Too Hot to Work: Heat Impacts on Home-Based Workers and Street Vendors in Bangkok

Chaninporn Duangnguen, a market trader, takes shelter from the heat inside her home in Bangkok, Thailand. **Photo credit**: Chanakarn Laosarakham

Key Points

1. **Poor housing conditions and other inadequate urban and workplace infrastructure magnifies heat risks, particularly for workers in informal employment.** Decent infrastructure and access to public services would increase workers' protection and prevent economic losses.

2. **Policy frameworks are disconnected from lived realities.** National and local climate strategies prioritize technical measures while overlooking urban informal livelihoods. As a result, adaptation measures rarely reach low-income workers, leaving critical gaps in resilience planning.

3. **Local and national governments help bridge multi-stakeholder expertise.** Effective climate-responsive and inclusive urban planning must rely on the expertise of local and national governments, membership-based organizations, academia, civil society and the private sector.

4. **Collective action is key to climate adaptation.** Worker organizations are trusted intermediaries that can link authorities with workers, filling gaps when labour markets and the state fall short. This makes groups like HomeNet Thailand vital partners for inclusive adaptation.

Chaninporn Duangnguen sells fried chicken in Bangkok. **Photo credit**: Chanakarn Laosarakham

Thailand is highly vulnerable to the impacts of climate change. Extreme heat is the deadliest of climate hazards, with urban populations facing disproportionate risks. In Bangkok, these risks are intensified by rapid urbanization and a pronounced urban heat island effect. Research shows that rising temperatures disrupt sleep, work routines, and health, while even a 1°C increase in average annual temperature lowers the city's GDP by 0.8% (Arifwidodo et al., 2019; Rubinyi et al., 2025: 14). To inform policy responses adequately, it is key to understand how extreme heat affects different groups of workers.

Workers in informal employment are among the most exposed. While national and local climate strategies aim to strengthen adaptation, current approaches focus largely on agriculture. Urban livelihoods and the realities of informal work remain largely overlooked.

Informal employment accounts for 42% of employment in Bangkok (66% in Thailand), with more women than men in the home-based work and street vending sectors (Warunsiri et al., forthcoming). Street vendors are central to the city's food system and tourism, while home-based workers – most earning below the minimum wage – support local and national supply chains. These workers provide essential goods and services, yet remain highly exposed to heat risks.

Urban heat is not experienced equally. Low-income communities, who contribute least to the problem, face the highest health risks (Marks and Connel, 2024). With Bangkok's urban development driven by private-sector property expansion (Endo, 2022), displacement from central areas has left many home-based workers on the city's periphery with poor transport links and limited services. Street vendors have seen their livelihoods eroded by policies that restrict vending areas. For both sectors, urban policy and planning trends have increased their vulnerability to climate risks and undermined the foundations that once sustained their livelihoods.

Two electric fans that Chaninporn uses to stay cool while selling fried chicken on a Bangkok sidewalk. **Photo credit**: Chanakarn Laosarakham

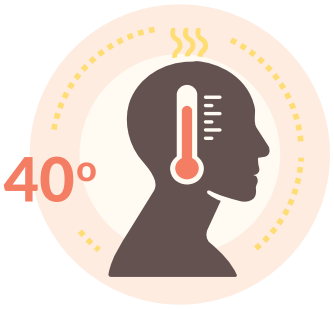
National and local climate strategies, including the National Adaptation Plan and Bangkok's Climate Change Master Plan, acknowledge broad economic vulnerabilities and prioritize technical interventions. Across all plans, vulnerability criteria are vague, with only general mentions of "low-income populations" or "communities in high-risk areas". The bias towards agricultural livelihoods underscores a persistent disconnect between the climate policy framework and the lived realities of workers in informal employment. There is an urgent need for data on the adaptation costs for workers, which include coping costs, medical care, or the cost of learning new skills. Furthermore, while agencies recognize climate-related challenges such as air pollution and extreme heat, their implications for work and income are largely overlooked.

A 2025 HomeNet Thailand/WIEGO study examines how heat affects home-based workers and street vendors. Drawing on surveys with 1,026 workers, key informant interviews and 28 participatory focus groups with 183 workers, the findings provide actionable evidence for targeted, worker-informed policies that protect both livelihoods and strengthen Bangkok's resilience.

Netnapa, a home-based worker, sews clothes at her home to support her seven children in Bangkok, Thailand. **Photo credit**: Chanakarn Laosarakham

How Heat Affects Informal Livelihoods in Bangkok

Severe impacts on work: Nearly 80% of all workers surveyed reduced their hours due to heat, with older workers most affected. Street vendors and home-based workers reported lower sales and lower productivity, respectively. Among home-based workers, 75% lost at least one day of work per month due to their own or a family member's heat-related illness.



Harm to physical and mental health: 73% of street vendors and 80% of home-based workers reported heat-related illness, and more than half required medical attention. Impacts on workers' mental health were especially acute. Nearly 90% across both occupations reported heightened irritability, anxiety or stress due to heat. Findings also point to how age is an important determinant of heat-related health impacts. For example, 79% of vendors aged 60 and older reported heat-related illness compared to 38% of those aged 25 and younger. Despite Thailand's comprehensive health coverage, workers noted barriers to timely treatment for heat-related illness. In addition, the 2006 Thai Occupational Standard sets heat limits and protective measures for employees based on work intensity but provides no guidance for self-employed workers.

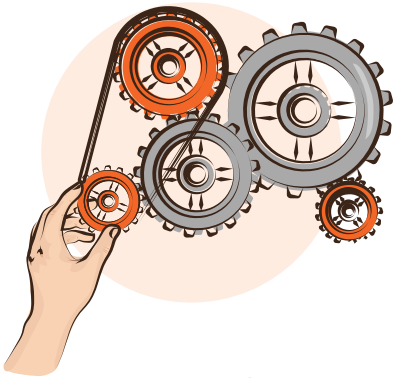
Damage to work inputs: Heat damages work materials, especially for outdoor workers, with 78% of street vendors and 63% of home-based workers, respectively, reporting spoiled goods, damaged equipment or degraded raw materials.

Costs of coping: The overwhelming majority of vendors (95%) and home-based workers (88%) reported extra costs to stay cool and continue working. 70% of all workers had to borrow money because of reduced income or higher costs during heat waves. Existing coping measures reported by workers were mostly behavioural (adjusting working hours, relying on personal cooling methods, taking breaks), ad hoc and self-financed.

Risks amplified by lack of workplace infrastructure and poor housing conditions: Vendors without shelter/ shade were more likely to reduce their working hours and reported higher rates of damage to goods. Overcrowded and poorly ventilated homes trap heat, compounding health impacts and reducing productivity for home-based workers.

Low social protection and limited adaptation support: Social protection is a cornerstone of climate adaptation. It provides income security, healthcare and the resources workers need to cope with shocks and build longer-term resilience. Yet, only 23% of vendors and 46% of home-based workers were enrolled in Article 40 of the Social Security Fund.

Like social protection, early warning systems are crucial to help workers anticipate and respond to climate risks before they become crises. Bangkok's current heat early warning systems reach many residents through smartphone apps and online messaging, but less than half of workers in our survey (43% and 44% of vendors and home-based workers, respectively) reported receiving timely warnings. Focus group discussions suggest that many of these warnings came from general weather applications rather than the city's official system.



Climate strategies prioritize technical measures while overlooking urban informal livelihoods: As a result, adaptation measures rarely reach grass-roots workers. Bringing together the expertise of government at all levels, membership-based organizations and others can lead to plans that effectively address workers' needs.

Collective action is key. As trusted intermediaries, worker organizations can link authorities with workers, filling gaps when labour markets and the state fall short. For example, HomeNet Thailand, in partnership with WIEGO, developed heat-health guidelines to help workers in informal employment prevent, recognize and respond to heat risks.

Worker Voices

> We contribute so little to climate change, but when it comes to risk, we're right on the frontlines. — Food vendor

> And it's not just food that spoils – it ruins our reputation, too. We lose customers. — Food vendor

> If it gets too hot, I don't work. I get irritable. I won't turn on the AC because the bill is too high. It's a cycle – more heat, more costs.
>
> — Home-based worker, sewing bags

> The sewing machines can't run continuously anymore because of the heat. Luckily, I have a backup machine, but expenses have gone up while income has dropped. We don't get higher wages because the employers say raw materials already cost more.
>
> — Home-based worker

> When we open umbrellas, we also have to use thicker shade cloths – set them up outside our selling area so that sunlight doesn't shine in. The fabric has to be thick enough to block the sun completely.
>
> — Street vendor

> I'd like to see [heat illness] included under Section 40, where we can get direct support – like having a doctor's note to verify that we are truly ill. — Food vendor

Policy Recommendations

1 Strengthen Early Warning Systems to Target Workers

Local authorities should ensure accurate and location-specific heat alerts with clear guidance on preventive measures and risk levels. Recognizing that workers have diverse communication needs, it is important to rely on multiple formats. To maximize impact, both local and national governments need to support and empower membership-based organizations to conduct outreach and awareness.

2 Invest in Climate-Resilient Workplace Infrastructure

Local governments should improve public water, sanitation and hygiene facilities (WASH) in strategic locations and ensure access to covered structures, water points and rest areas for outdoor workers. In addition, they could support access to storage solutions to reduce raw material spoilage and facilitate collective access to renewable energy solutions (solar-powered fans or cooling stations) in vending spaces. Local government should ensure reliable water supply, drainage and sanitation in informal settlements, alongside community health services and childcare centres.

3 Promote Climate-Responsive Urban Planning

The Bangkok Metropolitan Administration (BMA) should ensure equitable access to green spaces, particularly for those living in underserved communities, those without private transport, and low-income groups. In parallel, the BMA can build on existing social infrastructure, such as schools and public health units, to develop strategies for protecting workers during extreme heat.

4 Improve Healthcare Access and Responsiveness to Heat

The National Health Security Office and the BMA should improve healthcare access and responsiveness to extreme heat. This should include enabling urgent care at any facility, streamlining registration, expanding services for vulnerable populations, and providing protective measures such as sunscreen as essential support. They should also expand services for older and chronically ill people to reduce the disproportionate care burden that falls on women workers.

5 Strengthen Workers' Occupational Safety

The government should extend occupational safety policies to self-employed workers. Attention should be given to gender, and age-friendly and climate-sensitive workplace infrastructure that meets the occupational health and safety needs of workers.

6 Strengthen Interministerial Communication and Coordination

Relevant ministries should develop clear inter-agency protocols to ensure coordinated responses with technical capacity during extreme heat events. Lead agencies should provide relevant expertise on different aspects of worker protection, including health, labour, urban planning and emergency response. Attention to the wellbeing of workers should be fully integrated into protocols and as part of communication outreach and coordination processes.

7 Ensure Supportive Economic and Social Policies

The national government should adjust electricity subsidy thresholds to reflect rising heat-related energy needs, as current subsidies risk excluding vulnerable groups. The Social Security Office should provide better access to information on the Section 40 scheme, and provide income replacement benefits in case of heat-related illness. Government should expand disaster relief funds and social protection programmes to cover workers in informal employment and simplify the procedures to access these benefits.

8 Commit to Participatory Forums

Local and national governments should institutionalize participatory forums with worker representation, ensuring multi-stakeholder engagement.

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Thongmuan Phansanga is a home-based worker who sews life jackets and other products to support her family from her home in Bangkok, Thailand. **Photo credit**: Chanakarn Laosarakham

Home-based workers from the Kaew Pradap Community preparing chili paste to sell in Bangkok, Thailand. **Photo credit**: Chanakarn Laosarakham

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Women in Informal Employment: Globalizing and Organizing

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For more information on the research presented, including how HomeNet Thailand has been raising awareness on climate change, please connect with us:

Women in Informal Employment: Globalizing and Organizing (WIEGO)

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See how HomeNet Thailand is raising climate awareness through occupational health and safety initiatives with members in these Health Guidelines, https://www.homenetthailand.org/en/archives/7098.