

Resilient
Cities

Reimagining
Health

Climate x health playbook

for urban decision-makers



Partnership of:



Sustainable
Markets
Initiative

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With support from:

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A joint message from partners

In 2024, we came together as global healthcare companies with a shared ambition: to help cities accelerate a prevention-first approach to health. We recognise that many of the greatest opportunities to improve health, reduce healthcare demand and build climate resilience lie outside the walls of formal healthcare settings – in the places where people live, work, and connect every day.

Two years on, alongside a broad coalition of partners, including the Sustainable Markets Initiative and dedicated city leaders around the world, we are proud to see that ambition becoming a reality. Together we have built a movement grounded in the needs of communities already experiencing the greatest climate and health burdens. This work is focused on helping cities respond to the ever-growing health impacts of a warming world.

Since launching the 'Case for Action' report in September 2025, we have increasingly quantified the scale of impact that practical, often low-cost preventative health interventions in cities could have. Our initial modelling suggests these interventions could save 725,000 lives, \$70 billion in healthcare costs, and 15.6 megatons of healthcare-related emissions each year.

At a time when health systems across the world face growing pressure from rising demand, chronic disease and climate-related health risks, prevention has never been more important or had a more crucial role to play. As they are home to the greatest number of people, with further urbanisation expected over the coming decades, and as hubs which bring people together to live and work, cities are uniquely placed to lead preventative action. By acting earlier, together we are able to address the root causes of poor health, and create environments that enable people and communities to thrive.

While the need and ambition are strong, we heard consistently from our Community of Practice – 33 cities across 21 countries – that cities need more than evidence alone. They need practical tools and locally relevant data to build their own independent, compelling cases. This would help mobilise decision-making, source new partnerships, and unlock investment, marking a firm shift from dialogue to delivery.

Importantly, these tools help cities identify, prioritise and invest in interventions that can improve health outcomes, reduce inequalities, strengthen resilience and deliver lasting value for communities. By translating evidence into practical decision-making, they support leaders to take action with confidence and at scale.

We know that healthier cities are one of the most effective ways to improve public and environmental health. By helping cities adopt a prevention-first approach, we can reduce avoidable illness, improve quality of life, ease pressures on care, support decarbonisation of health systems, and fundamentally, build stronger, more resilient communities.

As we mark this important milestone, we are grateful to all those who have contributed their expertise, insights and leadership, particularly the cities of Lagos, Rio de Janeiro, Greater Manchester, and Mexico City who partnered closely with us throughout this programme. Together we are demonstrating that prevention is not only better for people – it is also essential for creating healthier, more resilient and sustainable communities for the future.

Kris Licht, CEO, Reckitt

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Members of the working group include Resilient Cities Network, Sanofi, UCB, Mode Economics, Yale School of Public Health.



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Introduction

Urbans populations are facing a global health crisis, and climate change is making it worse – cities are on the frontline of this challenge but also offer a platform for action. Health systems are already strained; in 2021, about 4.5 billion people were not fully covered by essential health services.¹ Climate change is adding to this pressure, because many of the health conditions that lead to illness, such as cardiovascular and respiratory disease, are highly climate-sensitive. Hazards including extreme heat, air pollution, and flooding are becoming more severe, and they carry knock-on effects such as the wider spread of water- and vector-borne diseases. As a result, health outcomes are worsening; heat deaths in cities, for example, have been projected to increase by 45% in the ten-year period to 2030.² Some groups are affected more than others. Vulnerable populations, including older adults, young children, and those living in informal settlements, can face greater physiological risks, higher exposure to hazards, and more limited access to care. Health systems must therefore adapt to climate change while also reducing their own contribution to it, which currently stands at 4.5% of total global emissions.³ This challenge will be felt most acutely in cities – more than half the world already lives in urban areas, and that share is projected to rise to 70% by 2050.⁴

There is strong evidence that a preventative, place-based approach to urban health can help address these problems. People's health is shaped by their age, circumstances, lifestyle, and the local environment. Preventative interventions such as urban greening, cooling infrastructure, or community education on protective behaviours can strengthen health outcomes by improving urban environments and supporting healthier ways of living.⁵ Because these measures help prevent disease before it occurs, they offer a more cost-effective alternative to the traditional reactive model of urban healthcare. For example, rolling out low-cost, preventative interventions

¹ WHO (2023), Billions left behind on the path to universal health coverage

² The Case for Action: The power of prevention to support health in a changing climate

³ Rodríguez-Jiménez et al. (2023), 'The carbon footprint of healthcare settings: A systematic review', *Journal of Advanced Nursing*

⁴ UN DESA (2019), Our world is growing older: UN DESA releases new report on ageing

⁵ COP30 Special Report on Health and Climate Change





across ~11,000 cities could save more than 725,000 lives, \$70 billion in healthcare costs, and 15.6 MtCO₂ in emissions from the healthcare sector per year by 2030.⁶ These measures can also deliver wider benefits, particularly for climate mitigation and equity. Active travel policies can reduce carbon emissions and air pollution, while also improving health through cleaner air and more active lifestyles. Cities are well placed to lead this preventative action, because they are responsible for many areas that shape health, including the environment, urban planning, economic development, and transport.

Cities face challenges in implementing preventative, place-based approaches to improve health in a changing climate.⁷ While there is a strong case for city-led action to support people's health in a changing climate, cities need support and tools to help them move from theory to implementation. Engagement with the *Resilient Cities, Reimagining Health* programme's global Community of Practice of 33 cities⁸ highlights some of the common challenges:

- **Competing priorities and tight budgets:** cities balance many urgent demands against limited funding and staff time
- **Silos between departments:** health, environment, planning, and transport teams often work separately, which makes joined-up action difficult
- **Gaps in data:** cities often do not have detailed, neighbourhood-level data on how climate affects health, which makes it harder to design and target interventions
- **Barriers to finance:** many cities cannot borrow independently or access international climate finance. Without evidence of impact, it is also hard to build the political support and business cases that unlock funding.

⁶ The Case for Action: The power of prevention to support health in a changing climate

⁷ From here onwards, the terminology 'climate x health' is used to refer to preventative, place-based action in the context of climate risks

⁸ Cities in the Community of Practice as of June 2026: Barcelona, Berkeley, Buenos Aires, Broward County, Cali, Cape Town, Ciudad Juárez, Colima, Christchurch, Glasgow, Greater Manchester, Guadalajara, Lagos, London, Medellín, Melbourne, Mexico City, Monterrey, Montevideo, Nairobi, Panama City, Penang, Porto Alegre, Ramallah, Rio de Janeiro, Santa Fe, Santiago, Salvador, Semarang, Surat, Sydney, Quezon City, and Quito





This playbook is a practical tool for any city that wants to protect its people's health as the climate changes, whatever that city's size, budget, or starting point. It has been co-created with cities in the Community of Practice, including through a focus group of eight cities convened for deeper engagement, to ensure the playbook meets cities' real needs. It is written for the people who will take this agenda forward – no specialist technical background is assumed.

Example user profiles include e.g.,

- **City officials** in planning, health, environment, transport, finance, and resilience teams who will lead the process and produce the outputs at each step
- **Elected leaders and their offices** who need to make the case for action and build political support
- **The partners** who support any intervention such as funders, academia, and implementing NGOs

This playbook will help cities to:

- **Bring health into climate and resilience planning** in a structured, evidence-based way
- **Make the case for action** to politicians, funders and financiers, health systems, and communities
- **Learn from cities** that have already done this work through concrete case studies
- **Choose a level of ambition** that matches city capacity – every step offers three pathways (minimum viable approach, current good practice, cutting-edge approach)
- **Put inclusion at the centre** through a list of inclusion considerations at every step

This playbook is designed to be used alongside the *Climate x Health Impact Dashboard*.⁹ The Dashboard helps cities quantify the magnitude of climate x health risks and the impact of preventative interventions. The city-level results can be used to build buy-in by among city leaders, funders, and communities. The analysis can also inform the risk assessment where local data is thin and support a high-level business case based on the health benefits of city-led interventions.

⁹ [Climate x Health Impact Dashboard](#)



Climate-health risks, projected impacts and the value of intervention

The two tools described above support cities in adopting a more preventative approach to urban health. The results for the 33 cities modelled as part of the *Climate x Health Impact Dashboard* shed light on the scale of the need and the opportunity for a city-led response.

Heat and air pollution already pose grave risks to urban health, and these could grow in the future. Already in 2026, on average 43% of days a year are expected to cause adverse excess health impacts relative to a mild day in the cities analysed. As heat events become increasingly frequent and severe, this number is expected to increase to 49% of days a year by 2050. We estimate that all cities currently exceed the WHO annual pollution guideline.¹⁰ While some cities have improved air quality in recent years, we still expect it to cause material impacts on health in almost all the cities of focus even if current trends continue. Ageing will exacerbate the impact of these environmental factors, as older adults tend to be more physiologically vulnerable, and expected to make up 17% of the city populations in 2050, up from 11% in 2026.

Without action, extreme heat and air pollution could cause 11 million excess hospitalisations and 1 million excess deaths across these 33 cities by 2050. Most of the impacts are felt by >65-year-olds, being 4 times more likely to be hospitalised, and representing 80% of the excess deaths. The modelled deaths and inpatient admissions capture only a fraction of the health impacts. These environmental factors could also

increase outpatient visits, ambulance calls, diagnostic exams, prescribing, and the need for self-care.¹¹

Implementing a small number of tried-and-tested city-led preventative interventions could avoid up to 13% and 8% of these impacts for extreme heat and air pollution respectively. Cities have the opportunity to equip their citizens with advice and tools to better protect themselves from heat and air pollution¹², while reducing the pressures of these environmental factors through cooling measures¹³ and transport emissions policies. Reducing the underlying vulnerability to heat and air pollution presents another opportunity for action. Physical activity and nutrition campaigns in schools and workplaces could reduce the 36 million excess hospitalisations caused by high BMI in the cities of focus by 2050, 85% of these associated with climate-sensitive conditions like cardiovascular disease.

City-led preventative action has wide-ranging benefits beyond individual health outcomes. Implementing the package of interventions described above would reduce pressure on already strained urban health systems, avoiding US\$3 billion of healthcare costs, and 0.6 MtCO₂e of associated healthcare emissions by 2050. Implemented well, the interventions can also contribute to enhanced social cohesion from joint physical activity efforts, improved wellbeing from thermal comfort and clean air, and increased carbon sequestration from urban greening supporting population health in a holistic way.

¹⁰ PM2.5 annual concentration should be below 5µg/m³

¹¹ E.g., the risk of ambulance dispatches increased 18% under extreme heatwaves based on a meta-analysis (Xu et al. (2023), 'Heat, heatwaves, and ambulance service use: a systematic review and meta-analysis of epidemiological evidence', *International Journal of Biometeorology*)

¹² E.g., through early warning systems, or community education on protective behaviours

¹³ E.g., street tree planting and cool roofs



How to use this playbook

Start from the city's current position. The eight steps follow a logical order, but few cities begin with a blank slate. Cities do not need to restart the process – instead they can continue from where they are, using checklists from the preceding steps to check the foundations are in place and where existing work could be strengthened. Where cities are setting up a new climate x health programme or want a single structured route from vision through to monitoring, they can work through the full playbook. Where cities want to fill a specific gap, they can consult a specific step. For example, cities that already have a climate risk assessment that considers health can progress from Step 4 (Identify relevant climate x health interventions), after reviewing their objectives, stakeholder mapping, and governance processes. Users can navigate the steps dynamically by using the buttons in the sidebar: return to the table of contents with  and jump to any step by clicking on its number.

Use the sub-steps to work through each step. Every step contains a mixture of short sub-steps and deep dives marked by  that provide more detailed health-specific guidance. Although some sub-steps are deep dives, this does not signify their relative importance – all sub-steps should be considered.

Choose a level of ambition based on city resources. Every step offers three possible pathways:

- **Minimum viable approach:** what a small team with limited time and resources can realistically achieve in a few weeks
- **Current good practice:** what a resourced city with a dedicated cross-departmental team can deliver over several months
- **Cutting-edge approach:** what becomes possible with significant city resources and time investment, or external technical (e.g., consultancies, think tanks, multilateral development banks) and financial support¹⁴

¹⁴ See Step 7: Finance interventions for potential sources of financial support





Mix and match. For example, a city might take the minimum viable approach pathway for Step 1 (Set vision, identify entry points, and map stakeholders) and Step 2 (Establish governance, processes, timeline) if they do not have the mandate to formalise a new, structured cross-department group. But they can nonetheless pursue the current good practice pathway for Step 3 (Identify and estimate climate-related health risks) if they have strong risk data and technical capacity.

Apply the inclusion considerations at every step. Typically, there are a range of voices that are not included in decision-making, and these are often those with most at stake in climate x health decisions. These groups can be from a range of backgrounds, which will vary city by city. Each step includes a short set of considerations to ensure that these voices are not neglected in decision-making.

Use the checklists. Each step includes a short checklist to help cities keep track of the key actions. Users can find the checklists on the cover page of each step for a quick reference.





Each step produces a key outcome. These are outlined in the Overview of the steps for urban climate x health action. Example outputs based on the three levels of ambition are included at the end of each step – the exact shape of these will depend on the approach taken by cities.

Together these form the evidence base for a city climate x health programme, and the material a city needs to make its case to leaders, funders, and communities.

Use the playbook alongside the *Climate x Health Impact Dashboard*. The Dashboard supports three steps in particular:

- **Step 1, to build buy-in** – city-level projections give leaders, funders, and communities a concrete figure to respond to, and serve as proof points in the messaging developed for each audience
- **Step 3, to start the risk assessment** – where local data is thin, the Dashboard gives an order of magnitude for heat and air pollution impacts that a city can refine with local evidence
- **Step 5, to support appraisal** – the Dashboard methodology can provide inspiration on how to model the impact of some urban climate x health interventions

The Dashboard does not replace local analysis. It only produces city-level results for most cities, so it cannot capture neighbourhood-level variation or every local driver of health risk. Treat it as an indicative starting point for Step 3, rather than a substitute for it.



Overview of the steps for urban climate x health action¹⁵



¹⁵ These steps are broadly aligned with the CDC Building Resilience Against Climate Effects (BRACE) Framework: Step 3 aligns with BRACE steps 1 (Anticipate climate impacts and assess vulnerabilities) and 2 (Project the disease burden); Steps 4–5 align with BRACE step 3 (Assess public health interventions); Steps 6–7 align with BRACE step 4 (Develop and implement a climate and health adaptation plan); and Step 8 aligns with BRACE step 5 (Evaluate impact and improve quality of activities).

The steps also align broadly with the four priorities of the [Sendai Framework for Disaster Risk Reduction 2015–2030](#): understanding risk, strengthening governance, investing in resilience, and enhancing preparedness and recovery.

Overview of the steps for urban climate x health action

Steps 6, 7, and 8 are interlinked and non-sequential – they can be taken in parallel

5



Assess interventions and create portfolios

- A Build portfolios of interventions
- B Assess interventions
- C Refine and select priority portfolios for implementation

OUTCOME

Cities have prioritised interventions

6



Design interventions with communities

- A Draft the intervention concept with community input
- B Build support with communities
- C Co-design interventions with communities
- D Identify and secure implementation partners
- E Finalise intervention designs and build a business case

OUTCOME

Cities have co-produced equitable intervention designs

7



Finance interventions

- A Map all sources of funding and finance
- B Match mechanisms with interventions
- C Tailor the business case
- D Engage partners and secure funding and finance

OUTCOME

Cities have project financing

8



Track progress and learn

- A Set up a monitoring and evaluation framework
- B Monitor delivery and learn

OUTCOME

Cities have delivered projects and learned from their experience



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→ **Bankable project:** an intervention whose expected returns and risks meets investors' criteria, so it can secure financing. They differ from investable projects, which are those that have the potential to generate a positive return.

→ **Benefit-cost ratio (BCR):** a metric that compares the present value of all expected benefits of an intervention to the present value of its total costs, calculated as total benefits divided by total costs. A BCR greater than 1 indicates that benefits outweigh costs.

→ **Blended finance:** the strategic use of public or philanthropic money to attract private investment, usually to make viable an intervention that the private sector alone would not finance

→ **Concessional finance:** finance offered on better terms than the market would provide – e.g., with longer repayment periods or lower interest. Often comes from development banks or climate funds.

→ **Cost-benefit analysis (CBA):** a structured assessment comparing the costs and benefits of an intervention, enabling decision-makers to compare different options consistently

→ **Disability-adjusted life year (DALY):** a measure of overall disease burden, representing years lost to ill-health, disability, or early death. DALYs are calculated as the sum of years of life lost to premature death and the years of healthy life lost due to disability.

→ **Distributional analysis:** an approach used to assess how the costs and benefits of an intervention are spread across different population groups (e.g., by income, age, gender, geography)

→ **Financing:** the mechanisms used to raise or mobilise money, including loans, bonds, and equity

→ **Funding:** money that is used to cover the cost of an intervention

→ **Green bond:** a bond where the money raised must be spent on interventions with environmental benefits

→ **Monitoring, evaluation, and learning (MEL):** a structured process to measure progress, assess effectiveness, and adapt interventions or programmes

→ **Net present value (NPV):** a metric to assess the total benefit of an intervention to society, calculated as the total value of benefits minus costs, expressed in present value terms

→ **Project pipeline:** an inventory of proposed and planned interventions at various stages of development

→ **Sensitivity tests:** the process of systematically varying assumptions in economic analysis to understand how robust the overall result is

→ **Statistical value of life:** an economic metric representing the monetary value of reducing mortality risk in a given population or context. It is used in cost-benefit analysis to monetise the health benefits of interventions.

→ **Urban Lab:** a participatory, experimental process to co-create and test solutions to urban challenges through stakeholder collaboration

→ **Value of a life year (VOLY):** a monetary estimate of the value of an additional year of healthy life



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1. Set vision, identify entry points, and map stakeholders

Many decisions made by city governments impact health, especially in the context of climate risk. At the same time, cities must balance health among many competing priorities. However, they do not always have formal public health mandates – and rarely have sole responsibility for delivering health-related objectives.

Cities should therefore consider health impacts in a clear and consistent way when making decisions, making sure to coordinate action across departments and organisations. Existing strategies can provide entry points to integrate climate x health considerations. Building support for this work among key internal and external stakeholders is essential – experts can support cities with insights, and community perspectives reflecting on-the-ground realities are key to ensuring an equitable approach.

60%

of cities reported having a climate resilience plan, but only

23%

had a comprehensive plan that concurrently addresses health

>80%

of cities expressed an interest in ongoing engagement with the climate x health agenda, which could include integrating health considerations in resilience strategies.¹⁶

Step 1 Checklist

- ☐ High-level objectives drafted
- ☐ Relevant local, national, and sectoral strategies mapped
- ☐ Trade-offs and synergies between strategies recorded
- ☐ Entry points and policy windows identified on a timeline
- ☐ Stakeholders mapped by role
- ☐ Engagement plan drafted, tailored by stakeholder
- ☐ Messaging to build buy-in drafted, tailored for different interests
- ☐ Inclusion considerations completed and signed off

¹⁶ Urban Pulse: Identifying Resilience Solutions at the Intersection of Climate, Health and Equity



A. Develop high-level objectives for the climate x health work

At this stage, the objectives should be fairly broad. More specific targets can be developed once the city has a clearer view of its key risks and what it can realistically deliver. Use the objectives to define what success would look like, such as 'ensure health impacts are accounted for in the Resilience Masterplan published in 18 months' time'. Make sure to consider equity, e.g., 'understand the most pressing climate x health risks and most vulnerable populations'.

B. Review the existing landscape of strategies to identify entry points for climate x health considerations¹⁷

Start by mapping all relevant local, national, and sectoral strategies and plans. For instance, include the national adaptation plan (NAP). Also include relevant private sector plans, such as commercial development programmes. In addition to official strategies, also include recommendations by scientific advisory bodies, such as the Climate Change Committee. See [Figure 1](#) for an illustrative example for Greater Manchester.

Next, identify where health and climate already appear in these strategies and plans, and where there are gaps – e.g., does the city resilience strategy include health considerations? Identify target populations and equity gaps – e.g., does the city climate change strategy address vulnerable populations? Make sure to note down any trade-offs and synergies between strategies.

Then identify upcoming reviews, updates, decision points, and other policy windows such as the next city climate plan update or municipal budget process. These are opportunities to bring climate x health considerations into wider city work.

Create a timeline to pinpoint key opportunities – e.g., aim to add public health targets to the city climate action plan during its next update. Identify the stakeholders responsible for each strategy or plan so they can be included in the stakeholder mapping process.

¹⁷ R-Cities Guide to Updating Resilience Strategies for Success, WHO (2025), Taking a strategic approach to urban health: a guide for decision makers, UN-Habitat and WHO (2020), Integrating Health into Urban and Territorial Planning: A sourcebook

Step 1 Inclusion considerations

- **Consider including equity and inclusion concerns when formulating objectives**
- **Consider using the strategy review to identify inclusion gaps** - note where existing city strategies do not adequately address populations facing vulnerabilities
- **Stakeholder map includes representatives of populations facing vulnerabilities** - not only community organisations that speak about these groups, but people who are part of them or organisations with direct, trusted relationships
- **Consider stakeholder needs in the engagement plan** - plan for language, location, time-of-day, compensation, and format based on each stakeholder group's access needs
- **Consider naming an inclusion lead in the city core delivery group**



C. Map relevant stakeholders¹⁸

Identify stakeholders and develop an engagement plan that sets out when and how each stakeholder should be involved, based on their role and expertise.

To support the mapping, map stakeholders into categories based on their roles (e.g., see Figure 2):

- **The city core delivery group** should include city departments whose work is closely linked to climate x health concerns. For each department, identify and record a designated lead.
- **Political leadership** should include key leaders who can provide political support – e.g., the mayor and local council
- **Core enablers** should include people and organisations who are key to making action possible, such as financiers, local communities, and national government departments
- **Supporting partners** should include stakeholders who can offer data sources, insights, and help deliver action, as well as those who are exposed to climate x health risks. For example, public health agencies can provide policy support and health data, while healthcare providers could support delivery. Make sure to explicitly identify community organisations that represent key vulnerable groups, to ensure their views are included.



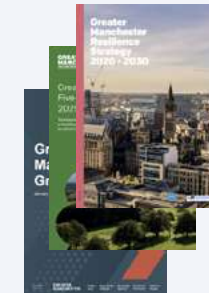
D. Build buy-in across stakeholders

Focus particularly on those not yet engaged in climate x health work. City and national/regional governments have constrained budgets and competing priorities, making political support critical. Stakeholders will have different perspectives and knowledge, so messages should be tailored for each audience.

¹⁸ EU Mission on Adaptation to Climate Change DIY manual, Taking an Urban Resilience Approach to Climate, Health and Equity: A Point of View

Figure 1: Relevant strategies across governance levels

Illustrative example from Greater Manchester

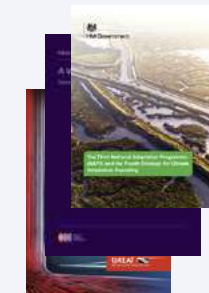


Local

Greater Manchester Resilience Strategy 2020 - 2030

Greater Manchester Five-Year Environment Plan 2025 - 2030

Greater Manchester Local Growth Plan



National

UK National adaptation plan (NAP)

UK Nationally Determined Contribution (NDC)

UK Industrial Strategy

UK Carbon Budget and Growth Delivery Plan

A Well-Adapted UK



Sectoral

Greater Manchester Transport Strategy 2040

Places for Everyone Joint Development plan

Manchester Population Health Plan



Storytelling is a powerful tool to explain climate x health risks and opportunities to non-specialist stakeholders. Stories can make complex scientific issues more personal and easier to grasp.²⁰ If local evidence is not available, draw on case studies or global analyses to build stories.

For local and national politicians, frame the story around their core priorities. For those focused on the economy, emphasise how preventative action can reduce future costs and protect productivity. For those focused on equity, emphasise how climate x health action can target the most vulnerable and reduce inequalities.

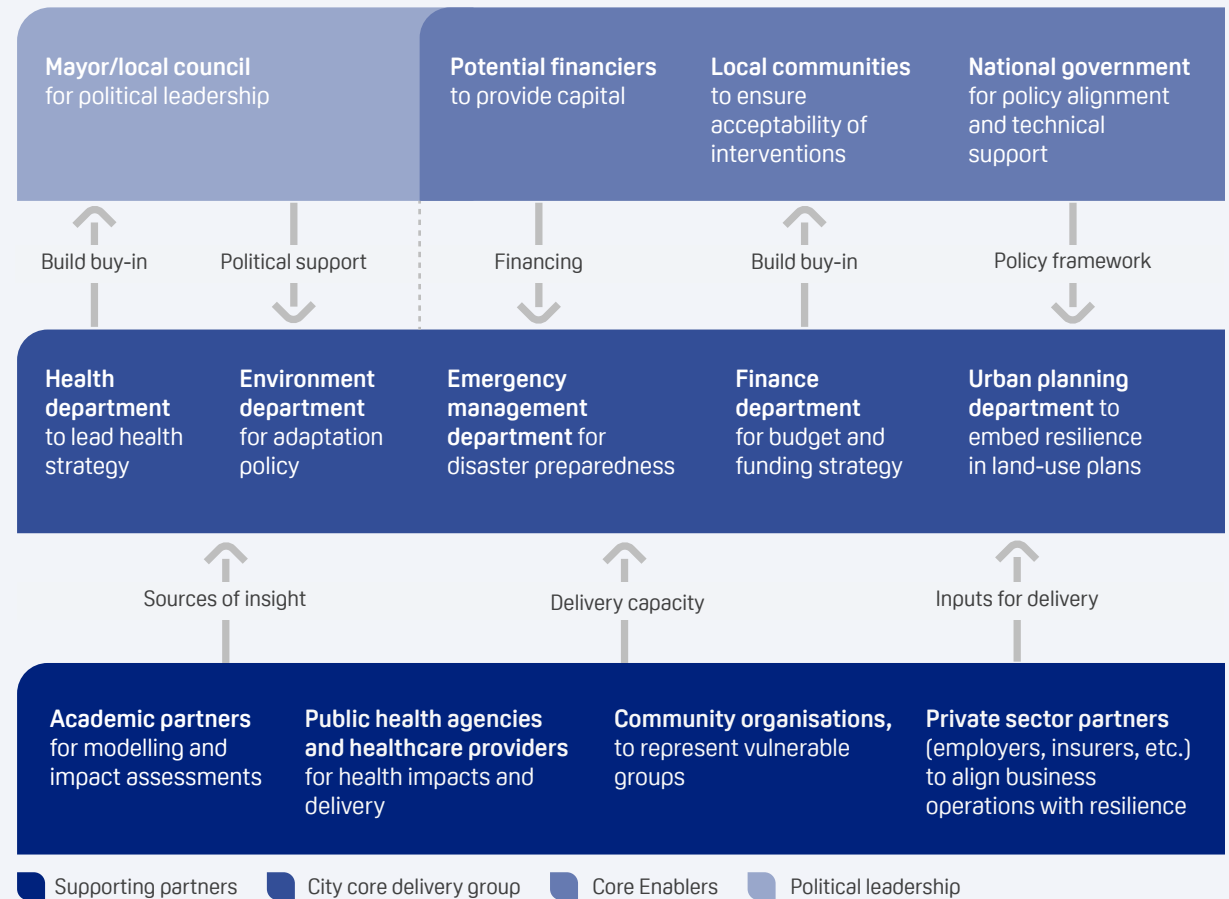
For health system stakeholders, frame the story around health system resilience and efficiency. Emphasise how climate x health action can protect continuity of care during shocks and reduce costs and pressure on services by shifting from reactive responses to prevention.

For local communities, frame the story around the day-to-day health and livelihood benefits expected from the programme. Emphasise that an approach which prioritises lived experience and community perspectives will be used.

¹⁹ Cities should note this list is non-exhaustive and are encouraged to identify additional stakeholders

²⁰ C40 Cities (2024), [Inclusive climate action communications toolkit for African cities](#)

Figure 2: Key stakeholders and potential roles¹⁹





Preconditions

Level

Minimum viable approach

- Senior official in one key department (e.g. health, environment, planning) willing to lead
- Junior team member with roughly 2-3 days to spend on this step

Staffing needs

- **1-2 weeks** elapsed;
~4 staff days total

Example activities

- A core team of 3-4 officials (from health, resilience, environment, and planning) meets for a half-day to agree broad objectives
- A junior team member spends two days mapping the 3-5 most relevant strategies and identifying key stakeholders
- The team contacts strategy owners to raise awareness and invite future collaboration

Example outputs

- Initial objectives statement
- Short memo listing 2-5 priority entry points
- Initial stakeholder list with contacts
- 2-5 key strategy owners are aware of the importance of the agenda

Level

Current good practice

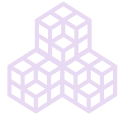
- Senior official with authority to convene a new cross-departmental group
- Department representatives each have 3-5 days available

- **3-4 weeks** elapsed;
~15-20 staff days total

- A cross-departmental core delivery group is formally established
- Two to three staff spend a week on a full review of existing strategies, identifying entry points and policy windows
- The group runs a full-day workshop to agree stakeholder roles and engagement plans

- Written objectives statement endorsed by participating departments
- Strategy entry-point timeline
- Detailed stakeholder map and engagement plan

Level

Cutting-edge approach

- A dedicated task force led by a senior official with a cross-departmental mandate (e.g. Chief Resilience Officer or equivalent)
- Formal letters of commitment from participating departments outlining contributions and staff time

- **6-8 weeks** elapsed;
~40+ staff days total

- A taskforce convenes department leads to set the scope and secure formal mandates
- Key-informant interviews across departments inform a detailed strategy review and an initial feasibility assessment of entry points
- A participatory workshop with strategy owners and community representatives prioritises entry points, confirms stakeholder contacts, and designates named champions

- Formal participation confirmed for the core delivery group
- Timeline of priority feasibility-assessed entry points
- Network of named champions across departments and the community



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2. Establish governance, processes, timeline

Tackling climate x health challenges requires joined-up action. This can be difficult for cities because departments often work in different ways with different timescales, challenges are complex, and many stakeholders may be involved.

Clear governance and reporting structures ensure that decisions balance climate x health objectives with related goals.²¹ Early alignment on ways of working and timescales across departments ensures that the right data and analysis are available when needed. Targeted capacity development can help city officials conduct analysis and make informed decisions amidst complex climate x health dynamics.

20%

of surveyed cities report 'strong coordination' between city departments (e.g., health, planning, transport, environment) to address climate shocks or stresses.²²

Step 2 Checklist

- ☐ Core delivery group formally established with a lead department and Terms of Reference
- ☐ Reporting structure to stakeholders in key leadership positions agreed
- ☐ Ways of working documented (meetings, decision rights, data-sharing, data protection)
- ☐ Timeline drafted and aligned with key policy windows, with the stakeholder engagement plan mapped in
- ☐ Capacity gaps assessed
- ☐ Capacity-building plan drafted, with short-term and longer-term gaps distinguished
- ☐ Inclusion considerations completed and signed off

²¹ Climate ADAPT: Regional Adaptation Support Tool (adapted), Taking an Urban Resilience Approach to Climate, Health and Equity: A Point of View

²² Urban Pulse: Identifying Resilience Solutions at the Intersection of Climate, Health and Equity



A. Formalise governance and reporting structures

Formalise the governance of the city core delivery group by deciding on a lead department and developing a Terms of Reference document. Establish a reporting structure to stakeholders in key leadership positions so that they can oversee the process and review progress – e.g., to public health and climate officials.

B. Agree ways of working together

This should include meeting cadence, decision rights, and documentation protocols. If data will be shared, list what will be shared, by whom, how, for what purpose, and under what permissions. Also consider how data protection regulations may limit sharing across departments and organisations. Identify where differences in working styles and timelines could create challenges – e.g., the health department may work more reactively, while the environment department may be more proactive.

C. Draft a timeline

This should include key milestones, decision points, deadlines, and meetings. Set out what sign-off is needed at each stage. Align the timeline with key strategy and policy windows. Integrate the stakeholder engagement plan into this timeline.



D. Carry out targeted capacity-building on climate x health resilience

Assess which areas of capacity need strengthening, and set out priorities for training.

Consider using existing approaches to assess capacity gaps, such as the [WHO Urban Health Capacity Assessment and Response Resource Kit](#), which helps cities evaluate climate x health capacities across the individual, organisational, and systemic levels. Cities may wish to strengthen knowledge of climate x health risks, technical skills, leadership, governance processes, vulnerability assessment, human resources, and others. Set out a time frame that differentiates between capacity gaps to be addressed before the programme can begin (e.g., climate risk assessment) and gaps that can be addressed later (e.g., monitoring capabilities).

Establish governance, processes, timeline

Step 2 Inclusion considerations

- **Consider including a channel for community feedback** on the governance process itself in the reporting structure
- **Timeline ideally includes ample and timely stakeholder engagement** – try to distribute engagement opportunities across the process, rather than concentrating them at the end, so stakeholders can meaningfully contribute
- **Consider incorporating equity and inclusive practice in the capacity-building plan** – not just technical climate and health skills



Once gaps have been identified, cities can use different methods to address them, including:

- **Sharing knowledge from existing resources** by circulating materials to relevant departments, running technical training sessions, and organising peer learning sessions across teams. For example, the health department could lead a session on the climate x health impacts they have observed.
- **Using city networks** for advice, including the Community of Practice
- **Connecting with academics** and experts for technical and specialised insight
- **Requesting technical support** from central government departments, such as guidance on climate adaptation monitoring
- **Considering new recruitment or external support** to fill specific capacity gaps, if budget allows

Cities can draw on existing resources, including those highlighted in Figure 3.

²³ [WHO Urban health capacity assessment and response resource kit](#); [Prevent to Protect: Unlocking Climate-Resilient Health in Cities](#); [WHO Academy: Urban health](#); [WHO Climate change and health toolkit](#); [WHO Integrating health in urban and territorial planning: the directory](#); [CDC Climate and health guidance and trainings](#)

Figure 3: Capacity building resources²³



[WHO Urban health capacity assessment and response resource kit](#)



[WHO Climate change and health toolkit](#)



[R-cities climate x health resilience e-learning](#)



[WHO Integrating health in urban and territorial planning directory](#)



[WHO Urban health E-learning](#)



[CDC Climate and health guidance and training](#)



Preconditions

Level

Minimum viable approach

- A small core delivery team that is willing to formalise its participation

Staffing
needs

- **2–3 weeks** elapsed;
~5 staff days total

Example
activities

- Core team assigns a lead, formalises membership, and sets out ways of working in a simple document
- The lead builds a 12-month timeline validated by the group
- Resilient Cities Network's climate x health introductory e-learning is circulated to officials across relevant departments

Example
outputs

- Short Terms of Reference and ways-of-working note
- Memo outlining 12-month timeline

Level

Current good practice

- Authority to establish a formal cross-departmental governance structure
- Access to experts with time to deliver technical training

- **4–6 weeks** elapsed;
~20 staff days total

- A lead is assigned to coordinate the core delivery group and is supported by a junior staff member
- The lead drafts a Terms of Reference and ways of working memo, which is endorsed by the core delivery group
- The lead develops a longer-term timeline covering short-, medium-, and long-term entry points
- The group runs a series of technical training sessions and cross-departmental peer-learning sessions on local climate and health risks, risk assessments, and intervention design

- Terms of Reference and ways of working document
- Structured timeline
- Schedule for capacity-building sessions

Level

Cutting-edge approach

- A formal commitment mechanism outlining contributions from department leads
- Programme-specific staff assigned from relevant departments
- Identified partner able to resource capacity-building

- **8–12 weeks** elapsed;
~50+ staff days total

- A dedicated lead is supported by a task force to coordinate delivery, record progress, and liaise with department heads
- The core delivery group formally agrees a Terms of Reference document
- A long-term workplan is produced, integrating resources, capacities, and timeline
- A city-specific capacity-building curriculum is designed and offered to a wide group of city teams via workshops and online modules
- External subject-matter experts provide hands-on support

- Full governance package: Terms of Reference, timeline, workplan, resourcing plan, capacity-building curriculum

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3. Identify and estimate climate-related health risks

Risk assessment is already a well-established component of adaptation planning, but health is often overlooked.

To understand climate x health risks fully, cities must look across systems. This means considering how climate, economy, urban environment, social fabric, and health systems affect one another, and how interconnected risks may change in the future.²⁴ Validating priority climate x health risks with stakeholders and communities ensures that adaptation objectives reflect lived experience. Sharing risk assessment results with communities is important to raise awareness of local climate x health risks.

69%

of cities are concerned about greater exposure to climate-sensitive infectious diseases.²⁵

Step 3 Checklist

- ☐ Initial list of climate x health risks drafted and validated with stakeholders and communities
- ☐ Approach to the risk assessment agreed
- ☐ Climate x health risks assessed
- ☐ Risks mapped to existing climate goals, and new adaptation objectives drafted
- ☐ Findings shared in accessible formats with stakeholders and communities
- ☐ Inclusion considerations completed and signed off

²⁴ Climate ADAPT: Regional Adaptation Support Tool, Climate Change in Wales: Health Impact Assessment, CDC, Assessing Health Vulnerability to Climate Change: A Guide for Health Departments

²⁵ Urban Pulse: Identifying Resilience Solutions at the Intersection of Climate, Health and Equity



A. Identify climate x health risks

Use a framework to build out structured narratives as to how climate affects health in the city (e.g., see [Figure 4](#)). Draw on existing climate risk assessments and bring together evidence such as health data, historical climate data, and socioeconomic data. Make sure to consider knock-on impacts and identify vulnerable populations. Use these narratives to build a list of climate x health risks to include in the risk assessment. Validate this with stakeholders and communities, to ensure it reflects lived experience.

B. Define the approach of the climate x health risk assessment

Decide the scope (geographical and temporal), method (quantitative or qualitative²⁶), and sources of insight to be used for the assessment of each climate x health risk. Consider city resources and data availability when deciding the approach – e.g., does the city have the technical capacity and access to local health data to undertake a quantitative assessment of heat-health risks? Cities may decide to use a combination of quantitative and qualitative methods – e.g., assess some risks quantitatively, and others qualitatively, based on city resources and data availability.



C. Assess climate x health risks in the present and under future scenarios

For all assessments, begin by determining which health metrics are of interest (e.g., deaths, hospitalisations). Then determine which climate and socioeconomic scenarios will be used.

Depending on the scope and method, risk assessments will typically analyse the following components:

→ **Hazards** – these may be direct climate hazards or their knock-on impacts like food insecurity or vector ecology. Analysis may involve using existing climate risk assessments or downscaled

²⁶ For an example of quantitative risk assessment, see [A Well Adapted UK](#). For an example of qualitative risk assessment, see [Australia's National Climate Risk Assessment](#)

Step 3 Inclusion considerations

- **Consider using qualitative evidence to complement quantitative data where data is thin;** where census or health data do not cover vulnerable populations, consider using qualitative methods such as household surveys, community mapping, and key-informant interviews to fill gaps
- **Consider using spatial analysis to understand the exposure of vulnerable populations** – e.g., informal settlements, low-income areas, and areas with poor healthcare access are mapped where possible
- **Where possible, present health impacts by population group;** even qualitative assessments can identify which groups face the greatest health risks, rather than only assessing city-wide impacts
- **Risk prioritisation considers who is affected, as well as the overall scale** – consider noting where risks disproportionately affect a specific group, even if the city-wide impacts are moderate
- **Consider validating climate x health risks and adaptation objectives with stakeholders and communities** – this can help ensure that priorities reflect lived-experience



- climate models²⁷ to understand possible future scenarios – e.g., using daily temperature projections to estimate how many hot days there will be in 2050.
- **Exposure** – this may encompass people, buildings, infrastructure systems, supply chains, or healthcare facilities.²⁸ This can involve using future projections – e.g., using spatial population estimates to project population by neighbourhood.²⁹
- **Vulnerability** – this may involve assessing how different population groups are affected by climate hazards – e.g., the Surat case study shows how the city used household surveys to assess the impacts of heat across informal neighbourhoods. It may also involve assessing the current climate-sensitive disease burden – e.g., using mortality data to estimate how many people die from heat-related illness.
- **Health impacts** – this could involve applying relationships between climate hazards and health outcomes in academic literature³⁰ to estimate future health impacts in the city, or reviewing existing evidence on climate hazards and health in similar contexts

D. Identify priority risks to mitigate

Synthesise the takeaways from the risk assessment so that they can be used to help target interventions. Map linkages with existing climate health goals, and draft new adaptation objectives where necessary – these should clearly set out what the city needs to achieve. Validate these objectives with stakeholders and communities.

²⁷ E.g., NASA NEX CMIP6 for heat and storms, WRI Aqueduct for flood risk, the Copernicus fire weather index

²⁸ Disrupted access to healthcare can be a major cause of increased deaths after disasters – del Valle (2024), 'Saving Lives with Indexed Disaster Funds: Evidence from Mexico', *American Economic Journal: Economic Policy* on Mexico's pre-arranged disaster fund (Fonden) suggests lost access to healthcare facilities is the biggest driver of extra deaths following disasters, and that Fonden's ability to keep healthcare facilities open can 'entirely reduce post-disaster excess mortality' over an eight-month period

²⁹ E.g., use census data or WorldPop

³⁰ E.g., Fernández-Medina et al. (2025), 'Excess mortality associated with extreme heat in Rio de Janeiro, Brazil, 2023', *Rev Panam Salud Publica*, Morais et al. (2025), 'Quantifying heat exposure and its related mortality in Rio de Janeiro City: evidence to support Rio's recent heat protocol', *medRxiv*, Burkhart et al. (2021), 'Estimating the cause-specific relative risks of non-optimal temperature on daily mortality: a two-part modelling approach applied to the Global Burden of Disease Study', *The Lancet*

³¹ Government Analysis Function: Writing about data; CDKN: Communicating climate change: a practitioner's guide



E. Share risk assessment findings to raise awareness of local climate x health risks

When communicating data and analysis to stakeholders and communities:³¹

- **Choose metrics that highlight health impacts**, such as heat-related deaths and hospitalisations. Make sure these are easy for non-specialists to understand – e.g., use hospitalisations rather than disability-adjusted life years (DALYs).
- **Put health data in context** by using cumulative figures, multi-year trends, and comparisons across places or population groups to show the scale of the risk
- **Be clear about uncertainty**. Treat projections as possible scenarios rather than predictions, don't overstate results, and acknowledge that models may not capture all local drivers of health risks.



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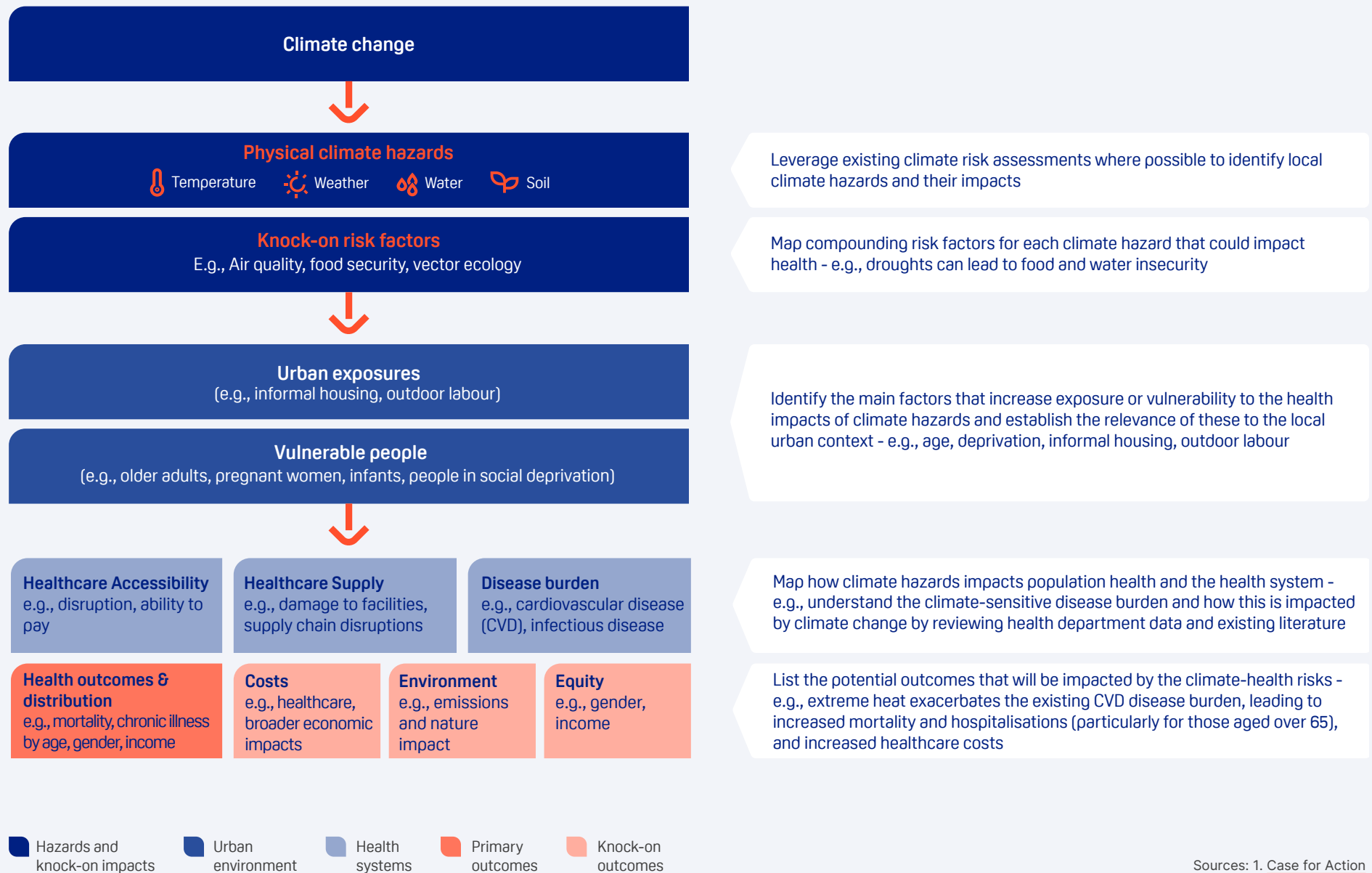
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Figure 4: Risk identification framework



Sources: 1. [Case for Action](#)



Case study:

Surat Heat Action Plan

Context

- Surat is a hot and humid coastal city, and peak summer temperatures can reach 44-45°C
- It has over 300 slum areas, with ~75,000 slum dwellings
- Urban heat island effects are stronger in some neighbourhoods, and some housing and jobs make heat harder to avoid



³² Climate Adaptive and Gender Integrated Heat Wave Action Plan of Surat City

Action

- Surat carried out a vulnerability assessment to understand where heat risk was highest and who was most exposed – with insights used to inform the development of its heat action plan³²
- Heat hotspots were mapped using land surface temperature images
- A household survey in 6 slum areas assessed exposure – it was based around a structured index of factors to assess vulnerability, and collected information on housing, sanitation, travel, work and income, health symptoms, and access to care

Impact

43%

of survey respondents reported heat stroke

60%

of survey respondents reported a change in their working hours due to heat stress

52%

of survey respondents had monthly productivity loss equivalent to 2,000 Indian Rupees during summer heat

100%

of adult women surveyed are responsible for cooking – often in poorly ventilated spaces, which increases their vulnerability



Targeted measures were included in the heat action plan in response to these findings – e.g., shading at outdoor worksites, mobile medical units in high-risk locations, and gender-specific guidance on treating heat-related illness

Learnings and implications

- Understanding vulnerability is a core part of assessing climate x health risks – cities need to know who is most exposed to hazards and what limits their ability to cope
- This helps cities target action where it's most needed – for example, using the vulnerability assessment, Surat developed a plan with specific actions for different places and groups



Preconditions

Level

Minimum viable approach

- An existing national or regional climate risk report
- Access to external tools, e.g., the Climate x Health Impact Dashboard
- 2-3 team members with 2-3 weeks to spend on a qualitative risk assessment

Staffing needs

- **3–4 weeks** elapsed;
~15 staff days total

Example activities

- Review national climate risk report and list risks relevant to the city
- Use the Climate x Health Impact Dashboard or similar resources to estimate baseline deaths and hospitalisations under a "no intervention" scenario for available risks
- Assign likelihood × consequence ratings to remaining risks
- Core delivery group holds half-day workshop to agree priorities

Example outputs

- Estimates of deaths and hospitalisations for key risks
- Qualitative risk ratings for remaining risks

Level

Current good practice

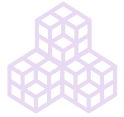
- A climate modelling team (in house or contracted)
- An existing city-specific climate risk assessment
- City-specific climate and health data

- **8–12 weeks** elapsed;
~40–60 staff days total

- Climate modelling team draws on city-specific risk assessments to select relevant risks
- Demographic and climate projections are combined with local health data to quantitatively assess current and future risks
- Qualitative assessments complement areas where quantitative insights are limited (e.g., mental health)
- Core delivery group holds half-day workshop to agree priorities

- Neighbourhood-level quantitative risk assessment
- Qualitative assessment where data is limited

Level

Cutting-edge approach

- A funded technical partnership (e.g., with a university, a multilateral bank, or a philanthropic programme) providing climate-modelling capacity, downscaled projections, and a health analyst
- Availability of health data by neighbourhood and local exposure response relationship

- **4–6 months** elapsed; **dedicated partner team** plus 30+ city staff days

- A partner-led risk assessment uses downscaled climate projections, neighbourhood health data, local exposure response functions to produce neighbourhood-level quantitative risks
- Primary data collection (e.g., household vulnerability surveys) is used to produce neighbourhood-level vulnerability assessments
- Core group organises a participatory workshop to validate results with community representatives
- Core delivery group holds half day workshop with adaptation planning experts to agree priorities

- Full risk and vulnerability assessment at neighbourhood level, with community validation
- Adaptation priorities endorsed by partners and city



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4. Identify relevant climate x health interventions

Cities will have previously identified key climate x health risks to mitigate through adaptation interventions.

Mapping the full range of possible interventions, by drawing up a long-list, provides a solid basis for a place-based and synergistic approach to implementation. The long-list should draw on the growing evidence base on what works as well as stakeholder and community perspectives, and should include measures both within and external to the health system. Not all options will be feasible, so an initial filter can focus city efforts.³³

33%

deaths attributable to urban heat islands could be prevented by increasing urban tree cover to

30%

based on an analysis of 93 European cities.³⁴

Step 4 Checklist

- ☐ Long-list of interventions developed using frameworks and case studies, and validated with stakeholders and communities
- ☐ Long-list mapped against existing and planned activities for synergies
- ☐ Filter criteria defined
- ☐ Filter applied and decisions documented
- ☐ Inclusion considerations completed and signed off

³³ Climate ADAPT Regional Adaptation Support Tool, GHIN (2025), [An Assessment of Heat Action Plans: Global standards, good practices and partnerships](#), and [The Green Book](#)

³⁴ Lungman et al. (2023), 'Cooling cities through urban green infrastructure: a health impact assessment of European cities', [The Lancet](#)



A. Develop a long-list of potential interventions

Consider options of different scales, types, and costs. Include 'no-regrets' measures that are proven to deliver benefits under any climate scenario, even if the expected risks do not materialise as projected (e.g., urban greening, which cools, absorbs rainfall, improves mental health, and supports biodiversity regardless of how much temperatures rise). To compile the long-list, draw on sources such as:

- **Frameworks**, which provide a structured way to think about potential interventions and how they address priority climate x health risks. Use The Case for Action framework to ensure all domains are covered (see [Figure 5](#)).
- **Case studies, evidence from other cities, and research**, which provide guidance and inspiration. Useful sources include the [Belém health action library](#), the [Climate-ADAPT case study explorer](#), and the [GHHIN Assessment of Heat Action Plans](#).

While compiling the long-list, note any evidence or precedents for each option. For example, record whether a similar intervention reduced illness elsewhere. To ensure that the list reflects equity considerations and targets vulnerabilities, mark interventions that specifically target high-risk groups or low-income areas.

Validate the long-list with stakeholders and communities. Consider holding a brainstorming workshop or crowdsourcing ideas from the community to add to or refine ideas on the long-list. For example, the Buenos Aires case study shows how a participatory Urban Lab process was used to identify interventions.

Step 4 Inclusion considerations

- **Consider including interventions targeted at populations facing vulnerabilities on the long-list** - not only city-wide measures
- **Consider including interventions proposed by stakeholders and communities on the long-list**; even if they are later filtered out, ideas from stakeholder and community engagement should be documented
- **The filter criteria are applied consistently**, and do not systematically disadvantage interventions that primarily benefit populations facing vulnerabilities
- **Filter decisions are transparent** - record why each intervention was filtered out



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Figure 5: Example framework from The Case for Action: The power of prevention to support health in a changing climate³⁵



³⁵ [The Case for Action: The power of prevention to support health in a changing climate](#)



B. Map synergies with existing activities

Review the long-list and identify overlaps with existing interventions, strategies, and goals. Record whether interventions contribute to existing city goals – e.g., an active travel intervention may contribute to a public health goal on increasing physical activity. Note opportunities to build climate x health considerations into ongoing work – e.g., an existing city-wide urban greening programme could be targeted to neighbourhoods vulnerable to heat risks.



C. Conduct an initial filter of long-listed interventions

Screen out any interventions that do not fit the local context. This includes options that have limited evidence of impact in similar settings, are not realistically affordable or politically feasible, or fall outside the city's technical capacity to deliver – see [Figure 6](#) for an example filter assessment. Make sure that the filter does not inadvertently disadvantage interventions that benefit vulnerable populations. The aim here is only to remove options that are clearly unsuitable, not to appraise each one in detail – the interventions that remain will be assessed more fully in the next step.





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Figure 6: Example long-list and assessment

Example long-list

Consider the long-list of a city whose objective is to address climate x health risks from flooding*:



Climate health training for clinical staff to provide education to patients about preventative measures



Urban planning to prevent development in at-risk areas



Flood-resilient infrastructure, such as a seawall



Early warning systems



Index-based / parametric insurance



Protective infrastructure at major health facilities



Community health literacy to increase awareness



Rainwater harvesting

Define filter criteria and assess interventions

These should filter out options that are not appropriate in the local context. Decide on a consistent way to score each criterion.**

Example assessment for **flood-resilient infrastructure**

Example filter criteria	Pass / fail	Rationale
Evidence of efficacy – whether interventions have measurable, well-evidenced impacts on priority health areas in similar climatic and urban contexts	✓	Evidence of efficacy based on other contexts
Affordability – related to the city's fiscal capacity, determined by available budget and fiscal independence, as well as potential sources of external financing	✗	Capex requirements could be beyond city budget
Capacity – whether the city currently has access to the technical expertise required to implement	✓	The city has the technical expertise required to implement
Political feasibility – whether the intervention will be acceptable to the local community	✗	Would require relocation of some coastal populations, which would not be acceptable to the community

Legend: ✓ pass ✗ fail

Takeaway from example assessment: Cities alone may not have the resources to deliver major flood-resilient infrastructure, such as a seawall. They may also face political push-back. Therefore, this intervention would be filtered out

* The Case for Action: The power of prevention to support health in a changing climate

** HMT Business Case Guidance



Case study:

Using urban labs to identify interventions, Buenos Aires

Context

- Villa 20 is an informal settlement with ~30,000 inhabitants
- Climate x health risks can be higher in informal settlements – e.g., due to poorly constructed housing, lacking water and sanitation services
- Wider urban redevelopment work presented an opportunity to improve Villa 20's climate x health resilience



³⁶ UN-Habitat (2024), World Cities Report 2024 Case Study Annex

Action

- An Urban Lab was set up to explore ways to bring climate action into the wider community redevelopment programme³⁶
- The Urban Lab built upon an existing participatory platform between residents and the Institute of Housing in the City of Buenos Aires (IVC)
- Participants included community organisations, local governments, academics, and local residents who received training to support their participation in the lab
- Participants chose and co-designed pilot interventions, with the process informed by community knowledge on potential sites and locally collected temperature data
- Pilot interventions included vertical and rain gardens, tree planting, and replacement of paved surfaces with permeable materials

Impact

75%

of respondents value the interventions, based on a pedestrian survey after implementation



The Urban Lab process sparked further action: community organisations and residents have designed and implemented additional interventions, such as vertical gardens

Learnings and implications

- The Villa 20 Urban Labs example illustrates why communities should be involved in choosing interventions – this way action can be rooted in local knowledge, and interventions have support from communities they impact



Preconditions

Staffing
needsExample
activitiesExample
outputs

Level

Minimum viable approach

- Junior team member with time to identify interventions
- Contacts for key stakeholders and community representatives

- **1–2 weeks** elapsed;
~3 staff days total

- A junior team member spends a day identifying interventions based on case studies and reports, and maps them against planned city activities
- A short survey is sent to select stakeholders and community representatives to validate ideas
- Core team members hold a half day workshop to filter the long-list

- A filtered long-list

Level

Current good practice

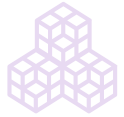
- Core team time for a stakeholder workshop
- Team member(s) with capacity to research interventions
- Authority to commission high-level cost estimates from the finance department

- **3–4 weeks** elapsed;
~15 staff days total

- Core delivery group hosts a half day workshop with stakeholders and community representatives to identify interventions
- A team member does background research on each intervention (e.g., effectiveness, equity considerations, implementation requirements) and identifies synergies with planned city activities
- The finance department provides high-level cost estimates
- The core delivery group holds a full day workshop to filter the long-list

- A filtered long-list, with supporting evidence on each intervention

Level

Cutting-edge approach

- Internal resource or partner support to facilitate community co-identification of interventions (e.g., an Urban Lab model as in Villa 20)

- **2–3 months** elapsed; **dedicated partner facilitation** plus **20+** city staff days

- An Urban Lab or community co-identification process is facilitated, bringing residents, officials, and technical experts together over several sessions
- Interventions are documented with evidence, local context, equity dimensions, and high-level costs, and mapped against planned city activities
- The filter is conducted jointly with community representatives

- A filtered long-list co-produced with communities, with evidence, costs, equity dimensions, and implementation notes



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5. Assess interventions and create portfolios

Appraising interventions based on their impacts on health and wider socioeconomic outcomes can help cities deliver better value for money. However, current cost-benefit analysis (CBA) approaches can often exclude the full range of health impacts associated with urban interventions. Quantitative analysis, supported by qualitative analysis, can help cities compare portfolios of interventions in a consistent way and identify those likely to deliver the greatest health benefits. Cities can also use this to garner political support, strengthen business cases, and unlock funding by showing health and climate benefits in economic terms.

3x

the impact preventative measures can have on Quality-Adjusted Life Years (QALY) per dollar spent versus reactive treatment³⁷

Step 5 Checklist

- ☐ Portfolios constructed from the filtered long-list, balancing direct health and broader resilience interventions
- ☐ Appraisal guidance identified (national or external)
- ☐ Delivery scenarios set out for each intervention
- ☐ Health benefits estimated, with valuation method disclosed
- ☐ Delivery costs estimated (capital and operating)
- ☐ Wider benefits and costs assessed (e.g., emissions, avoided healthcare costs, productivity)
- ☐ Portfolios refined based on appraisal
- ☐ Priority portfolios selected using transparent criteria
- ☐ Inclusion considerations completed and signed off

³⁷ [The Case for Action: The power of prevention to support health in a changing climate](#)



A. Build portfolios of interventions

Aim to create balanced portfolios that draw on synergies between interventions. Each should contain a mixture of interventions that improve health directly alongside broader resilience interventions with health co-benefits. Portfolios can be based around a theme (e.g., air quality) or a target population or neighbourhood. Consider mixing low-cost, rapidly implementable interventions with larger-scale interventions where benefits will take longer to materialise. Portfolios can help cities unlock financing opportunities that may not be accessible to standalone interventions.



B. Assess interventions

Consider referring to existing guidance on intervention appraisal. Most national governments have appraisal processes, such as the [Green Book](#). Cities can also use external guidance, such as [UNFCCC Adaptation Appraisal Guidance](#), [EEA Adaptation Appraisal Guidance](#), or [USAID Analyzing the Costs and Benefits of Climate Change Adaptation Options](#).

Assessments will typically begin by setting out realistic delivery scenarios for each intervention. Consider deployment assumptions such as which neighbourhoods interventions cover, how many people they impact, and the delivery timeline. For example, for an urban greening intervention, identify priority areas for tree planting and set out realistic estimates for how much tree cover could increase in these areas over specific time horizons. These assumptions could be based on evidence from similar interventions in other cities.

³⁸ For example, some valuation approaches are based on national GDP or income, which means that interventions aimed at lower-income populations will have lower valuations; other approaches are based on the expected remaining years of life (e.g., VOLYs), so interventions aimed at older adults will have lower valuations

Step 5 Inclusion considerations

- **Consider incorporating distributional analysis into assessments;** where data allows, show how benefits and costs are distributed across population groups, not only the aggregate figure. If quantitative distributional analysis is not feasible, qualitatively assess how impacts are likely to be distributed.
- **Consider the limitations of health valuation methods;** some valuation approaches can systematically undervalue benefits to lower-income populations or to older adults³⁸
- **Consider accounting for wider benefits and costs;** value these wherever possible, and clearly document how they are incorporated into decision-making – even if they are assessed qualitatively
- **Consider inclusion in portfolio selection;** the portfolio selection process should consider which populations will be impacted by interventions, to ensure that vulnerable populations are accounted for
- **Ensure key terminology is explained to external stakeholders;** terms used in economic appraisal can often be inaccessible for non-expert audiences, so key terms should always be explained with plain language



Next, estimate health benefits from the intervention. This may involve leveraging existing evidence on intervention effectiveness from similar contexts to understand potential health benefits.³⁹ It may also involve comparing results to a no-intervention scenario and expressing the result in economic terms (e.g., statistical value of life, value of a life year (VOLYs)). For example, to assess how urban greening reduces heat-related deaths and hospitalisations, estimate how increased tree cover could lower local temperatures.⁴⁰ Then, the economic value of these avoided deaths and hospitalisations could be estimated using a local measure of the statistical value of life or VOLYs.

Assess wider benefits related to the health system. This could include reductions in health system emissions, avoided healthcare costs, and productivity impacts. These can be converted into monetary terms – e.g., by multiplying greenhouse gas emission reductions by the value of carbon. They could also be qualitatively assessed using Red, Amber, Green (RAG) ratings.

Estimate the cost of delivery, including upfront capital costs and ongoing operating and maintenance costs. Consider working with the city finance department, or using cost estimates from other cities' interventions.

³⁹ For example, Hess et al. (2018), 'Building Resilience to Climate Change: Pilot Evaluation of the Impact of India's First Heat Action Plan on All-Cause Mortality', *Journal of Environmental and Public Health* for evidence on Ahmedabad's Heat Action Plan, Schwaab et al. (2021), 'The role of urban trees in reducing land surface temperatures in European cities', *Nature Communications* for urban greening and temperature reductions in European cities, and Razzak et al. (2022), 'Impact of community education on heat-related health outcomes and heat literacy among low-income communities in Karachi, Pakistan: a randomised controlled trial', *BMJ Global Health* for evidence on Karachi's heat-health community education

⁴⁰ Use Cheng et al. (2022), 'Non-linear effects of meteorological variables on cooling efficiency of African urban trees', *Environment International* to estimate land-surface temperature reductions and then use Frimpong et al. (2023), 'A comparative estimate of air temperature from modis land surface temperatures in Ghana', *Cogent Engineering* to convert these to air temperature reductions

⁴¹ Be aware that health BCRs can be significantly impacted by how mortality is valued – Chiabai et al. (2018), 'Valuing deaths or years of life lost? Economic benefits of avoided mortality from early heat warning systems', *Mitigation and Adaptation Strategies for Global Change* show that using the statistical value of life can result in extremely high BCRs, especially compared to alternative measures such as using value of a life year (VOLY) for lost life expectancy. For a heat warning system in Madrid, the study found that the BCR varied from 12 to 3,700 depending on the valuation approach used.

Refine the assessment and analyse the key drivers of results. This can include considering how results change under different deployment scenarios, cost assumptions, demographic and economic trends, or assumptions about health impacts. It could also involve analysing how impacts benefit different vulnerable groups.

Finally, summarise the results for comparison. Ideally, use a comparable quantitative metric such as the benefit-cost ratio (BCR), net present value (NPV), or lives saved per dollar spent, which allows interventions to be compared in a consistent way.⁴¹ For example, the Anambra case study shows how cost-benefit analysis highlighted an intervention with a strong BCR. If it is not possible to quantify all impacts, consider using a mixed methods assessment – e.g., use RAG ratings of health impacts and estimates of implementation costs to compare interventions.



C. Refine and select priority portfolios for implementation

Remove or adjust interventions within a portfolio that show poor value for money, limited benefits, or unsatisfactory equity outcomes, and re-run the analysis on the adjusted portfolio. For example, if an urban greening intervention offers limited health benefits, consider expanding the number of trees planted or adjusting the target neighbourhoods to see whether this improves the impacts.

Then, use a common set of criteria to select priority portfolios to take forward to implementation – e.g., consider metrics such as the BCR, NPV, equity impacts, co-benefits, alignment with city strategic objectives, and delivery risks.





Case study:

Mental health services for flood affected populations, Anambra

Context

- Climate change is increasingly affecting mental health, especially in communities impacted by climate-related disasters
- Anambra, Nigeria experiences frequent flooding and many households depend on farming – leading to mental health strain on families whose livelihoods are disrupted by floods



Action

- Rational emotive family health therapy (REFHT) is a specialist-led counselling intervention designed to address family wellbeing and anxiety
- In Anambra, it was used to reduce anxiety among farmers affected by floods: trained counsellors helped participants work through unhelpful thoughts and emotional responses triggered by flooding⁴²

Impact



A randomised controlled trial (RCT) found the therapy reduced anxiety among participants compared to a control group

2.6-7.7 BCR

for the intervention – meaning that there can be up to \$7.7 benefits delivered for every \$1 invested

Learnings and implications

- Specialist-led community health interventions can generate significant health and resilience benefits, even in low-resource settings
- Economic analysis can support the case for implementation, by highlighting interventions that have the potential to generate significant health benefits relative to their costs

⁴² World Bank (2025), Smart Buys: High-Value Actions for Health Sector Adaptation



Preconditions

Staffing
needsExample
activitiesExample
outputs

Level

Minimum viable approach

- Access to external analytical tools (e.g., the Climate x Health Impact Dashboard)

- **2–3 weeks** elapsed;
~10 staff days total

- Use existing tool (e.g., the Climate x Health Impact Dashboard) to estimate the baseline health impacts of the interventions
- Estimate high-level costs based on benchmarks from other cities
- Qualitatively assess wider impacts using RAG ratings
- The core team meets for a half-day to agree selection criteria and a further half-day to select priority interventions

- A baseline quantitative assessment of health impacts, and qualitative RAG ratings for wider impacts
- Priority portfolios selected

Level

Current good practice

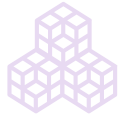
- Internally resourced economic modelling team with experience conducting CBAs
- Established city appraisal processes or requirements
- A health analyst who has capacity to support the economic modelling team

- **6–10 weeks** elapsed;
~30–50 staff days total

- The economic modelling team uses existing tools as a starting point to assess health impacts, and works with a health analyst to integrate this into a wider CBA that aligns with city guidelines
- The team conducts sensitivity tests and distributional analysis to complement the CBA
- The core team meets to refine portfolios, with analysis re-run on updated portfolios

- CBAs of portfolios, incorporating health and wider economic impacts
- Priority portfolios informed by distributional analysis

Level

Cutting-edge approach

- A partner-resourced economic analysis team, potentially including academic partners or other external experts
- Health specialists (internal or external) included in analysis team
- Access to local health and economic data

- **3–6 months** elapsed; **partner team** plus **significant** city staff involvement

- The appraisal produces full CBAs for multiple portfolios, using local health and economic data, multiple valuation methods, and a formal distributional analysis with disaggregated results
- Community representatives review and endorse the portfolio prioritisation

- CBAs with multiple valuation methods, distributional analysis, and community endorsement



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6. Design interventions with communities

Community support is crucial for intervention success. Without it, even well-intentioned interventions can fail.⁴³ Cities should have already involved communities when identifying interventions – now they need to build buy-in for the interventions among communities and bring them into the design process. Cities should finalise intervention designs, identify implementation partners, and build business cases so they are ready to secure funding and financing and move towards implementation.⁴⁴

55%

of cities report hosting a participatory planning session or policy dialogue related to health, climate change, and/or equity.⁴⁵

Step 6 Checklist

- ☐ Initial intervention concept drafted with community input
- ☐ Barriers to uptake articulated and planned for
- ☐ High-level evaluation design and theory of change produced
- ☐ Communications plan produced, with targeted messaging and trusted messengers identified
- ☐ Plans for community engagement and co-design produced, including materials, methods, and compensation
- ☐ Draft intervention concept shared publicly, with feedback documented
- ☐ Intervention plans updated in response to community feedback
- ☐ Implementation partners confirmed
- ☐ Intervention plans finalised and business case produced
- ☐ Inclusion considerations completed and signed off

⁴³ For example, Rochell (2025), 'Planting Trees, Sowing Dissent: Understanding resistance to nature-based solutions in urban Africa', *Geoforum* documents how a donor-funded tree-planting intervention in Malawi provoked vandalism, protests, and legal appeals when its design overlooked local land-use conflicts, livelihood concerns, and informal governance structures

⁴⁴ [Climate ADAPT: Regional Adaptation Support Tool, R-Cities Guide to Updating Resilience Strategies for Success](#)

⁴⁵ [Urban Pulse: Identifying Resilience Solutions at the Intersection of Climate, Health and Equity](#)



A. Draft the intervention concept with community input

This should capture the key details of the intervention and how it will be delivered. Work with potential implementation partners and their community contacts to set out the practical details, including location, target population, technologies used, lead department or partner, and timeline. Work with community representatives to anticipate barriers to uptake (e.g., safety concerns in cooling centres, fear of lost income for informal workers, mobility constraints for older residents, cultural and gender-based barriers to accessing services). Start evaluation design by outlining a theory of change that maps the chain from activities to impacts, considering how progress will be measured.⁴⁶

B. Build support with communities

To build support for an intervention, communities need to understand the risk it addresses and why action is needed. However, communicating and engaging people about climate and health risks can be challenging. Climate x health risks often seem abstract and distant. Public trust is often fragile, and communities can feel overwhelmed by the weight of escalating, compounding crises.⁴⁷ Even so, building community support is essential, because interventions are more likely to succeed when people understand why they matter and see clear health benefits. To build support among communities, cities should:

- **Deploy targeted messaging that is local, accessible, clear, and relevant to specific groups.** A University of Adelaide study on heatwave communication recommends targeting messages to different groups based on their vulnerabilities (e.g., age, housing conditions) rather than using general messaging.⁴⁸ Targeting messaging helps people recognise the risks they face and can help make the case for why specific interventions matter to them.

⁴⁶ For guidance on developing a Theory of Change, see, for example, [Government Analysis Function: The Theory of Change Process – Guidance for Outcome Delivery Plans](#)

⁴⁷ WHO (2024), [Communicating on climate change and health: Toolkit for health professionals](#); Climate Outreach (2020), [Engaging the public on climate risks and adaptation](#); [Communicating Climate-Health Risks in an Era of Fatigue and Mistrust](#); [Special Report on Social Participation in Health and Climate](#)

⁴⁸ Hanson-Easey et al. (2019), 'Communicating about heatwaves: Risk perception, message fatigue, and threat normalisation', [The University of Adelaide](#)

Step 6 Inclusion considerations

- **Consider involving communities from the start of design process, rather than just consulting them on drafts;** record when communities were first engaged and what their input was
- **Anticipate potential barriers to uptake** – including safety, cost, language, trust, time, transport, childcare, disability access
- **Consider using plural and flexible engagement methods;** try to use multiple inclusive approaches, not only formal consultations
- **Participation is compensated and supported;** make sure that community participants are paid for their time, or otherwise supported, reflecting the value of their expertise
- **Feedback is documented and visible;** record how each piece of community feedback changed (or did not change) the design
- **Consider outlining the intervention's equity benefits in the business case**



→ **Empower trusted messengers** to reach audiences, such as health officials, religious leaders, and community organisations that work with groups facing vulnerabilities.⁴⁹ For example, Montreal worked with regional police and public health departments on a door-to-door campaign to inform isolated and marginalised older adults about the health impacts of heat.⁵⁰ Ensure information is available in appropriate languages and formats.

→ **Highlight the benefits of the intervention.** This helps people stay engaged and reduces feelings of anxiety or hopelessness.⁵¹ For example, Athens developed a digital climate story that explains heat-health risks – but also shows how an older adult benefits from measures like urban greening and climate shelters.⁵²



C. Co-design interventions with communities

Share the draft intervention concept with the public, through town hall meetings or online. Explain how communities can participate in the co-design process, and how their feedback will be incorporated. Make sure any legal requirements for public engagement, such as formal consultations, are met.

Develop materials to support community engagement. Consider what contextual information people need to input effectively (e.g., what the intervention is aiming to achieve, what factors have made similar interventions successful elsewhere) and share this in accessible formats. Plan for fair compensation for any direct participation costs. Compensation should be communicated early and broadly, and carefully calibrated to avoid any coercion.

⁴⁹ Communicating Climate-Health Risks in an Era of Fatigue and Mistrust; Adaptation Scotland (2014), [Communicating climate change adaptation](#)

⁵⁰ [Urban Pulse: Identifying Resilience Solutions at the Intersection of Climate, Health and Equity](#)

⁵¹ [Adaptation Scotland \(2014\), Communicating climate change adaptation; C40 Cities \(2024\), Inclusive climate action communications toolkit for African cities; Uppalapati et al. \(2023\), 'A global review of research on effective advocacy and communication strategies at the intersection of climate change and health', George Mason University](#)

⁵² EU Missions Adaptation to Climate Change (2025), [Storytelling for encouraging climate action in Athens, Greece](#)

⁵³ Razzak et al. (2022), 'Impact of community education on heat-related health outcomes and heat literacy among low-income communities in Karachi, Pakistan: a randomised controlled trial', *BMJ Global Health*

Use mixed, flexible engagement approaches to bring community views into the design process. For example, consider using WhatsApp surveys, community mapping walks, street-level pop-up consultations, informal listening sessions, and co-design workshops. This can help reach diverse and vulnerable groups without relying on formal meetings.

Update intervention plans in response to community feedback, and document how feedback was incorporated. For example, in Karachi, heat adaptation guidelines were changed based on feedback from a pilot study. The original guidelines recommended air conditioning and frequent bathing, but this was removed because many residents did not have reliable access to electricity and water.⁵³

D. Identify and secure implementation partners

When identifying implementation partners, consider local organisations with experience in similar interventions and contexts.

If potential partners do not have direct experience implementing a particular type of intervention, consider those who have experience working in vulnerable communities. Also identify partners who can support with the monitoring and evaluation of health impacts (e.g., academic evaluators).

Consider building coalitions with the private sector. These can include local organisations that are equipped to advocate for and deliver action. For instance, the Camden Breathing Better case study shows how a diverse mix of organisations worked together to deliver action.



E. Finalise intervention designs and build a business case

Finalise intervention designs and share them with the public. Make sure to explain how the co-design process and community feedback shaped the final plans to maintain transparency and build trust. Use the Five Case Model to develop the business case:⁵⁴

- **The strategic case** should set out how the intervention will help the city address its priority climate x health risks, as well as its equity impacts
- **The economic case** should set out the appraisal results, highlighting the health benefits, value for money, and co-benefits of the chosen intervention
- **The financial case** should set out how much the intervention will cost – accounting for both upfront and ongoing costs
- **The commercial case** should set out the implementation partners and materials needed to deliver the intervention, and how these will be procured (e.g., construction partners to build cool roofs, the tree supplier for urban greening)
- **The management case** should set out the delivery plan, including governance structures and a risk register, as well as plans for evaluation. Consider using pilots or phased implementation to gauge uptake and adjust implementation as needed.

⁵⁴ HMT (2024) Guidance on developing business cases





Case study:

Camden Breathing Better Charter, London UK

Context

- Air pollutant levels in Camden are 24% higher than national average⁵⁵
- Air pollution contributes to 7% of deaths in the borough, and asthma-related hospital admissions are four times the UK average



⁵⁵ Camden Breathing Better Year 1 Progress Report

⁵⁵ Photo by Timur Valiev on Unsplash

Action

- The Camden Breathing Better Charter is a collaboration led by Reckitt, Bupa, and GSK as part of the SMI Health Systems Task Force to take action on air quality and respiratory health
- It was launched in 2025 as a two-year pilot bringing together 27 organisations, representing 34,000 employees
- Each organisation signed up to a Charter of 12 commitments aimed at tackling the health impacts of air pollution, covering 4 areas: energy use, sustainable travel, operations and supply chain, and workforce respiratory health. For example, Havas has integrated clean air walking route information and sustainable travel guidance into their Staff Environmental Handbook
- Practical toolkits, workshops, and a peer-learning network were used to help put the commitments into practice

Impact

478

disease cases could be prevented per year by 2030, based on analysis by the London School of Hygiene and Tropical Medicine

£1.6M

potential annual healthcare cost savings, assuming full Charter implementation by 2030

77%

of signatories felt the initiative has positively supported them to take action on air quality and respiratory health, with particularly strong progress on sustainable travel and switching to renewable electricity

Learnings and implications

- Private sector coalitions can be a powerful way to deliver and scale action quickly – with limited direct cost to the city itself
- Clear, shared commitments can make it easier to coordinate action across different partners⁵⁶



Preconditions

Staffing
needsExample
activitiesExample
outputs

Level

Minimum viable approach

- Contacts with key stakeholders and community representatives
- Authority to commission implementation partners for intervention design

- **4–6 weeks** elapsed;
~15 staff days total

- Core team outlines an initial intervention design and commissions an implementation partner to develop it further
- Core team uses a short survey to collect community feedback on the intervention design, which is incorporated into the final design
- Core team develops a short business case outlining motivation for intervention and its design

- Intervention design with feedback log from survey

Level

Current good practice

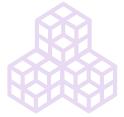
- City teams with experience designing interventions
- Capacity and resources for community outreach (e.g., a community outreach lead/team)

- **2–3 months** elapsed;
~40 staff days total

- Intervention design ownership is assigned to a team in the most relevant department – e.g., transport for active travel, planning for urban greening
- The community outreach team collects feedback on initial designs using at least three engagement mechanisms
- Draft plans are shared publicly through town-hall meetings or online, with clear documentation of how feedback shaped the design
- A full business case that clearly sets out the rationales from the Five Case Model is produced

- Intervention design with documented instances where community feedback shaped design

Level

Cutting-edge approach

- Existing community engagement infrastructure (e.g., an Urban Lab, a resident panel, a community research budget)
- Access to communications and community engagement specialists

- **3–6 months** elapsed; **dedicated city community engagement team**

- Communities co-design the intervention from the outset through sustained engagement (e.g., Urban Labs, resident panels, co-design workshops)
- Communications are co-produced with trusted messengers
- A private-sector or health-system coalition (e.g., along the lines of Camden Breathing Better) may support delivery
- A business case is developed with support from economic analysis and implementation partners

- Co-produced intervention design with evidence of community endorsement
- Communications plan validated with officials and external audiences
- Partnership or coalition agreement where relevant



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7. Finance interventions

Cities can face barriers to accessing funding and finance; many have limited budget independence and often cannot raise their own revenue or borrow independently. National government budgets are also often constrained. Climate x health interventions face particular financing challenges since health outcomes often take a long time to materialise and interventions can lack clear revenue streams. Cities can identify funding and financing from beyond their own tax base to match with interventions. Tailoring business cases can help cities secure funding and finance to deliver climate x health interventions.⁵⁷

55%
of cities report 'accessing national or international funding to support their climate adaptation efforts'.⁵⁸

Step 7 Checklist

- ☐ All relevant sources of funding and finance mapped, with priorities, eligibility, application steps, and timelines noted for each
- ☐ Interventions matched to appropriate funding source and financing mechanisms
- ☐ Tailored business case drafted for potential financiers
- ☐ Partners engaged and funding and finance secured
- ☐ Inclusion considerations completed and signed off

⁵⁷ Climate ADAPT: Regional Adaptation Support Tool, R-Cities Guide to Updating Resilience Strategies for Success, GIZ (2017), Guidebook: Writing a Green Climate Fund Funding Proposal

⁵⁸ Urban Pulse: Identifying Resilience Solutions at the Intersection of Climate, Health and Equity



A. Map all sources of funding and finance

Funding sources are those that will ultimately pay for the intervention. For example, city budgets, national government transfers, donor grants, and revenue streams like user fees – see [Figura 7](#).

Finance refers to the mechanisms used to raise or mobilise funds. For example, loans from development banks, green bonds, private equity, or insurance – see [Figura 8](#). Finance must be repaid, and requires a credible funding source.

For each funding source and finance mechanism, record the provider priorities, eligibility requirements, application steps, timeline, and reporting requirements. Make sure to consider who could cover upfront costs, and who could cover ongoing costs.



B. Match mechanisms with interventions

Match each intervention with the most appropriate source, based on its type, maturity, and ticket size. For some interventions, this may be funding it directly, e.g., from a city or national government budget, or a donor grant. For others, this may involve more complex financing mechanisms. For instance, consider concessional finance (financing offered at better terms than the market would provide, typically by development banks) or blended finance structures (using public finance to attract private investors). Consider combining interventions into larger portfolios or longer-term programmes, since some international climate funds and private investors have minimum investment thresholds. For example, the Cape Town case study shows how the city has developed a portfolio of interventions which it has financed with a variety of mechanisms.

Make sure to adhere to established standards on finance and intervention design, including on repayment mechanisms, technical standards for infrastructure, and monitoring metrics required by impact investors and climate funds. This decreases the costs to investors.

Also consider leveraging intervention preparation facilities, such as the [C40 Finance Facility](#), to develop a pipeline of bankable interventions and identify suitable financing mechanisms.

Step 7 Inclusion considerations

- **Check whether the financing structure passes costs to vulnerable populations;** for example, user-pays models or cost-recovery approaches may place a disproportionate burden on vulnerable populations
- **Review conditions attached by funders for inclusion risk;** some funders require cost-recovery structures or exclude informal settlements
- **Consider using funding routes that do not depend on return on investment;** climate x health interventions often do not generate monetary returns



C. Tailor the business case

Map out any application or intervention requirements from the funding or financing source. Make sure that the business case meets these, and emphasises how the intervention aligns with the funder or financier priorities.

D. Engage partners and secure funding and finance

Follow internal processes to confirm city budget allocations, respond to external calls for funding, and consider using multilateral development bank support to secure financing.



⁵⁹ See UN-Habitat (2024), *World Cities Report 2024: Chapter 9, COP30 Special Report on Health and Climate Change*, and UN-Habitat (2020), *Building Participatory Accountability Systems for City Policies* (Annex 3) for further examples of multilateral or international grant funding; See [COP30 Climate and Health Funders Coalition](#) for further examples of philanthropic foundations

Figure 7: Example funding sources⁵⁹



Municipal budgets, e.g., city health department budget



National funds and grants, e.g., national adaptation grants



Government transfers



Grants from climate funds, e.g., Green Climate Fund, Adaptation Fund, Climate Impact Funds



Bilateral or multilateral donors



NGOs and philanthropic foundations, e.g., Wellcome Trust, Rockefeller Foundation, Ikea Foundation, Gates Foundation



Private revenue streams, e.g., user fees



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Finance interventions

Figure 8: Example financing mechanisms

PUBLIC



Multilateral development banks,
e.g., World Bank, EBRD, ADB, IDB



Financing from climate funds,
e.g., Green Climate Fund,
Adaptation Fund, Climate
Investment Funds



Bilateral country financing

PRIVATE



Capital markets, e.g., green bonds
or resilience bonds



**Private sector and impact
investors,** e.g., banks and
institutional investors such as
HSBC and Standard Chartered



Insurance companies, e.g.,
Axa, Allianz, Munich RE



Case study:

Cape Town's portfolio approach

Context

- Cape Town has a well-documented resilience strategy, and has developed a portfolio of projects to deliver its resilience objectives
- The city has gradually built up a diversified mix of sources to finance this portfolio⁶⁰



Action

- Cape Town has developed collaborative governance structures to coordinate work: the Future Planning and Resilience Directorate (responsible for strategic planning and project management) works closely with the Finance Directorate. This ensures financing needs are considered throughout planning and project development
- The city has invested in data, reporting, and project management systems to build its transparency and credibility – e.g., the Integrated Annual Report publishes progress on targets and goals, including disclosures on individual interventions
- All interventions in the portfolio clearly align with the city's resilience objectives, which helps investors understand how interventions fit with the city's longer-term strategic direction

Impact



Cape Town's strong strategic direction and commitment to transparency have built its credibility among financiers, which has reduced its cost of borrowing and increased its flexibility to raise and allocate resources across interventions



This has helped Cape Town access financing and funds from a range of public and private sources, including private banks, green bonds, international financial partners, grants, and project-level funds (e.g., the Greater Cape Town Water Fund)

Learnings and implications

- Cities can unlock financing and funding by building credibility over time
- Clear strategic direction, collaborative governance, effective project management, and transparency can build confidence among financiers and reduce long-run costs

⁶⁰ Under Pressure, Overdue: The Portfolio Approach and Financing Cities for Resilience



Preconditions

Staffing
needsExample
activitiesExample
outputs

Level

Minimum viable approach

- Capacity to apply for city funding and tailor a simple business case

- **3–4 weeks** elapsed;
~10 staff days total

- The core team spends half a day mapping funding and finance opportunities, and matching them with interventions
- The team chooses 1–2 priority interventions which could be funded by the city budget or national grants
- The team tailors basic business cases for 1–2 additional interventions to be presented to external funders and financiers

- Funding secured for priority intervention
- Business case documents for external sources

Level

Current good practice

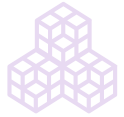
- A finance team that has experience developing internal business cases and engaging with external financiers

- **3–6 months** elapsed;
~50 staff days total

- The finance team develops detailed mapping of funding and finance sources
- Finance team spends several weeks developing an overarching programme financing strategy and a pipeline of bankable projects with tailored business cases
- The core team leverages city leadership to engage with domestic and international funding and finance sources

- Programme financing strategy with detailed mapping of funding and finance sources
- Pipeline of bankable projects with tailored business cases

Level

Cutting-edge approach

- Access to finance advisory services (e.g., from a development bank, philanthropic funder, or specialist advisor)

- **6–12 months** elapsed; **advisory team** plus **finance team**

- With advisory support, the city develops a multi-year, city-wide climate x health resilience financing strategy including a pipeline of interconnected interventions at different stages of development, and a mix of funding and financing sources
- With advisory support, the city develops a partnership outreach strategy to engage with a range of domestic and international funders

- Multi-year climate x health resilience funding and finance strategy with diversified sources



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8. Track progress and learn

City involvement continues once interventions are delivered through **monitoring and learning**. Setting up a monitoring framework will help cities track intervention delivery and outcomes. A structured learning process can inform future climate x health action – both within the city and beyond it.⁶¹

55%

of European local climate action plans defined metrics to measure progress.⁶²

Step 8 Checklist

- ☐ Theory of change refined
- ☐ Monitoring indicators selected, with a strategy for collection
- ☐ Benchmarks for success defined
- ☐ Monitoring data collected and adjustments to delivery made if necessary
- ☐ Lessons learned review completed after delivery
- ☐ Inclusion considerations completed and signed off

⁶¹ Climate ADAPT: Regional Adaptation Support Tool (adapted) and GHHIN (2025), Extreme Heat Risk Governance Framework and Toolkit

⁶² European Environment Agency (2024), Urban adaptation in Europe: what works?



A. Set up a monitoring and evaluation framework

Begin by refining the theory of change outlined during intervention design. Map the pathway through which inputs and activities lead to outputs, outcomes, and impacts – see [Figure 9](#) for an example for urban greening. Use this to specify how the intervention can contribute to city-wide climate x health goals. Validate this pathway with key stakeholders.

For each step in the theory of change, specify what assumptions need to hold. Use these assumptions to refine intervention design and delivery. For example, for urban greening, specify how much canopy cover is needed to achieve shading, and what maintenance is needed to keep trees alive.

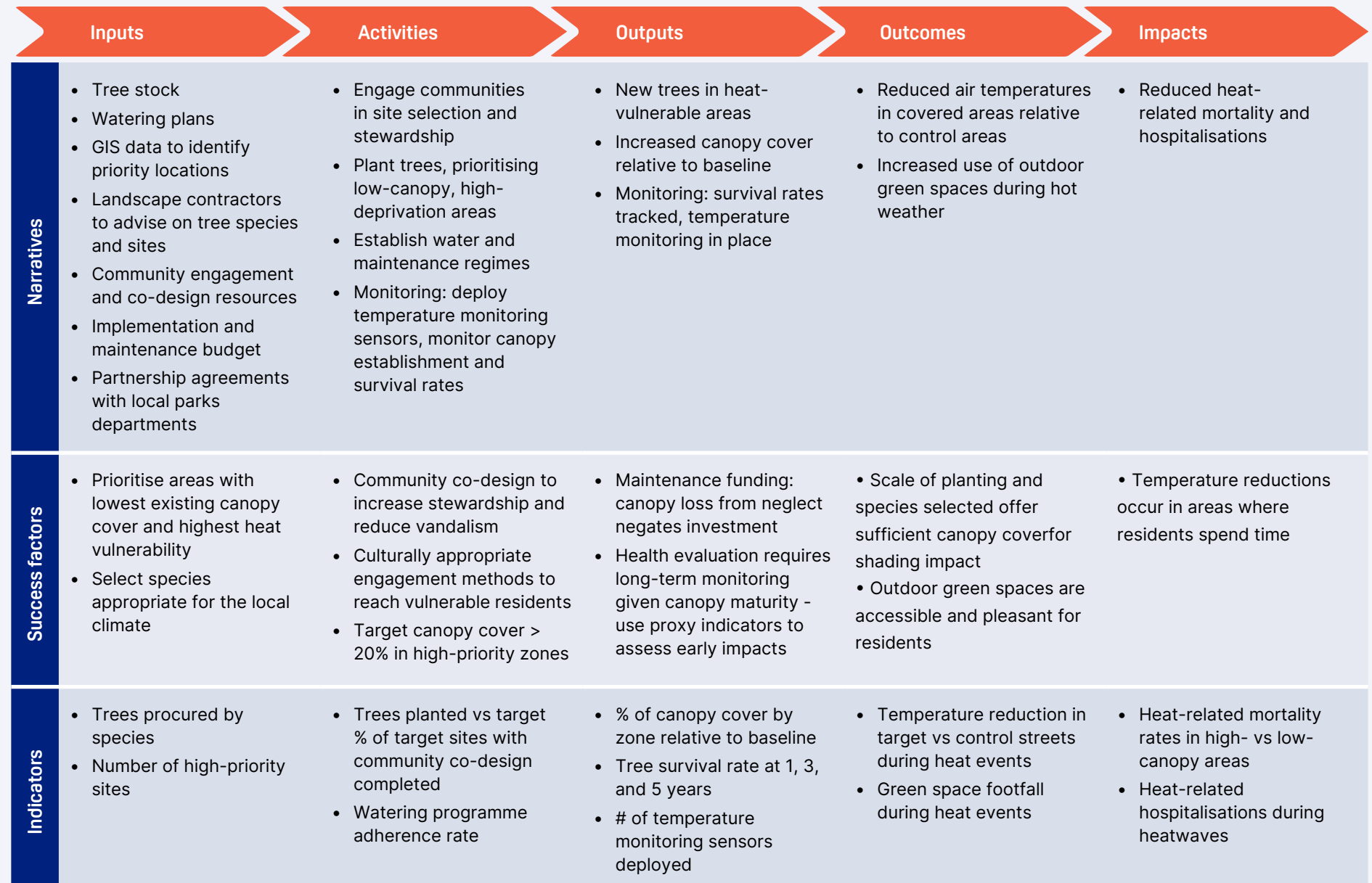
Next, choose indicators to measure and collect. Prioritise indicators that measure outputs delivered by the city – e.g., the number of and the neighbourhoods where trees are planted. Also select indicators that address community satisfaction and uptake of interventions – e.g., % of residents supportive of new trees, number of visits to cooling centres. Make sure to track costs to assess whether interventions are following their budget. Formulate a strategy which outlines methods and timelines for indicator collection – e.g., surveys, counts, financial reporting.

Decide on benchmarks for success in delivery and impact. Determine what good looks like in terms of cost-effectiveness and community satisfaction. Use these benchmarks to specify key performance indicators (KPIs) to target – e.g., X number of trees are planted in priority neighbourhoods, X% of trees survive 5 years, X% of residents are supportive of the intervention.

Cities can draw on existing monitoring, evaluation, and learning (MEL) frameworks, including those highlighted in [Figure 10](#).

Step 8 Inclusion considerations

- **Consider using monitoring indicators that account for inclusion** if this is a specific objective or risk associated with the intervention – e.g., indicators that measure intervention access and uptake among target populations
- **Consider involving community representatives to help interpret monitoring data** – context and lived experience can help clarify what the numbers mean
- **Consider sharing monitoring data**, making sure to meet any data protection regulations
- **Consider sharing lessons learned with affected communities**, not only with funders and peers

**Figure 9:** Urban greening theory of change



B. Monitor delivery and learn

Collect, store, analyse, and report data on key indicators in a systematic way. Use the indicators to assess whether intervention delivery and uptake is on track, and adjust delivery if needed. For example, if trees planted for urban greening are dying, consider adapting their maintenance or change species. Consider regularly reporting monitoring results during and after delivery – this builds trust with funders and financiers, communities, and other stakeholders.

Following delivery, use the monitoring data to inform lessons learned. Review whether the intervention was delivered as planned, and whether expected outcomes are on track. Use monitoring results alongside community feedback to produce practical recommendations for future intervention design and delivery – consider sharing these both within and beyond the city. For example, the OASIS programme case study shows how learnings from Paris are supporting the implementation of a similar programme in additional cities. Also leverage the monitoring results to unlock further funding – e.g., by showing that community support is strong, and the intervention was delivered cost-effectively.

At the city-level, monitoring will mainly focus on intervention outcomes rather than impact measurement. Cities will likely focus their efforts on ensuring interventions are delivered effectively (e.g., how many trees were planted relative to target), rather than evaluating their impacts (e.g., whether urban greening leads to temperature reductions). Periodically, cities may want to work with academic partners to formally evaluate intervention effectiveness.

Health impacts from interventions often take a long time to materialise, and reducing climate x health risks at the city-level takes long-term and large-scale action. However, cities can track early indicators of success at the city level, such as heat-related hospitalisations and deaths.

⁶³ C40 Cities (2025), How to set up monitoring, evaluation and reporting for your city's climate action plan; C40 Cities (2019), Measuring Progress in Urban Climate Change Adaptation: A monitoring, evaluating and reporting framework; CDC (2026), Evaluating Climate and Health; OECD (2014), Monitoring and Evaluation of Climate Change Adaptation; Climate ADAPT: Urban Adaptation Support Tool

Figure 10: Existing MEL frameworks⁶³



Implementation guide: monitoring, evaluation, and reporting

Measuring progress in urban climate change adaptation



Evaluating climate and health framework



Monitoring and evaluation of climate change adaptation



Urban adaptation support tool: monitoring and evaluating adaptation



Case study:

Oasis schoolyards programme, Paris

Context

- Average temperatures in Paris are projected to rise by 2°C to 4°C in the coming decades
- The city is densely populated and residents in central Paris have, on average, only 6m² of green space each – which intensifies the urban heat island effects
- The Paris Resilience Strategy identified the transformation of schoolyards into urban 'oases' as a way to reduce heat risks and strengthen social cohesion



⁶⁴ Paris OASIS Schoolyard Programme, France; Urban Innovative Actions

Action

- The OASIS programme transforms paved schoolyards into cooler green spaces that can be used by students and the local community⁶⁴
- 10 pilot sites were selected, focusing on areas with higher vulnerability (e.g., lower incomes, high shares of refugees)
- Schoolyards were co-designed with schools and local residents
- Vegetation and permeable surfaces were used to create cooler environments
- Educational features (e.g., vegetable gardens, rainwater harvesting systems) and recreational areas were used to promote social inclusion

Impact



Météo-France and the Paris Interdisciplinary Energy Research Institute led a before and after climate evaluation using data collected by weather stations in the schoolyards



Sciences Po evaluated social impacts through surveys

100

Number of schoolyards that have been transformed following the evaluation, with a goal to expand to all the city's schools



Learnings have been used by additional cities – the Resilient Cities Network is supporting the implementation of OASIS schoolyards in Quezon City and Semarang

Learnings and implications

- The OASIS programme shows how pilots and evaluation can support the scaling of an intervention – both within and beyond a city
- Sharing learnings – especially practical recommendations on implementation – can help other cities adopt similar interventions



Preconditions

Staffing
needsExample
activitiesExample
outputs

Level

Minimum viable approach

- Capacity to analyse existing city indicators
- Core team with time for a short lessons learned exercise

- **2–3 weeks** elapsed;
~5 staff days total

- Select a concise set of indicators to analyse
- After the initial delivery period, the core team spends a half day reflecting and recording lessons learned
- A team member writes up a short (1–2 page) document shared across city departments

- Concise set of indicators collected
- Short document (e.g., 1–2 pages) summarising key lessons learned

Level

Current good practice

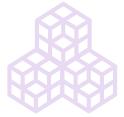
- Internal monitoring and evaluation team
- Core delivery group capacity to invest time in a lessons learned process

- **6–12 months** elapsed;
~30 staff days total

- The core delivery group hosts at least one workshop during intervention to take stock and adjust implementation as needed
- The core delivery group hosts a full day lessons learned workshop with stakeholders, implementation partners, and community representatives
- The monitoring and evaluation team spends several weeks producing a lessons learned report which is published and disseminated across the Community of Practice

- Recommendations for intervention adjustments
- Formal, published lessons learned report

Level

Cutting-edge approach

- Partner-funded in-depth monitoring and evaluation resource (e.g., academic or research institute)
- Long-term monitoring infrastructure (e.g., sensor networks, household panels)

- **2–5 years** elapsed;
dedicated evaluation team

- A multi-year programme evaluation is co-designed with academic partners and funded through the programme
- Periodic touchpoints to leverage ongoing monitoring and evaluation insights for implementation adjustments
- Final intervention assessment including evaluation of climate, health, and social impacts completed by academic partner
- Findings from intervention assessments feed into a lessons learned report which is shared with the Community of Practice

- Multi-year academic evaluation
- Lessons learned report disseminated across city networks



Additional resources

General resilience strategy planning

- The Case for Action: The power of prevention to support health in a changing climate: Resilient Cities, Reimagining Health report demonstrating the health, resilience, and decarbonisation co-benefits of preventative, climate-smart interventions
- WHO Taking a strategic approach to urban health: Framework for developing a cross-cutting urban health strategy
- CDC BRACE Framework: Five-step process for health officials to develop strategies to prepare for health impacts of climate change, including a step-by-step playbook
- Taking an Urban Resilience Approach to Climate, Health and Equity: Resilient Cities Network approach for city leaders to address the intersections of climate change, public health, and social equity
- Urban Pulse: Identifying Resilience Solutions at the Intersection of Climate, Health and Equity: Overview of the current urban resilience landscape and actionable recommendations for cities
- GHHIN Extreme Heat Risk Governance Framework and Toolkit: Toolkit designed to support decision-makers to measure, understand, strengthen, and sustain extreme heat risk governance
- Making Cities Resilient 2030 Urban Extreme Heat Risk Management – Resource Package: Package offering practical recommendations to help local governments create targeted, effective, and sustainable strategies to reduce urban heat risk, drawing on over 30 global case studies

Communication and storytelling

- How to build a climate story: European Commission REACHOUT guide that provides practical steps for cities to plan, design, create, and share climate stories

Adaptation design and implementation

- Climate-ADAPT Urban Adaptation Support Tool: Tool to assist cities in developing, implementing, and monitoring climate adaptation plans

Risk assessments

- Assessing Health Vulnerability to Climate Change: CDC guide to assessing local climate hazards for health departments

Global and regional reports

- COP30 Special Report on Health and Climate Change: Evidence base for the BHAP
- Unliveable: Confronting Extreme Urban Heat in Latin America and the Caribbean: Analyses impacts of projected temperature increases and proposes actions to strengthen resilience
- Unliveable: How Cities in Europe and Central Asia can Survive and Thrive in a Hotter Future: Analyses impacts of increasing heat and proposes steps cities can take to mitigate impacts



Financing

- Resilient Cities Network Portfolio Approach and Financing Cities for Resilience: Presents an approach for cities to translate resilience goals into investment strategies

Monitoring, evaluation, and learning (MEL)

- C40 Cities Implementation guide: monitoring, evaluation, and reporting: Guidance on how to set up a monitoring, evaluation and reporting plan for city climate adaptation plans
- C40 Cities Measuring progress in urban climate change adaptation: A framework for developing a climate change adaptation monitoring, evaluation and reporting plan
- CDC Evaluating climate and health framework: Provides videos outlining evaluation best practice and a template for practitioners to use
- OECD Monitoring and evaluation of climate change adaptation: Outlines methodological approaches to monitor and evaluate adaptation initiatives
- Urban adaptation support tool: monitoring and evaluating adaptation: Guidance on how to structure MEL frameworks

Capacity-building

- WHO Urban health capacity assessment and response resource kit: Helps multi-sectoral teams assess and respond to their urban health capacities; includes an action guide and training videos
- Prevent to Protect: Unlocking Climate Resilient Health in Cities: Resilient Cities Network course to learn practical strategies to strengthen urban health resilience
- WHO Academy Urban health – Part 1: Course to develop understanding of urban health challenges and frameworks to influence urban health outcomes
- WHO Climate change and health toolkit: Guidance, tools, and training manuals on a range of topics related to climate change and health
- WHO Integrating health in urban and territorial planning: the directory: Guidance and tools on how to plan and design urban areas from a health perspective
- CDC Climate and health guidance and trainings: Collection of trainings on the effects of climate change on health

Resilient Cities



Reimagining Health

Partnership of:



Sustainable
Markets
Initiative

Led by:



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