

**ECONOMIST
IMPACT**

Resilience from the ground up:

assessing city-level approaches to
climate risk and adaptation

Supported by  **ZURICH**[®]

About the research

Resilience from the ground up: assessing city-level approaches to climate risk and adaptation is an Economist Impact report, supported by Zurich Insurance Group. It explores the state of climate resilience at the individual and community levels across ten global cities.

The findings are based on a literature review, a general population survey and an expert interview programme conducted by Economist Impact between May and September 2024. The survey gathered insights from 5,000 residents in Amsterdam, Cairo, Cape Town, Dubai, Jakarta, Madrid, Mumbai, New York City, São Paulo and Tokyo.¹

Our thanks are due to the following experts for their time and invaluable insights shared through interviews (listed alphabetically by surname):

- **Farijzal Arrafisena**, *climate research analyst, World Resources Institute Indonesia*
- **Elina Bardram**, *director for adaptation & resilience, communication and civil society relations, European Commission's Directorate-General for Climate Action*
- **Janice Barnes**, *founder, Climate Adaptation Partners*
- **Ilan Cuperstein**, *regional director, Latin America, C40 Cities*
- **Sam Kernaghan**, *director of the resilience programme, Committee for Sydney*
- **Júlia López Ventura**, *regional director for Europe, C40 Cities*
- **Eleni (Lenio) Myrivili**, *global chief heat officer, United Nations Human Settlements Programme (UN-Habitat) and the Atlantic Council's Climate Resilience Center*
- **Youssef Nassef**, *climate adaptation director, United Nations Framework Convention on Climate Change (UNFCCC)*
- **Catherine Saget**, *chief of the Work Income Equity Unit, International Labour Organization (ILO)*
- **Egi Suarga**, *manager, climate programme, World Resources Institute Indonesia*
- **Cassie Sutherland**, *managing director, Climate Solutions and Networks, C40 Cities*
- **Sunandan Tiwari**, *director global implementation, ICLEI – Local Governments for Sustainability*
- **Eric White**, *head of climate adaptation, World Economic Forum*
- **Retno Wihanesta**, *senior specialist for urban development and mobility, World Resources Institute Indonesia*
- **Gina Ziervogel**, *director of the African Climate & Development Initiative, University of Cape Town*

¹ The survey solicited opinions from 500 respondents in each city. The gender divide was 45% female and 55% male, all aged 18 or older.

The report was produced by a team of Economist Impact researchers, writers and editors, including:

- **Katherine Stewart**, *project director*
- **Dina Alborn**, *research manager*
- **Shubhangi Pandey**, *lead analyst*
- **Georgina Lovati**, *survey lead*

Economist Impact bears sole responsibility for the content of this report. The findings and views expressed do not necessarily reflect the views of the sponsor.

Foreword by Zurich Insurance Group

In the face of mounting climate challenges, the resilience of urban environments is increasingly critical. As climate change continues to manifest through more frequent, severe and unpredictable weather events, cities worldwide find themselves at the forefront of this crisis.

Climate change presents a dual imperative: achieving net-zero emissions to mitigate the most damaging impacts, while building resilience against physical hazards which will continue to grow even as we transition. Insurers have a critical role to play in this endeavour.

As a global insurer, addressing the causes of climate change and building resilience against its effects are of paramount importance to us. As risk managers, we work to assist customers in understanding, preventing and reducing climate-related risks. As risk carriers, we aim to protect households, companies and communities by absorbing financial shocks from extreme weather events. As institutional investors, we invest in the transition of companies and scale capital towards climate solutions.

This report offers a critical and timely perspective on how individuals understand the risks and implications of climate change in the present moment. Such insights are invaluable as they provide actionable intelligence about public perceptions and readiness to address and adapt to climate risks. The comprehensive analysis, based on a survey of 5,000 individuals across ten global cities and enriched by insights from 15 experts, underscores a widespread belief that cities are underprepared to manage the multifaceted

threats posed by climate change. The report not only identifies urgent vulnerabilities and challenges but also highlights significant opportunities to enhance urban resilience.

By engaging residents, leveraging public-private partnerships and ensuring cohesive action across all levels of government, cities can adopt a proactive approach to building urban resilience. Immediate action is required to meet the critical need for investment in resilient infrastructure, integrated mitigation and adaptation strategies, and inclusive urban planning that addresses the diverse needs of all communities.

The journey towards climate resilience is complex and demanding but also offers an opportunity to transform cities into sustainable and innovative hubs. The insights presented in this report aim to inform and inspire stakeholders – policymakers, business leaders and community members – as they continue this journey. Achieving climate resilience through decisive and coordinated measures will require collaboration, innovation and unwavering commitment from all stakeholders.

Together, we can transform our cities into resilient, thriving hubs capable of withstanding and adapting to the challenges of climate change. We hope this report serves as a valuable resource and catalyst for meaningful action, emphasising the pivotal role of insurance in facilitating the global climate transition.

Sierra Signorelli

Chief Executive Office, Commercial Insurance
Zurich Insurance Group

Executive summary

Climate change is pushing cities, communities and ecosystems to the brink. Extreme weather events like heatwaves, floods and wildfires are becoming more frequent, intense and unpredictable, posing significant risks to the environment, economy and public health.

Cities, as hubs of people, infrastructure, economic activity and culture, are at the heart of the climate crisis. While they can exacerbate climate risks, they can also guard against the worst impacts of climate change and offer creative solutions to adapt and build resilience. Engaging residents in climate planning can help cities shift from reactive responses to proactive resilience. Yet, residents' perspectives on climate risks and solutions are seldom explored.

Drawing on insights from a survey of 5,000 individuals across ten global cities and interviews with 15 experts, this study evaluates the state of urban climate risk and resilience as well as approaches to climate mitigation and adaptation.² It highlights cities' underpreparedness, examines public perceptions of existing climate mitigation and adaptation strategies, and identifies the main barriers to resilience. The study also explores residents' views on who should lead climate resilience efforts and the steps they need to take to build more resilient cities.

Key findings

Four in five people believe their city is underprepared to manage climate-related risks. Among these, less than a third (32%) think

their city is *somewhat* prepared, just over a fifth (22%) think their city is *neither prepared nor unprepared*, and over a quarter (28%) consider their city *unprepared*. Concerns about cities' readiness are particularly strong when it comes to heatwaves, air pollution, water shortages and flooding. Cities need to move from reactive disaster responses to proactive planning – through both mitigation and adaptation efforts – to reduce emissions and strengthen their resilience against climate challenges.

Water management infrastructure is most vulnerable to climate-related risks. More than two in five respondents (41%) believe their city's water management infrastructure is at risk. This aligns with respondents' concerns about the risks and impacts of climate change: 38% worry about potential water shortages or drought and 37% are concerned about flooding. The dual threat of water-related risks means that water issues must be further prioritised in national and city-level policymaking to ensure a resilient and sustainable supply.

Climate change exacerbates existing inequalities, with its impacts varying across gender, age and socioeconomic groups.

Vulnerable groups, such as women, children and the elderly, face disproportionate risks. For example, 53% of women are concerned about air pollution compared with 49% of men, while 41% of respondents aged 65 and above worry about the vulnerability of transportation infrastructure to climate change, compared with 24% of younger respondents. Cities must create inclusive resilience plans that address

² The survey solicited opinions from 500 respondents each in Amsterdam, Cairo, Cape Town, Dubai, Jakarta, Madrid, Mumbai, New York City, São Paulo and Tokyo. The gender divide was 45% female and 55% male, all aged 18 or older.

specific needs in infrastructure and public services, while ensuring that communication and support reach all demographic groups, in order to build equitable resilience.

Respondents expect governments at all levels to collaborate on climate change adaptation. Survey respondents believe that national and local governments (50% and 46%, respectively) should be the stakeholders *primarily* responsible for improving adaptation in their cities. Given the substantial investments, regulation and coordination required, it follows that the highest number of respondents see national governments as critical players. Since climate risks vary according to local conditions, however, local governments are uniquely positioned to design context-specific solutions. But policy misalignment causes challenges: 57% of respondents cited “conflicting priorities around climate change across different levels of government” as a primary barrier to effective adaptation.

Respondents believe that the private sector is not doing enough to support climate adaptation in cities. While more than a quarter of survey respondents (28%) think companies should lead on climate adaptation, nearly six in ten respondents (58%) feel that businesses are taking only moderate, limited or no action to mitigate climate impacts and facilitate adaptation. Businesses can do more to enhance resilience at the city level. But public scepticism about corporate climate action – especially among those unconcerned about climate change – may fail to reflect the true extent of business efforts. Businesses need

to focus on enhancing transparency, building trust and improving communication to align public perceptions with their climate actions.

Individuals are taking personal steps to become more resilient to climate change, but high costs, insufficient knowledge and lack of trust in government policies are holding them back. Nearly a third of respondents feel personally responsible for climate adaptation in their city. This is driving action: 95% of respondents are either taking steps to increase their resilience or plan to do so within the next year. In terms of efforts to mitigate climate impacts, nearly three-quarters of respondents (74%) have conserved water, or plan to, and over two-thirds intend to or have already modified their diets (69%) and improved their energy efficiency and security (68%). Regarding initiatives to adapt to climate change, three-quarters intend to or have already educated themselves on climate change and methods of adaptation, and nearly two-thirds (65%) have enhanced their preparedness for emergencies or plan to. Many want to do more, but 89% of respondents face significant barriers that prevent them from taking action. To address this, governments must build public trust, provide accessible financing and invest in education and awareness campaigns to empower individuals.

The remainder of this report explores these findings in greater depth. Where are climate risks most pressing? Which adaptation strategies are most popular among city residents? And what more can governments and businesses do to strengthen city-level resilience?

Introduction

Chances are you have experienced the consequences of climate change. From unrelenting heatwaves that make a walk in the park unbearable to unexpected flash floods that force evacuations, climate change is no longer an abstract concept or a distant threat. It directly affects how we live and work. For most, it is not a question of whether climate change will affect their lives, but rather how severe the impacts will be and what can be done to mitigate them.

We often think about climate change as something that threatens nature – melting ice

caps, endangered wildlife and rising sea levels – but the reality is that urban environments are also at risk. City residents are dealing with both the immediate physical threats of extreme weather and its consequences, such as declining air quality, food shortages and water scarcity.

The personal stakes are rising. The concept of climate resilience speaks to our ability to cope with these growing climate risks. How will future generations fare if our cities become too hot or too flood-prone to live in? We must ask ourselves: how prepared are our cities for what lies ahead?



Cities are underprepared to address climate risks

Climate experts are sounding the alarm, warning that we are fast approaching a tipping point. “Previously, climate adaptation experts mostly focused on the impacts in particularly vulnerable places such as Bangladesh, India, parts of Africa, or Latin America; now, we are seeing warnings for countries across the globe, on a very regular basis,” notes Sunandan Tiwari, director of global implementation at ICLEI – Local Governments for Sustainability, a global network of local and regional governments. Without immediate action to improve readiness, cities will face intensifying threats to economic stability, public health and safety.

The growing frequency and intensity of extreme weather events make this issue impossible to ignore. Heatwaves, once anomalies, are becoming a regular feature in cities. Over half (54%) of survey respondents cite them as the most pressing physical risk of climate change. “In cities across the United States, extreme heat is the leading cause of mortality from climate change,” explains Janice Barnes, founder of

Climate Adaptation Partners, a private sector enterprise specialising in climate adaptation planning. Public infrastructure is struggling to cope. In London, extreme heat has caused major disruptions. “In the summer of 2023, when London hit 40° Celsius for the second time, Transport for London issued travel warnings advising against the use of public transport,” says Cassie Sutherland, managing director for Climate Solutions and Networks at C40 Cities. This “led to a significant loss of revenue for the transport system,” she adds.

Record-breaking heat is also straining power grids, leading to blackouts and increased health risks as cooling systems fail. Meanwhile, cities that are already hot, such as Cairo, are becoming increasingly uninhabitable during peak summer months, posing public health challenges and economic risks. They are struggling to keep their populations safe. Egypt, which is warming twice as fast as the rest of the world, on average, records the highest number of heat-related deaths in the Middle East and North Africa.^{3,4}

³ <https://www.bloomberg.com/news/features/2022-11-02/egypt-host-of-cop27-needs-un-climate-summit-to-succeed-to-prevent-crisis>

⁴ https://www.climatecentre.org/wp-content/uploads/RCCC-Country-profiles-Egypt_2024_final.pdf

Case study: Sydney’s growing vulnerability to heatwaves underscores the urgent need for adaptation

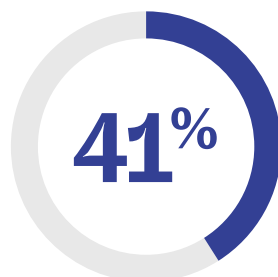
Despite Sydney’s history of hot weather, rising temperatures pose risks to public health, infrastructure and overall liveability. Climate models predict that by 2070 communities in Western Sydney will experience 20 additional days per year with temperatures reaching 35° Celsius or higher.⁵ A 2024 report projects that over the next 50 years the economic, social and health-related costs of heatwaves will surge by more than 400% – a burden that will fall heavily on both residents and businesses.⁶

The city is underprepared. As Sam Kernaghan, director of the resilience programme at the Committee for Sydney, explains: “Greater Sydney is not yet prepared for a major heatwave in terms of emergency response, which is ironic given Australia’s generally hot climate.” Sydney’s densely built areas, dominated by heat-absorbing materials like concrete and asphalt, exacerbate the urban heat island effect. Efforts to create cooler “green” and “blue” spaces are now accelerating as a result.

Extreme heat will increasingly strain Sydney’s power systems and transport networks, forcing agencies and utilities to invest in more climate-resilient infrastructure and solutions to mitigate heat-related disruptions.

While rising temperatures dominate headlines, other critical climate risks are often overlooked. Water is essential to our existence and to a range of economic activities. But it can also be a threat. Cities are facing a dual water risk: drought and water scarcity on the one hand, and flooding on the other. Soaring temperatures, rising sea levels and more extreme weather patterns are overwhelming drainage systems, disrupting water supplies and putting additional pressure on already limited resources. Our survey reveals a high level of public anxiety surrounding

water infrastructure. More than two in five respondents (41%) believe their city’s water management systems are at serious risk. This concern is particularly strong in Jakarta, where more than half of respondents (52%) are worried about the vulnerability of the city’s water management infrastructure to climate change. According to a city-planning expert from Indonesia, only a third of Jakarta’s drainage system is functional.⁷ Other cities like Cape Town, which faced a near “Day Zero” water crisis in 2018, serve as a reminder of the consequences of ignoring water infrastructure.



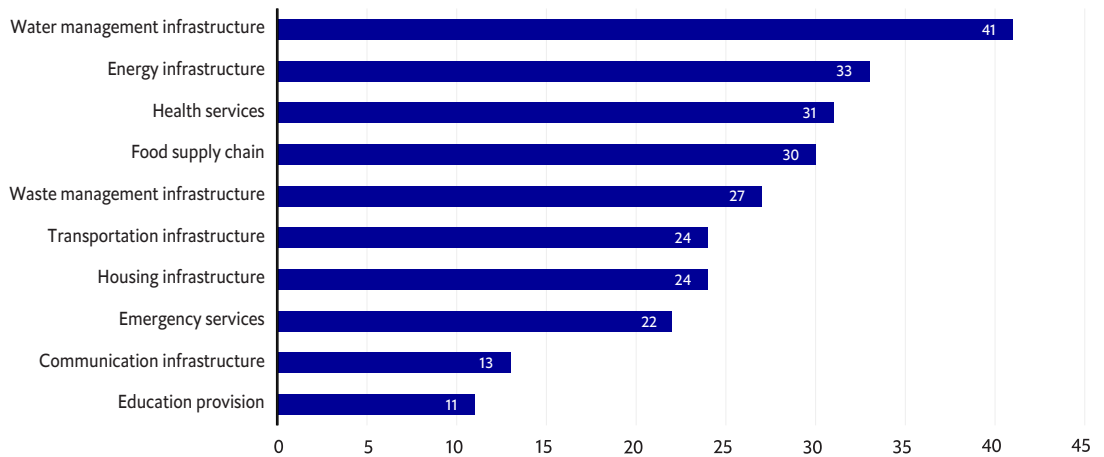
Over two in five respondents believe their city’s water management systems are at serious risk

Source: Economist Impact survey

⁵ <https://www.climatechange.environment.nsw.gov.au/stories-and-case-studies/building-adaptive-capacity-heat-western-sydney>
⁶ https://sydney.org.au/wp-content/uploads/2024/03/Committee_for_Sydney_Burning_Money_March_2024.pdf
⁷ <https://www.indonesiawaterportal.com/news/in-focus-the-fight-against-jakarta-s-devastating-yearly-floods.html#:~:text=Mr%20Joga%20estimated%20that%20only,and%20government%20ministries%20are%20headquartered.>

Figure 1: Urban water systems are on the brink

Which of the following types of infrastructure are most vulnerable to climate-related risks in your city? (% of respondents)

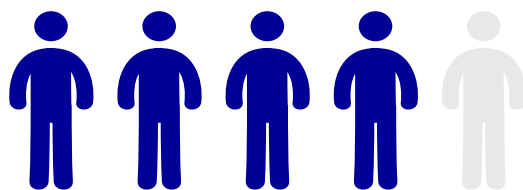


Source: Economist Impact survey

These concerns about the resilience of water management infrastructure reflect broader anxieties about the risks and impacts of climate change: 38% of respondents fear potential water shortages or drought, and 37% are concerned about flooding. Yet, water issues rarely receive the attention they deserve. As Eric White, head of climate adaptation at the World Economic Forum, explains: “despite the fact that 90% of natural disasters are water-related, water has often been treated as a niche issue or subset of more prominent climate change concerns.” For effective climate resilience, cities need to build systems that can handle both a lack of and excess water. This requires

water issues being thoroughly integrated into climate policymaking and forming a key part of national and local-level strategies.

The reality is clear: cities are not prepared for the impacts of climate change. The urgency of the situation is reflected in public opinion. Our survey reveals widespread concern about urban preparedness, with four in five people believing their city to be less than fully prepared to handle climate-related risks. Less than a third (32%) think their city is *somewhat prepared*, just over a fifth (22%) think their city is *neither prepared nor unprepared*, and over a quarter (28%) consider their city *unprepared*.



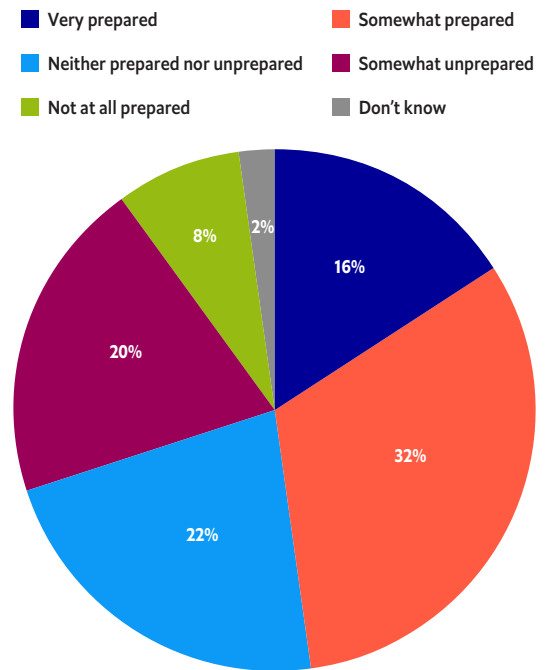
Four in five people believe their city is underprepared to handle climate-related risks

Source: Economist Impact survey

Perceptions of climate preparedness vary. Among the ten cities surveyed, São Paulo, Tokyo and New York City are seen as the least prepared for climate-related risks, with only 3% of respondents considering São Paulo and Tokyo “very prepared”, and just 6% sharing this view about New York City. In contrast, Cairo is perceived as the most equipped to handle climate risks, with over a third of respondents (37%) rating it as “very prepared”. This relative confidence in Cairo’s readiness may be attributed to its long-standing efforts to address key climate challenges such as water scarcity. The city has made substantial progress in securing its water future by ensuring access to drinking water and sanitation for all residents.⁸ Another factor may be Cairo’s prolonged experience facing these challenges, which may have lessened residents’ concerns about their potential impacts.

Figure 2: Fail to prepare, face climate despair

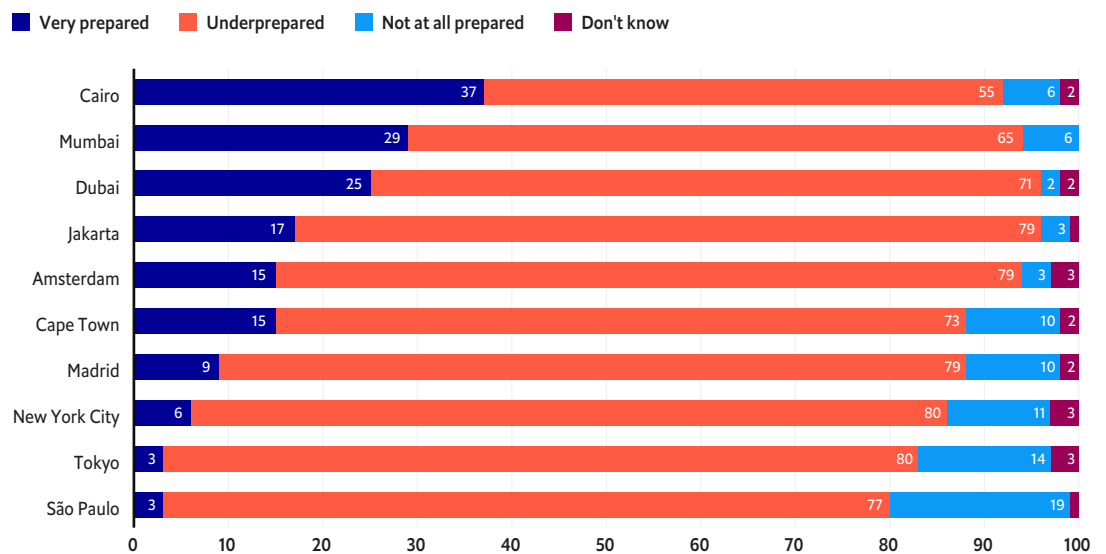
How prepared do you consider your city to be to handle climate-related risks? (% of respondents)



Source: Economist Impact survey

Figure 3: Leading the charge or falling behind?

How prepared do you consider your city to be to handle climate-related risks? (% of respondents, by city)



Source: Economist Impact survey

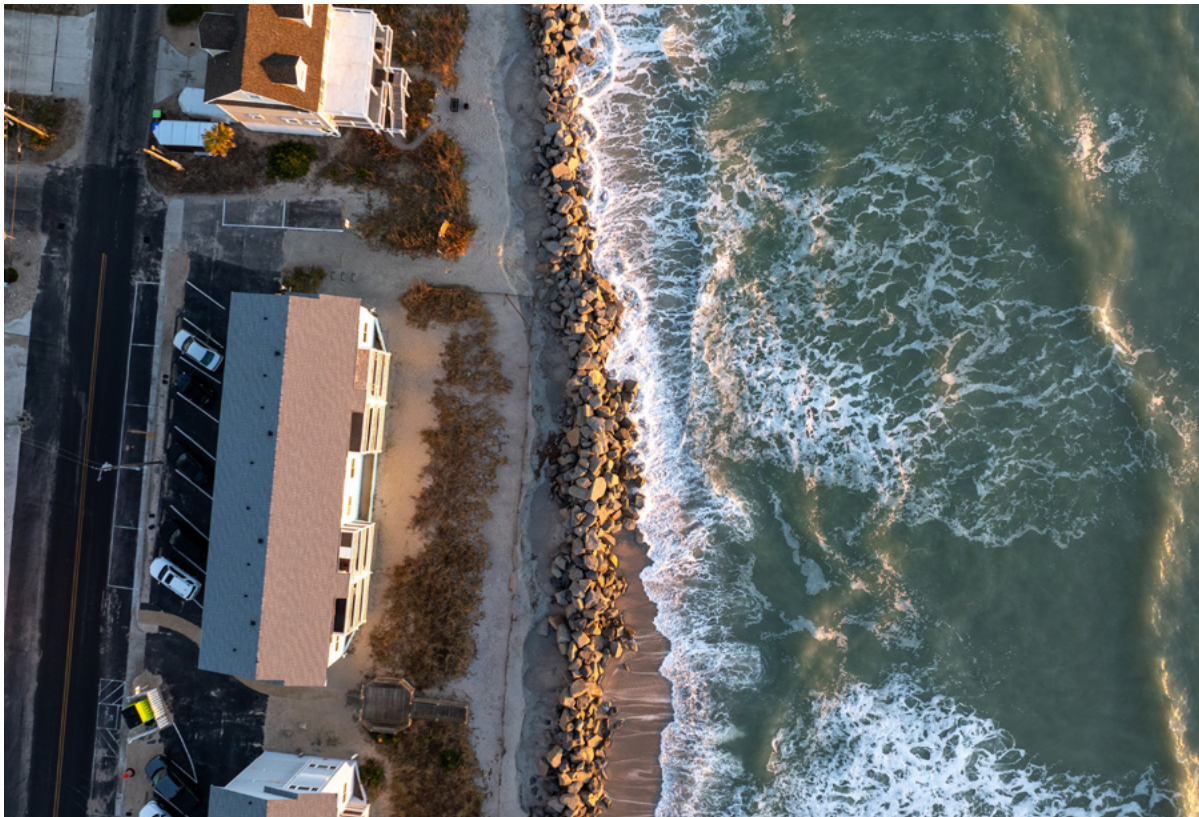
⁸ https://impact.economist.com/sustainability/city-water-index/assets/Economist_Impact_City_Water_Index_City%20workshop%20series_Cairo_29%20March%202023.pdf

The overall lack of confidence in the ability of urban systems to withstand the growing impacts of climate change reflects gaps in urban planning and infrastructure readiness. City dwellers fear that the systems they rely on – public transport, water supplies, energy grids – cannot handle the accelerating impacts of climate change. And they are right: cities worldwide often lack the necessary robust infrastructure, social safety nets, risk assessments and strong environmental policies.⁹

“Cities must develop systems that can absorb climate shocks beyond current capacities,” says Sunandan Tiwari, director of global implementation at ICLEI – Local Governments for Sustainability. The time to transition from reactive disaster responses to proactive climate resilience planning is running out.

“Cities must develop systems that can absorb climate shocks beyond current capacities.”

Sunandan Tiwari, director global implementation, ICLEI – Local Governments for Sustainability



⁹ https://impact.economist.com/projects/resilient-cities/assets/documents/Resilient-Cities_Report.pdf

Diverse vulnerabilities, diverse approaches to preparedness

To boost readiness, cities need to consider the diverse needs of their populations. By failing to account for demographic factors such as gender, age, income and health status in adaptation strategies – and the public engagement and communication strategies associated with them – resilience efforts will be inequitable and fail to support the most vulnerable populations. “Climate change is an inequality maximiser,” according to Ilan Cuperstein, regional director for Latin America at C40 Cities. It affects populations differently depending on factors such as age, gender and socioeconomic status. Vulnerable groups, such as women, children, the elderly and those with health conditions, experience its impacts more severely.

In developing countries, women and girls face greater impacts from extreme weather events, food insecurity, water scarcity and displacement compared with their male counterparts.¹⁰ Air pollution, for example, disproportionately harms women’s health as particulate matter is more likely to settle in their lungs than those of men, increasing breathing problems and the risk of heart disease.¹¹ Our survey reveals that a higher share of women than men are concerned about air pollution as a climate risk: 53% versus 49%. Additionally, women are more likely to view “air quality in their city” as the factor most at risk from climate change: 45% versus 41%.

The effects of climate change also vary across age groups, highlighting the need for age-sensitive adaptation strategies. For example, individuals aged 65 and above are much more concerned about the impact of climate change on public infrastructure, such as roads and public transport, than younger people. Over two-fifths (42%) of those aged 65 and above cited this as a concern, compared with just over a quarter (27%) of those aged 18 to 64. “The elderly, among other vulnerable groups, are disproportionately affected by climate change,” according to Ilan Cuperstein of C40 Cities.

As people age, mobility issues also become more prevalent, often limiting their ability to walk or drive independently and increasing their dependence on alternative modes of transport. This might explain why 41% of respondents aged 65 and above worry about the vulnerability of transportation infrastructure due to climate change, whereas only 24% of younger respondents share this concern.

“Climate change is an inequality maximiser.”

Ilan Cuperstein, regional director,
Latin America, C40 Cities

¹⁰ <https://www.actionaid.org/our-work/emergencies-disasters-humanitarian-response/climate-change-and-gender#:~:text=The%20role%20of%20gender%20inequality,being%20taken%20out%20of%20school>.

¹¹ <https://pubmed.ncbi.nlm.nih.gov/35837410/>

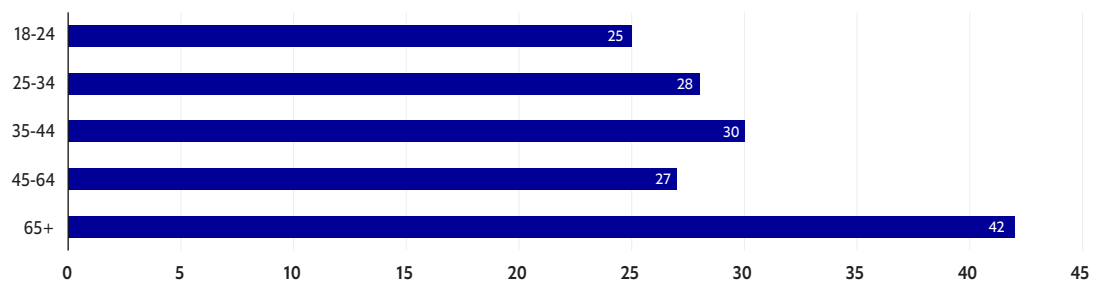
At the other end of the age spectrum, children are also among the most vulnerable to the impacts of climate change. Take education: UNICEF reports that climate-related disasters disrupt the education of 40 million children annually.¹² Rising temperatures and frequent extreme weather events both impact children’s access to education and their ability to concentrate and learn effectively.¹³ The challenges extend beyond schools as children struggle to find relief from heat, both in and out of the classroom. “Sometimes homes are hotter than schools,” says Eleni (Lenio) Myrivili, global chief heat officer at the United Nations Human Settlements Programme (UN-Habitat) and the

Atlantic Council’s Climate Resilience Center. “What are children going to do?,” she asks.

This calls for a rethinking of climate adaptation strategies to ensure that they account for these impacts on vulnerable groups. “Community- and individual-level vulnerability assessments must be considered during urban planning. They are crucial for understanding the needs of vulnerable groups and improving their climate resilience,” argues Retno Wihanesta, senior specialist for urban development and mobility at the World Resources Institute Indonesia. To build resilience, cities must develop solutions suited to their unique environmental, social and economic conditions.

Figure 4: Mind the generational gap

% of respondents citing “quality and availability of public infrastructure” as the area at greatest risk to the physical impacts of climate change in their city, by age group



Source: Economist Impact survey

¹² <https://www.unicef.org/eca/reports/climate-changed-child>

¹³ <https://neu.org.uk/advice/health-and-safety/workplace-conditions/hot-weather-and-classroom-temperature#:~:text=Even%20at%20the%20lower%20temperatures,themselves%20or%20others%20at%20risk.>

Building resilience requires collective action

Building climate resilience is a complex task: it requires the cooperation of various stakeholders, each playing a critical role. The question is: how can cities become resilient to climate change, and who is responsible for leading this charge?

Governments have a crucial role to play

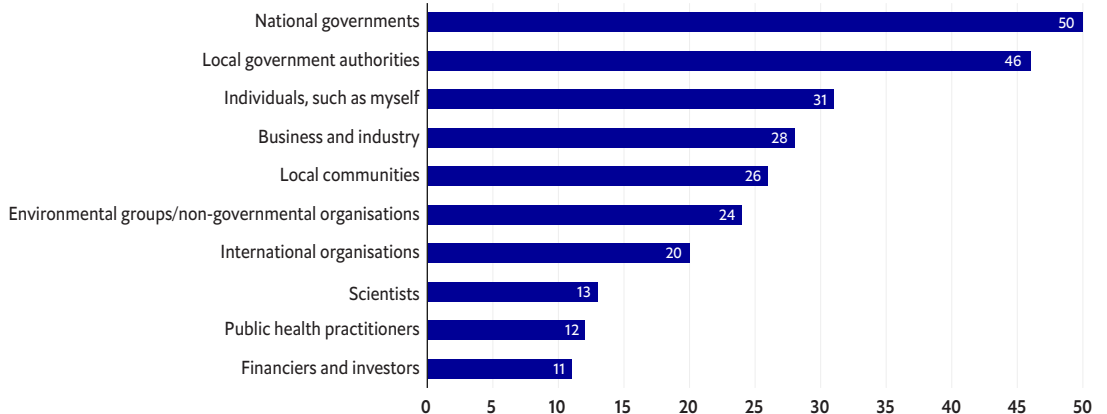
Public opinion underscores the importance of government involvement. Half of the individuals surveyed believe that national governments should take the lead in adaptation efforts in their cities, while 46% point to local governments. This shared responsibility between national and local authorities is vital. National governments have the financial resources and regulatory power to implement large-scale infrastructure and policy reforms, while local governments have intimate knowledge of the unique climate challenges their cities face. "Local governments, being closest

to the community, must partner with state and national actors to align investment decisions with community expectations in order to build trust and effectively enhance resilience," argues Sam Kernaghan, director of the resilience programme at the Committee for Sydney. This balance between top-down and localised approaches is essential for mitigating and adapting to climate change, and for ensuring that local governments are adequately funded to meet community needs.

Our survey, however, also reveals doubts about governments' abilities to coordinate effectively. Misaligned priorities around climate change across different levels of government present a significant barrier to action, with over half (57%) of survey respondents identifying this as a major challenge. In highly decentralised countries like Indonesia and Brazil, where local governments have greater autonomy, this issue is even more pronounced, and is cited by 71% and 62% of respondents in Jakarta and São Paulo, respectively.

Figure 5: In the hot seat

Who should be primarily responsible for improving adaptation to climate change in your city? (% of respondents)



Source: Economist Impact survey

These political disconnects can stifle progress. Cities often pioneer innovative, localised climate solutions. According to Sunandan Tiwari at ICLEI – Local Governments for Sustainability, they also “often push national governments to raise their climate commitments”. Yet, their efforts may be overlooked or undervalued by national governments, which tend to focus on broad strategies. “National governments are often blind to the climate actions cities are taking,” claims Ilan Cuperstein, regional director for Latin America at C40 Cities. Poor data sharing and misaligned political agendas exacerbate this disconnect, but there are examples of success. Since 2022, local governments in New Zealand, for instance, have been required to consider national adaptation and mitigation plans when creating their own local ones to ensure multi-level coordination.¹⁴

“Local governments, being closest to the community, must partner with state and national actors to align investment decisions with community expectations in order to build trust and effectively enhance resilience.”

Sam Kernaghan, director of the resilience programme, Committee for Sydney



¹⁴ <https://environment.govt.nz/assets/publications/climate-change/MFE-AoG-20664-GF-National-Adaptation-Plan-2022-WEB.pdf>

The need for cross-departmental collaboration

“An effective climate change response requires not only vertical coordination between national and local governments, but also horizontal integration across sectors,” says Gina Ziervogel, director of the African Climate & Development Initiative at the University of Cape Town. Climate resilience is not just a job for environmental departments – it spans sectors like transportation, housing, health and finance, which often operate independently. “Resilience plans must be owned by all government departments,”

argues Elina Bardram, director for adaptation and resilience, communication and civil society relations at the European Commission’s Directorate-General for Climate Action. When resilience efforts are siloed, progress stalls.

“Resilience plans must be owned by all government departments.”

Elina Bardram, director for adaptation & resilience, communication and civil society relations, European Commission’s Directorate-General for Climate Action

Case study: London’s coordinated approach to climate resilience

In July 2021, widespread surface water flooding impacted over 2,000 properties in London, including hospitals and underground train stations, highlighting the need for long-term flood management planning. In response, London introduced its first Surface Water Strategy, a cross-sectoral collaborative effort involving the Mayor’s Office, the Environment Agency, Transport for London and Borough Councils – each playing a specific role in enhancing flood resilience.¹⁵ For instance, Borough Councils are tasked with implementing localised flood management measures, while the Environment Agency provides flood risk assessment data and guidelines to inform decision-making at all government levels.¹⁶ This strategy is also aligned with the UK’s National Flood and Coastal Erosion Risk Management Strategy, linking local and national goals and promoting coordinated planning efforts.¹⁷

In addition, the London Climate Ready Partnership (LCRP) serves as a collaborative platform that unites the Greater London Authority (GLA), local boroughs and national agencies – such as the Environment Agency – to share knowledge, resources and best practices for addressing climate risks. It focuses on areas like flood management, urban heat mitigation and public health. The LCRP takes a sector-based approach to climate adaptation, helping sectors such as transport, health, infrastructure and the natural environment to identify risks and opportunities, and formulate effective responses through collaboration.¹⁸

¹⁵ <https://www.londoncouncils.gov.uk/news-and-press-releases/2024/london-surface-water-strategy>

¹⁶ <https://www.local.gov.uk/topics/severe-weather/flooding/local-flood-risk-management/managing-flood-risk-roles-and#:~:text=Environment%20Agency,-The%20Environment%20Agency&text=The%20Environment%20Agency's%20work%20includes,develop%20FCERM%20skills%20and%20resources>

¹⁷ https://assets.publishing.service.gov.uk/media/5f6b6da6e90e076c182d508d/023_15482_Environment_agency_digitalAW_Strategy.pdf

¹⁸ <https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/climate-change/london-climate-ready-partnership>

The private sector: a critical but underutilised player

Governments cannot build resilience in cities on their own. As the primary source of economic activity and employment

in cities, businesses have a major role to play. Companies have the resources and technical expertise to help develop affordable solutions tailored to local needs, helping to bridge the gap between national policy and local implementation.

A case study by Zurich Insurance Group

Madrid builds resilience to extreme heat

Madrid endured three heatwaves during the summer of 2023 with temperatures often exceeding 40° Celsius. Extreme heat at these levels can be deadly and cause vital infrastructure to fail.

Zurich’s global risk consulting unit, Zurich Resilience Solutions, worked with the Madrid City Council to help the city adapt to more frequent, intense and longer-lasting heatwaves. This has included providing analysis on how Madrid’s schools are being impacted by extreme heat. Hot weather can cause performance levels to drop, absenteeism to rise, and exacerbate health issues. Schools, like many aspects of societal infrastructure, need to become more climate-resilient.

But collaboration between public and private sectors is often lacking. In our survey, 57% of

respondents cited this as a major barrier to effective climate adaptation in their cities.



Case study: The potential of public–private collaboration in strengthening urban climate resilience

Cities worldwide are increasingly turning to public–private partnerships to bolster their climate resilience.

One notable example is Rio de Janeiro in Brazil. After a coastal storm in 2010 caused heavy rains and mudslides that killed over 200 people, left 15,000 homeless and disrupted transport systems, the city government partnered with IBM to enhance emergency responsiveness. Together, they created an advanced Operations Centre, using AI to produce hyper-localised, short-term weather forecasts to more effectively predict and respond to severe weather events. By integrating real-time data into the city’s response systems, Rio de Janeiro was able to mitigate future losses by optimising the deployment of emergency crews, managing shelter use and monitoring hospital bed availability.¹⁹ Since the Centre’s establishment, the city has significantly improved its response time to natural disasters. For instance, in 2013, the Centre accurately forecast heavy rainfall, enabling early evacuations and minimising casualties.²⁰

Another case is the flood-prone town of Cary in North Carolina in the United States. In 2020, the town government partnered with Microsoft and SAS (a software provider) to launch an Internet of Things-based flood prediction tool. The system enables town staff to monitor flooding in real time, automatically alerting stormwater personnel and generating work orders, while also sharing vital data with regional partners. This proactive approach enhances the town’s ability to respond to flood risks, thereby safeguarding its residents.²¹

In 2019, Singapore’s JTC Corporation – the government agency responsible for sustainable industrial development in the city-state – and the Singapore Institute of Technology partnered with Engie, a global energy services company, to design a district cooling system for the Punggol Digital District. This system efficiently cools buildings, helping the area to adapt to rising temperatures and reducing the urban heat island effect.^{22,23}

Another issue is that the general public believes that many companies are failing to facilitate adaptation in cities. While some businesses are making good progress, our survey reveals a significant gap between public expectations and corporate action. Over a quarter of survey respondents (28%) think that companies should take the lead in enhancing climate adaptation in cities. Nearly six in ten (58%), however, feel that companies are taking just moderate, limited or no action to mitigate the impacts of climate change.

Inaction may stem from a perception among businesses that they are not significantly exposed to climate risks. According to a 2022 study, senior business leaders often have limited insight into how climate change affects their operations, infrastructure and supply chains.²⁴ This lack of understanding could prove costly in the long run. A 2019 study found that investing US\$1.8trn in adaptation could yield US\$7.1trn in net benefits by 2030.²⁵ For companies, this means that climate adaptation is not just a moral obligation – it is a strategic investment.

¹⁹ <https://www.ibm.com/history/deep-thunder>

²⁰ https://assets.publishing.service.gov.uk/media/57a08a0340f0b6497400039a/131101_ENV_CitAdaMit_BRIEF4.pdf

²¹ <https://azure.microsoft.com/en-us/blog/town-of-cary-innovates-flood-prediction-with-iot/>

²² <https://estates.jtc.gov.sg/pdd/stories/what-to-know-about-engie-dcs-at-pdd#:~:text=To%20further%20drive%20innovation%20in,projects%2C%20and%20work%20attachment%20opportunities.>

²³ <https://www.engie-sea.com/news-inner/cities-of-tomorrow-conversation-around-district-cooling-systems>

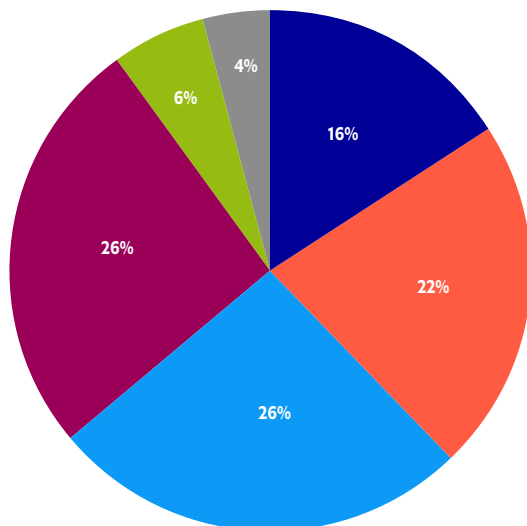
²⁴ <https://www.pwc.com/gx/en/services/sustainability/publications/risks-and-opportunities-of-climate-change-on-business.html>

²⁵ https://gca.org/wp-content/uploads/2019/09/GlobalCommission_Report_FINAL.pdf

Figure 6: Hot air or genuine care?

To what extent do you believe that businesses in your city are taking action to reduce the impacts of climate change and facilitate climate adaptation? (% of respondents)

- To a very significant extent
- To a significant extent
- To a moderate extent
- To a limited extent
- Not at all
- Don't know



Source: Economist Impact survey



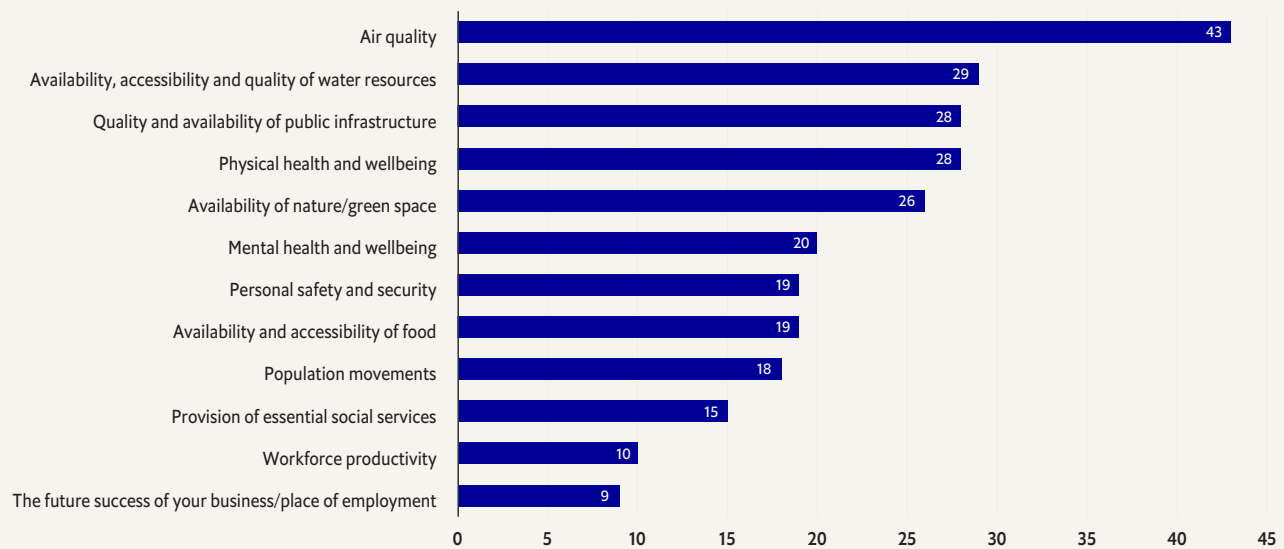
Workforce meltdown, but the public remain cool

Interestingly, despite the risks climate change poses to businesses, the public – employers and employees – do not seem overly concerned about how it will affect the workforce.

Only one in ten survey respondents expressed concern about the effects of climate change on workforce productivity in their city, even though experts warn that extreme heat could significantly reduce labour productivity, with global economic losses of up to US\$2.44trn by 2030. “Globally, heat stress decreases productivity by 2.2%, on average,” notes Catherine Saget, chief of the Work Income Equity Unit at the International Labour Organization (ILO). Even fewer survey respondents are worried about the impact of climate change on the future success of their business or place of employment.

Figure 7: Risky business

Which of the following areas do the physical impacts of climate change pose the greatest risk to in your city? (% of respondents)



Source: Economist Impact survey

This apparent lack of concern may be driven by poor understanding about how extreme heat can affect indoor workers, who are generally less impacted than their outdoor counterparts. “The impact may mainly involve increased cooling requirements, commuting disruptions and higher costs related to repairing damage from extreme climate events,” explains Eric White at the World Economic Forum. Poor awareness of the growing need for cooling and the indirect impacts of extreme heat may result in inadequate preparation, leaving businesses and workers vulnerable to escalating operating costs, reduced productivity and infrastructure strain.

The public tends to focus on more immediate, tangible issues affecting their daily lives, such as water availability, public and mental health, and food security. In regions like Cairo, where outdoor workers face severe heat stress, however, climate impacts on labour productivity are a more urgent concern (cited by 17% of respondents). By 2030, Egypt’s workforce could lose 134,000 work hours annually to heat, up from just 25,000 in 1995.²⁶

²⁶ <https://carnegieendowment.org/research/2023/10/climate-change-in-egypt-opportunities-and-obstacles?lang=en>

Bridging the gap between corporate action and public trust

Public scepticism about corporate efforts to improve climate resilience is palpable. It is those individuals who are not worried about climate change, however, who more often think businesses are doing little to address it: 37% of unconcerned respondents believe businesses are taking minimal or no action on climate mitigation and adaptation, compared with 31% of those who are concerned. This suggests that public doubt may not accurately reflect the extent of corporate efforts. While businesses do need to boost their efforts – investments in sustainability initiatives represented less than 1% of total revenue in 2023, compared with an average of 9% spent on marketing²⁷ – misconceptions are exacerbated by a history of corporate greenwashing, which erodes trust.²⁸ The 2023 Edelman Trust Barometer reveals that less than half of those surveyed trust businesses to act responsibly on climate change, and 65% believe companies are failing to meet their climate commitments.²⁹ Scepticism may also stem from limited public awareness and understanding of complex business-led mitigation and adaptation efforts.

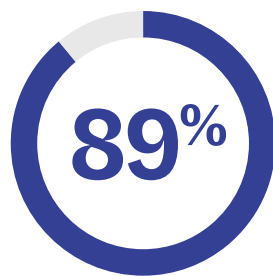
Businesses must tackle this scepticism head-on. Companies have the resources, innovation capacity and influence to drive meaningful change. They must prioritise transparent communication and undergo independent audits of their climate efforts to better align public perceptions with their actions. They must also increase their investment in climate mitigation and adaptation, not as a box-ticking exercise, but as a genuine commitment to climate resilience.

By investing in resilient infrastructure and supporting local adaptation projects, businesses can not only protect their own interests but also contribute to broader societal resilience. “With the increasing frequency and severity of climate impacts, businesses are beginning to recognise the interconnectedness of their operations and urban infrastructure,” explains Cassie Sutherland, managing director for Climate Solutions and Networks at C40 Cities. Companies should view climate adaptation as an investment that mitigates future risks while creating value and offering a competitive edge – not as a cost.

Individuals are stepping up, but facing barriers

While businesses and governments struggle with alignment and commitment, individuals are increasingly taking action. Nearly a third of survey respondents feel personally responsible for climate adaptation in their city, and almost all (95%) are already taking or plan to take steps to enhance their climate resilience in the next year.

Many individuals want to do more: over a quarter of respondents expressed a desire to engage with local communities on climate action, advocate for government policies on climate resilience, enhance emergency preparedness and use disaster warning technologies. However, nearly nine in ten (89%) survey respondents perceive significant barriers to taking action. Among those who have not taken any action, more than half cite lack of trust in the government (55%) and cost (53%) as major obstacles, while more than two-fifths (43%) point to insufficient knowledge.



of respondents face significant barriers that prevent them from taking action

Source: Economist Impact survey

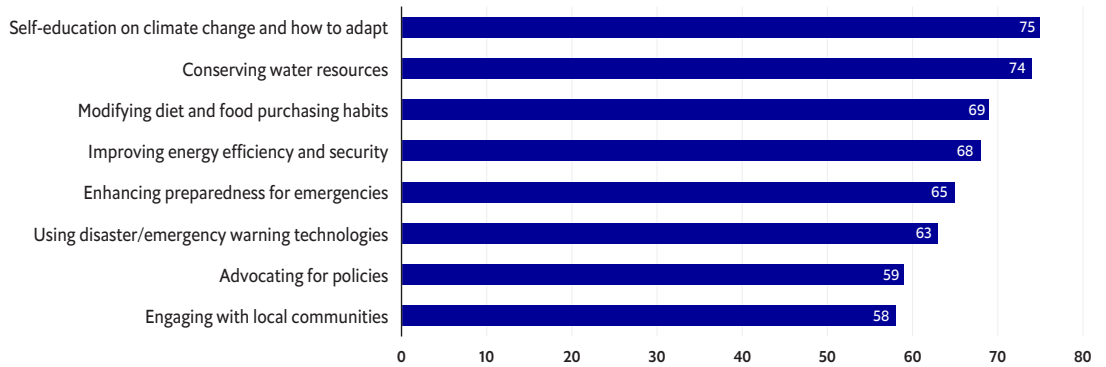
²⁷ <https://www.weforum.org/agenda/2024/01/why-2024-is-the-year-of-the-business-case-for-sustainability-davos/#:~:text=Investments%20in%20sustainability%20initiatives%20remained,of%20annual%20revenue%20on%20average.>

²⁸ <https://www.u4.no/blog/greenwashing-a-form-of-corruption>

²⁹ <https://www.edelman.com/sites/g/files/aatuss191/files/2023-11/2023%20Edelman%20Trust%20Barometer%20Special%20Report%20Trust%20and%20Climate.pdf>

Figure 8: We're all in this together

Which actions have you taken in the past 12 months or plan to undertake in the next 12 months to become more resilient to climate change? (% of respondents)



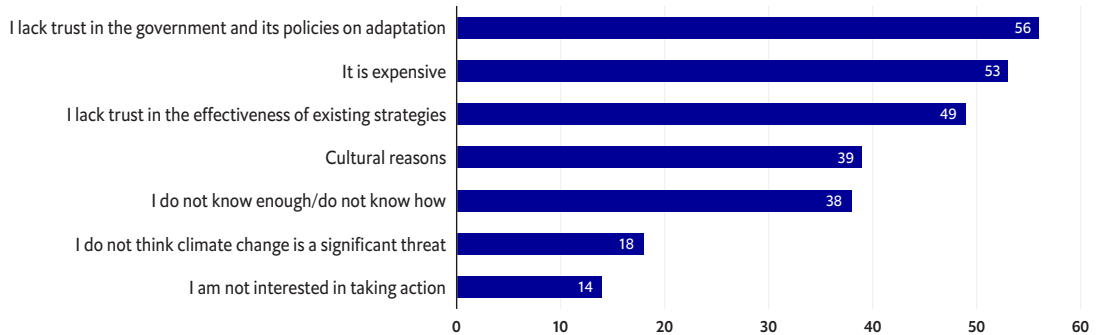
Source: Economist Impact survey

Another key barrier is a lack of concern about the risks posed by climate change. Nearly one in five respondents (18%) is not taking any action as they do not perceive climate change to be a significant threat. This perception is most prevalent in Amsterdam (28%), Dubai (28%) and Cairo (23%) – possibly due to these cities’ long-standing experience in addressing their specific climate risks, primarily flooding in Amsterdam and heat stress in Cairo and

Dubai. Diana Francis, an assistant professor of earth sciences at Khalifa University in Abu Dhabi, supports this view, suggesting that the Gulf region, accustomed to hot conditions, is likely to be less affected by rising temperatures compared with regions without cooling systems.³⁰ In contrast, only 9% of respondents in Cape Town – a city where water-related climate risks have intensified significantly over the past decade – share this perspective.³¹

Figure 9: In a bind, falling behind

What are the main barriers that are currently preventing you from taking action to become more resilient to climate change? (% of respondents)



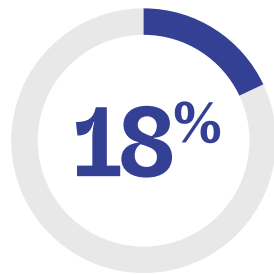
Source: Economist Impact survey

³⁰ https://www.ft.com/content/d5a5bc1f-e225-4397-b99f-56c62b00366d?accessToken=zwAGISSMxkAwkdPVpbwf4iVDI9O5n1bGK-wA2bQ.MEUCIQDldjcg38Pej1YqjT7rBH3ejCjyNt8_Kyn_4zfKbl1nhQlgnOKsOtY1nf_ukThixyQQB-Jj1toD5_po74wKBBBeQiuY&share-type=gift&token=ce9d52a9-5991-4a14-af1a-d7a2cfa2b59d

³¹ <https://www.brookings.edu/articles/cape-town-lessons-from-managing-water-scarcity/>

Individual efforts can significantly contribute to climate resilience, but only if cities address these barriers. Governments need to build public trust through transparent reporting, independent oversight and measurable climate outcomes. Along with businesses, they must

empower individuals to take climate action. They must address financial barriers through subsidies, tax incentives, low-interest loans and grants, and promote knowledge by investing in education and awareness campaigns about climate risks and resilience strategies.

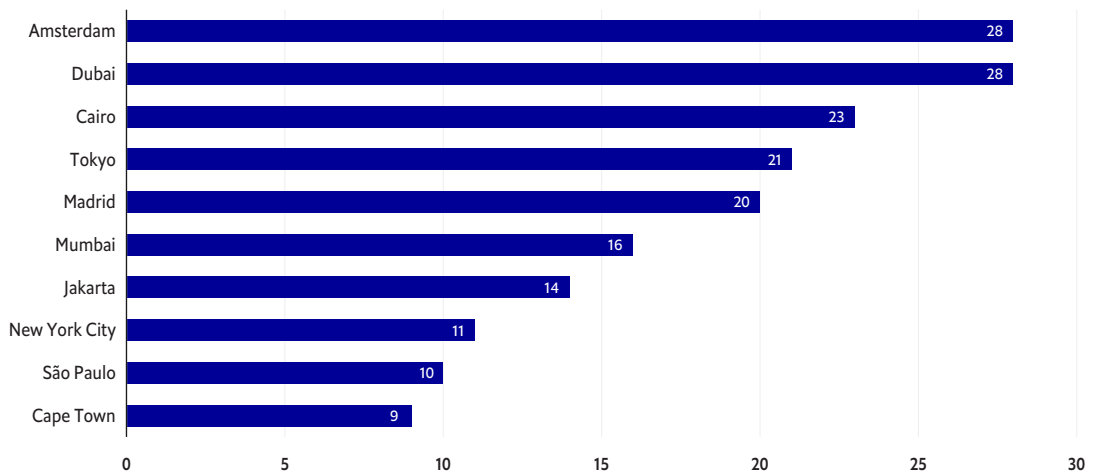


Nearly one in five respondents are not taking any action as they do not perceive climate change to be a significant threat

Source: Economist Impact survey

Figure 10: Global warning to the climate naysayers

% of respondents who selected "I do not think climate change is a significant threat" as the main barrier that is currently preventing them from taking action to become more resilient to climate change



Source: Economist Impact survey

Delivering climate resilience: a call to action

The status quo is unsustainable. As the challenges of climate change intensify, cities face unprecedented risks. Building urban resilience is no longer a choice, but an imperative. The path forward requires proactive, coordinated action from all stakeholders: governments, business and communities.

In preparing cities to navigate climate risks, stakeholders need to:

- **Proactively invest in resilient infrastructure:** cities must prioritise investments in climate-resilient infrastructure to protect against increasingly frequent and severe weather events, minimise economic losses and safeguard public health. Investments in flood-resistant buildings, heat-adaptive public spaces, advanced urban-cooling systems, sustainable water management systems and renewable energy networks are key to reducing disaster recovery costs, ensuring service continuity and improving residents' quality of life.³²

- **Integrate mitigation and adaptation efforts:** urban resilience hinges on a balanced approach that incorporates both mitigation and adaptation strategies. "The dichotomy between mitigation and adaptation is no longer an issue. It is clear that we need to address both," explains Júlia López Ventura, regional director for Europe at C40 Cities. Reducing greenhouse gas emissions is vital to slowing climate change, but cities must also brace for the inevitable impacts that are already under way. Fortifying urban infrastructure and enhancing emergency response systems help cities adapt to and cope with climate shocks. The question now is not whether cities should adapt, but how they can do so quickly and effectively. This dual approach reduces cities' climate footprint while strengthening their capacity to recover from climate-related shocks.

Case study: Madrid's holistic greening initiative

To tackle climate change and its effects on air pollution, Madrid is building a green wall around the city — an urban forest spanning 75 kilometres and comprising nearly half a million new trees. A key objective of this initiative is to reduce the intensifying urban heat island effect by absorbing 175,000 tons of CO₂ annually.

The greening effort serves as both a mitigation and adaptation measure, providing shade with vegetation canopies and enabling the city to better adapt to climate risks such as heatwaves, drought and flooding.³³

³² <https://press.un.org/en/2019/sgsm19807.doc.htm>

³³ <https://www.euronews.com/green/2021/07/16/madrid-building-a-huge-urban-forest-in-bid-to-combat-climate-change>

- **Collaborate across government levels and departments:** government collaboration is critical if cities are to make meaningful progress. National governments bring the financial resources and regulatory power, while local governments provide the on-the-ground knowledge of city-specific climate challenges. But it is not enough for governments to act in isolation. Horizontal collaboration across departments ensures that climate resilience is woven into every aspect of urban planning. Without this comprehensive approach, progress will be fragmented, and the most vulnerable communities will suffer the consequences.
- **Harness public–private partnerships:** governments can set the stage with policy and regulatory frameworks and infrastructure, but businesses must step up and offer innovation, investment and expertise to develop climate solutions that can be scaled effectively across cities. “Governments must reward private sector ‘champions’ who are investing in sustainable practices, even if it is harder or more expensive,” argues Ilan Cuperstein, regional director for Latin America at C40 Cities. By investing in resilience, businesses protect their own long-term interests while contributing to broader community wellbeing.
- **Rebuild public trust:** for resilience strategies to succeed, governments and businesses must rebuild public trust. Transparent communication, coupled with meaningful engagement and collaboration with local communities, ensures that policies reflect the needs of the people they purport to serve. Businesses must also go beyond rhetoric, offering verifiable evidence of their climate commitments and actions.
- **Promote inclusive urban planning:** equity must be at the heart of climate resilience. Women, children, the elderly and low-income communities are disproportionately impacted by climate change, and resilience efforts must reflect their needs. Tailored approaches, such as building accessible cooling centres, providing affordable and resilient housing, and distributing accessible disaster-preparedness resources, not only reduce the impacts of climate change but also improve public health and foster social cohesion.

“Governments must reward private sector ‘champions’ who are investing in sustainable practices, even if it is harder or more expensive.”

Ilan Cuperstein, regional director, Latin America, C40 Cities

Conclusion

The stakes could not be higher. Cities are not prepared for climate risks, and this lack of readiness threatens our safety, health and livelihoods. Climate resilience is about more than surviving the next flood, drought or heatwave – it is about ensuring that our communities, cities and economies can thrive in the face of accelerating climate risks. “Every investment must be considered with climate in mind”, says Janice Barnes, founder of Climate Adaptation Partners.

Achieving resilience depends on collective action among governments, businesses and individuals. “Given that financial and human resources are limited, deliberation is needed to ensure that local community priorities are addressed, which requires collaboration among governments and other key stakeholders,” explains Gina Ziervogel, director of the African Climate & Development Initiative at the University of Cape Town.

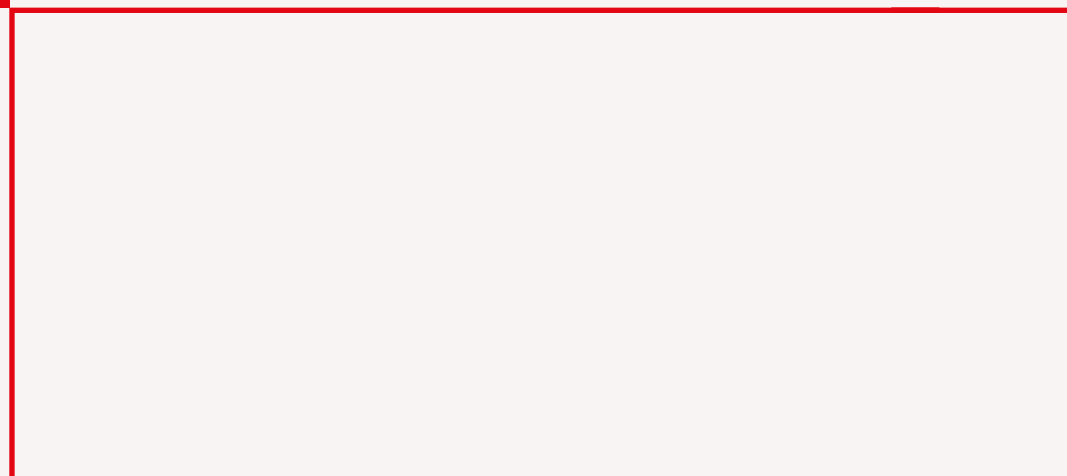
City residents feel that governments – as the stakeholders who should be primarily responsible for developing resilience in our societies – are falling short in their efforts to build readiness. Businesses have an opportunity to step up to mitigate and adapt to extreme weather, and to support individuals in making more meaningful changes.

The path forward must be determined by innovation, cooperation and commitment. By leveraging public–private partnerships and promoting transparent, inclusive governance, we can prepare our cities to thrive in the face of climate risks.

“Every investment must be considered with climate in mind.”

Janice Barnes, founder, Climate Adaptation Partners

While every effort has been taken to verify the accuracy of this information, Economist Impact cannot accept any responsibility or liability for reliance by any person on this report or any of the information, opinions or conclusions set out in this report. The findings and views expressed in the report do not necessarily reflect the views of the sponsor.



LONDON

The Adelphi
1-11 John Adam Street
London WC2N 6HT
United Kingdom
Tel: (44) 20 7830 7000
Email: london@economist.com

GENEVA

Rue de l'Athénée 32
1206 Geneva
Switzerland
Tel: (41) 22 566 2470
Fax: (41) 22 346 93 47
Email: geneva@economist.com

SÃO PAULO

Rua Joaquim Floriano,
1052, Conjunto 81
Itaim Bibi, São Paulo,
SP, 04534-004
Brasil
Tel: +5511 3073-1186
Email: americas@economist.com

NEW YORK

750 Third Avenue
5th Floor
New York, NY 10017
United States
Tel: (1.212) 554 0600
Fax: (1.212) 586 1181/2
Email: americas@economist.com

DUBAI

Office 1301a
Aurora Tower
Dubai Media City
Dubai
Tel: (971) 4 433 4202
Fax: (971) 4 438 0224
Email: dubai@economist.com

WASHINGTON DC

1920 L street NW Suite 500 Wash-
ington DC
20002
Email: americas@economist.com

HONG KONG

1301
12 Taikoo Wan Road
Taikoo Shing
Hong Kong
Tel: (852) 2585 3888
Fax: (852) 2802 7638
Email: asia@economist.com

SINGAPORE

8 Cross Street
#23-01 Manulife Tower
Singapore
048424
Tel: (65) 6534 5177
Fax: (65) 6534 5077
Email: asia@economist.com