

# Heat as Humanitarian Crisis: What Local Organisations Are Doing

Co-editors: Joyce Nyaboga and Mihir R. Bhatt



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# Introduction

By *Joyce Nyaboga*, Senior Network Development Adviser (Design and Infrastructure), Start Network, UK; and *Mihir R. Bhatt*, All India Disaster Mitigation Institute (AIDMI), India

As climate extremes intensify globally, extreme heat has emerged as a particularly insidious and growing threat—one that is frequently overlooked in both policy and humanitarian response. Unlike floods, earthquakes, or storms, heatwaves do not leave behind visible destruction. Instead, they unfold gradually, draining energy, reducing productivity, exacerbating health risks, and silently claiming lives—particularly among the most vulnerable populations. In South Asia and across parts of Africa, where infrastructure is fragile, access to basic services is limited, and climate adaptation is under-resourced, the consequences are already severe.

This issue of *Southasiadisasters.net*, titled “**Heat as Humanitarian Crisis: What Local Organisations Are Doing**”, documents and celebrates the actions of local actors rising to meet this complex and accelerating challenge. It showcases stories from Gujarat and Bihar in India, Balochistan in Pakistan, Marsabit in Kenya, and South Sudan—each presenting unique but interconnected efforts by communities, civil society organisations (CSOs), women workers, and small businesses. These local leaders are not waiting for global solutions—they are innovating in real time, using context-specific approaches to safeguard lives and livelihoods.

Whether it is the installation of cooling umbrellas for small businesses in Ahmedabad, the

establishment of community cooling centres in Sibi, or the adaptation of school calendars in South Sudan, these interventions offer tangible, effective, and often low-cost strategies for addressing extreme heat. Some draw on traditional knowledge—like climate-responsive architecture and lightweight fabrics—while others harness modern tools, such as early warning systems and digital platforms. What connects them all is their local origin and grassroots leadership.

This issue takes a deliberately humanitarian lens. Extreme heat is not merely a climate or public health issue—it is a **humanitarian crisis that demands urgent, anticipatory, and inclusive action**. It requires integrating extreme heat into disaster risk reduction, community preparedness, urban development, and social protection systems. It demands a shift in mindset: from reactive to proactive; from top-down to locally led.

The stories gathered here reinforce the idea that **local organisations are**

**uniquely positioned to drive heat adaptation**. They know their communities, understand vulnerabilities, and can deliver timely, culturally appropriate support. Yet, these organisations often operate with limited resources and little visibility. Recognising, resourcing, and scaling their work must become a priority—not just for national governments, but also for international humanitarian and development actors.

This issue also argues for a more intersectional and inclusive approach to heat resilience. Gender, age, disability, occupation, and geography all influence how people experience extreme heat and what support they need. Solutions must be co-designed with communities, responsive to diverse needs, and grounded in both science and lived experience.

Finally, this edition serves as a call to action. If we continue to treat heat as a seasonal inconvenience rather than a structural and systemic threat, we risk compounding inequality, worsening health outcomes, and reversing development gains. But if we act boldly and collaboratively—supporting local solutions, aligning policies, and investing in anticipatory systems—we can turn extreme heat from a silent crisis into a catalyst for inclusive and climate-resilient development.

The time to act is now. And local organisations are already showing the way. ■

“Extreme heat is no longer tomorrow’s crisis—it is today’s test of our collective will. Local organisations are not just first responders—they are first innovators, leading the way with practical, inclusive solutions grounded in lived experience.”

— *Joyce Nyaboga and Mihir R. Bhatt*

## Adapting to the Heat: A Personal Journey

By *Joyce Nyaboga*, Senior Network Development Adviser (Design and Infrastructure), Start Network, UK

Growing up in Mombasa, Kenya's beautiful coastal city, I became familiar with heat in all its forms from a young age. The sun was a constant presence, growing stronger as the day went on. High temperatures defined our lives, so we always found ways to cope, such as scheduling playtime in the early mornings and late evenings. We adapted to the heat and developed our own coping mechanisms, clothing, light, breathable and modest, and commonly referred to as 'deras'. Over time, communities have adapted further with the advancing technology, though these are not within the reach of many. Those who can afford it have installed air conditioning or at least a fan; the architectural design of most houses reflects this adaptability.

To us, this was normal. We didn't call it climate change. We just called it life.

In 2005, I worked as a frontline humanitarian worker at Dadaab, one of the world's largest refugee camps. Dadaab exposed me to a level of heat that I had never experienced before and to which I had to adapt. Daytime temperatures often reached 40°C (104°F), and the dry, arid landscape



*Drought in Marsabit County, Kenya, November, 2021. Photo Courtesy: Rodgers Ochieng.*

offered no respite. Unlike the humid heat of Mombasa, Dadaab's climate felt harsher. Rainfall was scarce. The water supply was limited. For the thousands of refugees who had fled conflict and famine, adapting to this environment was not just about comfort – it was about survival. The intensification of heat and its impact on water scarcity and droughts across the globe is heart-breaking. The 2011 drought in the Horn of Africa is just one example of this that I witnessed first-hand as a humanitarian worker. My work on the front line across this region revealed how extreme heat acts as a silent amplifier, turning failed rains into humanitarian collapse.

Drawing on my personal experience, I recognise that, while communities can adapt, there are limits. A humanitarian crisis caused by heat requires a multifaceted approach, drawing on traditional methods, science, and technology. There is a threshold beyond which adaptation becomes difficult or even dangerous. While architectural, clothing and behavioural changes can help, survival becomes fragile when water runs out or food cannot be grown.

The long-term goal should be to build community resilience through locally led action. Anticipatory action is critical. It can help communities prepare, alleviate crises and build resilience. Communities affected by extreme heat must make the most of their local environment.

Local stakeholders are well placed to lead discussions on heat and its impact. While climate change is a global issue, it should also be considered locally, enabling communities to reflect on changes and their cumulative impact and to develop sustainable solutions together. ■



*Marsabit County, Kenya, 2021. Photo Courtesy: Rodgers Ochieng.*

## What are we Learning about Heat and Humanitarian Relief?

By Prerna Singh, Transitions Research, India

Heatwaves are becoming deadlier, more frequent, and more widespread – but unlike floods or storms, they rarely trigger the kind of urgent humanitarian aid we associate with sudden disasters. This is not because they are less dangerous, but because they behave differently. Heat doesn't destroy – it debilitates. It doesn't arrive suddenly – it builds. And its impacts, though deadly, are often less visible. This makes heat less a case for rapid aid and more one for sustained humanitarian assistance: long-term, preventive support that enables communities to prepare and adapt<sup>1</sup>.

Yet heat increasingly intersects with contexts where humanitarian aid remains essential – such as conflict zones, refugee camps, and post-disaster shelters. Here, it acts as a compound threat, worsening already fragile systems. Most relief camps lack shade, cooling, or ventilation. For women and girls in particular, heat relief strategies like open windows, moving outdoors, or walking in cooler evening hours can conflict with safety<sup>2</sup>. Meanwhile, energy-dependent solutions like air conditioning or electric fans are often unavailable or unreliable due to weak infrastructure<sup>3</sup>. This makes it vital for aid providers to identify alternative, context-appropriate solutions – like passive cooling



Reference: Children try to cool off with cold water as the blistering heat scorches Gaza City, Gaza on July 19, 2023 [Ali Jadallah – Anadolu Agency] <https://www.middleeastmonitor.com/20230814-power-cuts-heat-wave-disrupt-lives-of-sick-qazans/>

materials, shaded community spaces, and safe access to water. Humanitarian aid must evolve to recognise these compounding constraints and design for them.

These settings – structurally similar to informal settlements – also serve as valuable testbeds for heat adaptation strategies that could be applied in other vulnerable systems<sup>4</sup>. Community-tested solutions from such contexts – like low-cost shading, hydration points, and adjusted routines – can also inform responses in other vulnerable areas, including peri-urban neighbourhoods or rural villages. These places often also carry rich

place-based knowledge that can complement and enhance adaptation efforts. Recognising this creates space for cross-context learning, where practical heat solutions can be adapted to fit different physical, cultural, and social environments<sup>5</sup>.

Community involvement is essential in heat response – not just for legitimacy, but because adaptation must reflect local realities. In humanitarian settings, tapping into indigenous coping strategies from similarly heat-affected regions – like South Asia or the Sahel – can offer a critical head start. These communities have long adapted to extreme heat, and their approaches,

<sup>1</sup> IPCC (2022). Sixth Assessment Report. Chapter 16: Key risks across sectors and regions. <https://www.ipcc.ch/report/ar6/wg2/chapter/chapter-16/>

<sup>2</sup> CARE (2023). *Gender and Heatwaves: A Dangerous Intersection*. <https://careclimatechange.org>

<sup>3</sup> ICRC & IFRC (2022). *Extreme Heat: Preparing for the Heatwaves of the Future*. <https://www.ifrc.org/document/extreme-heat>

<sup>4</sup> UN-Habitat (2021). *Adapting Informal Settlements to Climate Change*. <https://unhabitat.org>

<sup>5</sup> Transitions Research & ARA (2025). *Community-led Heat Solutions Compendium*. <https://transitionsresearch.org>

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from shading techniques to hydration routines, can be repurposed for camps or settlements. But with heat becoming hotter, longer, and less predictable, even these strategies need to evolve. Supporting communities to adapt what they know—rather than starting from scratch—is key to building resilience in both stable and crisis-affected settings<sup>6 7</sup>.

Lastly, heat is one of the clearest cases for anticipatory action. Forecasts can trigger simple yet powerful measures—early warnings, water distribution, shelter preparation—that reduce harm before temperatures peak<sup>8</sup>. Making this kind of forward-looking planning routine across humanitarian and development

efforts is no longer optional—it's urgent.

As the planet warms, heat must be treated as a humanitarian crisis in its own right. But unlike many crises, it's one we can prepare for. Local organisations are already doing so. Our job now is to recognise, resource, and scale their work—before the next heatwave hits. ■

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## CRISIS ANTICIPATION

# Anticipatory Actions: The Need of the Hour to Combat with Heatwaves

By *Nadia Zafar*, Communications, READY Pakistan, Pakistan Hub Secretariat, Part of Start Network

Pakistan has become one of the countries most severely impacted by the growing frequency and intensity of climate impacts, including heatwaves, floods, and droughts, making it one of the top nations ranked in terms of climate vulnerability. This has led to widespread humanitarian and socioeconomic challenges. As a development practitioner deeply involved in climate resilience, I have witnessed firsthand how extreme heat has escalated from an environmental concern to a full-fledged humanitarian crisis, devastating vulnerable communities. The urgency of addressing this issue cannot be overstated. Heatwaves, compounded by climate change, have claimed lives, caused serious health issues, and threatened livelihoods.

Urban areas experience the urban heat island effect, where concrete

infrastructure traps heat, intensifying temperatures and making cities increasingly unbearable. In rural areas, communities face water shortages and a lack of resources to cope with extreme heat. Marginalised groups, particularly daily wage workers, women, children, and the elderly are hit the hardest. With limited access to basic needs such as shade, hydration, and medical care, these groups suffer disproportionately. The reality underscores the need for a shift in our approach to climate risks, not merely reacting after a disaster strikes, but adopting proactive, anticipatory action.

Anticipatory action is a forward-thinking approach to disaster risk management that focuses on preparedness. Rather than waiting for heatwaves to devastate communities, anticipatory action emphasises early warning systems, resource pre-positioning, and

community engagement. My research for Climate Resilient Pakistan: Anticipatory Action Review has shown how this model has begun taking root, especially at the grassroots level. Local organisations have pioneered early warning systems, such as heat alerts and localised climate monitoring. These initiatives have significantly reduced the human and economic toll of heatwaves, yet scaling them requires more robust institutional support and funding.

READY Pakistan has been instrumental in driving anticipatory action across the country. As the hub of the Start Network in Pakistan, READY Pakistan coordinates national and international efforts to strengthen resilience and response mechanisms. A key initiative is the management of the Disaster Risk Financing (DRF) system, which models the potential impacts of heatwaves, floods, and droughts

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<sup>6</sup> Watts et al. (2023). *The 2023 Lancet Countdown on Health and Climate Change*. The Lancet. [https://doi.org/10.1016/S0140-6736\(23\)01859-7](https://doi.org/10.1016/S0140-6736(23)01859-7)

<sup>7</sup> IFRC (2023). *Heat Action in Humanitarian Settings: Global Guidance*. <https://www.ifrc.org>

<sup>8</sup> Coughlan de Perez et al. (2015). *Forecast-based Financing: Action before Disasters*. *Nature*, 538, 152–153. <https://doi.org/10.1038/nature16492>

using scientific data and community input. This allows for pre-positioning funds, creating contingency plans, and deploying resources swiftly when needed. Through the DRF programme, the number of beneficiaries reached has increased dramatically from 42,891 in 2023 to an impressive 1,971,423 in 2024. The projects were implemented by member organisations of READY Pakistan, ensuring local communities received timely support.

Additionally, READY Pakistan fosters collaboration among 32 local organisations and 22 international partners, uniting efforts to build resilience in the face of climate change. One of its standout initiatives is the Organisational Strengthening Project, launched in 2022 with support from the Conrad N. Hilton Foundation. This project helps local organisations improve operational capacity and compliance standards, enabling them to better respond to climate-related challenges.

Despite progress, significant challenges persist. Many remote communities still lack timely,

actionable heatwave alerts due to inadequate communication infrastructure or low awareness. The absence of cooling centres, limited access to clean drinking water, and strained health services exacerbate the impacts of heatwaves. Humanitarian responses are often hindered by a lack of coordination between government agencies, NGOs, and local actors, delaying relief efforts.

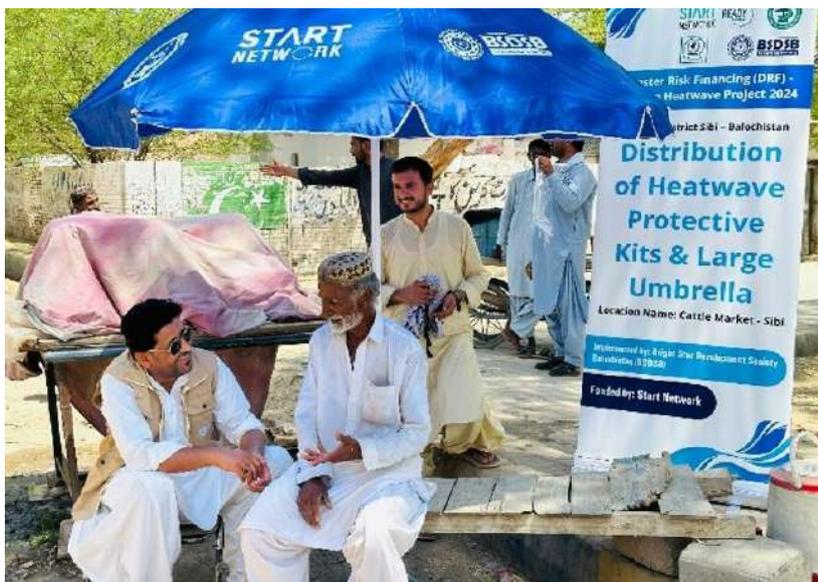
To address these gaps, the Government of Pakistan must focus on localised, sustainable solutions and work in coalition with humanitarian aid agencies, local partners, and civil society to take proactive measures related to heatwaves and other humanitarian situations, both at the national and provincial levels. Such alliances will provide timely relief to the communities and help to deal with severe climatic changes and their impacts. Additionally, strengthening community-based early warning systems will help vulnerable populations take precautionary measures before extreme temperatures arrive. In urban areas, creating green spaces, ensuring water availability, and designing

heat-reflective buildings are vital to mitigating heatwave impacts. Additionally, training healthcare workers and community volunteers to manage heat-related illnesses can prevent fatalities and reduce health risks.

Voices from the field are essential in shaping solutions. One farmer, Muhammad Basit from Potohar region of Punjab, whose words encapsulate the urgency of the situation, said: "Our lands are changing before our eyes. The seasons no longer follow the rhythms we knew, and each year, our crops suffer more." These concerns, echoed by many, highlight the pressing need for climate-sensitive policies and immediate action.

Experts like Dr. Sohail Yousaf, Environmentalist and Professor at Quaid-i-Azam University, emphasise the importance of anticipatory action in policy. He states, "Pakistan is experiencing extreme weather events, from heatwaves above 50°C to catastrophic floods and droughts. These are not just environmental issues but humanitarian crises, impacting vulnerable communities the most. To mitigate these, we must invest in early warning systems, climate-resilient infrastructure, stronger policy integration, and enhanced collaboration between researchers and policymakers."

Pakistan's ability to cope with heatwaves and other climate hazards hinges on anticipatory actions that integrate local knowledge, scientific data, and collaborative efforts. By thinking ahead, communities can be better prepared, and the impact of climate-induced crises can be reduced. The time to act is now! ■



## Extreme Heat as a Humanitarian Crisis: Local Organisations Leading Resilience Efforts

By *Revathi Ramkumar*, Deputy Hub Manager, India Humanitarian Hub, Part of Start Network, India

As climate change intensifies, extreme heat is emerging as a significant humanitarian crisis. With soaring temperatures affecting vulnerable populations, the need for localised, sustainable solutions have never been more urgent. In regions like Tamil Nadu's Karaikudi, traditional practices offer invaluable lessons in resilience, demonstrating how communities have historically adapted to extreme heat. Local organisations are now stepping up to preserve and integrate these methods into modern humanitarian responses.

### The Rising Threat of Extreme Heat

Extreme heat is no longer just an environmental issue; it's a humanitarian crisis. In India, prolonged heatwaves have caused thousands of deaths, exacerbated food and water shortages, and put immense strain on health systems. Marginalised communities, including daily wage labourers, elderly populations, and those living in poorly ventilated urban slums, bear the brunt of this crisis. Without access to cooling solutions, these groups face heightened risks of heat-related illnesses, dehydration, and long-term health complications.

### Traditional Wisdom in Heat Adaptation

Karaikudi's rich architectural heritage and indigenous craftsmanship showcase age-old strategies for combating extreme heat. Chettinad mansions, known for their high ceilings, open courtyards, and thick limestone walls, naturally regulate indoor temperatures, providing a cooling effect even during peak summer. Unlike modern concrete buildings that trap heat, these structures offer a model for sustainable, climate-resilient housing.



*Traditional houses.*

Similarly, the handmade Athangudi tiles, crafted using locally sourced materials, contribute to natural cooling. Unlike artificial flooring materials that retain heat, these tiles help maintain comfortable indoor temperatures. Preserving and promoting such indigenous techniques can play a crucial role in mitigating the impact of rising temperatures.

### Local Organisations Leading the Charge

Several grassroots organisations in Tamil Nadu are working to integrate these traditional methods into modern climate adaptation efforts. Local artisans and builders, supported by non-profits, are reviving and promoting climate-friendly construction techniques. By advocating for policies that encourage the use of indigenous materials, these organisations are ensuring that sustainable housing solutions remain accessible and affordable.

In addition to architecture, handloom weaving communities in Karaikudi are preserving another heat-mitigation strategy, which is lightweight, breathable textiles. Traditional Chettinad cotton sarees,

woven by skilled artisans, are designed to keep wearers cool in high temperatures. Supporting these communities not only sustains cultural heritage but also enhances climate resilience through the promotion of heat-adaptive clothing.

### Bridging Traditional and Modern Responses

As extreme heat continues to pose serious challenges, a collaborative approach is needed. Humanitarian organisations, policymakers, and researchers must work alongside local communities to scale up traditional cooling solutions. Incorporating passive cooling techniques into urban planning, promoting heat-resistant construction, and investing in indigenous craftsmanship can provide long-term relief from extreme temperatures.

By learning from past wisdom and amplifying local resilience efforts, we can combat extreme heat in a sustainable, community-driven way. The key lies in recognising that solutions to modern climate crises may often be found in the traditional knowledge of the past. ■

# Policy Perspective on Extreme Heat Adaptation and Mitigation in India

By Dina Rasheed, Akash Yadav, and Vishal Pathak, AIDMI, India

Extreme heat waves, once sporadic, are now a persistent threat to India's health, agriculture, and livelihoods. The country's average temperature has already risen by 0.7°C and could climb up to 4.4°C by 2100. In 2015 alone, heat killed more than 2,200 people. Urban heat-island effects amplify risks in cities, while crop losses and productivity declines threaten rural incomes. Hot-spot states such as Rajasthan, Gujarat, and Maharashtra are especially exposed, making heat stress among India's most urgent climate challenges.

## Policy Challenges and Current Initiatives

India lacks a national policy that classifies heatwaves as a natural disaster under the Disaster Management Act (2005). Existing National Disaster Management Authority guidelines and local Heat Action Plans (HAPs) often fall short: they overlook region-specific hazards, rarely target the most vulnerable groups, and are underfunded, weakly enforced, and opaque in implementation. Heat-related deaths remain underreported because indirect fatalities (e.g., cardiovascular failures) are seldom linked to heat, hampering evidence-based prioritisation. Capacity building within HAPs is fragmented, leaving gaps in health, urban planning, and agriculture. Rapid urbanisation compounds exposure by intensifying heat islands, and soaring demand for cooling strains power grids. Small-sector workers, 80% of India's labour force, typically lack access to heat-resilient

infrastructure, heightening both health and income risks.

## Role of Non-state and State Actors

NGOs and private firms help bridge policy gaps. The Mahila Housing Trust promotes bamboo roofs and solar-reflective paint in Gujarat, CARITAS India's Chaya Project sets up emergency cooling centres in Rajasthan, and Sphere India conducts impact assessments to guide local responses. Microsoft India's AI-powered "Sunny Lives" model issues heat-risk advisories. Despite their promise, such interventions are limited in scale and continuity without stronger public support.

On the state side, the India Meteorological Department (IMD) issues heatwave warnings, while the NDMA's "Sachet" alert system broadens early-warning reach. Programmes such as the SAHARA initiative integrate energy-efficient cooling solutions. Yet coordination between state and non-state efforts remains weak, curbing nationwide impact.

## Policy Recommendations and Innovations

1. Legal recognition and finance. Classifying heatwaves as a natural disaster would unlock disaster-response funds and embed mitigation into national and state planning. A dedicated central fund, or expansion of the National Adaptation Fund on Climate Change, would ensure HAPs are adequately resourced.
2. Climate-responsive infrastructure. Scaling cool roofs, energy-efficient buildings, and urban green spaces through schemes like the Pradhan Mantri Awas Yojana can ease heat stress nationwide. Telangana's mandatory cool-roofing rules show how policy can mainstream such measures.
3. Robust data and evidence. Assigning a lead agency to track heat-related deaths and map vulnerabilities will sharpen risk assessments and guide targeted action.
4. Technology for early warnings. AI-driven prediction models can



Photo Credit: AP, Hindu.

refine heat alerts, while public campaigns, potentially including heatwave naming, can encourage adaptive behaviours.

5. Community-centred support. Programmes like MGNREGS could fund shaded worksites or alternate jobs during extreme heat. A digital multi-stakeholder platform would help

governments, civil society, and business coordinate resources and avoid duplication.

6. Private-sector engagement. Incentivising affordable, energy-efficient cooling technologies and piloting climate-smart urban projects will expand the solution set beyond public budgets.

Together, these measures would align legal authority, finance, technology, and community action, creating a comprehensive framework to reduce heat-related deaths, protect livelihoods, and build climate resilience across India. ■

## COOLING SOLUTIONS

# Braving the Heat in Sibi, Balochistan: How Local Action is Turning Crisis into Resilience

By Naseer Ahmed Channa, CEO, Bright Star Development Society Balochistan (BSDSB<sup>9</sup>), and Saeed Ullah Khan, Director, GLOW Consultants Private Limited<sup>10</sup>

### Introduction

Sibi, a historic town in the heart of Balochistan, has long endured scorching summers. However, climate change has escalated this seasonal challenge into a recurring humanitarian crisis. With temperatures frequently soaring beyond 48°C and little rainfall year-round, Sibi is now one of the most heat-vulnerable regions in Pakistan. These conditions strain already fragile infrastructure and disproportionately affect vulnerable populations – particularly outdoor laborers, women, children, and the elderly. For many residents, who lack access to reliable electricity, clean water, or healthcare, heatwaves are more than a discomfort – they are a life-threatening hazard. Outdoor workers cannot afford to stop during peak heat hours, children suffer from dehydration, the elderly endure extreme indoor temperatures, and local health facilities struggle to



From the Cooling Point/Relief Camp, a huge crowd is getting cool water for drinking.

manage the surge in heat-related illnesses.

### The Project: Community-Driven Climate Resilience

To address this urgent crisis, the Bright Star Development Society Balochistan (BSDSB), with support from Start Network/Ready Pakistan, launched a heatwave preparedness initiative in Sibi. The objective was

clear: raise public awareness, build community capacity, and strengthen systems to protect lives during extreme heat events.

The project was implemented in two phases – Preparedness and Anticipatory Actions – the initiative also included emergency response elements. The first phase focused on a wide-reaching awareness

<sup>9</sup> Bright Star Development Society Balochistan is a non profit, non political and National Humanitarian organisation. BSDSB has been working for the last 25 years in Sibi and other selected Districts of Balochistan, Pakistan.

<sup>10</sup> GLOW Consultants Private Limited is a specialised research firm working in the humanitarian and development space, with a niche in localisation and related fields.

campaign across the district. Activities included community sessions, local-language radio and TV talk shows, distribution of educational materials, and contingency planning workshops. These initiatives ensured communities understood the risks of heatwaves, how to recognise symptoms, and how to take precautions.

Further, BSDSB established cooling stations in public areas and heat stroke centres within government health facilities. Since Sibi is a regional hub with busy markets, hospitals, and government offices, these facilities served a large population. While the original goal was to reach 51,120 individuals, BSDSB ultimately impacted over 100,000 people through these integrated interventions.

#### About the Research

To better understand community perceptions, knowledge, and preparedness in the face of intensifying heatwaves, BSDSB and GLOW Consultants conducted a research focusing heatwave preparedness project in Sibi,

supported by Start Network/Ready Pakistan. The study was designed not only to assess the outcomes of community-level interventions but also to generate lessons that could inform future anticipatory action in similar high-risk areas. A mixed-methods approach was adopted to ensure both depth and breadth in understanding the issue. The data collection through Quantitative structured surveys with 101 community members, Qualitative data was gathered through eight Focus Group Discussions (FGDs), 16 Key Informant Interviews (KIIs) were conducted with local government officials, healthcare providers, and community leaders to gain institutional perspectives on operational challenges, gaps in service delivery, and recommendations for strengthening response systems.

#### Key Findings: Gaps, Gains, and Grassroots Resilience

The research conducted in Sibi, Balochistan, revealed both encouraging progress and pressing challenges in the community's ability to respond to extreme heat. One of the most important takeaways is that

community-based awareness campaigns can significantly improve heatwave preparedness—but only when tailored to the local context and paired with accessible services.

#### Key Recommendations and Learning

The heatwave preparedness and Anticipatory Actions project in Sibi offers vital lessons for scaling anticipatory action in other climate-vulnerable regions. While community awareness improved significantly through locally led interventions, the study also highlighted clear areas where support systems and policy responses must evolve to ensure lasting resilience. Additionally, few recommendations are including Strengthen Early Warning Dissemination, Improve Physical Capability through Services and Supplies, Promote Gender-Inclusive and Community-Led Outreach, Offer Incentives for Protective Behavior, Foster Behavioral Change through Trusted Local Actors, Institutionalise Heatwave Resilience Planning.

Learning from the project confirms that when communities are equipped with the right knowledge, tools, and support, they can take meaningful action—even under extreme conditions. However, resilience requires more than awareness—it demands enabling environments, inclusive policies, and equitable access to services. The Sibi experience shows that local leadership is not just effective—it is indispensable in confronting the growing humanitarian crisis of heatwaves.

To conclude, in the face of rising temperatures and systemic inequities, local leadership must be recognised not only as effective—but essential. ■



*Distribution Heatwave Protective Kits by BSDSB Staff and beneficiaries are going to their homes feeling satisfaction and happiness.*

## Resilience on Wheels: How One Woman Survived the Scorching Heat of Ahmedabad

By Pallavi Rathod, AIDMI, India



BEFORE



AFTER

*“This umbrella has been a lifesaver,” Ramilaben shared. “Now my vegetables don’t spoil as quickly, and I can even make two extra rounds a day, which increases my income.”*

Ramilaben with her vegetable cart and the umbrella that changed her daily struggle during peak heat in Ahmedabad. Photo: AIDMI.

In the extreme heat of Ahmedabad’s summer, small businesses struggle not only for profit but for survival. For Ramilaben Rameshbhai Patani, a vegetable seller from Laxminagar, Naroda, this struggle is deeply personal.

Abandoned by her husband over 20 years ago, Ramilaben has single-handedly sustained her family by selling vegetables from a street cart. But recent years have seen this modest livelihood threatened by rising temperatures. As extreme heat events become more frequent and intense, women like Ramilaben—small businesses and sole earners—are disproportionately affected.

During a field assessment by the All India Disaster Mitigation Institute (AIDMI) on the impact of extreme heat on small businesses, Ramilaben shared how the sweltering conditions were undermining both her health and her income. In peak summer months, she loses ₹2,000 to ₹3,000 to vegetable spoilage alone. One incident last year proved especially harrowing: Ramilaben

suffered a heatstroke, requiring hospitalisation, medical expenses, and four days of missed income. Tire damage to her cart and mounting debt from high-interest loans further strained her fragile financial balance.

Recognising the urgent need for local, practical interventions, AIDMI stepped in to support Ramilaben. She received assistance that helped her install a large protective umbrella on her cart, repair critical parts of the vehicle, and partially repay debt. This modest support produced a measurable impact—reducing vegetable spoilage, increasing daily productivity, and most importantly, shielding her from the direct heat.

Ramilaben also participated in a heat safety training conducted by AIDMI, where she learned, for the first time, about the health risks of extreme heat and the protective measures she could take. What was once considered a “normal” part of summer—frequent illness and exhaustion—was reframed as a preventable climate hazard.

“Earlier, we didn’t take heat seriously,” she said. “But the training opened our eyes. Now I know that with some precautions, I can stay healthy and continue working.”

Her story reflects the urgent need to address extreme heat not just as an environmental challenge, but as a **humanitarian and livelihood crisis**. It also highlights the transformative potential of small, targeted interventions, especially when paired with education and capacity building.

Ramilaben’s closing words are a call to action:

**“This is the first time any organisation has worked for people like us to protect us from the extreme heat. I hope others like me can also benefit from this.”**

As cities like Ahmedabad face more frequent and deadly heatwaves, the resilience of small businesses—especially women-led—will depend on scalable solutions rooted in local needs, empathy, and innovation. ■

## Community-Led Solutions for Extreme Heat: Building Climate Resilience of Informal Women Workers

By *Ninad Shroff*, SEWA Bharat, India

### Extreme Heat and Informal Workers

Projections indicate that extreme heat events in India will increase in severity and duration (Pillai et al., 2025). Heat stress is linked to complex social impacts like increased morbidity and reduced labour productivity (Sharma et al., 2024). Informal workers - such as street vendors and agricultural and construction labourers - are especially vulnerable to heat due to the outdoor nature of their work, lack of social protection, and inadequate access to essential infrastructure and services like water supply, sanitation, and drainage.

82% of the women working in India are part of the informal economy (Jenkins & Kalsi, 2025). Due to high degrees of informality and social marginalisation, they experience heightened risk, and are increasingly facing heavy losses to health, productivity, and income due to

extreme temperatures. For example, waste segregation workers reported it is too hot and dangerous to work in two out of the four summer months, while home-based workers reported their homes are becoming unbearably hot to work in as they are cramped and poorly ventilated (Jenkins & Kalsi, 2025). Women are not only more vulnerable to the physical effects of heat than men, but also often bear a greater share of caregiving duties related to heat-induced illnesses (Sharma et al., 2024).

### SEWA Bharat's Work on Building Climate Resilience

The Self-Employed Women's Association (SEWA) Bharat is a federation of women-led institutions providing economic and social support to women in the informal economy. It has worked extensively in Bihar, where 31 out of 38 districts fall within the top 25% of the most vulnerable districts nationwide

(Sharma et al., 2024). SEWA Bharat has observed that while these communities are highly aware of the impacts of climate-change, they lack knowledge of its scientific basis.

As a pilot project, SEWA Bharat is working with informal women workers to build climate resilience in four towns in Bihar, where the majority of residents do not have access to toilets and adequate water supply, and live in poorly-constructed homes. Primary strategies include increasing the community's awareness to engage meaningfully in local climate action; building collective agency to enable them to advocate for their own needs; and improving access to social protection and basic infrastructure. SEWA Bharat will liaison between informal women communities and urban local bodies to strengthen effective climate-change adaptation, and form multi-stakeholder committees comprising local actors -



SEWA members conducting a capacity-building workshop with informal women workers in Bihar. Photo credit: SEWA Bharat.

like a Town Climate Committee - to plan for long-term climate resilience by creating climate action plans. Financial strategies like municipal green budgeting will also be devised, along with early warning systems and training on heat-related health impacts. Other interventions like urban greening and waterbody restoration, building cooling shelters, cool roofing, and climate-resilient agriculture, will also be explored.

#### Way Forward

SEWA Bharat's approach has revealed that growing heat risks require an inclusive, multi-stakeholder, participatory planning process to foster systemic risk reduction. Capacity-building of local governments is essential to tackle the

climate crisis, along with localised, community-driven adaptation solutions. The most vulnerable communities must be at the forefront, leading the change, and not be left behind.

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## CLIMATE IMPACT

# Heatwave in South Sudan Forcing Closure of Schools

By *Violet Masibo Ben*, Hope Restoration South Sudan

**S**outh Sudan is one of the Countries that has been experiencing extremely high temperatures with extreme heat during daytime as well as night. In the months of January to March, temperatures go as high as 45 degrees Celsius, making it impossible for normal human activities, which affects economic activities, livelihoods and worst of all, learning. *The extreme temperatures resulting from extreme heat are catastrophic for children's physical and mental health, not forgetting the discomfort and exhaustion that come with it. The heat makes it impossible for children to engage in normal school activities, be it physical or academic. Almost all schools have no air conditioning and most have very*

poor ventilation. In March 2024, the government ordered a nationwide closure of schools for two weeks as a way of protecting the children from the adverse effects of the high temperatures. The Government further stated that an average of twelve (12) learners collapsed in Juba every single day, indicating the severe impact of the heatwaves on children in schools.

On **February 21<sup>st</sup> 2025**, the high temperatures forced schools across South Sudan to close again for the second year in a row, depriving children of learning. While children are out of school due to the heatwave, they are exposed to negative coping mechanisms and engage in child labour with a recognisable number

seen hocking items, washing vehicles and engaging in petty trade. *South Sudan already has one of the highest rates of out-of-school children in the world, and climate change is exacerbating this further. Climate justice is real, and the school-age children of South Sudan are bearing the brunt. It is time for global recognition that the climate crisis is a child rights crisis, and we need a joint intervention to protect the rights of school-age children and their well-being while creating a conducive school environment to allow continued learning. If nothing is done, we will have a whole generation in South Sudan that's missed out on education and a bulge of dropouts vulnerable to exploitation, forceful recruitment, among other.* ■

# The Indispensable Role of CSOs in Heatwave Risk Management in India

By Dina Rasheed, Akash Yadav, and Vishal Pathak, AIDMI

Extreme heat events are intensifying across India, and the May–June 2024 heatwave in Gujarat, when temperatures exceeded 45 °C, shows the scale of the threat. The Indian Meteorological Department (IMD) issued a red alert for Ahmedabad and Rajkot and an orange alert for several neighbouring districts, highlighting the widespread disruption to livelihoods, public health systems, and especially vulnerable populations.

## Resilience through civil society

More frequent and severe heatwaves demand community resilience—the capacity to anticipate, absorb, and recover from shocks. Civil-society organisations (CSOs) are central to this effort, pairing local knowledge with innovative tools. Collaborations with technology firms have produced early-warning systems and mobile apps that deliver hyper-local alerts and safety advice; the AI-powered *Sunny Lives* platform, for example, sends real-time warnings to at-risk groups. CSOs also back heat-smart urban design—cool roofs, reflective paint, and urban greening—that tempers the heat-island effect. Integrated initiatives such as the Gujarat Heat Action Plan, championed by CSOs, have cut heat-related mortality by 61 % since 2013. Awareness drives, emergency cooling centres, and direct relief during extreme-heat days further bolster community coping capacity.

## Working with the government

Partnerships between CSOs and agencies such as the National Disaster Management Authority (NDMA) embed Heat Action Plans in state and municipal practice while



Learning workshop on extreme heat in Odisha on July 25, 2024. Photo: AIDMI.

reflecting on-the-ground realities. CSO inputs refine local risk maps, target hard-to-reach populations, and align plans with NDMA guidelines. Capacity-building programmes train healthcare staff, municipal engineers, and community leaders to recognise heat stress, stagger work schedules, and manage cooling shelters. NDMA pilot funding for CSO-led projects in Gujarat shows the promise of collaborative financing and the need for sustained resource flows.

## Progress and remaining gaps

India has registered real gains, higher public awareness, sharp declines in heat-related deaths, and successful pilots of low-cost cooling solutions. Yet implementation of Heat Action Plans is uneven; rural districts often lack the money, data, and staffing needed for proactive measures. Financing is piecemeal, and feedback loops for refining successful models remain patchy.

## Roadmap for scalable heat-wave management

**Localised interventions.** CSOs should co-create district-specific action plans with local governments and user groups to ensure relevance and high adoption.

## Stable funding and formal recognition.

National and international donors should establish predictable financing channels, while statutory frameworks should formally acknowledge CSO roles in disaster governance.

**Research and innovation.** Targeted studies on the economic costs of heatwaves, together with pilots of energy-efficient cooling and urban greening, will build the evidence base for scaling policy.

**Strengthened partnerships.** Deeper data-sharing between CSOs, IMD, and NDMA will sharpen early-warning systems and enable continuous refinement of Heat Action Plans.

## Community feedback loops.

Embedding participatory monitoring will surface ground-level innovations, accelerate uptake of best practices, and highlight gender- and livelihood-specific needs. By operationalising this roadmap, India can harness the reach and ingenuity of its civil society, complement state action, mainstream climate-resilient design, and safeguard the millions who face escalating heat risk each summer. ■

# The Human Cost of Rising Temperatures and Local Solutions: Making a Difference

By Dr. Nakazibwe Joy, UNFCCC Certified Climate and Health Advocate, African Climate and Health Responders Course, Uganda

The average global temperature has been rising each year, with 2024 recorded as the warmest year since 1850. The global average temperature reached 15.10°C, 0.72°C above the 1991-2020 average and 1.60°C above pre-industrial levels (1850-1900).

These high temperatures have led to increased frequency, duration, and intensity of extreme heat events, significantly impacting human health and well-being. High temperatures lead to health emergencies such as heat stress and heat stroke, leading to an increase in weather-related deaths.

Heat stress is particularly concerning, as it can intensify existing health conditions like cardiovascular disease, diabetes, and mental health issues. Recent studies reveal that 37% of heat-related deaths are attributed to human-induced climate change, with heat-related fatalities among those over 65 rising by 70% over the past two decades.

Vulnerable populations, children, the elderly, pregnant women, and the sick, are greatly affected. Outdoor labourers like farmers face economic challenges and school children miss classes due to extreme heat. As temperatures rise, millions lack access to cooling, clean water, or medical care. For the poor, elderly, and displaced, extreme heat represents a silent humanitarian emergency.

Urgent action is needed to help communities adapt to rising

temperatures. Here are a few local initiatives making a difference.

## NYC °Cool Roofs Initiative

The NYC °Cool Roofs initiative encourages building owners in New York City to apply reflective white coatings to rooftops, helping to reduce heat. This project, a collaboration between NYC Service and the NYC Department of Buildings, promotes volunteer engagement to coat rooftops efficiently. Cool roofs reflect sunlight, combating the urban heat island effect, which causes city temperatures to be five to seven degrees warmer than surrounding areas. These roofs can lower air conditioning costs by 10-30% and reduce internal building temperatures by up to 30%. Additionally, they decrease carbon emissions to 0.5 lbs per square foot of coated rooftop.

## Bed-Stuy Strong AC Redistribution

In Bedford-Stuyvesant, Brooklyn, the Bed-Stuy Strong mutual aid collective organises an annual air conditioner (AC) redistribution initiative. This project collects and



*Transform our capital city Kampala: One tree at a time.*

redistributes working air conditioners to residents unable to afford them. Donations primarily come from residents who are moving or upgrading. They are given to other community members who need ACs and can't afford them. Community involvement is crucial at each stage, from donations, transport to distribution. Organisers utilise flyers, social media, and community events to connect donors with recipients. It demonstrates how collective community efforts can address climate challenges at a local level.

## Greening Kampala City Campaign

In Kampala, Uganda, the Marafiki Green Youth Initiative, collaborating with the Kampala City Council Authority (KCCA), has launched a Greening initiative aimed at planting more trees. This effort is designed to enhance green cover in the urban area, which reduces temperature and provides shade during hot weather. This initiative has garnered enthusiastic community support, with residents actively participating in tree planting. I have occasionally joined in this outreach and have been pleased with the energy and enthusiasm surrounding it. Research confirms that green vegetation helps mitigate rising temperatures, highlighting the positive impact of local efforts. These initiatives show how local organisations are addressing the detrimental effects of rising temperatures on communities. By participating in these efforts, communities can not only build resilience against extreme heat but also promote environmental sustainability and health. ■

## HEAT RESILIENCE

# Equitable Cooling for a Warming India: Lessons from the Ground

By Avinash Singh, Head - Corporate Sustainability and Climate Adaptation, Sustainable Living Lab India, 2025

India faces a silent yet escalating public health emergency: extreme heat. In 2024 alone, more than 700 deaths were officially attributed to heat stress<sup>11</sup>, with independent estimates suggesting far higher numbers due to under-reporting. Over 40,000 cases of heatstroke were reported across the country<sup>12</sup>, underscoring the urgency of addressing this slow-onset disaster. Unlike floods or cyclones, heatwaves leave no visible trail of destruction, but their cumulative impact is far-reaching while eroding health, productivity, and human dignity.

The burden of heat stress disproportionately affects informal

and marginalised communities, who often live and work in poorly ventilated spaces with limited access to cooling. However, contrary to the belief that cooling solutions are resource-intensive, nationwide field evidence demonstrates that community-driven, low-cost solutions can significantly reduce heat stress and improve lives.

### Grassroots Innovations: Real Solutions from Real People

One example is the Mahila Housing Trust (MHT), a grassroots organisation empowering women in low-income urban settlements. By promoting 'cool roofs', a low-cost intervention

where reflective roofing materials or white paint reduce indoor temperatures by 3–6°C. These seemingly simple solutions transformed heat-prone cities like Ahmedabad, Delhi, and more.<sup>13</sup> Now, home-based workers can sustain livelihoods, elderly residents experience fewer health issues, and children can study, sleep and grow in better, safer conditions.

At Sustainable Living Lab (a Bangalore-based climate innovation lab), our recent heat risk assessments in a textile factory in Kishangarh, Rajasthan, and an elderly care home in Pudukottai, Tamil Nadu, revealed



Cooking lunch amid scorching heat: a worker endures harsh conditions inside Kishangarh's textile factory boiler room, unaware just how dangerous the relentless heat truly is (Humidity - 47%, Indoor Temperature near boiler - 40°C). Photo credit: Avinash Singh.

<sup>11</sup> National Disaster Management Authority (NDMA) & IMD, 2024 Heatwave Report Summary.

<sup>12</sup> "India Records 40,000+ Cases of Heatstroke in Summer 2024," Scroll.in, July 2024.

<sup>13</sup> Mahila Housing Trust Cool Roofs Impact Report, 2023.

the severe yet overlooked impact of heat. The severity of the on-ground conditions was apparent even before our WBGT (Wet Bulb Globe Temperature) readings confirmed hazardous heat levels. Without relying on expensive infrastructure, we recommended pragmatic, human-centred changes.

These include rescheduling work shifts to cooler hours, improving ventilation in rest areas, recommending lightweight uniforms and cooling vests, and establishing

hydration protocols. At the elderly care home, we found the hot air accumulate during the day had nowhere to escape at night. Simply opening high windows near the ceiling enabled effective cross-ventilation and immediate thermal relief.

#### **Sustainable Cooling: Comfort with a Conscience**

Such practical measures highlight the core principle of sustainable

cooling: achieving thermal comfort with minimal environmental impact. Passive cooling techniques like ventilation, shading, and thermal insulation can reduce reliance on air-conditioning by up to 80%.<sup>14</sup> Emerging innovations such as district cooling and Cooling-as-a-Service (CaaS) offer scalable, energy-efficient solutions. District cooling systems centralise cooling production in a central plant, serving multiple buildings, reducing energy use by up to 55%. CaaS offers cooling as a utility, allowing users to pay on demand without the upfront equipment cost.<sup>15</sup>

#### **Cooling as a Public Good**

**Equitable cooling** must be at the core of sustainable cooling efforts. Ensuring equitable access requires not only on-ground action but also a supportive policy framework. While the National Programme on Climate Change and Human Health (NPCCHH) and the National Centre for Disease Control (NCDC) have

issued revised heat guidelines<sup>16</sup>, implementation remains inconsistent, particularly in rural and informal sectors. Policies must mandate Heat Action Plans, subsidise adaptive retrofits, and set enforceable workplace cooling standards.

Climate adaptation is not just a technical challenge; it's a social imperative. At Sustainable Living Lab, we have seen that the solutions to India's heat crisis don't lie in silver bullets, but in the collective action of communities, innovators, and

policymakers working together. To safeguard lives and livelihoods for all, sustainable cooling must be treated as a public good. By embedding resilience into the fabric of where people live, work, and age, India has the opportunity and responsibility to lead the global response to extreme heat, ensuring inclusive and equitable protection for all. ■

## ANIMAL RESILIENCE

# How to Respect the Extreme Heat Resilience of Animals in Urban India?

*By Kalpesh Prajapati, AIDMI, India*

It is assured that animals live in rural areas and not in urban areas, but AIDMI has found that over 15 to 20 types of animals live in Indian cities: may they be cows, monkeys, elephants, camels, donkeys, dogs, cats, and even squirrels. And the impact of extreme heat on their life and health becomes negative.

India experiences extreme heat conditions, affecting not only humans but also animals, as said above. Wildlife, livestock, and stray animals have natural heat resilience, but rising temperatures and habitat changes are making survival increasingly difficult. Their death and illness are not even needed regularly. Respecting and

supporting their ability to withstand extreme heat requires proactive efforts in conservation, hydration, shelter, and public awareness in Indian cities.

## **1. Understanding Natural Urban Heat Resilience in Animals**

Many animals in urban India have adapted to high temperatures:

<sup>14</sup> Sustainable Cooling: How to cool the world without warming the planet. (2024). In the Asian Development Bank Institute eBooks. <https://doi.org/10.56506/magr4101>

<sup>15</sup> Cooling-as-a-Service <https://www.caas-initiative.org/>

<sup>16</sup> National Centre for Disease Control (NCDC), "Heat-Related Illness Guidelines," Updated 2023.

- **Desert animals like camels**, which live in Indian cities transportation store water efficiently and have specialised body structures to minimise heat absorption.
- **Wildlife like elephants** regulate body temperature by resting in water bodies.
- **Birds like peacocks and kites**, but also animals like dogs and cats, cool themselves through panting and seeking shade.

While these adaptations help, human activities in cities and climate change are making conditions harsher, requiring additional support to the animals as well as city authorities.

## 2. Ensuring Access to Water Sources in Cities

Dehydration is a major threat during extreme heat. Ways to support animals in cities include:

- **Preserving and restoring natural water bodies** such as ponds and lakes in and around cities.
- **Encouraging urban farmers and farm house owners in cities to provide water points** for livestock in open areas.
- **Setting up water troughs in wards** for birds, cattle, and stray animals.

Small efforts, like placing clay bowls with water in gardens, can make a significant difference to hundreds of squirrels or many monkeys.

## 3. Providing Shade and Shelter in Towns

Shade is crucial for animals to escape direct sunlight in towns. Supportive measures include:

- **Building shaded enclosures** for cattle and working animals such as donkeys and camels.
- **Creating artificial shelters** in open landscapes, such as parks,

*Respecting the extreme heat resilience of animals in urban India means providing water, shade, rest, and conservation efforts by citizens and authorities in public and private properties.*

open plots, and rail tracks in town, makes a big difference.

- **Planting more trees in towns** to create natural shelter in and around towns.

Providing shelter reduces heat stress and helps animals recover from extreme temperatures.

## 4. Avoiding Overworking Animals in Urban Transport

Livestock and working animals, such as bullocks and horses, suffer heat exhaustion if overworked. Respecting their well-being involves:

- **Using light-colored coverings** to reflect sunlight and reduce heat absorption.
- **Reducing workloads during peak heat hours.**
- **Ensuring access to rest periods and hydration.**
- **Ensuring adequate rest during night hours.**

Balancing work and rest and water intake improves the health and longevity of working animals.

## 5. Protecting Urban Wildlife from Climate Change

Extreme heat and habitat destruction threaten India's wildlife in cities, may it be Zoos such as tigers or wildlife living at large in urban areas, such as elephants. Conservation efforts should focus on:

- **Protecting urban wetlands and forests** that support biodiversity.
- **Preventing urban deforestation** and de-vegetation to maintain natural cooling systems.
- **Reducing human-animal conflicts** by ensuring wildlife corridors and safe zones for monkeys in urban areas.

Sustainable development practices help preserve urban ecosystems that support animal resilience.

## 6. Raising Urban Awareness and Community Involvement

Educating urban communities about animal heat resilience fosters a culture of respect and care. Awareness nurturance initiatives can include:

- **Workshops on animal welfare and climate change impacts followed by spot visits to solutions to the adverse impact on animals in cities.**
- **Encouraging responsible pet care** during heatwaves.
- **Government and NGO programmes** promoting animal protection policies in cities from traditional Gaushala for cows to animal health medicine clinics.

A collective effort can ensure animals receive the support they need to survive extreme heat in urban areas.

**Conclusion:** Respecting the extreme heat resilience of animals in urban India means providing water, shade, rest, and conservation efforts by citizens and authorities in public and private properties. By integrating urban community awareness and sustainable practices, we can help animals in cities to adapt to rising temperatures and ensure their well-being in accelerating extreme heat in towns and cities of India. ■

# The Impact of Extreme Heat Risks on Small Businesses and Solutions

By Dina Rasheed, Akash Yadav, and Vishal Pathak, AIDMI, India



Keeping vegetables fresh in extreme heat is a struggle for small businesses of Ahmedabad working with AIDMI during the summer of 2025, as efforts are made towards resilient and inclusive extreme heat cooling efforts. Photo: AIDMI.

Small enterprises power India’s economy by employing more than 80 per cent of the workforce and contributing a substantial share of GDP, yet they are increasingly exposed to extreme heat that disrupts operations, lowers productivity, and harms worker health. Rising temperatures now threaten businesses in cities such as Ahmedabad, Surat, and Bhavnagar as well as rural districts including Varanasi and Kutch, where resources for cooling and adaptation remain scarce.

India’s warming trend is clear. Urban heat-island effects magnify daytime highs in dense centres like Ahmedabad and Surat, while states that depend heavily on outdoor labour—Uttar Pradesh, Gujarat, and Odisha—face parallel pressure in rural areas. Gujarat’s small food businesses struggle to keep perishables from spoiling as cooling costs climb. Agricultural workers in Odisha shorten shifts and confront crop failures linked to heat stress, and Uttar Pradesh recorded 96 heat-related deaths in June 2023,

illustrating the human toll behind these figures.

## Impacts across sectors and locations

- Urban street and small eateries see customer numbers fall during peak afternoon hours, slashing income.
- Construction workers in cities such as Surat face heatstroke, dehydration, and delayed timelines that inflate project costs.
- Food sellers in Kutch lose stock when frequent power cuts disable refrigeration.

- Home-based workers, particularly women, stitch garments or assemble goods in poorly ventilated rooms, raising indoor temperatures and reducing productivity.

Although some businesses adjust working hours or rely on fans, umbrellas, and reflective materials, these stop-gap measures cannot keep pace with longer heat spells.

#### Current initiatives and their limits

State heatwave advisories in Gujarat and Uttar Pradesh provide warnings, and Odisha's tree-planting drives offer roadside shade. Ahmedabad has piloted reflective roof coatings that lower indoor temperatures. Yet such efforts are localised, underfunded, and weakly coordinated, leaving most enterprises without systematic support.

#### Wider sectoral repercussions

Agriculture suffers when higher temperatures suppress wheat and maize yields, with even a one-degree rise, cutting output by up to 10 per cent. Early heat waves interrupt

critical growing stages, and heavier irrigation and chemical use strain water resources and soil health. Clinics report spikes in heatstroke, dehydration, and cardiovascular complications, particularly among outdoor labourers, children, and pregnant women. Infrastructure buckles as roads melt and rail tracks warp, while heat-absorbing building materials drive up cooling demand in cities. Tourism declines when travellers avoid hot months, reducing revenue in destinations such as Kerala. Repeated crop losses and dwindling day wages push families to migrate, deepening economic insecurity.

#### Policy Priorities

1. Subsidise energy-efficient fans, coolers, and reflective roofing for micro and small firms, and promote tree cover and reflective surfaces in city plans to curb heat-island effects.
2. Create sector-specific safeguards for construction and agriculture, including shaded rest areas, flexible schedules,

and health insurance that covers heat illnesses.

3. Strengthen early-warning systems so heat advisories reach both urban and rural enterprises through SMS, radio, and local-language apps.
4. Offer subsidised loans and grants that help businesses recover after heat shocks and invest in insulation, refrigeration, and backup power.
5. Formally recognise extreme heat as a disaster to unlock response funds and give Heat Action Plans legal force.
6. Improve data on heatwave patterns, health outcomes, and business losses so that officials can target the most vulnerable districts with evidence-based measures.

Targeted cooling support, worker protections, reliable alerts, and accessible finance can help India's small enterprises remain productive and safeguard livelihoods as temperatures continue to climb. ■

## CLIMATE OPPORTUNITY

# Turning Up the Heat: A Future Agenda for Africa's Economic Development and Climate Resilience

*By All India Disaster Mitigation Institute, India*

**A**frica stands at a critical juncture. As the continent seeks rapid and inclusive economic development, it is increasingly burdened by the intensifying impacts of extreme heat. Rising temperatures threaten lives, livelihoods, and the very foundations of progress—from agriculture to urban infrastructure to public health systems. This unfolding crisis requires a proactive,

equity-driven agenda that empowers local leadership and strengthens global cooperation. The time to act is now.

#### Locally Led Adaptation Strategies: Power in the Hands of Communities

At the heart of Africa's heat resilience must be the leadership of its people. Locally led adaptation is not just a slogan—it is a necessity. Community-driven planning models

have proven to be effective in identifying priority actions, especially when they integrate indigenous knowledge systems with climate science. Empowering local institutions, civil society networks, and traditional leadership structures ensures that climate action is not only technically sound but also socially rooted. When communities lead, solutions last.

## Investing in Climate-Resilient Development: Agriculture, Cities, and Health

Strategic investments are needed to climate-proof development. Agriculture, which employs over 60% of Africa's workforce, is especially vulnerable. Promoting heat-resilient crop varieties and adaptive livestock systems will help reduce food insecurity and economic losses. In rapidly growing urban areas, retrofitting informal settlements with shaded spaces, improved ventilation, and green infrastructure is vital. At the same time, public health systems must be equipped to prevent and treat heat-related illnesses, with a focus on early detection and frontline preparedness.

### Harnessing the Power of Data: Evidence for Action

Heat adaptation cannot be effective without accurate, accessible, and timely data. African governments and partners must invest in early warning systems that combine satellite observations with community-based monitoring. Vulnerability maps—disaggregated by age, gender, and occupation—will enable decision-makers to prioritise support where it is most needed. Data-driven adaptation can also enhance accountability and empower citizens to take informed action.

### Policy for Protection: Equity and Inclusion First

Heatwaves disproportionately affect the most vulnerable: informal workers, children, the elderly, and women. Policymakers must embed heat risks into urban and rural development plans and prioritise social protection mechanisms like insurance and cash transfers. Importantly, inclusive governance must be the backbone of adaptation—bringing youth,



*A flower small business weathers the heat under a modest shelter, reflecting the shared struggles of small business workers across the Global South. From India to Africa, climate resilience must prioritise those on the economic frontlines to secure inclusive growth and sustainable livelihoods. Photo: AIDMI.*

women, and small businesses into planning and decision-making processes. Equity is not a by-product of good policy; it is the starting point.

### AIDMI's Contribution: South-South Cooperation in Action

With over 30 years of experience in disaster risk reduction and climate resilience across Asia, the All India Disaster Mitigation Institute (AIDMI) offers a unique model of South-South collaboration for heat adaptation in Africa. AIDMI's work in India—particularly in cities like Ahmedabad and Surat—demonstrates the power of community-led heat action plans, anticipatory social protection, and inclusive urban planning.

Through partnerships, AIDMI can:

- **Facilitate Knowledge Exchange:** Share practical toolkits, case studies, and lessons learned from India's experience.
- **Build Local Capacity:** Co-develop training programmes for municipal officials, civil

society leaders, and health workers.

- **Scale Up Adaptation:** Support African cities and rural areas to develop localised heat action plans and vulnerability assessments.
- **Advance Policy and Research:** Collaborate with African think tanks and regional bodies to advocate for anticipatory adaptation finance and climate justice.

### A Transformative Opportunity

Africa's response to extreme heat is not only a climate imperative—it is a development opportunity. By centring local leadership, investing in resilient systems, and drawing on the strengths of international partners like AIDMI, Africa can forge a pathway of inclusive, climate-smart growth. This is not just about weathering the next heatwave—it is about reimagining the future of development in an era of climate uncertainty. ■

## भीषण गर्मी और मानवीय संकट: स्थानीय स्तर पर हो रहे प्रयास (Extreme Heat and Humanitarian Crisis)

By Vaishali Tiwari, AIDMI, India

**भा**रत में बढ़ती गर्मी अब केवल पर्यावरणीय नहीं, बल्कि मानवीय संकट का रूप ले चुकी है। विशेष रूप से छोटे व्यापारियों और अनौपचारिक क्षेत्र के कामगारों पर इसका प्रभाव अत्यधिक देखा जा रहा है। इसी संदर्भ में AIDMI (All India Disaster Mitigation Institute), अहमदाबाद द्वारा रीवा, मध्य प्रदेश में “Climate Risk Mitigation and Management” परियोजना चलाई जा रही है। इस परियोजना के अंतर्गत छोटे व्यवसायों पर आपदाओं के प्रभाव का आकलन, ग्रीन फंड का वितरण और जागरूकता सत्र आयोजित किए जा रहे हैं।

रीवा शहर के 5-6 प्रमुख स्थानों पर जाकर छोटे दुकानदारों से बातचीत की, जहां यह सामने आया कि गर्मी के मौसम में दोपहर के समय उन्हें काम करने में अत्यधिक कठिनाई होती है, जिससे उनके व्यवसाय पर प्रतिकूल प्रभाव पड़ता है। कई दुकानों पर न तो छाया की व्यवस्था है, न ही स्वच्छ पानी उपलब्ध है। अधिकांश व्यापारी गर्मी से निपटने के लिए आर्थिक रूप से सक्षम नहीं हैं।

ग्रीन फंड के वितरण के साथ ही उन्हें यह समझाया गया कि इस धनराशि का उपयोग वे अपनी दुकानों को गर्मी के अनुकूल बनाने के लिए करें, जैसे छतरी लगवाना, वाटर कूलर लगाना,

या बैठने की जगह पर छाया का प्रबंध करना। फंड वितरण के बाद लाभार्थियों की प्रगति की निगरानी की जाती है, ताकि यह सुनिश्चित किया जा सके कि वे संसाधनों का सही उपयोग कर रहे हैं।

AIDMI द्वारा नियमित रूप से प्रशिक्षण एवं क्षमता विकास सत्र आयोजित किए जाते हैं, जिससे स्थानीय लोग न केवल स्वयं की रक्षा कर सकें, बल्कि अपने समुदाय में भी जागरूकता फैला सकें। यह प्रयास भीषण गर्मी को केवल एक मौसम नहीं, बल्कि एक सामाजिक चुनौती के रूप में समझने की दिशा में एक महत्वपूर्ण कदम है। ■



सब्जी व्यापारी, रीवा, मध्य प्रदेश | Photo: AIDMI.



मोची, रीवा, मध्य प्रदेश | Photo: AIDMI.

# A Summary of Key Recommendations from the Various Contributors

By *Joyce Nyaboga*, Senior Network Development Adviser (Design and Infrastructure), UK; and *Mihir R. Bhatt*, AIDMI, India

To many communities, heatwaves have long been accepted as a normal part of life—unavoidable and routine. But as this issue of *southasiadisasters.net* illustrates, extreme heat is fast transforming into a full-blown humanitarian crisis. From small businesses in Ahmedabad to schools in South Sudan, and from women workers in Bihar to traditional builders in Karaikudi, the evidence gathered here reinforces a clear and urgent message: locally led action is not just helpful—it is essential.

As we move forward, the following six priority areas offer a roadmap for scaling effective, equitable, and enduring heat resilience:

## 1. Harness Indigenous Knowledge and Community Learning

Adaptation begins with what communities already know. Traditional architecture, water conservation practices, clothing designs, and local coping routines offer time-tested solutions. These must be integrated with modern anticipatory tools to build context-specific, culturally rooted resilience. Innovation should emerge not from replacing local knowledge, but from strengthening and evolving it.

## 2. Accelerate Policy Action at All Levels

Governments must recognise heatwaves as disasters in their

own right. Policy frameworks—national, regional, and global—should embed heat preparedness into climate adaptation, urban planning, labour protection, education, and public health. From classifying heatwaves under disaster laws to financing community-based heat action plans, a coherent and inclusive policy response is urgently needed.

## 3. Strengthen Capacities and Share Knowledge Widely

Preparedness must reach every level—from households to municipalities. Investing in training, tools, and local leadership—especially among women, youth, and workers—will amplify resilience. Platforms for south-south learning and horizontal exchange between local organisations across borders can accelerate peer-driven solutions to common climate challenges.

## 4. Pursue Integrated Climate and Development Action

Heatwaves are not isolated events. They intersect with water scarcity, food security, energy access, and migration. Solutions must therefore be cross-sectoral—linking health services with infrastructure, urban planning with agriculture, and gender equity with climate adaptation. Heat resilience should not be a siloed response but part of a broader

just and climate-resilient development agenda.

## 5. Invest in Technological and Infrastructure Innovations

Smart cooling is possible and affordable. Investments in passive cooling design, reflective materials, rooftop insulation, urban greening, and renewable energy-powered cooling centres are proven and scalable. Integrating these into housing schemes, transport systems, and workplaces can significantly reduce risk, particularly for the urban and rural poor.

## 6. Generate Local Evidence to Guide Scalable Action

Robust data on the localised impacts of heat—on productivity, health, education, and livelihoods—is urgently needed to inform funding, policymaking, and implementation. Evidence of cost-effective, community-driven solutions can unlock new investment and catalyse mainstream adoption of what works on the ground.

In closing, as temperatures rise, the path ahead must be guided by community wisdom, backed by responsive policy, and powered by shared learning and collaboration. Local organisations have shown what is possible. Now it is time to support, scale, and sustain their efforts. ■

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