APPENDIX C

Catalogue of Policies and Practices as Reported in the Scientific and Grey Literature

Category: Built Environment and Infrastructure

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Urban Green Infrastructure	Implemented in Australian cities. Interconnected system of green spaces, such as urban forests, parks, street trees, tree canopy, vegetated areas, and green roofs and walls. Tree canopy cover and natural shading include targeted plantation for public spaces and neighborhoods, flexible horizontal shades	-	Australia	Adnan et al., 2022

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Urban Green Infrastructure	The strategy involves deploying green infrastructure (GI), such as green roofs, vertical greenery, and urban parks, and broader nature-based solutions (NBS) to mitigate urban heat. Effectiveness varies by context: vertical greenery is particularly beneficial in dense areas, while expansive green spaces are more effective in low-density settings. Climate-specific vegetation choices are essential, especially in tropical and arid regions.	These interventions can reduce surface and ambient temperatures by 1–4 °C, with NbS achieving up to 30% reductions in urban heat exposure. Cooling performance, however, depends on urban form and climate conditions.	Global	Ouria et al., 2025

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Green Building Certification (LEED)	LEED is an internationally recognized, third-party verified suite of green building rating systems that uses a multi-criteria approach to define environmentally sustainable buildings and neighborhoods. Although it originated in the U.S., LEED is widely adopted worldwide and applies to a broad range of real estate activities, including residential and commercial construction, existing buildings, and neighborhood development projects.	Green building strategies can help reduce the risk of adverse health outcomes during heat events. Key environmental factors connecting these strategies to extreme heat include neighborhood vegetation coverage (such as tree canopies) and the level of heat exposure in urban areas, particularly among vulnerable populations. Additional public health co-benefits include decreased susceptibility to heat stress and a lower risk of heat-related illness and mortality.	Global	Houghton & Castillo-Salgado, 2019)

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Singapore's Green Infrastructure Policies	Policies supported the greening of the built environment, such as implementation of extensive green roofs and urban parks.	Surface temperatures decreased by up to 4 °C due to extensive green roofs and urban parks. The Social Impact that Heat stress-related hospital admissions were reduced by 18%, improving public health.	Global	Ouria et al., 2025
Outdoor Spray Systems	Implemented in Australian cities. Evaporative cooling can be enhanced using outdoor misting fan systems.	-	Australia	Adnan et al., 2022
Use Of Cooling Materials To Increase Albedo	Implemented in Australian cities. A surface's albedo controls how much solar radiation it reflects. Increasing the use of reflective surfaces in urban areas boosts radiation reflection and decreases heat absorption. Reflective and radiative cooling materials, such as cellulose nanofibers, can effectively respond to variations in ambient radiation.	-	Australia	Adnan et al., 2022

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Use Of Cooling Materials To Increase Albedo	The strategy involves using reflective cool materials—such as high-albedo pavements, coatings, and permeable surfaces—to reduce urban heat retention. Hybrid paving approaches that combine reflective and permeable technologies can further enhance cooling performance compared to single-strategy applications.	These interventions can lower surface temperatures by 10–25 °C and reduce cooling energy demand by 15–30%. In contrast, conventional asphalt intensifies urban heat island effects, while light-colored and reflective materials significantly improve heat dissipation.	Global	Ouria et al., 2025
Thermal Comfort-Based Urban Planning And Morphology	Implemented in Australian cities. This approach encompasses multiple elements, including street orientation, building height regulations, aspect ratios, and street hierarchy strategies, such as widening streets.	-	Australia	Adnan et al., 2022

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Thermal Comfort-Based Urban Planning And Morphology	The strategy involves optimizing urban spatial configurations to reduce heat retention in dense areas. This includes adjusting height-to-width (H/W) ratios, modifying urban form, and managing the sky view factor (SVF) to enhance airflow and radiative cooling. Integrating ventilation planning and vegetation, such as green corridors, further strengthens the cooling potential.	These interventions are associated with temperature reductions of approximately 1–3 °C. Improved SVF enhances cooling, while compact forms without ventilation planning may trap heat. When combined with vegetation, morphological changes further reduce surface temperatures and improve urban thermal comfort.	Global	Ouria et al., 2025
Building Retrofitting	Implemented in Australian cities. Various building retrofitting strategies, such as improving thermal insulation, adjusting window solar transmittance, and modifying ventilation and infiltration rates, can help make buildings more resilient to hot weather.	-	Australia	Adnan et al., 2022

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Engineering Strategies	The strategy emphasizes engineering-based solutions such as thermal energy storage, ventilation optimization, climate-responsive architecture, carbon-neutral construction, and renewable energy integration. These approaches aim to enhance energy efficiency, improve building performance, and reduce exposure to urban heat, particularly in high-rise environments.	Outcomes include emissions reductions of 25–40% through carbon-neutral construction and progress toward net-zero energy targets via renewable integration. Ventilation-driven cooling can improve thermal comfort by up to 30%, while wind and solar systems reduce cooling costs and support long-term urban sustainability.	Global	Ouria et al., 2025
Tokyo’s Cool Pavement Program	Installation of cool pavements.	Road surface temperatures dropped by up to 10 °C, significantly lowering ambient heat exposure.	Global	Ouria et al., 2025

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
California's Urban Cooling Initiatives	Efforts included urban tree expansion and cool pavement programs, yielding localized temperature reductions. Additionally, implementation of heat early-warning systems and educational campaigns, as well as improving adaptation efforts were carried out	-	Global	Ouria et al., 2025
Consideration Of Climate Change Adaptation In The Regional Land Use And Development Plan Of The Montreal Agglomeration	The regional land use and development plan embedded climate change adaptation into territorial governance by mandating alignment of municipal bylaws and identifying concrete measures, including preparation of an adaptation plan, implementation of a canopy action plan, development of protection and conservation plans for natural environments, updates to strategic plans for parks, greening and the blue network, pursuit of humanized landscape status, and creation of an action and funding plan to operationalize a green and blue belt.	This case demonstrates that regional planning instruments can institutionalize adaptation objectives and coordinate cross-sectoral action, though their regulatory authority primarily applies to new development, requiring complementary measures to address existing built areas.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Black Creek Snap: Growing Food And Green Opportunities	From 2010–2020, an integrated neighbourhood retrofit initiative coordinated environmental restoration, climate resilience, and socio-economic priorities in a low-redevelopment area facing basement flooding, degraded water quality, limited urban forest cover, and high social vulnerability; actions included park revitalization, urban forest and habitat enhancement, commercial greening, a home rainwater retrofit program, an urban agriculture strategy, tower renewal demonstration projects, and ongoing community resilience and skills training.	The initiative demonstrated that place-based, community-driven retrofit planning can align watershed restoration, heat mitigation, and flood resilience with food security and employment objectives, generating synergistic environmental and social co-benefits while advancing long-term neighbourhood sustainability.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Saint-Maurice Street Project	A section of Saint-Maurice Street was redesigned to mitigate urban heat islands and reduce stormwater runoff by replacing curbside parking with bioretention planting beds and extensive vegetation, including more than 135 trees, 1,000 shrubs, and 18,000 plants, with the additional objective of supporting groundwater recharge for local drinking water supply.	The project enhanced urban cooling and stormwater management performance, earned provincial engineering recognition, and included post-implementation monitoring to evaluate green infrastructure effectiveness in managing water quality and quantity under changing climate conditions.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Measures To Reduce The Urban Heat Island Effect In Rosemont–La Petite-Patrie	A densely built Montréal borough revised its zoning bylaw in 2011 to introduce four regulatory measures targeting urban heat islands, embedding requirements within its permitting system to influence roofing practices and educate residents and developers on heat-related health and energy impacts.	Although direct temperature reductions have not yet been quantified, increased uptake of compliant roofing permits indicates that zoning regulations, supported by complementary policies and programs, can serve as effective regulatory instruments to strengthen local climate resilience.	Canada	Canada in a Changing Climate, 2021
Using The Urban Forest To Mitigate The Urban Heat Island Effect	In 2011, the City of Kingston implemented an Urban Forest Management Plan to mitigate urban heat island effects and reduce risks from extreme heat events, primarily through an aggressive tree-planting campaign.	This initiative provides multiple co-benefits with cooling urban spaces, supporting vulnerable populations, managing stormwater, improving air quality, enhancing habitat, and contributing an estimated $1.87 million annually in environmental services.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Use Of A Green Bond By The City Of Vancouver For Adaptation	The City of Vancouver introduced the Green Bond Program to provide dedicated funding for environmentally sustainable projects, supporting initiatives in renewable energy, energy efficiency, green buildings, and clean transportation. The program finances capital projects that advance the city's Renewable City Strategy and address climate change impacts, including redevelopment of affordable housing with green building principles and improvements to sewer and water infrastructure to enhance flood resilience.	-	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Air-Ou-Vert Program	The Air-ou-Vert Program supports municipalities, organizations, and businesses in the Outaouais region to adapt to climate change through urban greening initiatives that address heat islands, flooding, and biodiversity loss. The program promotes a participatory approach, collaborating with local actors to identify community needs and implement tailored greening projects that enhance sustainability, health, and quality of life.	-	Canada	Canada in a Changing Climate, 2021
Growing Forests In A City	In 2012, Montreal launched the Plan d'Action Forêt Urbaine (PAFU), aiming to increase tree canopy to 25% by 2025 and plant an additional 500,000 trees by 2030, engaging both public and private landowners through partnerships with local ENGOs.	-	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Pointe-Saint-Charles Blue-Green Alley Project	The 2020 Blue-Green Alley Project in Pointe-Saint-Charles redirects roof runoff to green infrastructure in alleyways to manage stormwater and improve urban environmental conditions. The project focuses on infrastructure sharing, assessing cost-effectiveness, and creating targeted incentives for stakeholders to adopt nature-based solutions that retain and treat rainwater on-site while increasing vegetation cover.	-	Canada	Canada in a Changing Climate, 2021
Reducing Indoor Air Temperature With Cool Roofs	The Philadelphia Cool Homes Program installed cool roofs and provided other cooling resources to 375 senior, low-income homes. These measures lowered indoor air temperatures by 2–3°F and helped equalize temperatures between first and second floors.	-	United States	U.S. Department of Housing and Urban Development, 2023

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Home Energy Assistance And Weatherization	Several jurisdictions provide energy assistance and home weatherization programs to help households manage extreme heat. Energy assistance programs help pay electricity bills, preventing utility shut-offs during heat events, and sometimes loaning or giving air conditioners or fans. Programs include Arizona's Weatherization Program (ADOH WAP), California's Low Income Weatherization Program (LiWP), and Vermont's Weatherization Assistance Program (VT WAP).	-	United States	CDC, 2024

Category: Preparedness and Response

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Heat Action Plans (Including Heat Warning Systems)	" Implemented in Australian cities. Heat warning systems provide early alerts and consultation services, complemented by emergency public health measures."	-	Australia	Adnan et al., 2022
Heat Action Plans (Including Heat Warning Systems)	Implementation of medical strategies, including heat health warning systems and cooling centers.	Reduced heat-related illnesses by 15–25%. National heat resilience policies integrating public health campaigns and early warning systems demonstrate potential reductions in mortality by up to 30%.	Global	Ouria et al., 2025

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Heat Action Plans (Including Heat Warning Systems)	PHASE project in Europe set up a heat warning system, shared preventive guidance, and engaged volunteers, social workers, and physicians to monitor and support vulnerable individuals. Emergency protocols, a staffed national helpline, and public cooling spaces were also established to reduce heat-related health risks.	Quasi-Experimental study observed a reduction in mortality risk associated with heat in Athens, Rome and Paris, respectively.	Europe	Donato et al., 2015; Hasan et al., 2021
Heat Action Plans (Including Heat Warning Systems)	France: plan targeted isolated and vulnerable populations, including retirement homes	Statistical modelling in France showed Implementation of heat-action days was associated with a combined loss of relative risk of mortality by 3.3%.	France	Hasan et al., 2021; Pascal et al., 2012
Heat Action Plans (Including Heat Warning Systems)	Paris climate action plan including vegetation expansion and cooling centers.	Reduced UHI intensity by 1–2°C, especially in dense urban areas. Regarding Health Benefits, Heat-related mortality declined by 12%.	France	Ouria et al., 2025

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Heat Action Plans (Including Heat Warning Systems)	Canada: Heat action plan emphasized preventive reminders and daily check-ins via phone or home visits for patients in hospitals and home care. The plan also provided water bottles and ensured access to air-conditioned communal spaces.	Quasi-Experimental study in Canada found daily deaths reduced by an average of 2.52 deaths per day after implementation of the heat action plan.	Canada	Benmarhnia et al., 2016; Hasan et al., 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Heat Action Plans (Including Heat Warning Systems)	Italy: National heat health warning system and heat health prevention program including time mortality surveillance system, identification of susceptible individuals and treatment (e.g., Long live the elderly program).	Time series analysis in Italy found the attributable fraction of heat-related deaths declined from 6.3% in the period 1999–2002 to 4.1% in 2013–2016. More than 1500 heat attributable deaths spared. Pre-post intervention study in Italy with elderly (65+) found reduction in elderly mortality from +36.7% to +13.3% with increase in temperature from 9°C to 12°C above the 25th percentile. Cross-sectional study of elderly (65+) in Italy found reduction in mortality rate observed only for 75 years and above, only when the maximum temperature time period was considered.	Italy	Hasan et al., 2021; Morabito et al., 2012; Schifano et al., 2012; Scortichini et al., 2018

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Heat Action Plans (Including Heat Warning Systems)	Spain: a general emergency hotline was added to provide immediate support and information during heat events.	Time series analysis in Spain found There was a small decrease in mortality attributable to extreme heat (from 0.67% to 0.56%), which was offset by an increase in mortality attributable to moderate heat (from 0.38% to 1.21%). Most significant reduction seen among older individuals.	Spain	Hasan et al., 2021; Martínez-Solanas & Basagaña, 2019

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Heat Action Plans (Including Heat Warning Systems)	North America: These initiatives included multi-institutional heat alert systems involving weather forecasters, media, municipal governments, and emergency services, alongside measures to prevent heat-related illnesses. In Dayton, public guidance covered appropriate clothing, diet, home cooling, and staying indoors, supported by a "buddy system" in which residents checked on vulnerable individuals. Philadelphia implemented heat-health education programs and extended senior center hours. Phoenix issued detailed heat alerts through the National Weather Service, while Toronto provided training on heat-related illness recognition and treatment for community staff and volunteers. Additional measures included heat helplines, warning signage, cooling centers, and the distribution of bottled water to at-risk populations.	Survey of adults (65+) in four NA cities found: Post-survey, knowledge (90%); Behavior modification (46%).	North America	Hasan et al., 2021; Sheridan, 2007

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Heat Action Plans (Including Heat Warning Systems)	The heat action plan implemented in Ahmedabad, India adopted a similar multi-pronged strategy, combining community outreach and awareness, healthcare capacity building, and the establishment of an early warning system.	Time series analysis in India found Post-to-pre-HAP non-lagged mortality IRR for maximum temperature over 40C was 0.95 (0.73–1.22) and 0.73 (0.29–1.81) for maximum temperature over 45C. An estimated 2380 deaths post-intervention were avoided	India	Hasan et al., 2021; Hess et al., 2018
Heat Action Plans (Including Heat Warning Systems)	The Arizona Extreme Weather and Public Health Program published a Climate and Health Adaptation Plan in 2017, followed by an Addendum in 2018, offering a structured framework and a platform to discuss effective strategies for protecting health and addressing the challenges of climate adaptation.	-	United States	CDC, 2024

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Heat Action Plans (Including Heat Warning Systems)	The New Hampshire Department of Health and Human Services developed an Excessive Heat Emergency Response Plan, detailing response roles, activation thresholds, associated health risks, phase-specific activities, criteria for cooling centers, and templates for press releases and health alerts.	-	United States	CDC, 2024
Heat Response In The Village Of Ashcroft	In 2018, a rural municipality experiencing some of the highest heat warning frequencies in British Columbia partnered with its regional health authority to develop and implement a Heat Alert and Response Plan focused on protecting at-risk populations, establishing a multi-stakeholder committee and defining clear protocols for three escalating alert stages: pre-heat notification, Level 1 advisory, and Level 2 advisory.	The plan strengthened local preparedness and inter-agency coordination for extreme heat events, institutionalizing staged response measures to reduce projected health risks under a warming climate.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Three-Level "District, Street And Community" Health Care Network	China's government-supported Heat Wave Intervention Program (HWIP) operated through a three-tier "district–street–community" healthcare network. Community service staff managed a 24/7 hotline and WeChat platform to communicate heat-risk information, and physicians shared heat-mitigation advice during routine visits. In Licheng district, the program also provided government subsidies and allowed flexible work hours during periods of extreme heat.	Quasi experimental study in China with individuals (14+) found Intervention groups had 0.387, 0.166 and 0.037 higher knowledge, attitude and practice scores, respectively	China	Hasan et al., 2021; Xu et al., 2018

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Cooling Centers And Misting Tents	Several U.S. jurisdictions have established cooling infrastructure to protect residents from extreme heat: Arizona counties (Maricopa, Pinal, Yuma, Pima) operate heat relief networks with cooling centers and hydration stations; CRSCI grant recipients in Illinois, Ramsey and Hennepin Counties (MN), New York State, and New York City have set up cooling centers; and Smithfield, Rhode Island used a DOH mini-grant to create a portable cooling center with a misting tent.	-	United States	CDC, 2024
Improving Practices Through The Montreal Heat Response Action Plan	In response to sustained extreme temperatures, Montreal authorities implemented a heat response plan featuring awareness campaigns, cooling centres, extended pool hours, door-to-door checks, and mapped refreshment points.	-	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
The Importance Of Region-Specific Triggers	In 2009, provincial health authorities established a multi-sector advisory committee to develop a city-wide Heat Alert and Response System informed by vulnerability assessments, creating a four-level alert protocol with tailored response actions based on risk, community capacity, resource availability, and intervention effectiveness, supported by public communications (websites, social media, bulletins) and coordinated emergency measures such as extended pool hours and cooling centres.	The initiative enhanced municipal preparedness for extreme heat through structured alert thresholds, cross-sector coordination, targeted protection of vulnerable populations, and a continuous quality improvement approach that iteratively strengthened response protocols over time.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Surveillance	Health departments use surveillance systems to track and analyze heat-related illness and death, guiding interventions, public messaging, and healthcare resource planning. Examples include Maricopa and Pinal Counties, AZ using NSSP BioSense and ESSENCE; North Carolina DHHS using NC DETECT; and Oregon Climate and Health Program partnering with the state Preparedness, Surveillance, and Epidemiology team to summarize and share data on heat impacts.	-	United States	CDC, 2024)
Evaluating The City's Heat Alert And Response System	In 2011, the City of Ottawa conducted a workshop to evaluate and update its Hot Weather Response Plan, recognizing that shifting demographics, urban form, and evolving climate projections require continual adaptation of heat response strategies.	The evaluation identified key factors influencing program effectiveness, highlighting the need for regular review and adjustment to maintain protection for vulnerable populations amid changing social, environmental, and climatic conditions.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Protecting Cities From Extreme Heat By Providing Various Cooling Options	Following a study on heat impacts on vulnerable populations, the City of Sherbrooke launched an Extreme Heat Response Plan targeting prolonged heat events above 31°C by day and 18°C by night, incorporating vulnerability mapping, building operations, cooling centres, and transportation for at-risk residents.	The plan was successfully activated during the 2010 heatwave, mobilizing resources to open and extend cooling centres and provide transit support, enhancing protection for vulnerable citizens.	Canada	Canada in a Changing Climate, 2021
Planning For Regional Recovery	The Metro Vancouver Region developed a draft Regional Recovery Planning Framework to guide pre-disaster and post-disaster recovery, addressing threats from climate change, including floods, fires, and disease, as well as non-climate hazards like earthquakes.	By taking a high-level, all-of-society approach, the framework enables local governments to assess potential impacts on people, infrastructure, and businesses, fostering coordinated regional resilience through multi-jurisdictional partnerships.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Preparing For Extreme Heat Before Mass Gatherings	When hosting the 2016 Alberta Games, the City of Leduc implemented targeted precautions to reduce risks from extreme heat for large crowds, using practical, easily attainable measures that enhanced readiness during the event.	Although extreme heat did not occur during the 2016 Alberta Games, the precautions proved valuable: the cooling center provided shelter during a thunderstorm, water supply infrastructure remains available for future heat events, and the city gained both supplies and experience to respond effectively to future extreme heat situations.	Canada	Canada in a Changing Climate, 2021
Extreme Heat Initial Response Guide	The City of Vancouver developed the Extreme Heat Initial Response Guidelines to prepare residents, particularly vulnerable populations such as the homeless, elderly, and those with mental illness or addiction, for projected increases in temperature, with heat-related mortality expected to rise by 325% by 2050.	Although the full impact of rising heat has yet to be realized, several elements of the guidelines have already been implemented, and additional measures are in preparation to strengthen community preparedness and resilience.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Health, Climate Change And Resilience In Community Planning: City Of Port Moody Climate Action Plan	In July 2020, Port Moody adopted a comprehensive Climate Action Plan using a low-carbon resilience framework, integrating mitigation and adaptation strategies with a focus on public health. The plan identifies vulnerable groups, such as seniors living alone, children, pregnant women, and those with pre-existing conditions, and establishes priority actions to protect community health, enhance resilience to heat, poor air quality, and extreme weather, and safeguard municipal resources amid climate change.	-	Canada	Canada in a Changing Climate, 2021
Toronto's Heat Health Alert System	The City of Toronto implemented the Heat Health Alert System (HHAS) to respond to extreme heat, issuing city-wide alerts when the likelihood of heat-related mortality exceeds 65% and activating protocols such as opening seven designated cooling centres to protect at-risk populations.	-	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Climate Change Adaptation Strategy: 2018 Update And Action Plan	Vancouver's Climate Change Adaptation Strategy (CCAS) guides the city's preparation for climate-related shocks and stresses through a structured set of actions. It includes Core Actions and Enabling Actions across five areas: Climate Robust Infrastructure, Climate Resilient Buildings, Healthy and Vigorous Natural Areas and Green Space, Connected and Prepared Communities, and Coastal Preparedness, integrating existing city and community strategies to improve overall resilience.	-	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Vulnerability Assessments	The Minnesota and Wisconsin Climate and Health Programs partnered to analyze county-level data on heat-related illnesses and population vulnerability, helping identify at-risk communities and inform targeted adaptation strategies. The Wisconsin Climate and Health Program used the CASPER model to assess household heat adaptation (e.g., air conditioning), vulnerabilities (e.g., outdoor workers), and communication methods, using the findings to inform policies and procedures that reduce heat-related health risks.	-	United States	CDC, 2024
Award-Winning Municipal 511 System To Facilitate Emergency Response	In 2017, several Ontario municipalities implemented a consolidated 511 system to improve real-time situational awareness and emergency response by centralizing road condition updates, replacing fragmented communication via faxes, phone calls, emails, and social media.	The system has enhanced emergency services' efficiency and responsiveness, proving particularly effective during flooding events by enabling faster, more coordinated action.	Canada	Canada in a Changing Climate, 2021

Category: Technology and Tools

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
AI For The Resilient City	Evergreen, in partnership with Microsoft AI for Earth and other public and private collaborators, developed the AI for the Resilient City tool to help local governments assess and address urban heat island (UHI) impacts. Designed for Canadian cities, where 80% of the population resides, the tool integrates satellite imagery, local heat, infrastructure, and demographic data (2013–2020) to support evidence-based planning and climate-resilient decision-making.	The tool enables municipalities to identify heat-vulnerable areas, understand how land use and building patterns influence UHI, and assess socio-demographic disparities in heat exposure. By providing localized, data-driven insights, it supports more targeted investments, equitable adaptation strategies, and informed long-term urban planning decisions.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Data Visualization Platform	Some CRSCI grant recipients, including CALBRACE, have developed interactive platforms for visualizing heat-related data. CALBRACE created the CCHVI platform to display Climate Change & Health Vulnerability Indicators for California, covering environmental exposures, population sensitivity, and adaptive capacity measures.	-	United States	CDC, 2024)
Heat Vulnerability Maps	Other CRSCI grant recipients, such as the Vermont Climate & Health Program, have leveraged existing online mapping platforms to create interactive heat vulnerability maps for their communities.	-	United States	CDC, 2024

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Arcgis Story Maps	The Rhode Island Department of Health created a StoryMap to display Health Equity Measures, covering 15 determinants of health across five domains that influence health equity. The San Francisco Climate and Health Program developed a StoryMap to illustrate the city's vulnerability to the health impacts of extreme heat.	-	United States	CDC, 2024
Using Gis Technology To Increase Response To Public Health And Extreme Weather Events	Kingston, Frontenac, Lennox, and Addington Public Health implemented real-time surveillance systems, the Acute Care Enhanced Surveillance (2004) and Public Health Information Management Systems (2015), to monitor public health indicators, including extreme heat impacts and smoke-related respiratory issues, enabling timely responses to climate-related hazards.	The systems have proven effective in tracking and managing public health risks locally and have since been expanded for use across Ontario, enhancing province-wide preparedness and response capacity.	Canada	Canada in a Changing Climate, 2021

Category: Workplace and Occupational Health

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
General Workplace Adaptation	Implemented in Australian cities and globally. Adaptation measures to address occupational heat stress include air conditioning, solar blinds, improved indoor ventilation, shifting work hours, rotating schedules, working and resting in shaded areas, limiting work above temperature thresholds, acclimatization programs, hydration access, appropriate protective clothing, fitness programs, mechanization to reduce physical workload, and heat stress training and awareness programs. Government and employer-level strategies also include subsidizing cooling measures, strengthening occupational heat policies, promoting awareness campaigns, adjusting work-rest ratios, and implementing fiscal policies such as carbon pricing and labor tax adjustments.	A study in Texas reported that after implementing a heat stress awareness program covering training, improved access to cooling measures and decreased work-rest ratios during high temperatures, the number of OHIs in outdoor workers and associated compensation costs decreased	Australia; United States; Global	Adnan et al., 2022; Borg et al., 2021; McCarthy et al., 2019

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Customized Work-Rest Schedules	Participants were required to stop working when their oral body temperature rose by 0.5 °C. Work time was defined as the period until this increase occurred, and rest time was the duration needed for their temperature to return to baseline, in accordance with ISO 7933 thresholds.	Normalization of normal temperatures.	United States; India	McCarthy et al., 2019; Pal & Patel, 2026
Hydration	Consume buttermilk during heat strain in India.	When subjects drank water or buttermilk, they had a lower sweat rate than with no rehydration and the perception of feeling hot, uncomfortable, thirsty and physically exerted was significantly reduced.	India	Lundgren-Kownacki et al., 2018

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Heat Acclimatization	Implemented in Australia for medical responders. The physiological and perceptual adaptations to frequent elevations of core body temperature (Tc), is a key strategy to improve tolerance of hot conditions by medical responders.	The pre-deployment heat acclimatization guidelines enabled AusMAT responders to structure and quantify their physical training while promoting physiological adaptations to optimize health, safety, and performance during deployment. Although maintaining year-round heat acclimatization is ideal for medical responders, these guidelines support rapid and beneficial adaptation following deployment notification.	Australia	Brearley, 2016

Category: Community-Based Actions and Social Interventions

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Culturally Sensitive And Age-Specific Heat-Related Manual	A study provided older adults with fridge magnets, thermometers marked with critical temperatures and a hotline number, colored bed sheets, and individualized health education sessions.	Implemented in the US for elderly (65+). 67% (pre-test) versus 94% (post-test) knew of a contact for assistance during hot weather.	United States	Hasan et al., 2021; Mattern et al., 2000
The Long Live The Elderly (LLE) Program To Counteract Social Isolation	Part of the Heat Action Pla, the "Long Live the Elderly" program in select Italian cities targeted social isolation among those over 75 by maintaining regular contact and promoting health campaigns. It also engaged neighbors and local volunteers to support vulnerable individuals.	Non-randomized experimental study with elderly (75+) in Italy found Cumulative mortality rates of 25% and 29% in LLE versus non LLE urban areas, respectively. Areas with the program experienced a 13% reduction in heat-related mortality compared to areas without it.	Italy	Hasan et al., 2021; Liotta et al., 2018

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Door-To-Door Water Bottles	A randomized community trial in Japan delivered water bottles with brief heat-prevention messages door-to-door, alongside community-wide education on preventive strategies, resulting in increased water intake and reduced heat exposure among participants.	Randomized controlled trial in Japan found improvements in the frequency of water intake, improvements in frequency of cooling body, improvements in the frequency of taking a break, reduced activities in the heat, and increase in hat or parasol use.	Japan	Hasan et al., 2021; Takahashi et al., 2015
Localized Cooling Centers	The strategy combines cooling centers, heat-health warning systems, and localized adaptation measures to reduce heat-related health risks. Cooling centers provide targeted relief in high-risk zones, while warning systems deliver broad preventive outreach. Neighborhood-specific solutions further enhance accessibility and responsiveness to local needs.	These approaches improve protection for vulnerable populations, with cooling centers offering immediate refuge, warning systems supporting early risk awareness, and localized measures strengthening community engagement and equitable access to heat mitigation resources.	Global	Ouria et al., 2025

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Strong Neighbours Climate Change Resilience Program	In 2022, the City of Greater Sudbury, through ICLEI Canada's Advancing Adaptation program, launched the two-year Strong Neighbours project to strengthen climate resilience in neighbourhoods vulnerable to heat waves, flooding, sewage backups, and power outages. Using a participatory approach, residents were engaged in selecting and implementing neighbour-led adaptation actions, including tree planting, rain gardens, shaded seating, and water filling stations to address local climate risks.	The project delivered targeted, community-driven solutions such as flood mitigation near Junction Creek, rainwater redirection and rain garden installation in Walden, and heat-health supports in the Flour Mill neighbourhood. These initiatives enhanced local resilience to heat and flooding, increased climate awareness, and demonstrated how grassroots adaptation efforts can foster broader community engagement and inspire replication in other neighbourhoods.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Building Strong Neighbours Through Community Events	The City of London organized an engagement event for seniors to build preparedness for extreme weather and promote climate resilience in their neighbourhoods. Actions included teaching climate resiliency strategies, facilitating interactions with City service areas and community clubs, and distributing 72-hour emergency preparedness kits for personal use and for neighbours.	-	Canada	(ICLEI Canada, n.d.)

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Participatory Approach To Developing A Heat Alert And Response System	Beginning in 2009, a federal–provincial–municipal partnership piloted a community-based Heat Alert and Response System in a climate-vulnerable city after temperature–mortality analysis identified a sharp rise in deaths above 30°C and projections showed a doubling of hot days by mid-century; a multi-stakeholder advisory committee developed plain-language alert tiers, launched bilingual public information websites, distributed targeted materials to at-risk populations, provided one-on-one training, and leveraged existing emergency management networks to operationalize the system.	By building on established response structures and community-based networks, the initiative institutionalized a sustained, coordinated heat-health communication and alert framework that strengthened local adaptive capacity and has remained in place for over a decade.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Building On Social Capital And Social Networks To Improve Preparedness	Following national heat projections, a rural municipality partnered with federal and local stakeholders to conduct heat vulnerability assessments and simulation exercises to inform the design of a locally tailored Heat Alert and Response System; actions included establishing a multi-sector advisory committee, integrating heat-risk screening for seniors into EMS assessments, disseminating targeted public education materials, expanding designated cooling locations, and arranging transportation for high-risk individuals via the local Handi-Van service.	The initiative strengthened rural heat preparedness by identifying vulnerable groups and service gaps, improving coordination among social support providers, and implementing context-specific response measures that enhanced accessibility and flexibility under extreme heat conditions.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Leveraging The Networks Of Various Partners To Ensure Residents' Safety	Beginning in 2005, the Middlesex-London Health Unit implemented an Extreme Temperature Alert Protocol that leveraged partnerships with community organizations to reach vulnerable populations, including the elderly, homeless, and those with chronic illnesses, with information on heat risks and protective measures.	By expanding communication through trusted local networks, the initiative increased community awareness and resilience, ensuring that at-risk groups received timely guidance during extreme heat events.	Canada	Canada in a Changing Climate, 2021
Engaging Landlords To Protect Health From Extreme Heat	The City of Hamilton revised its heat alert communication strategy to better reach vulnerable populations, such as the elderly, people with chronic illnesses, and those with addiction or mental health challenges, by targeting landlords and caregivers who maintain close contact with these groups.	This targeted approach enhanced the reach and effectiveness of the heat alert system, ensuring that at-risk residents received timely warnings and guidance during extreme heat events.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Ensuring Cooling Stations Are Accessible To All Residents	In 2007, the City of Greater Sudbury implemented a Hot Weather Response Plan to protect residents from extreme heat, later updated in 2016 to explicitly address climate change impacts and emphasize protections for the most vulnerable populations.	The plan provides a structured framework for heat event response and was successfully activated during a prolonged heatwave in July 2020, demonstrating its practical application in safeguarding public health.	Canada	Canada in a Changing Climate, 2021
Adapting Communications To Best Inform Vulnerable Groups	The Montreal Public Health Department has long focused on preparing residents for extreme heat, initially through public brochures in 1994, and later by refining communication strategies to reach high-risk groups, particularly the elderly and individuals with mental illness or addiction, who face barriers in accessing and acting on heat-health information.	These targeted communication efforts aim to ensure that vulnerable populations receive timely guidance and are better equipped to protect themselves during heatwaves.	Canada	Canada in a Changing Climate, 2021

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Addressing Extreme Heat In City Housing	The City of Hamilton implemented a community-informed program in City-owned apartment buildings to reduce the impacts of extreme heat. Actions included establishing in-building cooling centres, installing in-apartment air conditioning units, and distributing heat wave information sheets to residents.	-	Canada	(ICLEI Canada, n.d.)
Engaging Neighborhoods In Resilience	Cleveland's Climate Action Fund provides funding to Community Development Corporations (CDCs) to implement local resilience projects. Examples include expanding neighborhood gardens, rehabilitating housing, improving public facilities, or delivering community services, with projects like a 6,140 ft^2 garden receiving $5,500 in support.	-	United States	(U.S. Department of Housing and Urban Development, 2023)

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
NYC Be A Buddy	A two-year pilot program to connect social service organizations, community groups, volunteers, and at-risk residents during emergencies. The program: Trains volunteers and community organizations on protective measures for heat-related illnesses and ways to assist at-risk adults; Engages communities to identify local cooling resources and communicate health messages to hard-to-reach populations through trusted messengers.	-	United States	CDC, 2024

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Community Canopy Program	The Vermont Climate and Health Program, in partnership with the Arbor Day Foundation and the Vermont Urban & Community Forestry Program, sponsors an annual tree-planting initiative in urban neighborhoods at higher risk for heat-related illnesses. Between 2017–2019, the program distributed hundreds of trees to residents, creating cooler environments, improving air quality, intercepting stormwater, reducing carbon, and generating an estimated economic benefit of $50,000.	-	United States	CDC, 2024
Adapting To Extreme Heat – Perspectives From Rural Southwestern Ontario	Oxford County, a largely rural area, conducted consultations and workshops to tailor its Heat Alert and Response System to local challenges, including an older population, outdoor occupations, limited health services and community resources, communication constraints, and potential social isolation.	These participatory exercises improved the system's effectiveness by identifying vulnerabilities, refining alert protocols, and enhancing preparedness for projected increases in extreme heat days due to climate change.	Canada	Canada in a Changing Climate, 2021

Category: Education, Communication, and Public Awareness

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Beat The Heat: Don't Forget Your Drink	In Australia, recall of the slogan "Beat the Heat: Don't forget your drink" was low (25%), and reliance on unpaid media advertisements limited the campaign's overall reach.	Implemented in Australia. Observational study of adults (18+) found 54% changed their summer behavior Self-rated understanding of the heat health risks at 7.9 on a 10-point scale, higher than same time last year.	Australia	Hasan et al., 2021; Oakman et al., 2010
Evidence-Based Information Leaflets	A randomized study in Southern Australia distributed tangible resources, such as health cards, fridge magnets, and fact sheets with heat-prevention messages and found that more participants in the intervention group adopted recommended cooling practices, including using air conditioning or wet cloths, over the summer.	Randomized controlled trial in Australia with Elderly (65+) found Intervention group had significant increases in: air conditioner use during hot weather (74.4% versus 63.4%) the use of a wet cloth on face, neck or body to cool down during heat waves (16% vs. 8%) the belief that they had enough information to beat the heat (94% vs. 88%).	Australia	Hasan et al., 2021; Nitschke et al., 2017

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Accredited Social Health Activists (ASHA)	The second policy considered in our paper is the Accredited Social Health Activists (ASHA) Program. In 2005, the Government of India launched the Accredited Social Health Activist (ASHA) program under the National Rural Health Mission, initially targeting 18 high-focus states. ASHA workers, women aged 25–40 with at least an eighth-grade education, receive training to support maternal and child health, promote immunization, and raise awareness about sanitation and nutrition, receiving performance-based incentives rather than a salary.	This paper finds that ASHA mitigates the effects of heat during pregnancy on infant mortality. We show that the implementation of ASHA is associated with greater antenatal care, greater postnatal care, and a greater provision of important healthcare information to mothers.	India	Banerjee & Maharaj, 2020

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Extreme Heat Resource Page	The San Francisco Climate and Health Program developed an Extreme Heat Resource Page to provide healthcare professionals with guidance and materials for identifying, preventing, and responding to heat-related illnesses.	-	United States	CDC, 2024
Consistent Heat Safety Messaging	In Arizona, multiple Phoenix city departments collaborated to create consistent heat safety messaging for hikers and installed new trailhead signage to inform the public about heat-related health risks.	-	United States	CDC, 2024
Heat Safety Tip Sheet	The North Carolina Division of Public Health developed a heat safety tip sheet providing guidance for athletes, coaches, and parents to prevent heat-related illnesses during sports activities.	-	United States	CDC, 2024

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Heat Safety Flyer	The New Hampshire Climate and Health Program developed a heat safety flyer aimed at older adults to raise awareness of the risks of extreme heat and strategies to stay safe.	-	United States	CDC, 2024
Training And Formal Education Activities	BRACE-Illinois delivered training for migrant farmworker promotores (community health workers) on heat-related illness and climate change, enhancing their capacity to educate and protect agricultural workers.	-	United States	CDC, 2024
Training And Formal Education Activities	BRACE-Illinois developed a CME-approved webinar on heat stress for the Illinois Chapter of the American Academy of Pediatrics and the Illinois Academy of Family Physicians, providing in-depth training for healthcare professionals on recognizing and managing heat-related illnesses.	-	United States	CDC, 2024

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Training And Formal Education Activities	The Minnesota Climate & Health Program produced a training video on extreme heat events as part of a broader educational module series to inform public health professionals and communities about heat-related risks.	-	United States	CDC, 2024
Training And Formal Education Activities	The Maryland Climate Change Health Adaptation Program created two 8th-grade educational modules focused on climate change and health to raise awareness and understanding among middle school students.	-	United States	CDC, 2024
Heat Alerts	The Arizona Department of Health Services provides an opt-in heat alert subscription service, allowing residents to receive notifications by email or text about extreme heat events, either for the general public or tailored specifically for schools.	-	United States	CDC, 2024

Practice/Policy (Implemented And/Or Evaluated)	Description (Context of implementation)	Outcome & Evaluation (If applicable)	Location(s)	Sources
Heat Alerts	North Carolina's Department of Health and Human Services operates targeted heat-health alert systems for farm workers, low-income residents, older adults receiving nutritional assistance, and youth in county parks. The alerts are triggered at lower temperatures than standard National Weather Service advisories (100°F vs. 105°F) and are communicated through trainings for farm workers, housing authority outreach, nutrition assistance staff, and parks and recreation personnel.	-	United States	CDC, 2024