where feasible.

WAY FORWARD

Heat inequality in Bangladesh reveals that climate vulnerability is deeply institutionalised. The systemic practice of deprioritising rural electricity networks to maintain urban comfort reflects an ongoing challenge of spatial injustice, where a community's or region's socioeconomic status influences its electricity supply. The poor suffer the most during heatwaves, yet there remains a critical absence of effective government policies and actions to ensure equitable access to electricity. It is high time for the government to address heat inequality across all socioeconomic sections of society to ensure fairness, equity and justice for everyone. Furthermore, balanced spatial planning measures, such as integrating blue-green infrastructure, mandating sustainable building materials and implementing nature-based solutions, can significantly reduce the impacts of extreme heatwaves. Urban authorities must prepare and implement locally tailored Heat Action Plans for their respective areas. Ultimately, true climate resilience requires an immediate shift towards greater energy equity, ensuring electricity justice for every citizen, regardless of geographical location or income level.

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