FORUM FOR THE FUTURE

HEAT RESILIENCE:

AN OPPORTUNITY FOR CROSS-SECTOR ACTION ON HEAT IN THE UNITED STATES

TRANE TECHNOLOGIES

CLIMATE AND HEALTH COALITION

CONVENED BY FORUM FOR THE FUTURE

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EXECUTIVE SUMMARY

Extreme heat is the deadliest climate-related hazard in the US, yet it remains a largely invisible crisis with profound human and economic costs. The US has just experienced its hottest year on record, with the coldest state in the nation, Alaska being placed under heat advisories for the first time in recorded history in 2025.

This escalating crisis has resulted in an estimated $162 billion loss to the US economy in 2024 alone, surging hospital admissions, and a significant toll on vulnerable populations including older adults, outdoor workers, and those with chronic illnesses. Beyond direct health impacts, extreme heat disrupts productivity, strains infrastructure, and exacerbates existing social and environmental inequalities, posing a systemic threat to public health and economic stability.

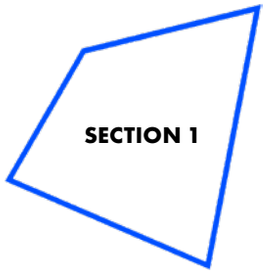
While the challenge is immense, this report highlights that innovative actions are already underway across various sectors. Cities such as New York are embedding nature-based solutions and investing in green housing, while states such as Colorado are implementing community resilience models.

The private sector is also responding, with companies adopting heat safety measures for workers, implementing supply chain resilience initiatives, and developing innovative solutions such as parametric insurance for heat events and climate risk intelligence tools.

However, despite these efforts, significant gaps persist, including a critical lack of reliable data, fragmented coordination across sectors and governmental levels, and an elusive business case for heat adaptation that hinders investment. Cultural mindsets often prioritize reactive crisis management over proactive planning, and existing public policy frameworks fail to adequately recognize extreme heat as a major disaster, limiting access to essential funding.

This report, stemming from a multi-stakeholder convening, underscores the urgent need for coordinated action across the private and public sectors in the US. It presents a comprehensive roadmap for building heat resilience, offering detailed recommendations for all businesses, encompassing internal operations, product innovation, supply chain engagement, and influencing the wider enabling environment. Furthermore, it provides sector-specific guidance for pharmaceuticals, consumer health, agriculture, food, the built environment, technology, innovation, insurance, and media and communications. Crucially, the report also outlines concrete policy recommendations for city and state-level action, focusing on information provision, community outreach, and specific policy interventions.

Achieving meaningful progress requires several key enablers. These include the fundamental recognition of heat as a material risk, integrating heat resilience into wider governance structures, creating dedicated funding mechanisms, and fostering adaptive and resilient organizational cultures. Unlocking philanthropy plays a vital role in catalyzing systemic collaborations and innovative solutions. By adopting these recommendations and leveraging these enablers, the US can transition from a fragmented, reactive approach to a coordinated, proactive strategy, building a future where communities and workforces are resilient to extreme heat, leading to better health outcomes and sustained economic productivity.



INTRODUCTION

The Challenge

Extreme heat is the deadliest climate-related hazard in the US, yet it remains a largely invisible crisis (Speiser & Ishaq, 2025). The US is experiencing unprecedented warming: the ten hottest years on record have all occurred since 1998 (EPA, Climate Change Indicators: U.S. and Global Temperature, 2025) and in 2024, the US recorded an average annual temperature of 55.5 ˚F (13.1 ˚C), which is 3.5 ˚F (1.9 ˚C) above the 20th-century average, making it the warmest year in history (NOAA, 2025).

Heat waves are becoming more frequent, longer, and more intense, with metropolitan areas facing rising heat-related mortality and economic damages (EPA, Climate Change Indicators: Heat Waves, 2025). Even the coldest state in the nation, Alaska, is now confronting heat-related challenges: in 2025, parts of the state were placed under heat advisories for the first time in recorded history.

The human and economic costs of this rising heat are substantial. The US economy suffered a loss of an estimated $162 billion in 2024 alone due to heat-related impacts, while health systems have faced surging hospital admissions – especially among older adults, outdoor workers, renters, and people with chronic illnesses (Wickerson et al., 2025).

Repeated exposure to extreme heat events can also accelerate the body's ageing process in the same way as regular smoking or alcohol consumption does (Kreier, 2025).

Vulnerabilities are further exacerbated by many US communities lacking adequate access to cooling, shaded public space, or reliable early warning systems. In addition, there is limited coordination between public health, labor, and infrastructure sectors in addressing these challenges (C40 Cities, 2025).

The private sector is also affected: rising temperatures contribute to absenteeism, reduced productivity, disrupted operations, and increased healthcare costs, compounding the broader societal and economic burden (Stearnbourne, 2025).

Across communities and the private sector, the broader societal impacts of heat, for example the increased caregiving burdens during school or childcare disruptions, are frequently overlooked. These roles often fall disproportionately on informal caregivers and communities least equipped to respond (Legislative Analyst's Office, 2022).

Finally, some studies have highlighted the interconnections between extreme events such as heat, drought, and flash floods (Yu, 2025).

Together, these trends underscore the urgent need for effective heatwave resilience strategies to protect public health, sustain economic productivity, and mitigate the escalating impacts of extreme heat across the US (and globally).

The Purpose and Format of the Report

The purpose of this report is to present a set of recommendations for coordinated action on heat resilience in the US. It provides a summary of the current risks and impacts of extreme heat (Section 1), the current response across all sectors (Section 2), an overview of gaps in the current response (Section 3) and a framework for collective action on heat across the private and public sector (Section 4).

The report builds on a full-day convening held in June 2025 in New York City, as well as a follow-up dialogue during Climate Week NYC, which brought together diverse leaders from business, government, philanthropy, community organizations and civil society to understand existing efforts on heatwave preparedness – from community-based initiatives to corporate strategies and public policies – identify actions for scaling impact through collaboration and co-create novel approaches to heatwave readiness.

About the Climate & Health Coalition

This White Paper is published by the Climate & Health Coalition – a multi-stakeholder collaboration founded in 2020 by Forum for the Future with a purpose to mobilize and equip the private sector to accelerate the integrated transformation of our health and climate systems, towards outcomes that deliver benefits for both people and planet.

The Climate and Health Coalition was formalized in 2021 with leading healthcare businesses Haleon, Bupa, Reckitt, and Walgreens Boots Alliance. Over the following years, the Coalition was joined by Bristol Myers Squibb, Bayer, Kenvue, Johnson & Johnson, Trane Technologies, Carlsberg Britvic, SIG, and Waitrose & Partners. The Coalition is also supported by 20 non-private-sector national and international organizations active in the climate and health ecosystem.

CLIMATE AND HEALTH COALITION

CONVENED BY FORUM FOR THE FUTURE

Mobilising the private sector to transform our health and climate systems

CORPORATE PARTNERS

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A Systemic Approach to Climate and Health

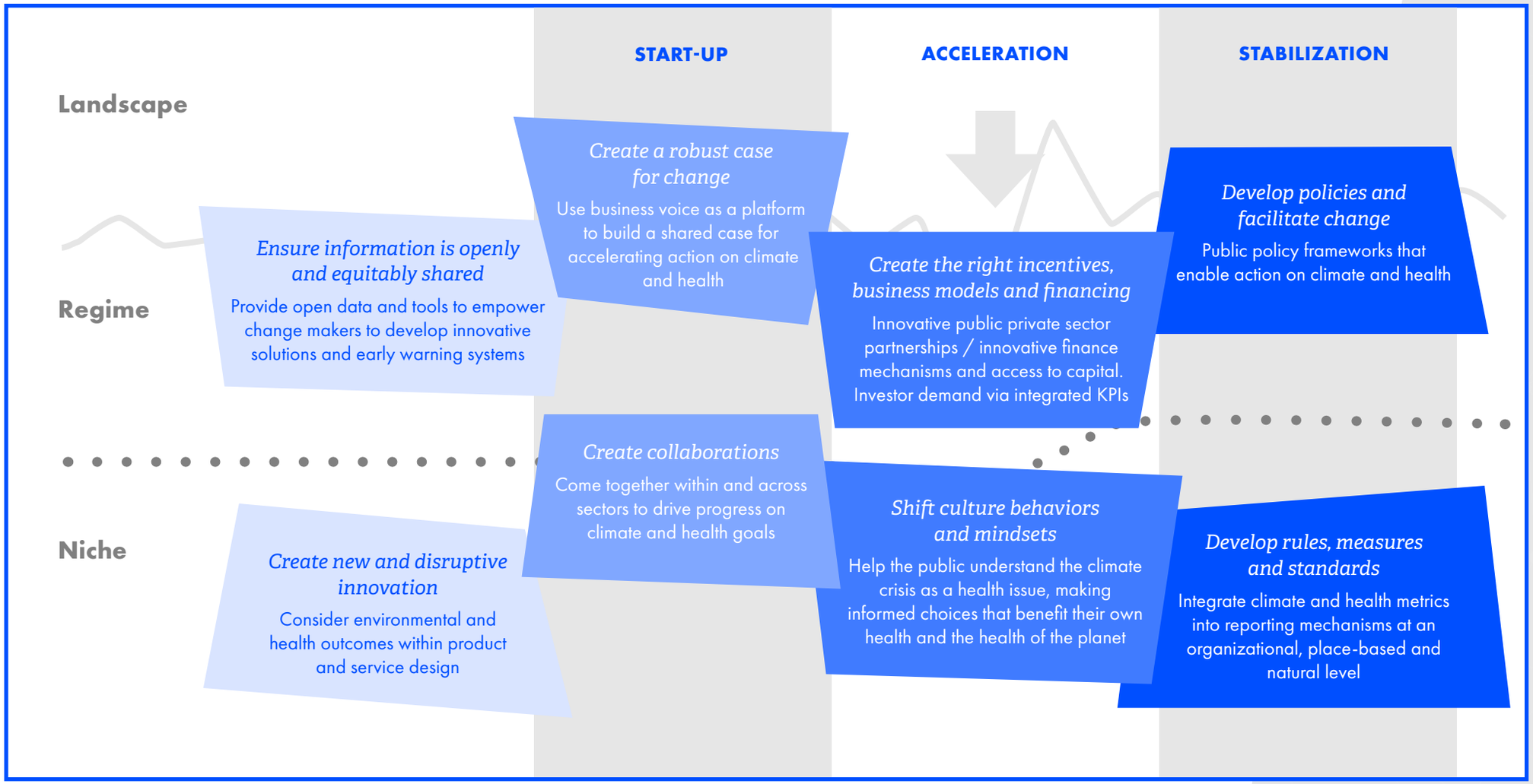
The Climate and Health Coalition takes a systemic view of health, understanding that health is created, or eroded, by multiple factors; from the food we eat, the air we breathe, the buildings we live and work in, and the healthcare we receive.

The Climate and Health Coalition is specifically focused on enabling private sector action at the intersection of climate and health and has produced two sets of guidance for action across all businesses, plus more detailed digital toolkits for businesses in the healthcare and food sectors. Most recently, the Coalition produced a Blueprint for Business Action on Climate Adaptation and Health Equity (Forum for the Future, 2025).

All of the guidance and case studies produced by the Coalition (Forum for the Future, 2021 – 2024) are guided by the framework for systemic change shown in *Figure 2 (on the following page)*, which highlights eight levers or strategies for change according to three typical phases of any systems change.

At the 'Start-up' phase of any system change sharing data and creating the case for change are two key levers, as is innovation and collaboration. Once a system begins to transition, the so-called 'Acceleration' phase, then the critical levers to maintain the transition are the right incentives, business models, and access to finance, plus shifting behaviors and mindsets. If underlying business models, financing, behaviors, and attitudes shift, then any system will start to operate differently, the 'Stabilization' and third and final phase. This is when new policies, as well as new rules, measures and standards are essential to maintain the new operating dynamic of the system.

Figure 2: A framework for designing system change in climate and health – eight levers for change



SECTION 2

CURRENT STATE - WHAT IS HAPPENING ON HEAT TODAY IN THE UNITED STATES?

This section sets out the current response to extreme heat in the US according to the levers for system change shown in Figure 2. Case studies are also used throughout this section to shine a light on bright spots of activity, for each a more detailed description is shared in the Appendices.

Availability of Data and the Case for Action

Community and Public Health

Extreme heat is a public health crisis with cascading vulnerabilities. It disproportionately affects individuals with chronic conditions, infants, and older adults placing increasing strain on health systems; for example, heat-related mortality for people over 65 years increased by approx. 85% between 2000-2004 and 2017-2021 (WHO, Heat and health, 2024).

Beyond its health impacts, extreme heat exacerbates existing environmental and social inequalities. Historically disadvantaged neighborhoods and communities face chronic underinvestment experience higher heat exposure, have limited access to cooling, and elevated mortality rates. For example, Black residents in New York City die from heat at twice the rate of white residents (EH Data Portal, 2025).

Elevance Health: Tracking Health Impacts of Extreme Heat on Chronic Kidney Care

Elevance Health examined how extreme heat affects medical utilization among people with chronic kidney disease (CKD). Using claims data from nearly 917,000 insured individuals with CKD (2015–2023), the study linked weekly healthcare use to heat index levels.

Findings showed that exposure to higher heat indexes (above 89.96°F / 32.2°C) was associated with increased emergency department (ED) visits – 0.55% overall, 2.07% for heat-related diagnoses, and 1.37% for kidney-related diagnoses. The effect was stronger among individuals with limited access to air conditioning, with kidney-related visits rising by 2.48%. Smaller but significant increases were also observed at moderately high heat levels. The results highlight how rising temperatures place additional health and equity burdens on vulnerable populations like CKD patients, underscoring the importance of climate resilience in healthcare planning.

Workforce Health, Safety, and Supply Chain Resilience

Extreme heat also poses a significant and growing risk to the US workforce – and by extension, to business continuity and economic resilience. Yet, the private sector remains underprepared: only 4% of companies have assessed their vulnerability to heat stress, despite the clear evidence that rising temperatures drive absenteeism, lower productivity, and increase healthcare costs.

La Isla Network: Protecting Workers, Powering Productivity through Heat Safety

Extreme heat threatens billions of workers globally, leading to widespread injuries, thousands of deaths, and significant productivity and revenue losses, yet many regions still lack adequate workplace protections.

In response, La Isla Network established the world's first Heat Resilience and Adaptation Center of Excellence in Nicaragua, where a rest–shade–hydration protocol reduced acute kidney injuries by up to 94%, increased productivity by 9-20%, and generated a 60% return on investment within three years. Alongside these health and economic benefits, the program also advanced labor rights, strengthened management systems, and improved workplace policies, demonstrating that safeguarding workers from heat is both essential for public health and a smart business investment.

Innovations and Collaborations

From Community to National Action

A growing number of cities, employers, and organizations are leading the way with innovative, community-based responses to extreme heat. Community-driven initiatives are being reinforced by new policy and governance frameworks that enable local solutions to scale and endure.

Mercer & National Commission on Climate and Workforce Health: New Tool for Forecasting the Cost of Heat to Protect Workforce Health

Most employers underestimate climate change as a workforce health risk, even though most employees report being affected by extreme events like heat, poor air quality, and flooding.

To address this, Mercer created the Climate Health Cost Forecaster, a digital tool that integrates weather, health, and cost data to project long-term healthcare expenses and highlight workforce vulnerabilities. The tool shows stark disparities – such as 40% lower costs in climate-controlled workplaces and doubled risks in sectors like agriculture and construction – helping businesses anticipate financial impacts, protect workers, and integrate climate resilience into strategy.

Workers – especially those in construction, agriculture, and manufacturing – are operating in conditions that regularly exceed 98.6˚F (37˚C). Non-unionized and undocumented workers are especially vulnerable, often unable to report unsafe conditions without risking retaliation (Lakhani, 2024). Despite the risk, enforcement of Occupational Health and Safety (OHS) standards related to heat remains weak and inconsistent.

Operationally, businesses are also grappling with heat-induced disruptions (Hatch, 2025). Power grids are increasingly strained by cooling demand surges, impacting factories, warehouses, and digital infrastructure. Simultaneously, water scarcity, exacerbated by prolonged drought and heat, is threatening production in water-intensive industries like agriculture, textiles, and manufacturing (Tracy et al., 2019).

On a brighter note, some employers are beginning to incorporate heat resilience into occupational workforce health and safety practices, rolling out heat safety checklists, adaptation toolkits, and flexible work policies that reduce heat-related illness and boost productivity. Embedding climate (and heat) resilience into risk governance in this way makes economic sense given every $1 in resilience investment yields is equal to ~$13 in avoided losses (WEF, The Cost of Inaction: A CEO Guide to Navigating Climate Risk, 2024).

Resilient Cities Network: From Heat Hotspot to Hub of Resilience in Boston's Chinatown

Boston's Chinatown faces extreme heat risks due to decades of inequitable planning, limited green space, high pollution, and socio-economic vulnerabilities among residents, compounded by language barriers and poor coordination with city agencies. The Chinatown Heat Action Plan, led by community groups with city support, strengthens resilience through cooling centers, multilingual outreach, volunteer teams, and advocacy for cooling infrastructure. The initiative is already improving social cohesion, economic preparedness, and environmental conditions – transforming the neighborhood's approach from reactive crisis response to proactive, community-driven climate resilience, and offering a scalable model for other underserved urban areas.

Health Care Without Harm: Heat-Proofing Hospitals for Climate-Resilient Health Systems

Extreme heat is straining US health care systems, with nearly 120,000 heat-related ER visits in 2023 alone. Dignity Health California Hospital Medical Center (CHMC) in Los Angeles, serving low-income and unhoused populations, faced surging patient demand and infrastructure risks during record-breaking heatwaves.

Partnering with Health Care Without Harm (HCWH), CHMC adopted a three-pillar resilience strategy – strengthening facilities with upgraded cooling and backup power, collaborating on public infrastructure improvements, and supporting community resilience through bilingual education, heat alerts, and cooling center promotion.

This approach not only safeguards patient care during heat emergencies but also advances health equity, protects community resources, and sets a model for climate-resilient health care.

At the state level, New York City's Extreme Heat Action Plan is embedding nature-based solutions, improving public awareness, investing in green affordable housing through pilot programs such as the HPD–NYSERDA Retrofit Electrification Pilot (HPD Office of Policy and Strategy, 2023), and expanding access to on-site renewables, combining heat adaptation with long-term energy resilience.

States such as Colorado are implementing community resilience models, while Denver's Climate Protection Fund, financed through a local tax, is providing a replicable approach to fund adaptation. Other states are taking similar approaches with some appointing Chief Heat Officers to join the dots across city governments and the private sector to protect their communities and make their cities more resilient to heat (Mehta, 2024).

Federation of American Scientists: Shaping a Federal Roadmap for Extreme Heat Action

By the Federation of American Scientists (FAS) estimates, extreme heat costs the US more than $162 billion annually, costs that have made extreme heat a growing concern to private markets and yet the nation remains unprepared.

In response to this, FAS created the **2025 Heat Policy Agenda**, a federal roadmap built through interviews, policy sprints with 160+ recommendations, summits, and workshops. It works as both a roadmap and a coalition-building tool, guiding government, advocates, and private partners toward coordinated, holistic government action on extreme heat.

The Agenda is already shaping policy: it has influenced introduced bills, been cited in Congressional reports, and is regularly consulted by the Extreme Heat Caucus. States such as California, Arizona, New Jersey, and New York are also drawing on FAS guidance to develop heat action plans. By serving as a hub for ideas and strategy, FAS is advancing a cohesive, nationwide approach to extreme heat.

Across the country, innovation is also emerging through new policy and governance approaches that strengthen local and community action. Recent developments like the *U.S. National Heat Strategy (2024–2030)* set out a long-term framework for coordinated adaptation, creating alignment across cities and states. Legislative efforts such as the *LIHEAP Heating & Cooling Relief Act and the Customer Savings and Reliability Act* are expanding access to affordable cooling, strengthening grid reliability, and helping states protect vulnerable populations from rising heat risks. Together, these policy shifts provide the enabling environment for community-based solutions to scale and endure.

Private Sector

Protecting workers and supply chains from extreme heat is essential to maintaining economic stability, legal compliance, and operational continuity.

Workforce responses are already emerging: some organizations have begun distributing heat adaptation checklists, safety guidance, and even flexible or hybrid work policies to protect their employees during extreme heat events.

Leading companies are adopting dual sourcing, supplier collaboration, and supply chain resilience initiatives to reduce supply chain vulnerability to heat. Businesses have reported positive returns on investment from sustainability and resilience strategies – highlighting benefits such as employee retention, wellbeing, and product innovation.

Bayer: Embedding Extreme Weather Readiness into Workplace Policy and Practice

With 2 billion workers worldwide exposed to extreme environmental conditions, Bayer is committed to safeguarding employees and contractors from risks like excessive heat. Guided by a global health and safety policy, the company developed comprehensive site-level programs covering heat and cold stress, weather monitoring, preventive measures, medical surveillance, and regular audits to identify gaps.

Bayer is also piloting wearable devices to track hydration and electrolyte loss, expanding resources through an internal website, and ensuring contractor protections via procurement policies. These initiatives aim to reduce risks, improve workplace health and safety, and create a safer, more supportive environment for all workers.

AHRH & Medical Society Consortium: Mobilizing Health Leaders to Protect Outdoor Workers from Extreme Heat

Extreme heat is the deadliest weather hazard in the US, yet no federal standard protects workers, and most communities lack consistent systems to prevent illness and death. The Medical Society Consortium on Climate and Health launched the **Alliance for Heat Resilience and Health (AHRH)**, uniting clinicians, public health leaders, and policymakers to advance equitable, health-centered solutions. Since 2024, AHRH has mobilized medical organizations to advocate for strong OSHA standards, provided testimony to regulatory bodies, and launched state-level campaigns. These efforts demonstrate how trusted health professionals can drive policy change and strengthen resilience against extreme heat.

Johnson & Johnson: Building Climate-Ready Community Health Centers Nationwide

Community health centers (CHCs), which serve over 31 million Americans, are on the frontlines of addressing health inequities worsened by climate change. To build resilience, the **Climate Health Equity for Community Clinics Program** – led by Johnson & Johnson, Americares, and Harvard Chan C-CHANGE – supports CHCs with tools and training to prepare for extreme heat, wildfire smoke, and other climate threats. By 2024, 44 clinics in eight states had implemented customized action plans, and the program expanded nationally with additional clinics, learning collaboratives, and resources reaching thousands of healthcare workers.

Capgemini: Optimizing Energy Efficiency and ROI across Critical Operations

Capgemini faced the challenge of optimizing energy use and sustainability in critical facilities like data centers and labs, all while keeping operations running continuously. The team upgraded equipment during low-activity periods and leveraged remote expert guidance to minimize downtime and maintain efficiency.

Their Energy Command Center enables real-time tracking of energy use, carbon emissions, and equipment performance, while AI and machine learning algorithms optimize HVAC systems and data center operations for both energy efficiency and employee well-being. Measures like UV-equipped air handling units and automated CO_2 control improve indoor air quality. Capgemini also implemented a Battery Energy Storage Solution (BESS) with AI-driven Energy Management Systems to manage high energy costs during peak hours. As a result of these initiatives, all Capgemini offices in India now run on 100% renewable electricity, demonstrating significant progress toward sustainable operations, while also achieving significant cost savings (29%) for the business.

Other private sector innovation includes:

Parametric insurance products are being designed to activate payouts during extreme heat events:

Zurich Construction Weather Parametric Insurance (Zurich American Insurance Company, 2025)

Zurich has developed a parametric insurance solution tailored for construction projects. Unlike traditional indemnity policies that require proof of physical damage, this coverage activates based on predefined weather triggers, such as extreme heat, rain, wind, snow, or cold, that may delay projects. Once a threshold is reached, a payout is issued promptly – typically within weeks – to cover labor costs, equipment rental, liquidated damages, expediting expenses, and revenue losses. This allows contractors and developers to maintain financial resilience in the face of climate-related disruptions across North America.

Outside of the US there are further examples:

NFU Mutual / Skyline Partners Parametric Heat-Stress Cover for Dairy Farmers (Skyline Partners, 2025)

In the UK, a collaboration between NFU Mutual, Skyline Partners, Markel, and Gallagher has resulted in the pilot launch of a parametric insurance product for dairy farmers in May 2023. This product employs satellite and weather-station data to monitor temperature thresholds. If exceeded, it automatically pays out a predetermined sum that can help farmers offset production losses and invest in heat-mitigation measures. Farmers can choose from four coverage levels suited to their herd size and risk preferences.

Howden & SEWA Pilot in Ahmedabad: Supporting Informal Women Workers (Howden, 2025)

In Ahmedabad, India, a pioneering pilot project, led by Howden together with the Atlantic Council's Climate Resilience Center and SEWA, introduced the world's first parametric heat insurance for informal women workers. The policy was triggered by temperature thresholds that adjusted dynamically throughout the summer to reflect rising heat severity. Significantly, the model paired insurance payouts with resilience assets, such as water coolers, tarps, and solar lamps. Following its initial success, the pilot was renewed in April 2025 and expanded to cover extreme rainfall tied to monsoon season.

Forecasting and scenario analysis tools can help assess financial and operational heat risk, for example:

EarthScan (Mitiga Solutions, 2025) offers on-demand climate risk intelligence tailored to physical hazards, including extreme heat. It uses high-resolution data from recognized climate and weather models over 100,000 weather stations to model risk scenarios with Bayesian analytics and quantify Climate Value at Risk for assets and portfolios. Reports are aligned with established climate-related disclosure and reporting frameworks / standards and include confidence intervals for uncertainty analysis.

Health research programs study climate-related healthcare utilization, for example:

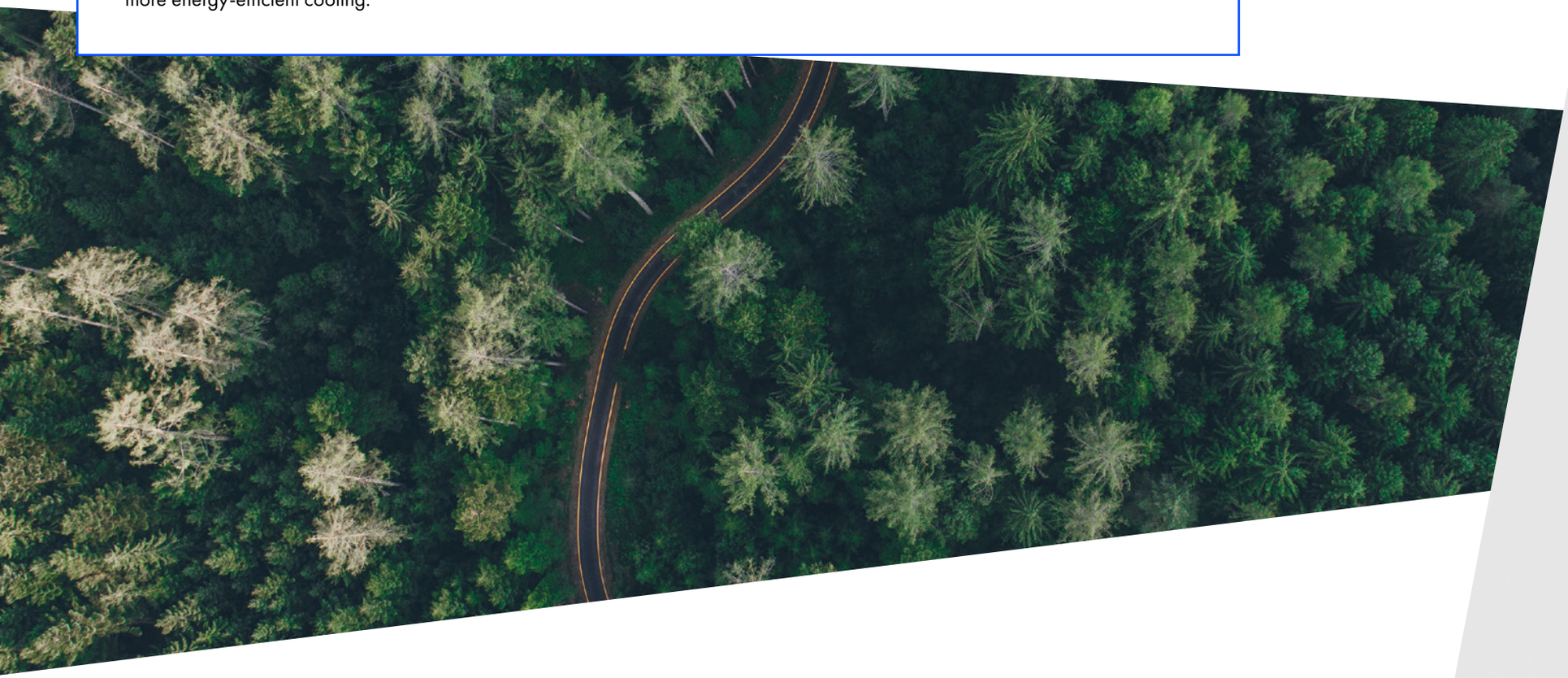
A broad scoping review (Dewi et al., 2024) looked at how extreme weather events affect both health outcomes and healthcare utilization, particularly in rural and remote regions. It detailed increases in emergency services usage and disruptions to routine care during events like heatwaves and floods. It also found that extreme weather events disrupt routine care and drive emergency demand in underserved areas, worsening disparities, and stressed the need for stronger primary care systems and tailored policies to address climate-related health challenges in major geographies, including the US.

Incentives, Business Models and Financing

There are increasing data points which demonstrate the business case for investment in heat resilience in both the workforce and physical assets.

Trane Technologies: Reducing Heat Risks and Boosting Productivity with Advanced Air Systems

GE Appliances faced challenges cooling its large manufacturing plants, where traditional air conditioning was ineffective and worker retention suffered. Partnering with Trane Technologies, the company invested $16.5 million in advanced air rotation units with sensor technology to regulate and distribute air efficiently across factory spaces. The upgrades lowered indoor temperatures by 10–15 °F (5.6–8.3 °C), virtually eliminated heat-related injuries, and improved hiring and retention. Beyond worker safety, the intervention delivered economic benefits through higher productivity and reduced costs, while sensor-driven systems provided more energy-efficient cooling.



SECTION 3

CURRENT BARRIERS TO SCALING SOLUTIONS AND COLLECTIVE ACTION

Availability and Accuracy of Data

Reliable data on heat-related illnesses, ER visits, and deaths remains critically lacking. Heat-related deaths are often underreported or misclassified; for instance, county-level inconsistencies in the US counting systems mean true heat-related mortality is far higher than official figures. Experts estimate actual tolls greatly exceed those cited by agencies like the Centers for Disease Control and Prevention (Snow and Lafleur, 2023).

Furthermore, emerging public health tools, such as Houston's real-time heat-related ER visit dashboard, highlight efforts to improve surveillance but also underscore how rare such systems remain (Houston Health Department, 2025).

In addition, data on equity dimensions of heat impacts (e.g., disaggregated by race, income, housing quality, occupation) is sparse. Without these insights, interventions risk overlooking the most vulnerable groups (ATSDR, 2024).

Lack of Collaboration

Many heat adaptation initiatives today are siloed, lacking coordination across municipal, state, and federal levels. In addition, cooperation between critical parts of the private sector – such as healthcare, energy, housing, and labor – is notably underdeveloped, even though extreme heat impacts all of these systems in interconnected ways (Helsinki, 2025).

While clinicians play a vital role in interpreting and responding to climate-related health risks, medical and sustainability departments often still work in siloes rather than joining forces to build out and test heat prevention measures. This fragmentation slows down the development of integrated strategies essential for effective heat adaptation, highlighting the importance of cross-sector collaboration (CDC, Climate and Health: A Guide for Cross-Sector Collaboration, 2024).

Incentives, Business Models and Financing

A compelling economic business case for heat adaptation remains elusive in both private sector and public budget planning in the US economy that is focused on direct financial benefits. Financing mechanisms tailored to heat resilience are limited, and many employers struggle to justify investment without clear return on investment (ROI) or financial incentives. Unlike flood or storm damage, heat does not generally leave behind visible physical destruction, making economic impacts harder to trace and assess. As a result, banks and investors struggle to integrate heat-related risks into their financial models (Furness, 2025). Even when heat disrupts economies – such as reducing regional Gross Domestic Product (GDP) – financial institutions and businesses often lack the data or tools to link heat exposure directly to business losses or loan defaults (Furness, 2025).

Additionally, heat adaptation – such as cooling infrastructure or workplace heat protocols – usually offers indirect or long-term benefits rather than immediate revenue. In fast-paced economies with a focus on direct profit, which makes it a difficult business case to make for some employers. Heat adaptation also often yields public goods, such as better community-wide infrastructure or shared knowledge, not just private gains. Markets not usually funding such benefits leads to underinvestment (Bellon and Massetti, 2022).

Culture, Behaviors and Mindsets

Strategic leadership on heat adaptation is often absent across sectors. In many institutions, climate and health responsibilities are informally handled with insufficient resources or clear accountability, especially at local and public health levels.

In addition, heat resilience strategies are often reactive responding only after crises unfold rather than proactively planning for future risks. Institutions accustomed to crisis response (e.g., healthcare or emergency services) tend to prioritize immediate needs and underinvest in long-term preventive measures. A broader analysis of climate adaptation reveals short-term thinking often crowds out sustained focus on systemic risks (Rayner et al., 2025).

Within the private sector, heat protection is often not integrated into core governance and strategies, often being framed as a tick-box CSR or ESG exercise, which diminishes the urgency to integrate them into core business practices particularly in sectors where worker safety is critical (Agarwal, 2025). Putting climate adaptation and mitigation at the heart of business strategies has become even harder with ideological debates around ESG, including heat resilience, distracting people from clear scientifically proven facts (Carrington, 2025). The politization of climate adaptation and mitigation derails pragmatic, cross-partisan support for urgent interventions, especially when policy is perceived as ideological rather than safety- or health-based due to misinformation and propaganda, which weakens consensus-driven action (Jackson, 2025).

A further challenge is public awareness: heat lacks the visibility of storms or floods, and limited communication campaigns mean the public often underestimates risks, reducing pressure on leaders and businesses to act (VanderMolen et al., 2022).

Public Policy Frameworks

Effective heat protection is often constrained by gaps and limitations within public policy frameworks, which undermine both proactive adaptation and rapid response.

Lack of Coordinated Federal Strategy

In the US, extreme heat lacks full recognition within federal disaster frameworks. Under current law, the Stafford Act does not explicitly categorize extreme heat as a major disaster, which severely restricts access to federal funding and resources during heat emergencies (Lee and Lindsay, 2024). The gap in policy coordination slows down effective national heat resilience efforts.

There is currently no single agency responsible for extreme heat in the US, with responsibility scattered among a range of agencies, including FEMA, OSHA, NOAA, etc. with no strong co-ordination.

Outdated Urban Planning and Building Codes

Many US buildings are still constructed to weak, outdated codes that do not reflect today's climate risks. As extreme weather (including heat) intensifies, these structures are more likely to be damaged or fail. Weak codes also raise long-term costs, for example by making insurance less accessible, whereas adopting modern, climate-resilient codes would strengthen community safety and reduce future losses; yet many states and localities still haven't adopted stronger standards (Gonzalez, 2023).

In addition, municipal Heat Action Plan (HAP) implementation is patchy. According to a survey of 99 large US jurisdictions (populations >200,000), only ~60% have written Heat Action Plans (HAPs). Many of these lack strong components: e.g., full surveillance systems or agreed definitions of what qualifies as extreme heat. Jurisdictions without formal HAPs are significantly less likely to have planning, surveillance systems, or formally defined heat thresholds. These differences reduce readiness and rapid response capacity (Errett, 2023).

Lack of Coherent Retrofit Plans for Existing Infrastructure

Many existing buildings, particularly in low-income areas, lack the necessary infrastructure to withstand extreme heat. While retrofitting these buildings is crucial, there is often a lack of coherent plans and funding to implement such measures. There is a huge need for investments in retrofits, insightful design, and urban planning to lower energy costs and reduce the burden on low-income households during heatwaves (Ouma, 2022).

Rules, Measures and Standards

By law, employers must protect workers from the dangers of heat exposure and should have a proper safety and health plan in place (US Department of Labor, 2024). At a minimum, employers should provide adequate cool water, rest breaks and shade or a cool rest area. However, what is currently missing in the US are stringent guidelines and rules that incentivize businesses and organizations to implement thorough prevention plans to protect workers' health and safety (Scripps News, 2025).

SECTION 4

A ROAD MAP FOR COLLECTIVE ACTION ON HEAT IN THE UNITED STATES

This section presents a series of recommended actions for all sectors of the US economy and society to take action to build resilience to extreme heat.

The Vision

Through collective action, strategies for heat resilience and heatwave preparedness could be incorporated across the US economy, healthcare systems, policymaking, infrastructure, and society at large, resulting in a future in which **communities and workforces experience better health outcomes and greater resilience to extreme heat.**

Specifically, collective action could result in:

Reduced emergency department visits, fewer heat-related hospitalizations and deaths

Medical professionals acting as visible advocates and trusted communicators on heat-health risks

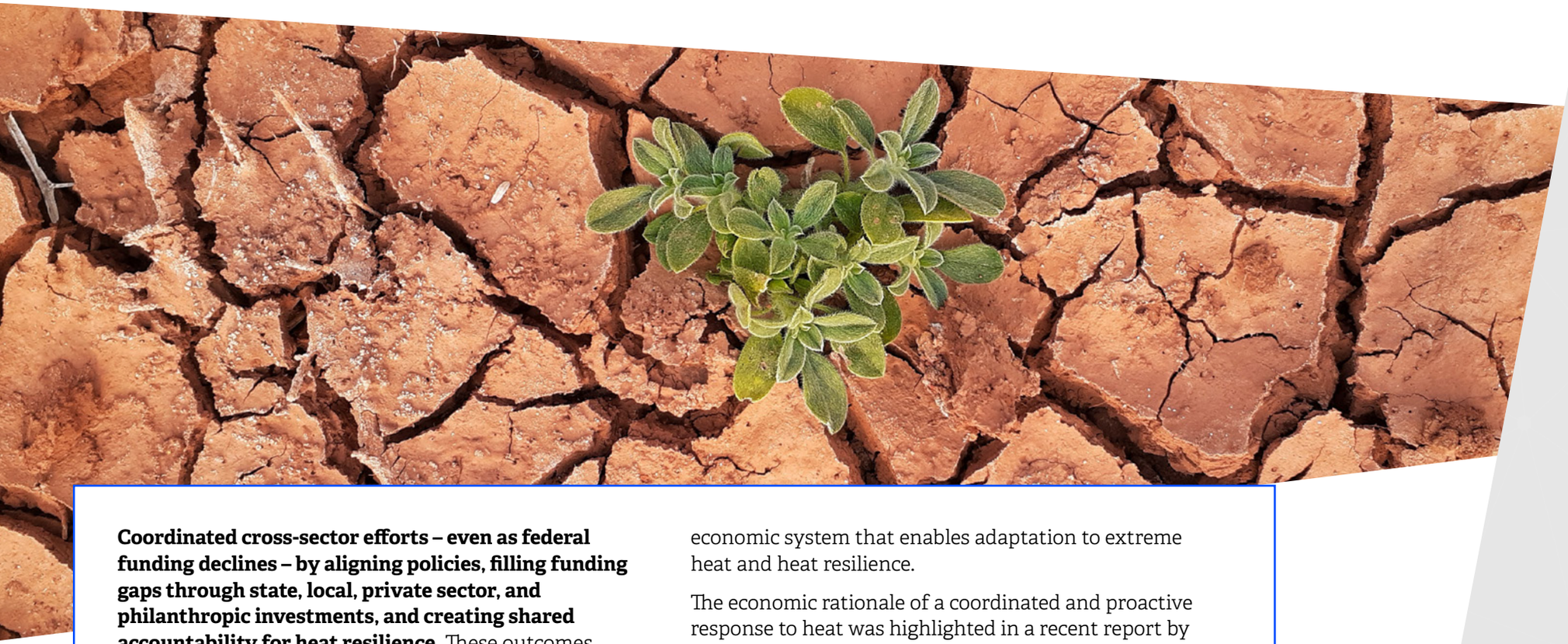
Community-wide resilience with priority protections for vulnerable groups

Heat adaptation embedded into daily life through housing, energy, and cooling access

Reduced work disruptions and economic losses

Strengthened data systems and early warning technologies

Increased awareness across policy, business, and healthcare sectors



Coordinated cross-sector efforts – even as federal funding declines – by aligning policies, filling funding gaps through state, local, private sector, and philanthropic investments, and creating shared accountability for heat resilience. These outcomes represent a systemic change in the current response to heat and will enable a shift from an economic system that doesn't factor in the external costs of heat, a system where heat impacts are poorly understood and where current action is fragmented, to an economic system that enables adaptation to extreme heat and heat resilience.

The economic rationale of a coordinated and proactive response to heat was highlighted in a recent report by the World Economic Forum, which highlighted that nearly **half of projected heat-related deaths and economic losses by 2050 could be avoided** through coordinated investments across healthcare, insurance, infrastructure, and technology (WEF, Healthcare in a Changing Climate: Investing in Resilient Solutions, 2025).

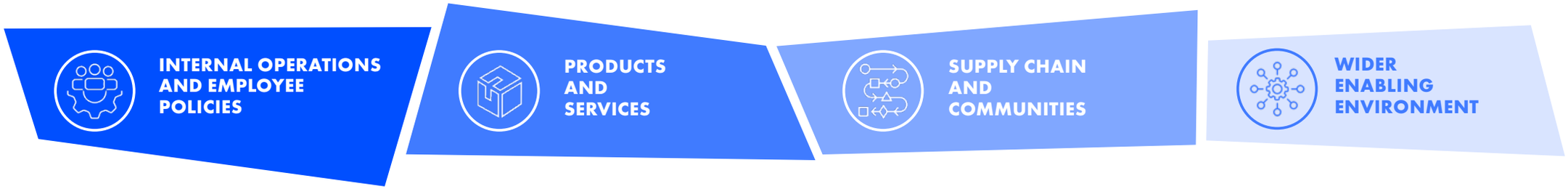
RECOMMENDED ACTIONS FOR THE PRIVATE SECTOR

In sharing recommendations for the private sector to take on extreme heat we have used the 'Spheres of Influence' framework developed for the first iteration of private sector guidance for action on climate and health produced by the Climate and Health Coalition (Forum for the Future, 2021). Across pages 25-27 you will find recommendations for all private sector actors across these spheres of influence, from direct operations to the wider enabling environment.

Recommendations have been identified as foundational (**F**) and advanced (**A**) based on their criticality from a duty of care perspective, or the need for upfront investment of time and / or funds, which may not be available at every organization.

Pages 28-34 provide sector-specific guidance. It is important to note that the guidance becomes ever more important in unacclimatized areas, where heat risk is unforeseen and can become a real emergency.

Figure 3: Business spheres of influence



SPHERE OF INFLUENCE	RECOMMENDED ACTIONS

INTERNAL OPERATIONS AND EMPLOYEE POLICIES

EMPLOYEE HEALTH & SAFETY

- Assess heat risk in the workforce and build a business case for the incorporation of heat into health and safety policies on the central rationale of business continuity (**F**)
- Incorporate extreme heat readiness and heat adaptation measures into occupational health and safety policies and practices. Heat adaptation measures can include shade, misting fans, well-ventilated, dry / air-conditioned spaces, reflective or heat-absorbing shielding or barriers, heat training for staff at all levels, flexible working policies during extreme heat episodes, earlier / later shifts, heat acclimatization, increased / guaranteed hydration / shade breaks, lighter workload, possibility for remote work to avoid heat exposure while commuting, effective monitoring for heat-related conditions, extra staff hire, encouragement of active lifestyles, clear emergency protocols, and income insurance schemes to compensate lost wages when it is unsafe to work (**F**)
- Establish workplace heat stress management and emergency action plans that outline clear escalation procedures for extreme conditions, such as access to designated cooling zones, buddy systems, and coordination with local emergency services, while acknowledging that acute or chronic heat is location and season-specific issues (**F**)
- Engage employees in heat-related conversations and actions, acknowledging that the mental and physical health impacts of heat differ according to local context and tailoring protections for vulnerable groups such as heavy laborers, pregnant employees, and those with pre-existing health conditions (**F**)
- Develop extended employee support programs, for example expanded health benefits or emergency aid for heat-related impacts, reviewing insurance and paid leave policies to cover heat-related illness, and integrating mental health services to address heat-related fatigue, stress, and cognitive decline (**F**)
- Track and report heat-related incidents, absenteeism, and productivity impacts to refine policies and demonstrate ROI (**F**)
- Where workers are most at risk and when viable, deploy cost-effective wearables with smart sensors, among other tools, to monitor core body and environmental temperature, hydration, and exposure setting alarm thresholds for when extra precautions kick in (**A**)
- Account for heat exposure beyond the workplace by recognizing that employees may arrive at work already fatigued, dehydrated, or heat-stressed from conditions outside the workplace such as commuting and poorly cooled housing, and by adapting health and safety strategies to reflect cumulative risks through supportive measures like hydration support, recovery time, flexible scheduling, and access to cooling resources (**A**)

Actions for all Private Sector Organizations

SPHERE OF INFLUENCE	RECOMMENDED ACTIONS

INTERNAL OPERATIONS AND EMPLOYEE POLICIES

RISK MANAGEMENT, STRATEGY AND GOVERNANCE

- Formalize the oversight of extreme heat risks through robust governance processes, starting with comprehensive risk assessments of company operations, assets, and supply chains that feed into corporate strategy and sustainability reports / disclosures – and include metrics that capture both avoided losses and productivity gains to enable tracking of ROI on resilience investments (**F**)
- Build heat stress management comprehension and capabilities from the Executive Board level to the workforce at risk (**F**)
- Incorporate extreme heat analyses and scenarios into enterprise risk management and continuity planning (alongside other climate-related risks like flooding, drought, and sea level rise) (**A**)
- Introduce monitoring systems that measure financial and operational benefits (e.g., reduced downtime, lower healthcare costs, improved retention), so that resilience actions demonstrate a clear return on investment (**A**)

PHYSICAL INFRASTRUCTURE (INCLUDING MANUFACTURING)

- Create strategies for critical facilities to adapt to extreme heat e.g., by equipping manufacturing sites and storage warehouses with enhanced (or mobile) cooling systems, better insulation, and backup power generation (**F**)
- Introduce automatic and proactive response to heat through smart HVAC and building management systems (BMS), which automatically adjust heating, ventilation, and air conditioning (HVAC) based on occupancy, real-time heat patterns, and weather forecasts (**A**)

WIDER ASSETS

- Capitalize on cross-functional collaboration across sustainability, occupational health, commercial, R&D, and facilities / engineering to address heat systemically for maximum impact and innovation (**F**)
- Upgrade physical infrastructure from air-conditioned vehicle fleets to heat-reflective roofing, radiant cooling panels, and high-efficiency chillers – to reduce downtime and health risks during extreme heat (**A**)
- Use digital tools to stress-test operations against extreme heat such as:
  - *Geographic Information Systems (GIS) to identify high-risk zones and design preventative measures* (**A**)
  - *Digital twin simulations – virtual replicas of physical facilities – to model how those systems respond to heat extremes and experiment with suitable adaptations* (**A**)
  - *Climate analytics platforms (often powered by AI) to map out future heat risks* (**A**)
  - *Forecasting models to optimize operations daily, such as scheduling deliveries or maintenance at cooler times* (**A**)

Actions for all Private Sector Organizations

SPHERE OF INFLUENCE	RECOMMENDED ACTIONS	
 **PRODUCTS AND SERVICES**	• Explore product and service innovation through the lens of heat resilience, designing products and services that enable heat resilience (see pages 28-34 for specific examples) (**F**) • Harness customer-facing brands to raise awareness of impacts of extreme heat and encourage behavioral and culture change through storytelling and broader communication (**F**)	• Ensure safe conditions for employees and customers in company-owned facilities (e.g., temperature standards in stores, warehouses, and offices) (**F**) • When using brands and products to communicate on heat, collaborate and partner with influential, trusted voices (e.g., doctors, pharmacists, local and national leaders, or relevant celebrities) (**A**)
 **SUPPLY CHAIN AND COMMUNITIES**	• Conduct heat risk assessments for supply chains, increase supplier awareness of heat and their ability to shift to more heat-resilient practices and engage experts to assist in ensuring safe workplaces (**F**) • Partner with local communities and neighborhoods where employees live to enhance heat resilience by opening company facilities as cooling spaces during heatwaves (**F**)	• Harness technology and digital solutions (i.e., forecasting, and early warning systems) to anticipate heat disruptions and inform decision-making across operations and supply chains (**F**) • Invest in local cooling infrastructure at supplier sites (**A**) • Broader investment in communities to build heat resilience, especially vulnerable, low-income groups most affected by extreme heat (**A**)
 **WIDER ENABLING ENVIRONMENT**	• Capture, advance, and integrate data on climate, health, heat, and ROI metrics to illustrate the costs and benefits of heat resilience and adaptation (**F**) • Influence local, national, and international government and industry policy to create an enabling policy environment for heat adaptation, including advocating for tax credits, subsidies, and insurance mechanisms that reduce financial barriers to resilience investments (**A**) • Enable open access to heat research identifying effective ways of measuring and valuing impacts, while highlighting successful heat interventions (**A**) • Make the case for practical change, leveraging business' considerable influence on peer networks, investors, and trade bodies, illustrating negative heat impacts and galvanizing support for delivering co-benefits (**A**)	• Create in-sector and cross-sector collaborations on heat to capitalize on many sectors' complementary expertise and influence, including partnerships with healthcare providers to co-develop communication, workplace health interventions, and research on heat-health risks, and partnerships with insurers and financial institutions to design packages and incentives that protect businesses, workers, and communities (**A**) • Educate and activate through local community partnerships and existing community-based initiatives bringing together community, local policy makers, and industry partners to strengthen local-level solutions. Share learnings broadly to inform broader policy frameworks, scale effective interventions, and ensure adaptation strategies are grounded in local realities (**A**)

SPECIFIC ACTIONS ACCORDING TO SECTOR

Pharmaceuticals & Consumer Health

Alongside general action any private sector organization can take on heat, there are actions that are sector specific. Whilst this section shares sector-specific actions which can augment the action described on the previous pages, there is much potential for businesses from different sectors to combine efforts to collectively elevate heat as a priority – not just for risk mitigation, but as a driver of proactive response and innovative solutions.

SPHERE OF INFLUENCE

INTERNAL OPERATIONS AND EMPLOYEE POLICIES | **PRODUCTS AND SERVICES** | **SUPPLY CHAIN AND COMMUNITIES** | **WIDER ENABLING ENVIRONMENT**

Recommendations for Pharmaceuticals & Consumer Health

Upgrade manufacturing to help ensure temperature-sensitive pharmaceuticals remain stable and operations can continue through heat waves and heat-related power outages (**F**)

Reduce internal silos by fostering leadership engagement across R&D, clinical, operations, and sustainability teams to connect the dots between climate, health, and innovation strategies (**F**)

Build internal workforce capability to understand how heat compounds health risks and to design systemic solutions, recognizing that leadership commitment is necessary for execution (**F**)

Explore producing and adapting medication and vaccines for storage and / or delivery at higher temperatures (**F**)

Ensure appropriate product labelling and storage of heat-sensitive medication (**F**)

Develop medication and vaccines that retain efficacy at high temperatures e.g., anti-depressants (**F**)

Research and develop treatments for heat-induced illness, while also investigating compounding factors e.g., heat + pollution (**F**)

Study the impacts of common medications that increase dehydration risk, and explore adaptive dosage guidance during heatwaves, especially for vulnerable populations (**F**)

Incorporate heat considerations into clinical trials by assessing whether outcomes vary with location, exposure, or season – and by integrating these insights into broader frameworks such as clinical trial carbon footprint calculations (**F**)

Strengthen the "cold chain" and logistics resilience to extreme heat by expanding refrigerated transport and storage capacity, using temperature monitoring, and having backup cooling for medicines and perishable goods (**F**)

Integrate climate projections into supply chain planning to avoid disruption. Pharmacies and pharmaceutical companies should develop contingency plans for heat emergencies – for instance, lining up alternate suppliers, diversifying sourcing regions, and pre-positioning extra inventories of essential drugs (**A**)

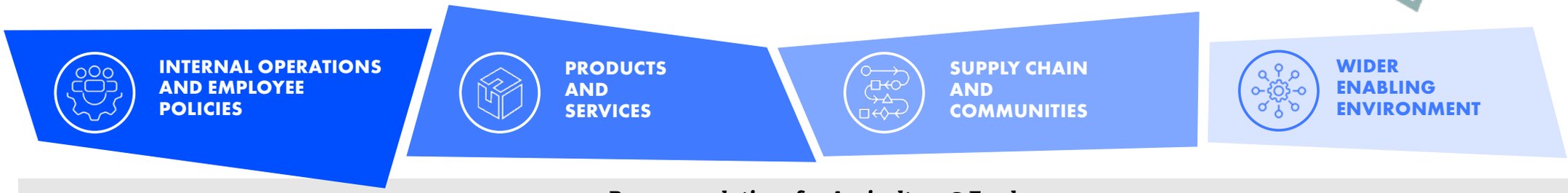
Explore partnerships with the animal health and agriculture sectors, recognizing that animals play a role in labor, food production, and farming systems and may require parallel strategies for heat resilience (**A**)

Foster stronger links with the medical and public health communities to build public awareness of the health impacts of heat (**F**)

Build awareness across the health workforce of how heat exacerbates underlying conditions such as cardiovascular and respiratory diseases, and ensure training includes recognizing, coding, and treating heat-related impacts, noting that cases often go uncoded or mis-attributed (**F**)

Position new drug and therapeutic innovations not just as products but as catalysts for systemic change across climate and health strategy, helping the sector reframe resilience as core to innovation (**A**)

SPHERE OF INFLUENCE



Recommendations for Agriculture & Food

Protect directly employed agricultural workers with employer-led heat plans, flexible arrangements, physical environment adaptation, and medical monitoring (**F**)

Develop heat / drought-tolerant crop varieties and adaptive irrigation to enable food security in extreme heat (**F**)

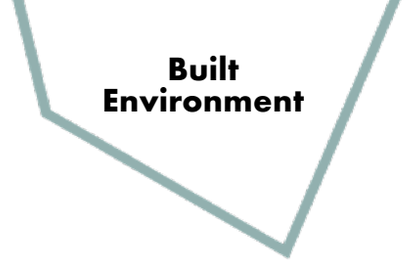
Invest in climate-controlled food storage and transportation to safeguard the food supply from extreme heat. Expanding cold storage facilities and refrigerated trucks helps prevent heat-induced spoilage of produce, dairy, and meat during heat waves, minimize food waste, and reduce the risk to consumer health (**F**)

Build more resilient agri-food supply chains through climate-informed planning. Agribusinesses and distributors should identify hotspots of climate vulnerability and develop backup arrangements – for example, sourcing crops from different regions, adjusting harvest and delivery schedules around heat extremes, and improving on-farm processing capacity. By establishing alternate production sites, redundant transport routes, and emergency distribution plans, the food supply chain can better withstand regional heat disasters (**F**)

Promote regenerative and soil health practices (e.g., cover crops, mulching, agroforestry) to build long-term resilience to heat and drought (**F**)

Pair water efficiency technologies with advanced irrigation (drip irrigation, recycled water use, soil moisture sensors, etc.) (**F**)

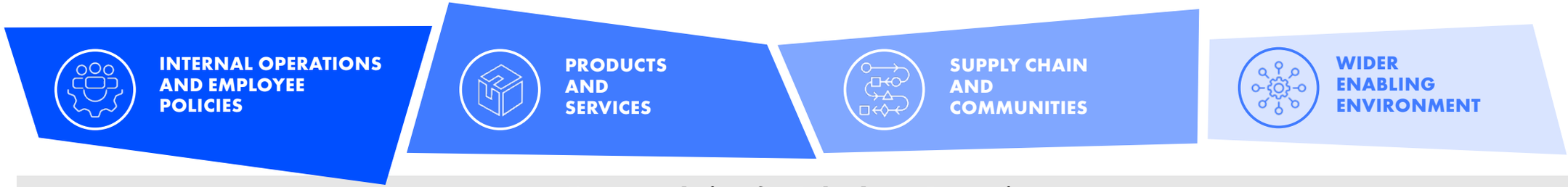
Harness existing collective consumer-facing campaigns and initiatives to raise awareness of heat, particularly storage of food in heat events (**A**)



SPHERE OF influence

INTERNAL OPERATIONS AND EMPLOYEE POLICIES	PRODUCTS AND SERVICES	SUPPLY CHAIN AND COMMUNITIES	WIDER ENABLING ENVIRONMENT
Recommendations for Built Environment			
Protect construction and maintenance workers with employer-led heat plans, hydration / shade breaks, and flexible scheduling (F)	Specify nature-positive and heat-smart building codes, standards, and designs i.e., Passivhaus or similar (F)	Source heat-resilient and low-carbon construction materials (F)	Advocate for upgrading building codes and standards to specify requirements for heat resilience (A)
Train building operators and facility managers in heat emergency protocols (F)	Incorporate nature-based solutions: tree shading, cool / green roofs and pavements, green facades (F)	Set supplier standards for worker heat safety in construction supply chains (F)	Collaborate with municipalities and utilities on district cooling systems, microgrids, and community cooling infrastructure (A)
Ensure tenant safety by setting indoor temperature standards and providing accessible cooling areas during heatwaves (F)	Specify heat-resilient materials (F)		Partner with investors and insurers to scale financing for retrofits and heat resilient construction (A)
	Specify cooling as well as heating systems for buildings (F)		
	Retrofit design to incorporate heat resilience (F)		

SPHERE OF INFLUENCE



Recommendations for Technology & Innovation

Invest in climate / heat-proof critical digital infrastructure such as data center cooling systems while also ensuring backup power is available to prevent overheating-related outages (**F**)

Automate and monitor building and facility technology to ensure equipment is functioning optimally, reduce downtime, and prevent overheating risks (**F**)

Use AI responsibly in managing energy demand, recognizing that AI competition for electricity is increasing costs and straining power systems. Develop frameworks for responsible AI deployment that balance cooling efficiency, power use, and resilience (**F**)

Adopt hyper-cooling strategies in data centers and cloud infrastructure, using AI-enabled monitoring, direct liquid, hybrid, and other advanced cooling systems (**A**)

Develop early warning systems for extreme heat that integrate with emergency response protocols, ensuring vulnerable groups are not left behind (**F**)

Develop digital tools to track impacts of heat on personal health (**F**)

Assess and fortify the tech manufacturing supply chain against heat-related disruptions by collaborating with suppliers on implementing industrial cooling and generally climate-safe working conditions across factories and warehouses (**F**)

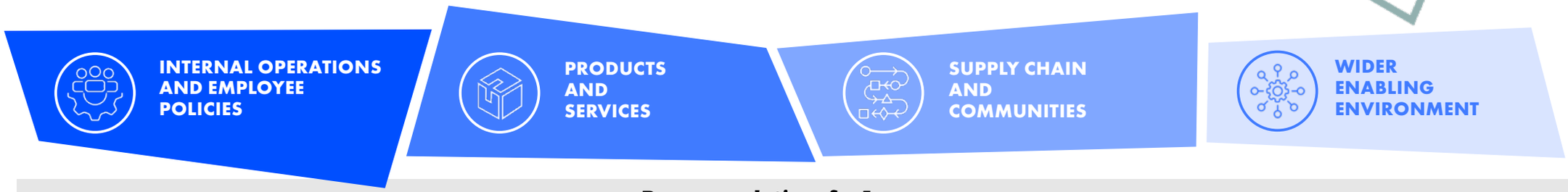
Develop supply-chain specific climate adaptation plans to help ensure business continuity for hardware production and product delivery (**F**)

Collect and openly share big data for real-time heat vulnerability mapping and forecasting to support decision-making by cities, employers, and farmers) (**A**)

Integrate innovative heat early warning systems with emergency response protocols, ensuring that vulnerable groups are not left behind (**A**)

Collect waste heat through heat exchangers to export it to third-party heat networks for warming surrounding communities, providing a sustainable and circular solution (**A**)

SPHERE OF influence



Recommendations for Insurance

Integrate extreme heat risk into core business strategies and culture i.e., enterprise risk management, solvency stress tests, and underwriting guidelines (**F**)

Use climate risk data modelling to future-proof the business by better understanding how more frequent and intense heat events may impact claims and how much capital to hold to deal with escalating heat-related losses (**F**)

Leverage models to demonstrate how extreme climate events affect medical claims, visualizing cost trends where heat-related claims can be up to 40% higher, particularly for lower-paid workers who lack air conditioning or rely on public transportation. Use these insights as conversation starters with business leaders (**F**)

Develop specialized micro-insurance products tailored specifically for climate and heat-vulnerable segments e.g., heat illness coverage for seniors with simplified underwriting requirements (**F**)

Enable affordable climate-risk insurance in heat-prone areas by working with insurers on innovative schemes (public co-financing, reinsurance backstops) (**F**)

Implement premium incentive structures that reward risk-reducing behaviors and investments in climate- and heat-adaptive workplace safeguards e.g., certified heat action plans, cooling infrastructure, and green solutions (**F**)

Develop heat-specific insurance products (crop, health riders, community policies), incorporating coverage elements for climate- and heat-exacerbated conditions and providing support for preventative workplace adaptations (**F**)

When possible, incentivize telehealth over in-person care during climate emergencies, reducing patient exposure to extreme heat while ensuring continuity of care (**F**)

continued on next page

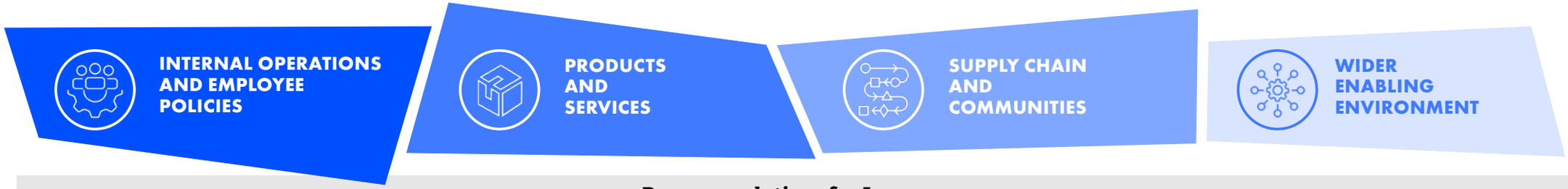
Establish common data frameworks and exchange protocols that benefit the entire sector while protecting intellectual property (**A**)

Strengthen risk assessment through targeted research partnerships with climate scientists and healthcare providers focused on near-term extreme heat impacts (**A**)

Partner with healthcare providers to conduct vulnerability assessments of service provisions and supply chains, providing financial incentives or premium discounts to facilities that demonstrate compliance with high safety standards (**A**)

Update regulations to allow forward-looking risk models, as seen in California wildfire reforms (**A**)

SPHERE OF INFLUENCE



Recommendations for Insurance

Develop parametric insurance that pays out automatically when temperature thresholds are breached, thus eliminating claims and adjustment delays when financial support is most critical (**A**)

Practice targeted coverage extensions for heat-related mental health conditions that may not be customarily included in standard benefits (**A**)

Direct premium reserves toward medical facilities designed to withstand extreme heat events (**A**)

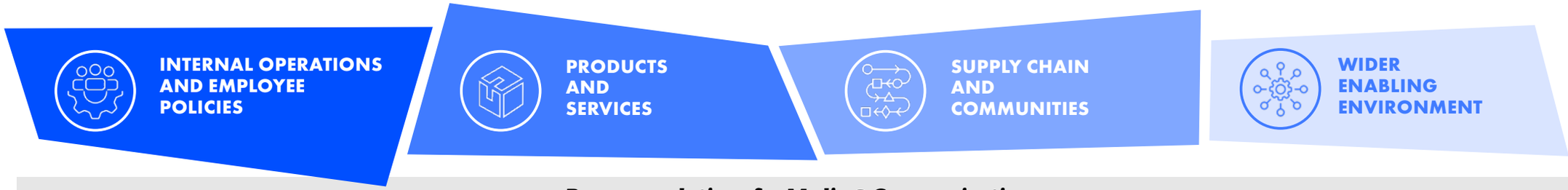
Establish direct channels with policyholders via digital platforms to provide timely, personalized guidance on heat risks to prevent emergency room visits, through the adoption and promotion of digital health tools including wearables, mHealth apps, and SMS-based interventions, which are known to transform healthcare accessibility and delivery, particularly in remote and underserved areas (**A**)

Study and communicate the rising cost of care linked to climate-sensitive conditions (e.g., chronic kidney disease, maternal health), using published research and claims data to illustrate how climate change drives utilization and cost increases (**A**)

Leverage existing systems and community programs (e.g., sponsored runs, Medicaid, and Medicare frameworks) as levers to connect members with climate- and heat-adaptation benefits (**A**)

Media & Communications

SPHERE OF INFLUENCE



Recommendations for Media & Communications

Develop newsroom safety and coverage protocols for extreme heat (**F**)

Introduce guidelines to protect journalists and staff during high-heat events (**F**)

Elevate climate and health expertise within the newsroom and build the business case for investment by demonstrating gaps in editorial knowledge e.g., surveys showing how many editors feel underprepared (**A**)

Train editors and reporters on the science of extreme heat and its health impacts to improve the accuracy and urgency of heat coverage, supported by data-based research and compelling evidence to create urgency (**A**)

Assign dedicated climate reporters or partner with meteorologists and health experts to ensure that stories about heat waves consistently frame them in the context of climate change and public health (**A**)

Frame heat as a public health emergency, while also situating it in the broader context of climate change. Emphasize the urgent risks to health, including disproportionate impacts on vulnerable populations and the workforce, and highlight the bottom-line implications for business and society at large (**A**)

Normalize heat preparedness through media campaigns tied to holidays (e.g., Memorial Day), potentially in partnership with organizations like the Ad Council to scale messaging through PSA airtime and print space (**A**)

Capitalize on popular platforms such as entertainment and sports to amplify messaging and reach new audiences (**A**)

Adopt simple but powerful storytelling, using multiple voices, local expert / researcher inputs, and community case studies to aid public awareness (e.g., "heat season," "heat stress first aid"), supported by strategic pitching to prompt media outlets to elevate the issue (**A**)

Embed heat-protection requirements into Procurement and Contracts (**F**)

Use culture and narrative to change how heat is perceived, discussed, and prioritized (**A**)

Invest in easy, rapid, and scalable heat alerts (**A**)

Collaborate with public health and safety and industry bodies to craft and distribute health-protective messages and general awareness about extreme heat prior to the heat season and in anticipation of extreme heat events (**A**)

FOR POLICY MAKERS

At a City Level

Provision of Information and Awareness Raising

- Implement and / or improve tracking and reporting of heat impacts on the urban population
- Develop standardized heat-risk intelligence services for cities with vulnerability overlays, accounting for factors such as healthcare access, infrastructure quality, and socioeconomic status, to pinpoint hot spots and guide targeted investment and cooling actions, e.g., Global Heat Resilience Service (GHRS)
- Create open-access, real-time heat dashboards to inform residents, businesses, and emergency services with heat forecasts, current conditions, and related health risks (i.e., New York State Heat Risk and Illness Dashboard)

Community Outreach and Partnerships

- Run and / or support place-based pilots and projects to demonstrate the benefits of heat adaptation
- Involve local businesses and communities in co-creation of urban heat plans and community actions, resulting in heat-smart environments with equity at the core and ensuring that strategies for emergency response, resource distribution, and long-term infrastructure improvements are aligned
- Prioritize vulnerable groups (elderly, outdoor workers, low-income families) with subsidies for home cooling equipment and targeted outreach
- Create a library for community case examples, "how to" hubs for heat-reduction solutions and local actions
- Turn libraries, schools, recreation centers, and faith-based settings acting into cooling centers
- Partner with technology businesses to co-develop innovative solutions
- Promote urban heat island mitigation via shade design, reflective / porous materials, trees / vegetation, heat-ready community programs, and measurement of individual heat exposure to guide targeted neighborhood interventions
- Position cities as conveners to pull together civil society, private sector, healthcare, and community actors to take coordinated local action on heat resilience
- Design risk communication strategies that tailor heat messages to diverse populations in ways that are culturally, linguistically, and place specific. Leverage Mayor's offices to deploy communication and build awareness

Specific Policy Interventions

- Introduce forward-looking / proactive planning and policy tools (codes, standards, and regulations) and capitalize on public procurement and diverse incentives to foster heat preparedness, including cooling parity with heating
- Scale practical governance innovations for example Chief Heat Officers and heat-wave naming / categorization
- Ensure community leadership and representation in heat-planning processes and embed protections – such as tenant rights and affordable housing measures – so that resilience investments do not displace existing residents (for example, Los Angeles has paired climate adaptation initiatives with anti-displacement housing programs to protect low-income renters)
- Launch and scale municipal retrofit programs for low-income housing and community infrastructure, backed by innovative financing mechanisms (e.g., bonds, pooled public-private funds, tax incentives) such as the Chelsea, MA 'Margolis Apartments' cool-roof project for seniors and adults with disabilities, which include interventions like cool roof coatings, improved insulation, enhanced ventilation and efficient cooling systems
- Ensure cost-benefit analysis captures not only emissions reductions but also healthcare savings, productivity gains, and GDP growth
- Adopt and enforce local ordinances for occupational heat safety – for example, Boston's ordinance requires city contractors and outdoor worksites to maintain heat illness prevention plans with rest, shade, water breaks, and other protections during heat emergencies

At a State Level

Provision of Information and Awareness Raising

- Clarify and promote the economic benefits of heat readiness
- Push prevention messages for cooling and hydration with special focus on vulnerable groups
- Integrate heat literacy into school K-12 curricula (science, health, environmental education), including understanding heat risks, heat-related health effects, and prevention actions
- Establish a dedicated state-level resilience funds or financing mechanisms (e.g., green or resilience bonds) that enable municipalities and tribal governments to invest in adaptation measures such as cooling infrastructure, tree planting, and home retrofits – similar to California's Extreme Heat and Community Resilience Program, which has allocated over $30 million for local and tribal resilience measures (CA Office of Land Use and Climate Innovation, 2025)

Community Outreach and Partnerships

- Provide needs-based home energy assistance (rebates) and weatherization
- Adopt participatory governance and local community capacity building to shape heat-related decision-making and address inequity, while exploring novel nature-based local interventions
- Establish regional heat health networks (i.e., "Hubs") and provide coordination and technical support to regional partners
- Fund and require annual training for employees, supervisors, healthcare providers, and emergency managers on recognizing the symptoms of heat stress and implementing heat-illness prevention policies (building on models such as California and Washington's heat safety training requirements)

Policy Interventions

- Pair medical and technological innovation (e.g., digital alerting, home-environment fixes) with policy pilots and cross-sector partnerships
- Invest in heat adaptation through deep affordable retrofits, urban forestry, improved transportation systems, and power infrastructure
- Integrate heat injury and illness prevention into national adaptation law
- Integrate heat (as an important climate-sensitive health risk) into National Adaptation Plans (NAPs) for climate-resilient health systems
- Use inter-governmental platforms and processes such as COP to enact policy changes and increase financial flows towards heat adaptation
- Strengthen cross-agency and cross-sector collaboration to articulate the negative impacts of heat stress and the benefits of coordinated action on heat
- Develop indicators and frameworks that integrate climate, health, heat and wellbeing metrics into policy and budgeting instruments and decisions
- Leverage public procurement to integrate heat readiness, prioritizing marginalized communities
- Foster further research into heat sensitivity of medication, and regulate appropriate labeling to safeguard its safety and quality
- Integrate extreme heat into official disaster planning and formally recognize heatwaves as natural disasters (e.g., under FEMA in the US) to unlock emergency funds for resilience measures
- Establish and enforce state-level occupational heat safety standards (shade, water, rest, acclimatization), building on models like California OSHA
- Coordinate across states to align heat adaptation standards and share data via regional compacts and collaborative networks

FOR PUBLIC HEALTH PROVIDERS, THE MEDICAL COMMUNITY AND HEALTH CARE WORKERS

- Use data from tools such as The CDC Heat & Health Tracker to target outreach
- Develop Heat Action Plans and National Adaptation Plans to guide investments in resilient health infrastructure, including backup power for hospitals and surge staffing during heat emergencies
- Strengthen healthcare facilities with HVAC upgrades and backup systems, insulation, and passive cooling systems to keep them operational during heatwaves
- Expand telemedicine to maintain continuity during heatwaves
- Train health workers to recognize heat illness surges and provide corresponding treatment
- Engage healthcare workers and community health centers as trusted messengers in community-based dialogue, ensuring they have the tools and training to recognize and address how heat impacts vulnerable patient populations
- Ensure healthcare providers and patients are aware of existing programs such as Medicare, Medicaid, and LIHEAP (Low-Income Home Energy Assistance Program) that can offset costs for cooling, energy assistance, and resilience measures, and integrate referrals into patient care and community outreach
- Ensure healthcare voices have a seat at the table in resilience planning, bringing trusted messengers (healthcare workers, CBOs) into strategy discussions to align medical expertise with community needs

ENABLERS

Recognition of Heat as a Material Risk

Heat should be viewed as a material risk to operations and workforce health. One route to recognizing heat in this way is for businesses to internalize climate and heat-related costs (lost productivity, supply chain disruptions) and proactively fill gaps that government policies cannot address by investing in resilience to protect their interests.

Integration of Heat into Wider Governance

Embedding extreme heat into corporate governance and risk management frameworks (including clear and shared indicators for heat resilience) can benefit both large firms as well as smaller ones where the benefits of avoiding heat-related losses deliver direct economic benefits. In all cases good governance can translate risk insight into actionable continuity plans.

Creating Dedicated Funding and Financial Tools

Leading companies are earmarking capital for climate resilience and using innovative finance to bolster heat adaptation. This can mean investing in physical upgrades (cooling systems, building retrofits) as well as financial products that spread risk (i.e., issuing green bonds to fund resilience projects and purchasing parametric insurance).

Shifting Mindsets

A foundational enabler is fostering a company culture that acknowledges extreme heat as the "new norm". Instead of treating heat waves as rare anomalies, agile organizations are shifting mindsets to accept that frequent extreme heat is here to stay – and must be planned for.

Adaptive and Resilient Cultures

A linked enabler is an adaptive and resilient culture that treats each extreme heat event as an evolving practice, a shared responsibility and an opportunity for innovation (employees at all levels feel empowered to suggest new ideas to cope with heat). Agile businesses set up feedback loops, which could involve tracking the effectiveness of new cooling equipment, monitoring whether schedule changes maintained output, or surveying employees on safety measures, to refine policies in turn.

Unlocking Philanthropy

There is a role for philanthropy to fund systemic collaborations that bring together diverse actors in climate and health, from grassroots organizations to private and public sectors, in a way that tackles inherent power imbalances and climate, health and heat injustice. Philanthropy also has a role in catalyzing innovative solutions that may not yet meet commercial investment thresholds but show promise for scaling such as blended finance vehicles, innovation prize competitions and strategic partnerships with health-tech incubators.

CONCLUSION AND NEXT STEPS

Extreme heat is now the deadliest climate-related hazard in the US, yet it remains largely invisible. The US just endured its hottest year on record – with average temperatures higher than any point in modern history – with heat waves growing longer, more frequent, and more intense (EPA, 2025; NOAA, 2025). The costs are mounting: billions lost to reduced productivity and health impacts, alongside rising hospital admissions, and preventable deaths. Vulnerable groups – older adults, outdoor workers, low-income renters, and caregivers – bear the brunt of these impacts, often without access to adequate cooling, public space, or early warning systems. Extreme heat is a systemic crisis demanding urgent, coordinated action.

Responding effectively requires moving from fragmented, reactive measures to integrated, proactive approaches. This means strengthening evidence and early warning systems, so risks are visible and actionable; creating shared governance structures that align public agencies, businesses, and communities; and unlocking financing that recognizes the value of prevention and shared resilience. Heat resilience solutions must also center frontline communities and vulnerable workers, delivering co-benefits for health, wellbeing, and livelihoods.

The path forward is clear. Solutions already exist (see Appendices for detailed case studies) – in city heat action plans, workplace protections, community-driven cooling initiatives, and innovations in building design and planning. What is needed now is the collective will to scale them: to convene diverse actors around a shared national agenda, to invest in enabling conditions that allow solutions to thrive, and to hold ourselves accountable for progress.

JOIN FORUM FOR THE FUTURE AND THE CLIMATE & HEALTH COALITION IN COLLECTIVELY BUILDING A SHARED AGENDA FOR HEAT RESILIENCE ACROSS MULTIPLE GEOGRAPHIES.

Partner with us to co-design bold, cross-sector strategies that accelerate equitable, systemic responses to extreme heat at a city, regional, state and country level – mobilizing private sector leadership alongside policy, public health and community action to protect people, strengthen systems, and build a more resilient future. Reach us at climateandhealth@forumforthefuture.org

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DETAILED CASE STUDIES

Trane Technologies: Reducing Heat Risks and Boosting Productivity with Advanced Air Systems

Challenge:

Cavernous manufacturing plants can be difficult to cool, given the amount of space and the heat thrown off by the plant's operations. Traditional air conditioners and other methods have not been effective enough at GE Appliances factories. The company had been struggling to retain hourly workers, such as its Roper facility in LaFayette, GA., where cooking appliances like electric ranges, wall ovens and cooktops are made.

Approach:

Trane Technologies, a provider of climate solutions to buildings and transportation, supplied the high-tech air handlers used at several GE Appliances' large plants, who invested $16.5 million in upgrades across four plants to modernize their facilities and create a great work environment for employees. This included installing advanced air rotation units – high-tech air handlers equipped with sensor technology to automatically adjust temperatures in large factory spaces. These solutions were designed not only to cool and dehumidify but also to distribute air evenly and powerfully across vast areas overcoming the limitations of traditional air conditioners and other cooling methods.

Impact:

The modernization and deployment of Trane's air rotation units have successfully lowered average plant temperatures by 10–15 ˚F (5.6–8.3 ˚C). As a result, heat-related injuries were virtually eliminated. The enhanced environment also led to a marked improvement in hiring and employee retention, with workers reporting more comfortable conditions and better overall workplace experience.

Benefits of Heatwave Readiness:

Social: Workers benefit from safer, cooler environments, leading to increased morale, lower absenteeism, and improved job satisfaction.

Economic: Reduced heat-related injuries, minimized absenteeism, improved productivity and lower healthcare and insurance costs. Improved retention lowers hiring and training expenses.

Environmental: Advanced air handler technology uses sensor-driven control, enabling more energy-efficient temperature management compared to traditional systems.

LINKS:

- *Wall Street Journal: High-Tech Ways Companies Keep Employees Cool in Rising Temps (WSJ)*
- *Trane Technologies - Climate Innovation*

TRANE TECHNOLOGIES™

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Johnson & Johnson: Building Climate-Ready Community Health Centers Nationwide

Challenge:

Community health centers (CHCs) play a critical role in the US healthcare system, serving more than 31.5 million people – one in eleven people in the US receives care from a health center. CHCs also play a critical role in helping communities address the impacts of health inequities exacerbated by climate change.

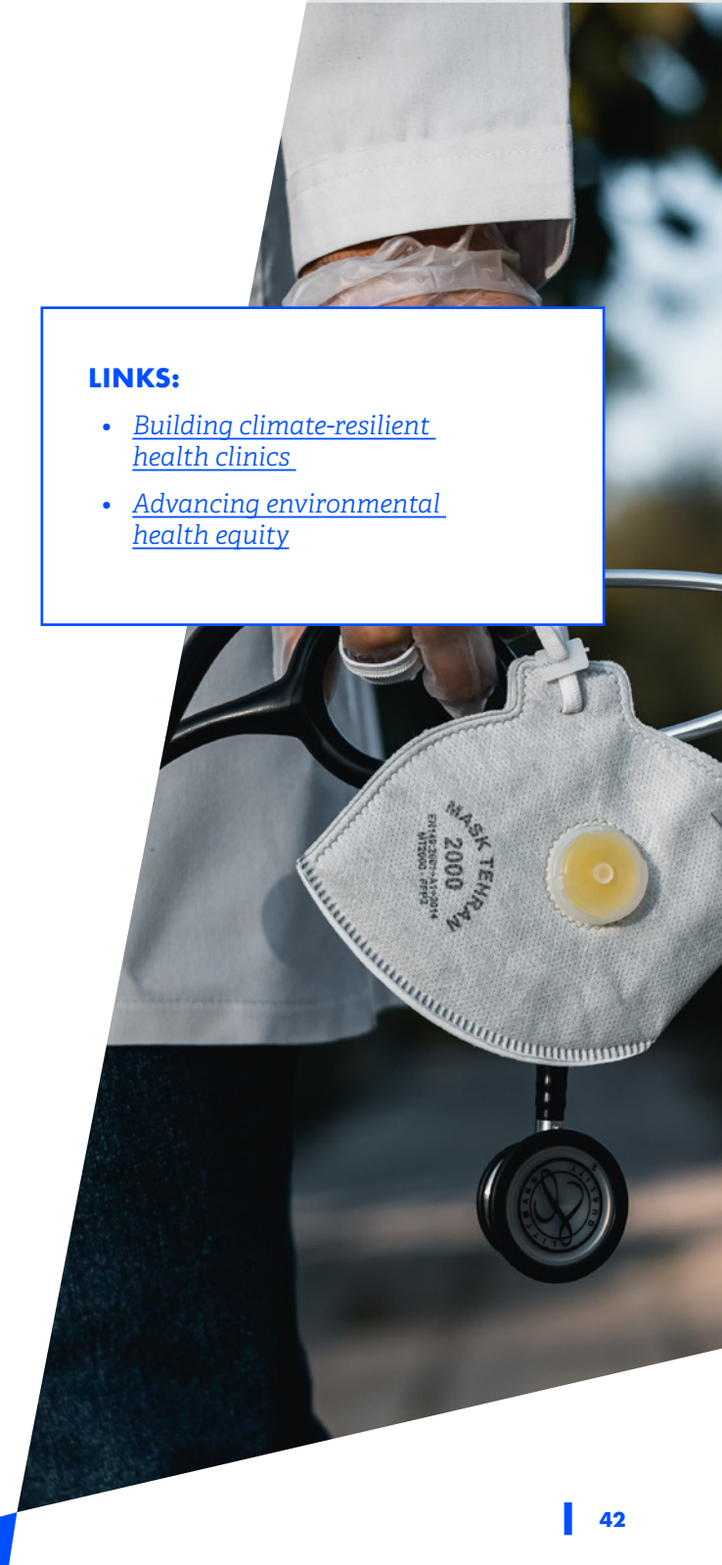
Approach:

Through The Climate Health Equity for Community Clinics Program, an initiative supported by Johnson & Johson (J&J), Americares, and The Center for Climate, Health and the Global Environment at Harvard T.H. Chan School of Public Health (Harvard Chan C-CHANGE), we aim to bolster climate resilience in 100 free and charitable clinics and community health centers across the US by 2025. In 2024, 44 clinics in eight states participated in the program, which seeks to reduce the impact of extreme heat and wildfire smoke on patient's health.

Participating clinics access an online tool to create their own customized action plans with targeted interventions for both extreme heat and wildfire smoke. Suggested interventions in the toolkit could include stocking up on cooling packs and water, using social media to share wildfire smoke safety tips or partnering with other local organizations, such as the fire department, to deliver fans to vulnerable patients. In 2024, clinics from 30 states were recruited to participate in the next phase of the project, which will examine preparation for, and response to extreme precipitation and flooding. Additionally, the program launched a virtual learning collaborative, which included a conference on climate and health, attended by approximately eighty healthcare professionals and whose bi-monthly newsletter reaches more than 2,000 community healthcare workers.

LINKS:

- *Building climate-resilient health clinics*
- *Advancing environmental health equity*



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Federation of American Scientists: Shaping a Federal Roadmap for Extreme Heat Action

Challenge:

By FAS' estimates, extreme heat costs the nation more than $162 billion annually, costs that have made extreme heat a growing concern to private markets. And yet the US is not prepared for the growing threat of extreme heat. At FAS, we have been working to change that. In a moment when critical government infrastructure is being rolled back, FAS is focused on being a trusted resource and agenda-setter to drive lasting progress and ensure the nation becomes heat-ready.

Approach:

FAS is the trusted hub for connecting and steering heat policy efforts. Our team synthesized insights from hundreds of contributors into the 2025 Heat Policy Agenda, a comprehensive federal strategy for tackling extreme heat. To craft the 2025 Heat Policy Agenda, FAS:

1. Conducted need-finding interviews and relationship building conversations
2. Facilitated a targeted policy sprint to develop 160+ policy recommendations and a whole-of-government strategy
3. Convened a national summit and several policy co-creation workshops within and outside of government to hone the ideas, and
4. Mobilized a coalitional campaign for the agenda.

Now, FAS provides ongoing strategic advisory support to stakeholders across numerous sectors and levels of government to implement the policy recommendations. These tactics have enabled us to serve as an external government hub for policy ideas, stakeholder cohesion, strategy, and expertise stewardship.

Impact:

Even in a challenging political environment, the Heat Policy Agenda has been incorporated into multiple introduced bills and cited in Congressional reports; and the Congressional Extreme Heat Caucus and its member offices regularly call FAS for input when designing new heat policies. FAS also now advises state governments on their heat policy efforts (e.g., California, Arizona, New Jersey, and New York) those states with plans in development, and states just starting their work on extreme heat. FAS' recommendations are also informing advocacy efforts and campaigns to secure heat protections and safeguards at the state and local level.

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Mercer & National Commission on Climate and Workforce Health: New Tool for Forecasting the Cost of Heat to Protect Workforce Health

Challenge:

Climate impacts represent a growing health risk, yet most employers have not recognized this as a workforce threat. While 77% of workers report being affected by extreme climate events, only 4% of employers have assessed which employees face the greatest risk. Extreme heat affects workers globally during both heatwaves and persistent heat conditions, alongside other climate-driven impacts like poor air quality and flooding. Without data-driven insights, businesses lack tools to anticipate healthcare cost increases and proactively protect their workforce.

Approach:

Mercer developed the Climate Health Cost Forecaster in partnership with and as part of their leadership on the National Commission on Climate and Workforce Health. This digital tool combines weather data, epidemiological research, and proprietary health cost modelling to provide business leaders with data-driven projections estimating long-term healthcare costs associated with extreme heat, poor air quality, flooding, and hurricanes. The tool offers localized workforce vulnerability insights across US industries and geographies.

Impact:

The Climate Health Cost Forecaster enables companies to assess and plan for health-related financial risks that climate impacts impose on their workforce. The tool reveals significant disparities: employees in climate-controlled environments experience approximately 40% lower healthcare costs compared to those in non-climate-controlled settings, while industries like agriculture, utilities, and construction face double the healthcare cost risks. This tool exemplifies how organizations can leverage their unique capabilities to address health and climate resilience, serving as inspiration for others to develop innovative tools supporting employers and communities in managing climate-driven risks.

Benefits of Heatwave Readiness:

Social: Employers can make data-driven decisions about workplace protections and identify vulnerable workforce segments.

Economic: Organizations can anticipate climate-driven healthcare costs while investing in operational changes that manage exposure and spend.

Environmental: The Climate Health Cost Forecaster motivates broader climate resilience strategies by providing insightful data about the long-term impacts of extreme heat and weather events.

LINKS:

- *Climate Health Cost Forecaster Tool*
- *Mercer Press Release*
- *National Commission on Climate and Workforce Health*
- *Climate change will cost your healthcare plan. Analysts want to know how much.* (HR Dive)
- *Prepare for climate-driven health costs now – before they hit the bottom line.* (HR Executive)

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La Isla Network: Protecting Workers, Powering Productivity through Heat Safety

Challenge:

The International Labor Organization (ILO) estimates that each year **2.41 billion workers** are exposed to dangerous heat, leading to **22.85 million workplace injuries** and nearly **19,000 deaths**. Evidence shows that working in extreme heat is associated with lost hours of productivity, disruptions to business operations, and lost revenues. Worse yet, extreme heat workplace guidance is absent in many parts of the world. Extreme heat has therefore become both a public health crisis and a business risk, demanding solutions that protect workers while safeguarding revenue and operational resilience.

Approach:

La Isla Network (LIN) takes the standard rest-break schedule and combines it with cutting-edge OSH research and emerging technology development to create practical, effective data-driven interventions. At the San Antonio sugar mill in Chichigalpa, Nicaragua we created the world's first **heat resilience and adaptation Center of Excellence** (CoE). Using environmental and physiological data, we designed and implemented a rest-shade-hydration (RSH) protocol that minimized workers' heat exposure and prevented deadly heat illness, injury, and death. Economic data and worker-manager surveys allowed us to increase worker output, increase productivity, enhance uptake of new OSH policies, and generate a ROI for the sugar mill.

Impact:

- **60% reduction** in heat-induced acute kidney injury within the first year.
- **94% reduction** within two years.
- Productivity **boost of 9–20%**, even accounting for break times.
- A **three-year ROI of 60%**, showing that protecting workers' health can also make economic sense.
- Improved management systems based on health outcomes.
- Paid sick leave for field workers.
- Routine access to care and services.
- Augmented pay, improving on the solely piece rate system.
- Routine data capture and monitoring of the program.
- Improved IT networking between harvest, HR, clinic, and OSH departments to identify, measure, and address both primary exposures, risks, and upstream drivers.

Benefits of Heatwave Readiness:

Social: Protects workers from preventable illness and death, strengthens labor rights, and builds trust between workers and management.

Economic: Demonstrates that safeguarding health drives profitability, with measurable ROI through higher productivity, reduced absenteeism, and lower healthcare costs.

Environmental: Supports climate adaptation by building workforce resilience to rising global temperatures, ensuring businesses can maintain safe and sustainable operations in increasingly hostile environments.

Looking Ahead: While our protocols are based on observed temperature ranges, they remain the most practical tools available for managing workplace heat stress. As climate change intensifies and anomalous heatwaves become more frequent, extrapolating from our models will provide the best evidence-based guidance available. LIN is expanding its Centers of Excellence model, combining occupational health research, workplace innovation, and policy advocacy to prepare workers and businesses for a hotter world. Our goal is not only to prevent disease and save lives but also to help industries adapt and thrive under the new realities of extreme heat.

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Resilient Cities Network: From Heat Hotspot to Hub of Resilience in Boston's Chinatown

Challenge:

Boston's Chinatown is one of the city's most vibrant and culturally rich neighborhoods, home to the third largest Chinese community in the US. Yet, decades of racialized planning have left residents highly exposed to climate change impacts, making it one of Boston's hottest neighborhoods. Highways cut through the area, limiting green space and worsening both air pollution and heat stress. Many residents are renters with limited financial security, working in service or manual labor roles. Older people, children, pregnant people, and those living with chronic health conditions such as asthma and diabetes face added dangers during heatwaves. Language barriers and weak coordination with city agencies compound the challenge, as seen in summer 2024 when the neighborhood's cooling center was closed for construction without a temporary alternative.

Approach:

The Chinatown Heat Action Plan is community-led, designed, and implemented by residents and local organizations with support from city partners. Key actions include:

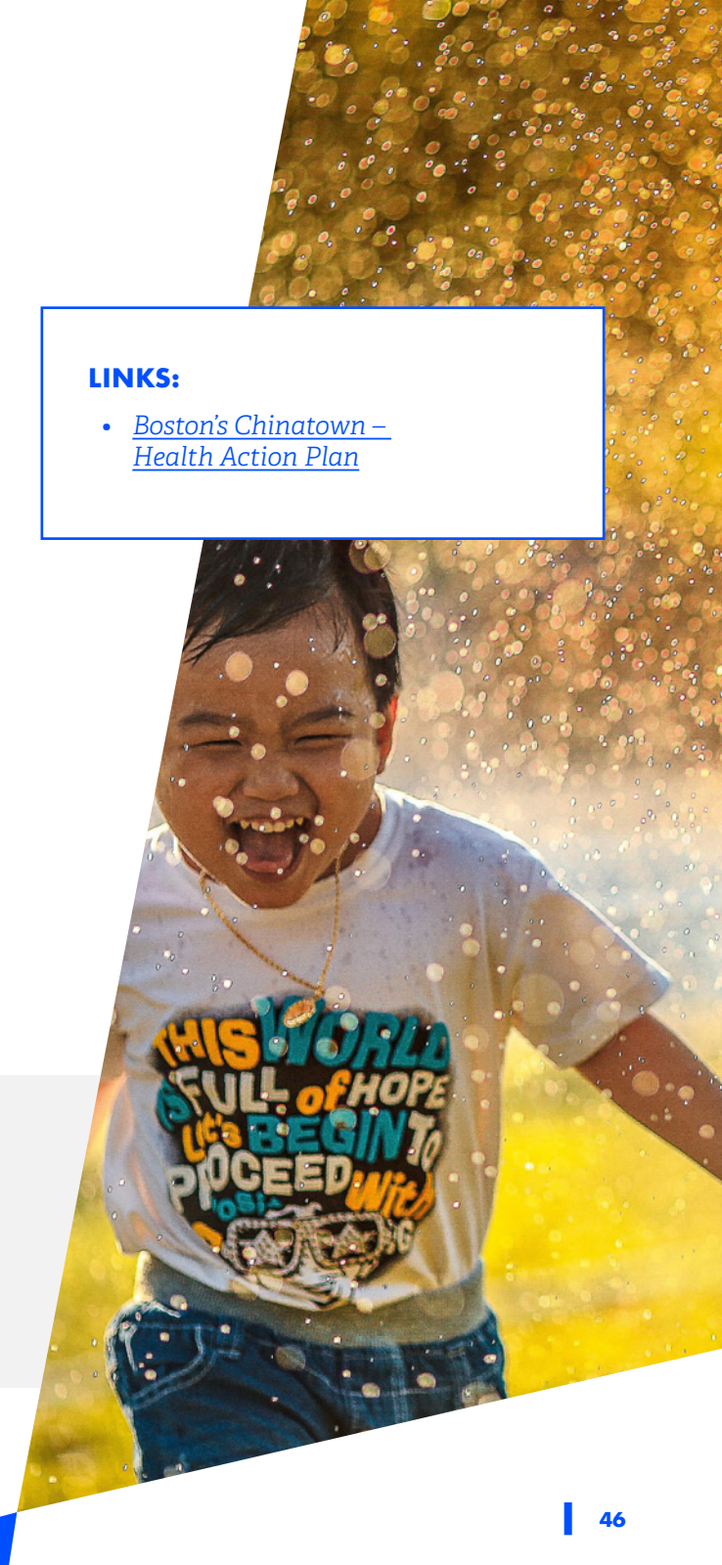
- Building resilience teams that connect local leaders, community groups, and agencies.
- Preparing cooling centers and safe public spaces, staffed with local volunteers.
- Delivering multilingual communications through Chinese-language resources, QR codes, and WeChat.
- Advocating cooling solutions such as misting tents, tree planters, and improved park maintenance.
- Strengthening city–community coordination through early engagement and advocacy for additional resources.

Impact:

The plan is already creating impact and enhancing resilience. Socially, it empowers residents, deepens trust, and strengthens community leadership. Economically, microgrants help small businesses adapt while volunteers gain skills in preparedness and organizing. Environmentally, tree planting and cooling infrastructure improve air quality and reduce exposure to extreme heat. Most importantly, Chinatown is shifting from reactive crisis response to proactive, community-driven resilience. The model shows how tackling systemic barriers while investing in community strengths can protect lives and livelihoods – and be scaled to other underserved urban communities.

LINKS:

- *Boston's Chinatown – Health Action Plan*



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AHRH & Medical Society Consortium: Mobilizing Health Leaders to Protect Outdoor Workers from Extreme Heat

Challenge:

Extreme heat is the deadliest weather-related hazard in the US, causing more deaths each year than floods, hurricanes, or wildfires. Yet, there is no federal heat standard protecting workers, and most communities lack consistent systems to prevent heat-related illness and death. Vulnerable groups – including children, older adults, outdoor workers, people with chronic conditions, and communities of color in under-resourced neighborhoods – are disproportionately at risk. Health professionals see the impacts daily in emergency rooms and clinics but, until recently, there was no coordinated national effort to advance equitable, health-centered solutions to extreme heat.

Approach:

To fill this gap, the Medical Society Consortium on Climate and Health launched the **Alliance for Heat Resilience and Health (AHRH)**. The Alliance unites physicians, nurses, public health leaders, researchers, and policymakers to strengthen protections and center equity in heat resilience planning. AHRH works on multiple levels: training health professionals to educate patients and policymakers, elevating community voices through partnerships, and engaging agencies such as OSHA and EPA to shape protective policies.

LINKS:

- *MSCCH & AHRH*
- *MSCCH Healthy Climate Podcast: Heat and Outdoor Workers*
- *Press Release: Health Advocates, Unions, and Workers Call for Strong Worker Heat Protection Rules as Soon as Possible* (state example)
- *OSHA – Heat*
- *A Closer Look: Heat-Related Workplace Deaths* (EPA)

Impact:

From 2024–2025, MSCCH and AHRH mobilized the trusted voice of medicine to advance heat protections nationwide. Together, they drafted a letter to the National Governors Association urging support for strong OSHA heat standards. The letter was signed by **86 medical organizations**, including **18 major national associations**, and spurred **700 health professionals** to submit public comments. **Thirty clinicians** provided testimony, ensuring health risks were central in regulatory deliberations.

Building on this momentum, the Alliance is launching a **local and state-focused campaign** featuring toolkits, webinars, and fact sheets to support advocacy. These efforts have gained traction in states such as **New Mexico, Florida, and California**, where health leaders are shaping debates over worker protections and community resilience.

Through this multi-level strategy, MSCCH and AHRH are establishing a new model of coordinated health advocacy, demonstrating how clinicians can help drive policy change on extreme heat at both national and state levels.

Alliance for Heat Resilience and Health
Addressing the health harms of extreme heat.

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Bayer: Embedding Extreme Weather Readiness into Workplace Policy and Practice

Challenge:

Over two billion workers globally, which represent about 70% of the working population, are exposed to extreme environmental working conditions due to climate change, including excessive heat. At Bayer, we are committed to protecting our employees and contractors from these risks.

Approach:

Our internal occupational health and safety management process is designed to identify work-related risks, mitigate them to a level as reasonably possible and to check for the effectiveness of measures. For the specific risk of exposure to extreme environmental conditions, such as heat or cold, our commitment begins with a global health and safety policy that outlines actions for teams worldwide.

To support our teams onsite, we developed a comprehensive guidance document detailing the effective implementation and management of local programs. This document covers essential things such as heat and cold stress, monitoring weather conditions, implementing controls and preventative measures, addressing illnesses, and conducting medical surveillance to protect our workforce's health and wellbeing. To assess site effectiveness, our Management System audit process periodically reviews site programs looking for potential gaps. Additionally, we are testing new wearable devices with our employees to measure water and electrolyte loss as a potential preventative heat stress control measure.

Moreover, we have established an internal website that offers additional resources for severe weather events, mental health support, infectious disease management, and training. To enhance our collaboration with contractors, we are working with our procurement teams to ensure that our contracts address extreme weather conditions, thereby safeguarding the health and wellbeing of contract employees.

Impact:

Through these efforts we strive for the following:

- Reduce risk to our employees and contractors
- Promote a healthy workplace
- Create a great place to work
- Reduce the number of incidents

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Health Care Without Harm: Heat-Proofing Hospitals for Climate-Resilient Health Systems

Challenge:

Extreme heat is a growing public health crisis. In 2023 alone, the US saw nearly 120,000 heat-related emergency department visits (Vaidyanathan et al., 2024) – a number projected to rise with climate change. Health care systems are on the frontlines. Dignity Health California Hospital Medical Center (CHMC), a member hospital of CommonSpirit Health and a partner of Health Care Without Harm (HCWH), is situated in downtown Los Angeles just five blocks from Skid Row. The hospital serves low-income individuals and those experiencing homelessness and housing insecurity, a population particularly vulnerable to heat-related illness. During record-breaking heatwaves, CHMC experienced surging patient demand and stressed infrastructure, threatening patient safety, transport, and continuity of care. Hospitals ill-prepared for extreme heat risk power outages, disrupted supply chains, medication spoilage, IT failures, and staff burnout – each carrying financial costs and undermining community trust.

Approach:

As part of its 2024–2026 strategy, HCWH developed comprehensive guidance for health care climate resilience, creating a three-pillar approach of facility, public infrastructure, and community resilience. CHMC's resilience strategy touches upon all three. Upon learning that its backup generators could not power inpatient cooling, CHMC installed air conditioning and onsite alternative energy sources, upgraded backup generators, and performed energy efficiency upgrades. In collaboration with HCWH, CHMC worked to produce bilingual educational materials on heat safety and partnered with the Los Angeles Regional Collaborative for Climate Action and Sustainability to launch a community-wide heat alert campaign and promote local cooling centers.

Impact

By 2026, HCWH seeks to support at least 50% of its 1,600 partner hospitals with climate resilience strategies. CHMC's proactive approach shows how hospitals can maintain critical operations during heatwaves – preserving patient care for those most vulnerable, protecting community health while stewarding community resources, and safeguarding financial stability. As extreme heat intensifies, climate-resilient health care is not just necessary – it is lifesaving.

Learn more about CHMC's story and other health care resilience best practices in the Climate Resilience for Health Care Toolkit (p. 276) and via Health Care Without Harm's climate resilience planning webpage.

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Safe Work 4 All Coalition: Advancing Strong Occupational Heat Protections in New Mexico

LINKS:

- *Safe Work 4 All*

Challenge:

New Mexico is one of the fastest-warming states in the US, and heat is already harming workers in most industry sectors. An estimated 250,000 workers in New Mexico are at risk of heat-related illness and injuries, and these workers are disproportionately low-income and people of color. Between 2022 and 2024, 1,150 workers' compensation claims were likely related to heat, costing the system about $7.4 million in claims (Adu-Asamoah and Cordova, 2025). Increases in heat-related illness, injuries and death require public health action to prevent these health problems and improve emergency response.

Approach:

For the past three years, Healthy Climate New Mexico (HCNM) has been advocating for New Mexico OSHA to develop and adopt an occupational heat standard to protect outdoor and indoor workers. In March 2025, the state proposed a strong, comprehensive rule, which will be considered by the Environment Improvement Board in January 2026. HCNM and the NM Conservation Voters Education Fund organized a coalition of state and national workers, environmental and health organizations to garner support for this initiative. To date, the campaign has generated 55 organizations endorsements, over 1,000 petition signatures and hundreds of positive public comments and raised funding for legal representation at the Environmental Improvement Board (EIB) hearing.

Impact:

The development of a multi-faceted campaign in support of the occupational heat standard by a diverse and robust coalition has already provided significant benefits. Through educational initiatives, earned media and outreach to workers, businesses, elected officials and the public, awareness of the health threat posed by heat and ways to prevent and respond to heat emergencies has increased. When New Mexico adopts a strong, comprehensive worker heat protection rule, we expect a decrease in heat-related illness and injuries and related economic savings.

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Elevance Health: Tracking Health Impacts of Extreme Heat on Chronic Kidney Care

Challenge:

Extreme heat events have lengthened, become more frequent, and increased in intensity over the past few decades, and this trend is expected to continue. Extreme heat events have been shown to be associated with increased mortality and emergency department (ED) visits.

Approach:

Elevance Health investigated the relationship between temperature and healthcare utilization among patients with Chronic Kidney Disease (CKD). They used panel regression models with individual and year fixed effects to evaluate how exposure to different levels of temperature (measured by heat index) was associated with changes in weekly healthcare utilization from October 1, 2015, to March 31, 2023. Data were derived from medical claims data, Parameter-Elevation Regressions on Independent Slopes Model climate data, and the Census block group of each individual. The study population was comprised of 916,886 individuals with commercial or Medicare insurance who had been diagnosed with CKD stage G3, G4, or G5. CKD was defined using diagnosis codes in medical claims and estimated glomerular rate (eGFR) laboratory results. Exposure was the number of days in a week with a daily heat index in 42˚F (5.6˚C) bins.

Impact:

We found that exposure to a higher heat index bin, 89.96˚F–100.04˚F (32.2˚C–37.8˚C) compared with 60.08˚F–69.98˚F (15.6˚C–21.1˚C), was associated with an increase in weekly ED utilization (0.55%; 95% confidence interval [CI], 0.42% to 0.68%; P < 0.001), with larger percent increases for ED visits with a heat-related primary diagnosis code (2.07%; 95% CI, 1.63% to 2.51%; P < 0.001) or a kidney-related primary diagnosis code (1.37%; 95% CI, 0.56% to 2.17%; P < 0.001). ED visits with a primary diagnosis code related to kidney disease were associated with a larger effect among those least likely to have access to air conditioning (2.48%; 95% CI, 0.84% to 4.13%; P < 0.01). Smaller, statistically significant results were observed comparing heat indexes of 80.06˚F–89.96˚F (26.7˚C–32.2˚C) to 60.08˚F–69.98˚F (15.6˚C–21.1˚C).

Exposure to heat indexes above 89.96˚F (32.2˚C) was associated with greater weekly ED utilization and ED utilization with heat-related or kidney-related primary diagnosis codes.

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Capgemini: Optimizing Energy Efficiency and ROI across Critical Operations

Challenge:

Faced with climate change, soaring energy prices, limited resources, and concerns about the security of supply, the need for optimizing renewable energy resources is critical for a sustainable future. The main challenge for the Capgemini team was to update and improve the facility while it was in use. They had to work around the clock with old equipment and find ways to save energy, especially in their always-on operating critical environments like data centers, network rooms, server rooms, and engineering labs. Some crucial equipment upgrades were executed during periods of lean operations. By leveraging remote expert guidance, they managed to minimize downtime and guarantee efficient equipment performance across all locations.

Approach:

The Energy Command Center – which is scalable both geographically and operationally – empowers the Capgemini team to remotely track energy use, carbon emissions, and equipment efficiency, enabling the development and testing of advanced algorithms for optimal control. Moreover, it facilitates informed decision-making on the implementation of energy conservation measures to mitigate carbon emissions.

Leveraging the power of artificial intelligence (AI) and machine learning (ML), the Capgemini team has developed algorithms aimed at enhancing the wellbeing of their employees while optimizing energy consumption in our Heating, Ventilation, and Air Conditioning (HVAC) systems and Data Center. To ensure the quality of air within their workspace, they have equipped all their air handling units with ultraviolet lamps designed for air purification, along with automated controls that maintain optimal CO_2 levels.

Additionally, Capgemini has demonstrated its commitment to sustainable practices through the installation of Battery Energy Storage Solutions (BESS). To maximize the benefits of BESS, they have implemented an advanced Energy Management System (EMS) with artificial intelligence (AI) analytics. This strategic approach helps control high energy prices during peak hours, resulting in significant cost savings.

Impact:

All Capgemini Offices in India now operate on 100% Renewable Electricity, while also delivering significant cost savings (29%) for the business.

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Trane Technologies

Glossary of Terms

Acclimatization (to heat) – the physiological adaptations that occur when someone is gradually exposed to hotter conditions over 1–2 weeks

Battery Energy Storage Solutions (BESS) – advanced technologies enabling the storage of electrical energy, typically from renewable sources like solar or wind

Building/retrofit codes – regulations on building or upgrading design and construction

Center of/for Excellence (CoE or C4E) – a centralized team or organizational structure that provides leadership, best practices, research, support, and training in a specific area of focus

Climate analytics platforms – software tools that combine climate projections with business data to assess risks

Climate resilience – the ability of a system, community, or business to anticipate, prepare for, and adapt to climate-related shocks and stresses

Climate Value at Risk (Climate VaR) – a financial risk metric estimating potential losses due to climate-related hazards

Digital twins – virtual models of real-world assets or systems used to simulate performance under conditions like extreme heat

Extreme heat / Heatwave – sustained period of unusually hot weather that may be accompanied by high humidity

Geographic Information Systems (GIS) – technologies that collect, store, analyze, manage, and display spatial or geographic data

Glomerular Filtration Rate (GFR) – an important test in the diagnosis and monitoring of kidney disease, which shows how well kidneys carry out their filtration function

Heat Action Plan (HAP) – a formal strategy adopted by cities or states to prepare for, respond to, and mitigate extreme heat risks

K-12 education – a comprehensive framework and structure for a 13-year educational system starting from kindergarten through to grade 12, which forms the foundation of US primary and secondary education

National Adaptation Plan (NAP) – a national-level framework for adapting to climate change risks, often referenced in international policy

Occupational Heat Stress – the net heat load on a worker from environmental factors, metabolic heat, and clothing, which may cause heat-related illness

Parametric insurance – insurance that pays out automatically when a specific trigger (e.g., a certain temperature threshold) is reached, rather than based on actual loss assessment

Public goods – benefits (like community cooling centers) that are available to all, not just private purchasers, and are often underfunded by markets

Radiant cooling panels – building technology that absorbs heat and cools spaces more efficiently than traditional air conditioning

Rest–Shade–Hydration (RSH) protocol – a structured approach to protecting outdoor workers in high heat conditions

Return on Investment (ROI) – a performance measure used to evaluate the efficiency of an investment

Stafford Act – the US law that governs federal disaster declarations and funding; currently does not explicitly include extreme heat

Urban Heat Island (UHI) effect – when urban areas become significantly warmer than surrounding rural areas due to heat-absorbing infrastructure and limited vegetation

Voluntary corporate action – non-mandated steps businesses take (e.g., ESG initiatives) which may not be enforceable or sufficient without regulation

Wet Bulb Globe Temperature (WBGT) – a composite temperature used to estimate the effect of temperature, humidity, wind speed, and solar radiation on humans

List of Abbreviations

AHRH	Alliance for Heat Resilience and Health
AI	Artificial Intelligence
ATSDR	Agency for Toxic Substances and Disease Registry
BMS	Building Management Systems
CBO	Community-Based Organization
CDC	Centers for Disease Control and Prevention
CEO	Chief Executive Officer
CKD	Chronic Kidney Disease
CHC	Community Health Center(s)
CHMC	California Hospital Medical Center (Dignity Health)
COP	Conference of the Parties
C40	C40 Cities Climate Leadership Group
CSR	Corporate Social Responsibility
CSRD	Corporate Sustainability Reporting Directive
ED	Emergency Department
EDF	Environmental Defense Fund
EIB	Environmental Improvement Board
EMS	Energy Management System
EPA	US Environmental Protection Agency
ER	Emergency Room
ESG	Environmental, Social, and Governance
FAS	Federation of American Scientists
FEMA	Federal Emergency Management Agency
GCA	Global Center on Adaptation
GDP	Gross Domestic Product
GHRS	Global Heat Resilience Service
HCWH	Health Care Without Harm
HCNM	Healthy Climate New Mexico
HPD	NYC Department of Housing Preservation and Development
HAP	Heat Action Plan
HVAC	Heating, Ventilation, and Air Conditioning
ILO	International Labor Organization
IT	Information Technology
MSCCH	Medical Society Consortium on Climate and Health
NIEHS	National Institute of Environmental Health Sciences
NOAA	National Oceanic and Atmospheric Administration
NYSERDA	New York State Energy Research and Development Authority
OHS	Occupational Health and Safety
OSHA	Occupational Safety and Health Administration
PSA	Public Service Announcement
R&D	Research and Development
ROI	Return on Investment
RSH	'Rest–Shade–Hydration' protocol
TCFD	Task Force on Climate-Related Financial Disclosures
WEF	World Economic Forum
WHO	World Health Organization
WMO	World Meteorological Organization

About This Report, Forum and Trane Technologies

Forum for the Future is a leading international sustainability organization. For almost 30 years we have been working in partnership with business, governments, and civil society to accelerate the shift towards a just and regenerative future in which both people and the planet thrive. Forum is focused on enabling deep transformation in three game-changing areas: how we think about, produce, consume, and value both food and energy, and the purpose of business in society and the economy.

Trane Technologies

Trane Technologies is a global climate innovator. Through strategic brands Trane® and Thermo King®, and a portfolio of environmentally responsible products and services, Trane brings efficient and sustainable climate solutions to buildings, homes, and transportation.

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