THE

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DHAKA HEAT STRESS PROTECTION

Policy Responses for Urban Resilience and Climate-Labour Justice

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Executive Summary

Dhaka, the rapidly urbanising capital of Bangladesh, is heating up at an alarming rate. Positioned in the frontlines of climate injustice, the city and its nearly 24 million residents are experiencing intensifying heat stress every year. In May 2025 alone, the heat index surged to 40°C, threatening health, livelihoods, and human dignity. This extreme heat is no longer a seasonal anomaly, but a systemic crisis, driven by climate change, unregulated urban development, and the rapid decline of green infrastructure.

Some of the most affected are Dhaka's informal and outdoor workers - the backbone of the city's economy - who bear the brunt of this crisis through lost income, severe health risks, and deepening social and economic inequality.

This issue brief outlines the growing vulnerabilities of Dhaka's informal workforce in the face of rising heat, which is a manifestation of both climate and labour injustice. At its core, it calls for immediate interventions to protect workers from the effects of heat stress. It concludes with a set of equity-centred policy recommendations rooted in principles of urban resilience, labour protection, and climate justice.

Introduction: Climate-Labour Justice in an Overheated City

Dhaka has emerged as one of the world's most heat-exposed cities, where the effects of climate-induced heat are no longer abstract projections but lived daily realities. Over the last decade, the city's temperature has risen by nearly 6°C, far exceeding the global 1.5°C threshold. This rise has been exacerbated by the urban heat island (UHI) effect, driven by dense construction, deforestation, and wetland depletion. In 2016, the city recorded a 60-year high of 40.6°C, resulting in hospitalisations and fatalities.

Yet, when the city overheats, the burden is not shared equally, and informal workers pay the heaviest price of a climate crisis they did not create. Of the 59.7 million people employed in the informal sector across Bangladesh, nearly 16 million are concentrated in Dhaka Division alone. As heat stress erodes the fundamental rights to life, health, and safe working conditions, these workers, especially women, are disproportionately affected. They confront longer working hours in unsafe environments, inadequate access to water or shade, and no legal safeguards against occupational heat stress. These conditions reflect a climate and labour justice crisis that demands immediate and systemic policy responses.

Heat Impacts on Dhaka's Informal Workforce

Dhaka's workforce, particularly those in informal, outdoor, and low-wage sectors, endure direct and prolonged exposure to extreme temperatures. Street vendors, construction workers, garment workers, rickshaw pullers, and waste collectors often work without shade, inside poorly ventilated structures, or in open environments. This constant exposure jeopardises health, undermines productivity, and destabilises income, with women and marginalised groups bearing the greatest burden.

Health Risks
Extreme heat increases the risk of heat exhaustion, heatstroke, and even premature death. Informal workers, who rarely have healthcare access or paid sick leave, often push through symptoms such as dehydration, dizziness, muscle cramps, and vomiting. Mental health impacts are also significant, with workers describing the heat as “life-threatening”.

Pregnant women face heightened risks. Bangladesh’s already high preterm birth rate (16.2%) is worsened by heatwaves, with research showing a 1°C rise in temperature increases preterm birth risk by 5%,and by 16% during heatwaves.

Gendered Impacts
Nearly 80% of working women in Dhaka are in informal roles such as garment production, domestic work, and street vending - jobs with little to no heat protection. In the garment sector alone, which employs 5 million workers (55.5% women), daily fainting episodes during heatwaves are common, with factory floors reaching up to 38°C. Women report dehydration, urinary tract infections, menstrual disruptions, and pregnancy complications, often without workplace support. Social norms also place additional caregiving and domestic burdens on women (i.e., having to cook in extreme heat), further restricting their mobility and resilience.

Income and Productivity Loss
Heat stress reduces work capacity, driving down household incomes and national productivity. Dhaka loses an estimated USD 6 billion annually - 8% of its total output - due to heat-related productivity decline, a figure projected to reach 10% by 2050. Nationally, heat causes a loss of 7 billion work hours each year, equivalent to 254 hours per person. By 2080, outdoor productivity could fall by nearly half (46.2%) under a 3°C warming scenario.

In 2023, Bangladesh lost an estimated USD 21 billion in income and 26.5 billion labour hours due to reduced work capacity, with female and informal workers most affected. On average, individuals lost USD 281 annually, driven by both reduced productivity and illness-related expenses. Street vendors reported losing up to half of their daily income during extreme-heat days, while garment workers and rickshaw pullers were forced to shorten shifts or reduce workdays. Coupled with rising household costs for electricity, cooling appliances, and healthcare, impacts of extreme heat systematically undermines the livelihoods of informal workers.

Strengthening Urban Resilience to Extreme Heat

Dhaka’s infrastructure, governance systems, and public services remain largely unprepared for sustained extreme heat. The city’s densely built environment traps heat, while the absence of integrated cooling strategies deepens urban vulnerability. Informal settlements and high-exposure work zones lack shaded spaces, reliable water access, and emergency response systems, placing both workers and residents at heightened risk.

Infrastructure Gaps
In many industrial zones, particularly in Bangladesh’s garment sector, workplaces operate without dedicated cooling systems or adequate ventilation measures, leaving workers exposed to excessive heat stress. Public spaces such as markets, transport hubs, and pedestrian areas lack shaded walkways, drinking water stations, and green cover. Moreover, the city’s overreliance on groundwater is increasingly unsustainable, with high rates of leakage and contamination further undermining water security during heatwaves.

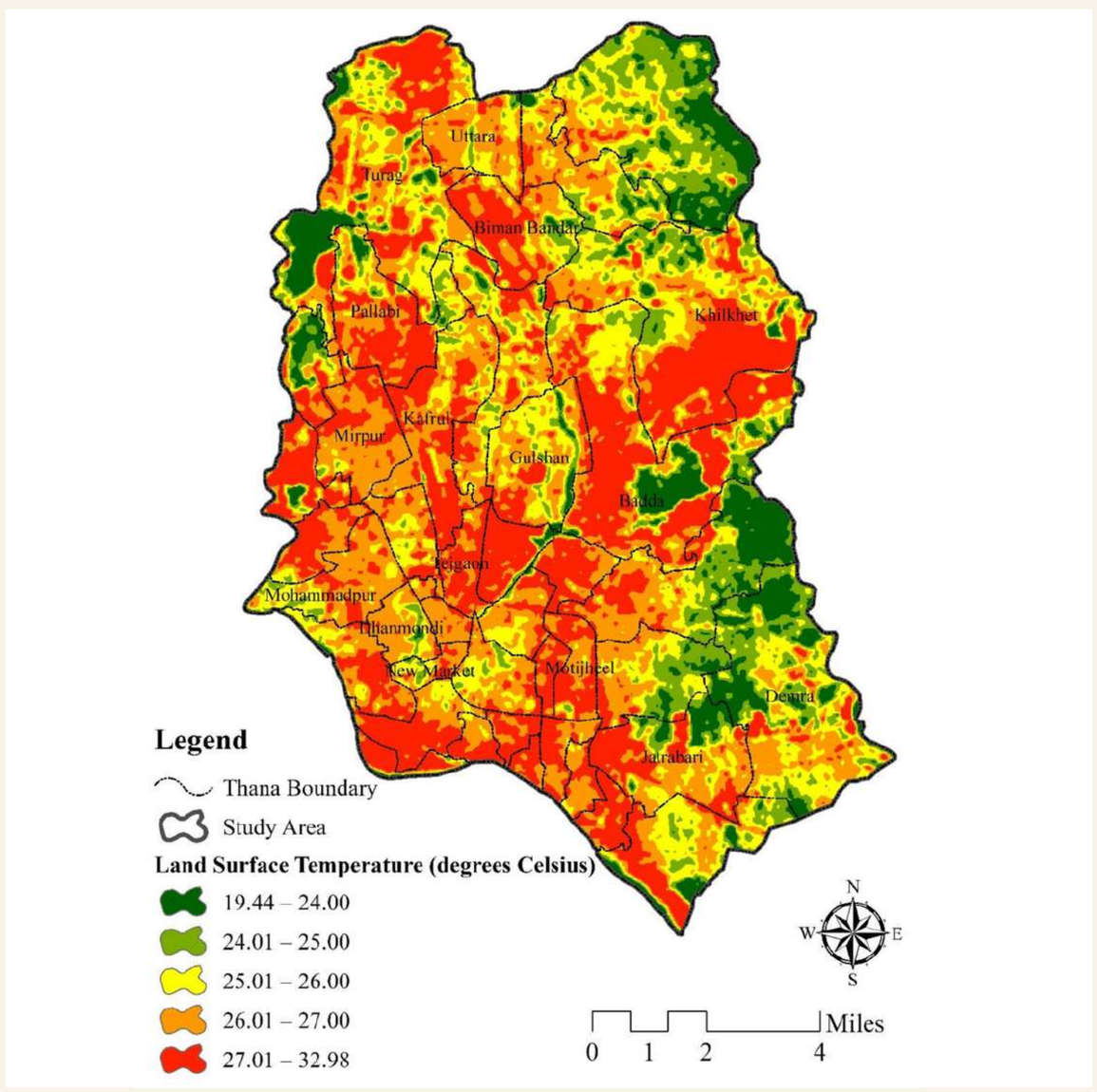
Urban planning continues to neglect climate-adaptive design, leading to reduced tree cover, disappearing wetlands, and higher surface temperatures. The limited integration of green infrastructure, such as rooftop gardens, tree-lined streets, and green corridors, prevents the city from mitigating the urban heat island effect. Restoring and expanding green cover through targeted, equity-driven urban greening needs to be prioritised.

Governance Challenges
Institutional responsibility for heat resilience is fragmented, with overlapping mandates across municipal, environmental, health, and labour authorities. Heatwave preparedness is not yet mainstreamed into disaster management frameworks, climate action plans, or labour protection policies. This results in reactive, short-term measures rather than sustained, preventative strategies.

At the community level, early warning systems are underdeveloped, with information rarely reaching informal workers, low-income residents, or marginalised groups in a timely and accessible manner. Public awareness campaigns remain sporadic and lack coordination between city authorities, civil society, and employers.

Equity and Inclusion Gaps

Heat stress impacts are unevenly distributed, with low-income neighbourhoods and informal settlements suffering the greatest exposure due to inadequate housing, poor ventilation, and lack of basic services. Gender disparities in access to safe workspaces, sanitation facilities, and healthcare compound vulnerability. Current urban development and adaptation planning do not systematically address these equity gaps, leaving marginalised groups outside the scope of protection and resilience-building measures.

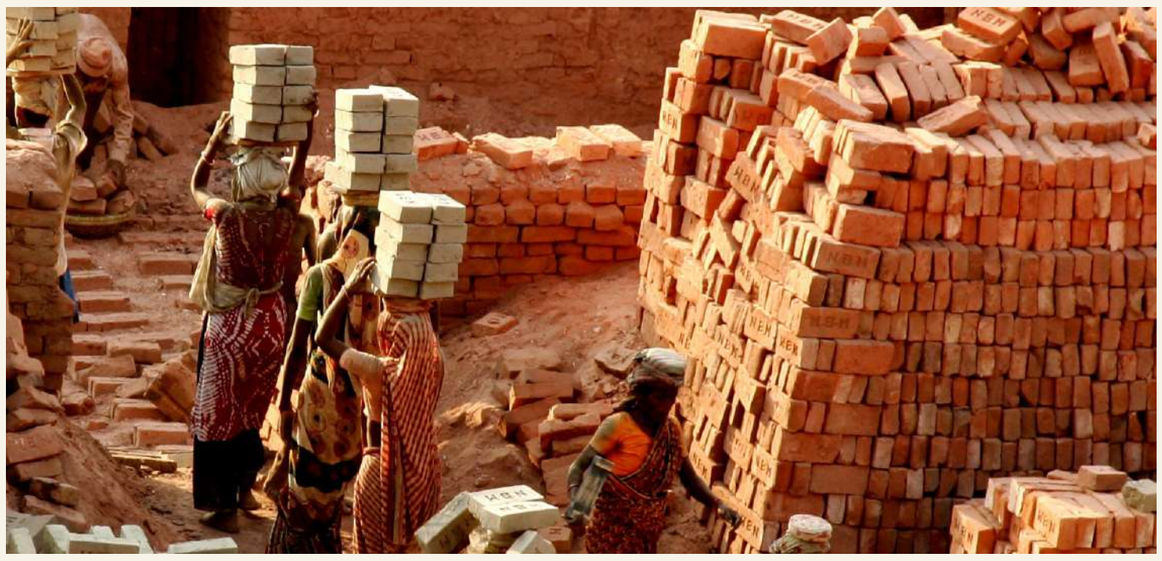


Policy Recommendations: Immediate Protections for Vulnerable Workers

Protecting Dhaka's workforce from intensifying heat stress requires urgent, rights-based, and coordinated action. The following measures aim to reduce vulnerability, promote climate-labour justice, and build resilient urban systems.

Recognise Heat as a Labour and Human Rights Issue

- Integrate extreme heat into occupational health and safety laws, labour codes, and social protection frameworks (e.g. ILO Occupational Safety and Health Framework).
- Institutionalise the "right to rest," "right to shade," and "right to hydration" in all work environments, with penalties for non-compliance.



- Recognise protection from heat stress as fundamental human rights in national climate and labour policies.

Develop a Gender-Responsive Heat Action Framework

- Mainstream gender equity across all heat adaptation policies to address the disproportionate impact on women in informal work.
- Provide maternity-safe infrastructure in workplaces, including access to emergency health services.
- Prioritise investment in safe toilets, shaded public rest zones, and accessible hydration infrastructure in low-income, high-risk areas.
- Construct and maintain gender-sensitive public toilets with clean water access, ensuring safety, dignity, and accountability for proper upkeep.

Expand Heat-Responsive Urban Infrastructure

- Install hydration stations in high-risk work zones such as industrial belts, marketplaces, roadside hubs, and pedestrian areas.
- Promote heat-resilient urban planning by embedding tree-lined streets, rooftop gardens, and green corridors into land use policies.
- Install and maintain passenger-friendly and environmentally sustainable shaded bus stops, ensuring accessibility, protection from extreme heat, and freedom from commercial encroachment.
- Transition from groundwater dependency to surface water systems while improving infrastructure to address leakage and contamination.

Institutionalise Climate-Labour Governance

- Appoint municipal-level Heat Resilience Taskforce to oversee multi-sectoral coordination and policy implementation.

- Integrate climate-labour justice indicators into Dhaka South and North City Corporations' climate action plans.
- Support local governments in developing community-based heat response systems, early warning mechanisms, and tailored public awareness campaigns.
- Enable worker-led monitoring systems to report heat-related illness, wage loss, and rights violations.

Mobilise Finance for Urban Heat Resilience

- Establish a dedicated municipal climate adaptation fund focused on labour heat protection and gender justice.
- Leverage international climate finance, including loss and damage funds, to support heat-related infrastructure upgrades and social protection.
- Introduce a Climate Damage Tax on major fossil-fuel producers and high-emission industries, directing the funds to build community-led urban climate resilience measures.
- Introduce parametric insurance schemes for informal workers, where payouts are triggered automatically by heat thresholds (e.g., temperature or humidity levels), enabling timely financial relief during heatwaves.

Systems Change for Long-Term Resilience

While immediate protections are essential, long-term transformation is equally imperative. The following structural reforms aim to embed heat resilience into the governance and development trajectory of Dhaka:

Recognise Heatwaves as Climate Disasters

- Explicitly recognise heatwaves as disasters eligible for state support.
- Classify high-heat urban zones as disaster-prone to enable targeted relief and infrastructure investment.
- Coordinate reforms across the Ministry of Environment, Forest and Climate Change, Ministry of Health and Family Welfare, Ministry of Labour and Employment, Ministry of Water Resources, and Ministry of Housing and Public Works to align heat risk governance with international climate and human rights obligations.

Build Heat Early Warning Systems

- Develop Dhaka-specific heatwave thresholds in collaboration with urban climate and health experts.
- Disseminate multilingual heat alerts through SMS, mobile apps, radio, and public service announcements.
- Provide accessible heat safety guidance in health centres, transport hubs, and informal settlements.

Case Study: Community-Led Early Warning System for Heat Stress

In June 2025, Greenpeace India, in collaboration with the India Meteorological Department (IMD), informal worker unions, and design partners, launched a community-owned heat alert system that redefined early warning from a top-down broadcast into an inclusive, worker-driven model.
The system started with bilingual (audio + text) WhatsApp alerts sent directly to over 20 worker leaders, including street vendors, gig workers, ASHA health workers, and waste pickers. These alerts were easy to forward within union networks and gave workers a level of preparedness they had never experienced before.

To address gaps for people without phones or literacy, the team designed Community Heat Alert Boards - colour-coded, universally recognisable boards placed in high-footfall market areas and labour hubs. The boards used four heat categories, adapted from IMD and WHO guidance:

- **Green** (<35°C) – Safe conditions
- **Yellow** (35–40°C) – Moderate risk, hydration encouraged
- **Orange** (41–45°C) – High risk, reduce strenuous work
- **Red** (>45°C) – Extreme danger, activate protective measures and relief response

Each board had three interchangeable pockets showing the current heat level, tailored health advisories, and special alerts for extreme events. Local volunteers updated them daily using easy-to-swap cards, eliminating reliance on complex weather terminology.

Why This Matters for Dhaka?

The Indian model shows that heat warnings are only effective if they reach the most vulnerable in formats they can understand and act on immediately. In Dhaka, a similar community-based EWS could be integrated with:

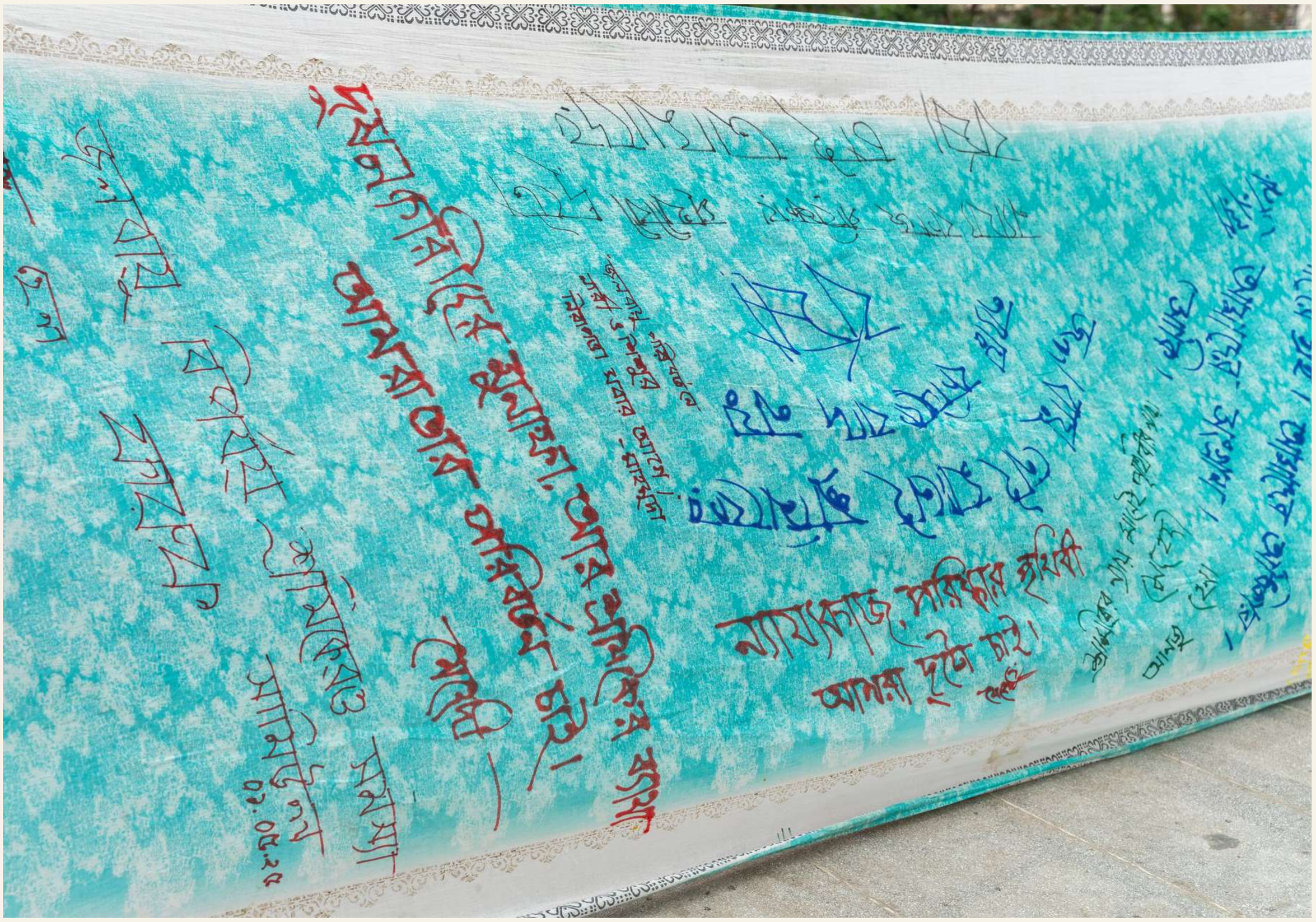
- Parametric micro-insurance payouts triggered by Red Alerts.
- Municipal-level volunteers trained to operate heat boards in key informal worker areas.
- Multi-channel alerts via SMS, mobile wallets, television, and community megaphones.

Such a system would not only save lives but also protect livelihoods, especially for Dhaka's informal workers who face disproportionate exposure to extreme heat.

Conclusion: A Just Climate Future for Dhaka

Heat stress is a structural crisis driven by climate injustice, unregulated urbanisation, and systemic neglect. Informal workers in Dhaka should not be forced to bear the heaviest cost of this escalating threat. This policy responsive issue brief calls for an urgent shift towards proactive, inclusive, and climate-resilient urban planning.

A climate-resilient and worker-just Dhaka is not only possible, it is essential. Safeguarding its people, particularly those at greatest risk, must become the defining measure of the city's progress. The path forward requires leadership, equity at the heart of policy, and an unwavering commitment to the rights, health, and dignity of all.



References

1. *World Population Review. "Dhaka Population 2025 – World Population Review." Accessed August 29, 2025. https://worldpopulationreview.com/cities/bangladesh/dhaka.*

2. *TBS News. "Dhaka Records Highest Temperature This Year at 40.1 ºC." The Business Standard, published May 10, 2025, accessed August 29, 2025. https://www.tbsnews.net/bangladesh/environment/dhaka-records-highest-temperature-year-401degc-1138941.*

3. *The Daily Star. "Dhaka City's Temperature Rose 6 ºC in 10 Yrs." The Daily Star, published May 3, 2024, accessed August 29, 2025. https://www.thedailystar.net/news/bangladesh/news/dhaka-citys-temperature-rose-6degc-10yrs-3600671.*

4. *Mosaddek, Nafisa. 2025. "Assessing Socio-Economic Disparities in Heat Stress Vulnerability and Adaptive Capacity: A Comparative Study of Higher-Class Residents and Slum Dwellers in Dhaka". Dhaka: Bangladesh University of Professionals. Accessed August 31, 2025. Nafisa-Mosaddek-Assessing-Socio-Economic-Disparities-in-Heat-Stress-Vulnerability-and-Adaptive-Capacity_compressed.pdf*

5. *Bangladesh Bureau of Statistics. Labour Force Survey 2022. https://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/b343a8b4_956b_45ca_872f_4cf9b2f1a6e0/2023-10-25-07-38-4304abd7a3f3d8799fbcb59ff91007b1.pdf*

6. *TBS News. "Burning at both ends: Urban heat and the daily struggle of Dhaka's marginalised women." The Business Standard, published July 8, 2025, accessed August 29, 2025. https://www.tbsnews.net/thoughts/burning-both-ends-urban-heat-and-daily-struggle-dhakas-marginalised-women-1183616.*

7. *Climate Rights International. "My Body Is Burning: Climate Change, Extreme Heat, and Labor Rights in Bangladesh." July 2025. Accessed August 29, 2025. https://cri.org/reports/my-body-is-burning-extreme-heat-and-labor-rights-in-bangladesh/.*

8. *Dhaka Tribune. "Bangladesh Launches National Guidelines to Combat Heat-Related Health Risks." Dhaka Tribune, May 5, 2024. Accessed August 29, 2025. https://www.dhakatribune.com/bangladesh/health/345715/bangladesh-launches-national-guidelines-to-combat.*

9. *New Age. "Working Women in City on Brink." New Age, July 11, 2025. Accessed August 29, 2025. https://www.newagebd.net/post/opinion/269667.*

10. *The Financial Express. "Women Account for 55 pc of Garment Workers." The Financial Express, June 25, 2024. Accessed August 29, 2025. https://today.thefinancialexpress.com.bd/trade-market/women-account-for-55pc-of-garment-workers-1719244417.*

11. *Yeasmin, Farzana, Shannon Rutherford, Aaron Bach, Jean Palutikof, Fahim Tonmoy, Fahmida Tofail, and Mahbubur Rahman. Managing Heat Stress among Bangladesh Ready-Made Clothing Workers. International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) and Griffith University, November 2022. Accessed August 29, 2025. https://preparecenter.org/wp-content/uploads/2022/12/Bangladesh-RMG-Heat-Perceptions-Research-by-F.-Yaesmin-2022.pdf.*

12. *New Age. "Working Women in City on Brink." New Age, July 11, 2025. Accessed August 29, 2025. https://www.newagebd.net/post/opinion/269667.*

13. *Raihan, Obaidullah Showkat. "Dhaka's Poor Are Suffering from Heatwave: How to Deal with It?" PreventionWeb, October 22, 2022. Accessed August 29, 2025. https://www.preventionweb.net/news/dhakas-poor-are-suffering-heatwave-how-deal-it.*

14. *Letsch, Lucia, Shouro Dasgupta, and Elizabeth J. Z. Robinson. Adapting to the Impacts of Extreme Heat on Bangladesh's Labour Force. Policy brief. Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science, July 2023. Accessed August 29, 2025. https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2023/07/Adapting-to-the-impacts-of-extreme-heat-on-Bangladesh.pdf.*

15. *The Daily Star. "Heatwave Cost Bangladesh $21 b Last Year." The Daily Star, November 1, 2024. Accessed August 29, 2025. https://www.thedailystar.net/news/bangladesh/news/heatwave-cost-bangladesh-21b-last-year-3741866,*
Romanello, Marina, Maria Walawender, Shih-Che Hsu, Annalyse Moskeland, Yasna Palmeiro-Silva, Daniel Scamman, Zakari Ali, Nadia Ameli, Denitsa Angelova, Sonja Ayeb-Karlsson, Sara Basart, Jessica Beagley, Paul J. Beggs, Luciana Blanco-Villafuerte, Wenjia Cai, Max Callaghan, Diarmid Campbell-Lendrum, Jonathan D. Chambers, and others. "The 2024 Report of the Lancet Countdown on Health and Climate Change: Facing Record-Breaking Threats from Delayed Action." The Lancet, published October 30, 2024. Accessed August 29, 2025. https://lancetcountdown.org/2024-report/.

16. *Patwary, Muhammad Mainuddin, Mondira Bardhan, Sardar Al Imran, Sharif Mutasim Billah, Mehedi Hasan, Asma Safia Disha, Md Pervez Kabir, Chameli Saha, Md Najmus Sayadat Pitol, and Matthew H. E. M. Browning. "Estimating Economic Losses from Perceived Heat Stress in a Global South Country, Bangladesh." Urban Climate, 38 (2024): 112-125. Accessed August 29, 2025. https://doi.org/10.1016/j.uclim.2024.102072.*

17. *Prothom Alo. "Dhaka Loses around $6b per Annum." Prothom Alo (English). Published October 2, 2022. Accessed August 30, 2025. https://en.prothomalo.com/bangladesh/city/xhw5165uop;*
Climate Rights International. "My Body Is Burning: Climate Change, Extreme Heat, and Labor Rights in Bangladesh." July 2025. Accessed August 29, 2025. https://cri.org/reports/my-body-is-burning-extreme-heat-and-labor-rights-in-bangladesh/.

18. *Hossain, Mohataz, Brian Ford, and Benson Lau. "Improving Ventilation Condition of Labour-intensive Garment Factories in Bangladesh." Paper presented at the Passive Low Energy Architecture (PLEA) Conference, Ahmedabad, India, December 2014. Accessed August 29, 2025. https://doi.org/10.13140/RG.2.1.3943.4400.*

19. *The Financial Express. "Expanding Water Supply Coverage for Dhaka Residents." The Financial Express, October 17, 2023. Accessed August 29, 2025. https://thefinancialexpress.com.bd/views/columns/expanding-water-supply-coverage-for-dhaka-residents.*

20. *The Business Standard. "Green Space in Dhaka North Declines 66 % in 3 Decades: Study." The Business Standard, May 30, 2023. Accessed August 29, 2025. https://www.tbsnews.net/bangladesh/environment/green-space-dhaka-north-declines-66-3-decades-study-640598; Urme, Humaira. "Strategic Landscaping to Combat Urban Heat in Dhaka." Square Feet Story, July 23, 2025. Accessed August 29, 2025. https://squarefeetstory.com/strategic-landscaping-to-combat-urban-heat-in-dhaka/.*

21. *The Daily Star. "Lack of Safe, Hygienic Restrooms: A Constant Struggle for Dhaka Women." The Daily Star, June 15, 2025. Accessed August 29, 2025. https://www.thedailystar.net/news/bangladesh/news/lack-safe-hygienic-restrooms-constant-struggle-dhaka-women-3917161. TriplePundit. "This Social Enterprise Is Improving Public Toilet Infrastructure in Bangladesh's Urban Centers." TriplePundit, July 13, 2023. Accessed August 29, 2025. https://triplepundit.com/2023/public-toilets-women-bangladesh/.*

22. *OSHA-Occupational Safety and Health Administration. "Heat – Overview: Working in Outdoor and Indoor Heat Environments." OSHA.gov. Accessed August 29, 2025. https://www.osha.gov/heat-exposure/.*

23. *Ali, Sikandar. "Heatwaves and Human Rights: The Legal Duty of States to Protect Citizens from Climate Harm." ResearchGate. Accessed August 29, 2025. http://dx.doi.org/10.13140/RG.2.2.30569.20326.*

24. *Dhaka Tribune. "Passenger Sheds out of Passengers' Reach." Dhaka Tribune, May 4, 2014. Accessed August 29, 2025. https://www.dhakatribune.com/bangladesh/bangladesh-others/63339/passenger-sheds-out-of-passengers%E2%80%99-reach.*

25. *DSCC-Dhaka South City Corporation. Climate Action Plan for Dhaka South City Corporation, May 2024. Accessed August 29, 2025. https://dscc.portal.gov.bd/sites/default/files/files/dscc.portal.gov.bd/page/089f17d2_a3ec_4309_a171_5dcd2d25b13f/2024-06-13-05-17-88d5cb2246c32a2f9f94c43f8337d977.pdf.*

26. *IMF-International Monetary Fund. "Bangladesh and Its Partners Are Launching the Bangladesh Climate and Development Platform to Leverage Adaptation and Mitigation Investments." IMF, December 3, 2023. Accessed August 29, 2025. https://www.imf.org/en/News/Articles/2023/12/03/bangladesh-launch-climate-development-platform-to-leverage-adaptation-and-mitigation-investments.*

27. *Greenpeace UK. The Climate Damages Tax (CDT): A Guide to What It Is and How It Works. July 2024. Accessed August 29, 2025. https://www.greenpeace.org.uk/wp-content/uploads/2024/07/CDT_guide_2024_FINAL-1.pdf.*

28. *The Daily Star. "Can Parametric Insurance Be a Tool for Climate Resilience?" The Daily Star, January 16, 2023. Accessed August 29, 2025. https://www.thedailystar.net/opinion/views/news/can-parametric-insurance-be-tool-climate-resilience-3222756.*

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