Chapter 4

Climate Action and Vulnerable Urban Groups

Quick facts

1. The impacts of the climate crisis are being unleashed in an unprecedented manner on many inter-connected urban systems, including economic, social, ecological and urban infrastructure systems.

2. Urban informality is a key driver of vulnerability, with slums and informal settlements among the most exposed to disasters and other impacts.

3. The climate crisis is profoundly discriminatory, intersecting with and reinforcing pre-existing vulnerabilities among certain groups.

4. Current urban adaptation and mitigation efforts are failing to protect the most vulnerable populations from climate change—and even making their situation worse.

5. The way cities grow, develop, expand and are planned creates unequal conditions for resilience, leaving some areas more vulnerable to climate risks than others.

Policy points

1. Adaptation plans that are co-created with diverse urban groups are more likely to result in inclusive, effective solutions that build the resilience of the most vulnerable to climate shocks.

2. Municipal governments should support locally-led climate adaptation to address vulnerability, boost resilience and enhance city-wide climate action.

3. Cities should prioritize investing in resilient infrastructure in underserved communities as a basis for building their resilience to climate-induced shocks.

4. Strengthening social protection programmes that address climate shocks is critical for building the resilience of vulnerable urban groups.

From record-breaking heatwaves to increasingly catastrophic flooding, the climate crisis is unleashing an unprecedented strain on cities. This is creating complex and multifaceted challenges that extend beyond environmental concerns, displacing countless residents, endangering public health and exacerbating socioeconomic disparities. While no one will be unaffected by climate change, it is impacting on people and places differently due to a range of factors, including varying degrees of vulnerability, exposure and adaptive capacity. In this regard the climate crisis intersects with existing urban challenges, such as persistent poverty, lack of access to basic services and inadequate housing, to create a vicious cycle of suffering.

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Back in 2019, the Special Rapporteur on extreme poverty and human rights warned of an impending era of "climate apartheid", a world "where the wealthy pay to escape overheating, hunger and conflict while the rest of the world is left to suffer".[1] In many cities, particularly those contending with the some of the most extreme impacts, this reality is already here. This chapter explores how climate change is disproportionately affecting the most marginalized urban populations—women, children, people with disabilities, Indigenous communities, refugees, migrants and ethnic minorities, among others—and how their resilience can be strengthened to reduce damage to livelihoods and loss of lives. It examines how urbanization creates differential patterns of vulnerability to climate change and how diversity within communities, including factors like gender, sexuality, disability, ethnic origin, educational background and employment status, can create very different levels of risk.

All too often, urban policies are not only failing to address these challenges, but actively making them worse

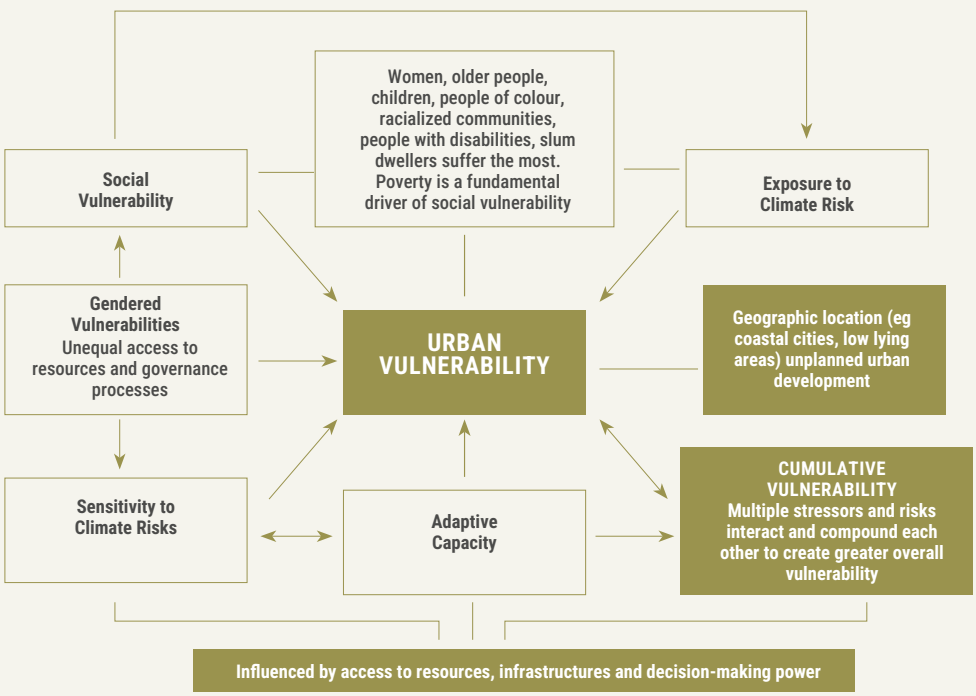
All too often, urban policies are not only failing to address these challenges, but actively making them worse. The chapter analyzes how governance and political structures perpetuate vulnerability in informal settlements and deprived neighbourhoods, highlighting how power relations and institutional frameworks impact marginalized populations. It also discusses climate urbanism, focusing on how climate action can reproduce and exacerbate inequalities. Additionally, the chapter explores the relationship between climate change and social capital, noting how disasters can both erode and foster social capital through shared preparedness and response. It also examines how climate-induced crises and conflicts increase vulnerability through displacement. Finally, the chapter discusses the challenges and opportunities of climate-resilient urban development, emphasizing a people-centred approach and highlighting how cities globally are integrating climate justice into their policies and programmes.

Pfaffenhofen Ilm, Germany was severely affected by floods in 2024/Shutterstock

Box 4.1: Conceptualizing urban vulnerability to climate change

Vulnerability to climate change refers to "the degree to which people, places, institutions and sectors are susceptible to, and unable to cope with, climate change impacts and hazards"[2]. The concept of vulnerability is multidimensional and is the product of a number of variables, such as:

- **Exposure** pertains to the character and magnitude of a system's exposure to notable climatic fluctuations. Cities with high exposure to climate hazards are more likely to have vulnerable populations living in areas prone to flooding, extreme heat, or other risks.
- **Sensitivity** encompasses the extent to which a system is impacted by climate variability or change. Excluded populations, such as residents of informal settlements, are sensitive to climate impacts due to poor living conditions, lack of access to basic services, and limited economic opportunities. High exposure combined with sensitivity creates a feedback loop where climate events have a more significant impact on already vulnerable communities.
- **Adaptive** capacity relates to the system's capacity to adapt to climate change, mitigate potential harm and effectively manage the resulting consequences. Like sensitivity, adaptative capacity is to a significant extent determined by access to resources, official recognition and other socioeconomic dimensions. Poor and marginalized urban communities generally face greater challenges responding adequately to climate risks due to the limited financial or technical assistance available to them.
- **Social vulnerability** considers the inequalities and disparities that exist within a city, which can amplify the impact of climate change on marginalized communities.[3] This is influenced by a variety of social and economic characteristics including (but not limited to) race, gender, ethnicity, socioeconomic status, age, health, disability, sexuality and non-conforming gender orientation. Poverty is a fundamental driver of social vulnerability, with the potential to give rise to additional dimensions of social vulnerability: this may include limited access to education, insecure legal tenure and other factors that further compound their precarity.
- **Cumulative vulnerability** acknowledges that multiple stressors and hazards can interact and compound one another, resulting in greater overall vulnerability. This recognizes that urban areas may face a combination of climate change impacts, such as extreme heat, flooding, food insecurity, water insecurity and sea-level rise, which interact and worsen overall vulnerability.



The drivers of urban vulnerability are interconnected and mutually reinforcing, shaping unique experiences of risk and adaptive capacity between different groups and individuals. The interaction of these factors amplifies vulnerability, creating a challenging environment for urban areas to address the impacts of climate change. Recognizing these relationships is essential for developing comprehensive climate adaptation and resilience strategies that target the root causes of vulnerability.

4.1 Vulnerability of Cities to Climate Change: An Overview of Issues and Trends

Due to their high concentration of people, activities and infrastructure, cities are highly vulnerable to the extreme weather events associated with climate change. Their impacts on the complex economic, social, ecological and infrastructure systems in urban areas are triggering significant economic losses, perennial disruption of essential services and negatively affecting the well-being of residents (Table 4.1).[4]

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Table 4.1: Multiple climate shocks and their impact on cities

Shocks (from fast to slow onset)	Direct (single) impacts	Indirect, cascading and compounding impacts	Asymmetric impacts across places and or people
Floods and storms	▪ Damage to urban infrastructure (e.g., roads, energy) and housing. ▪ Disruption of urban services (e.g., water, transport and energy). ▪ Damage to schools and public health facilities. ▪ Degrading coastal ecosystems, such as mangroves or coastal reefs.	▪ Disruption of urban services (e.g., health, food supply) due to damage to urban infrastructure (e.g., energy and transport). ▪ Emergence of waterborne diseases. ▪ Displacements due to climate migration create higher demand for public services and increase the population living in informal settlements.	▪ Economically and socially marginalized communities (living near rivers) may be more vulnerable to floods and damages to urban infrastructure. ▪ Children affected and more vulnerable to waterborne diseases. ▪ Where mangroves are already affected, there is increased vulnerability of coastal communities.
Heatwaves	▪ Heat stress on human health. ▪ Pressure on energy, water infrastructure and supply. ▪ Damage to urban infrastructure.	▪ Decrease of general labour productivity for both manual and cognitive tasks. ▪ Extended fire weather seasons (i.e., periods of time where weather conditions are conducive to the outbreak of wildfires). ▪ Increased morbidity from vector-borne diseases.	▪ Children and the elderly are more vulnerable to heat stress. ▪ Low-income households living with inadequate housing conditions (e.g., without air conditioning) are more vulnerable. ▪ Psychological or mental health impacts on the most exposed population.
Droughts	▪ Impacts on food supply system in cities. ▪ Water shortages affecting the population access to safe drinking water.	▪ Limiting the hydropower capacity of dams. ▪ Changes in ecosystems' functioning. ▪ Changes in labour and agricultural productivity. ▪ Impacts on food production leading to rise in food prices.	▪ Disruption of agricultural production leads to severe and more chronic food insecurity, increasing the propensity of malnutrition, as well as rising food prices. This problem is strongly concentrated in vulnerable populations
Sea-level rise	▪ Potential damage to urban assets in coastal areas. ▪ Impacts on urban land use and infrastructure investment strategies.	▪ Coastal defenses become increasingly expensive to adapt and to maintain over time. ▪ Decrease of tourism-related activities.	▪ Vulnerability is higher in Small Island Development States (SIDS) located in low-lying coastal zones.

Source: OECD, 2023, p.14.

4.1.1 Adaptive capacity constraints

Despite these complex climate risks and shocks, the implementation of urban climate adaptation plan is very low. The failure of cities to prioritize the implementation of climate-resilient urban planning (see Chapter 5) significantly aggravates their vulnerability. Cities in the developed world are better placed to address the consequences of the climate crisis compared to their counterparts in the developing world. This advantage arises from several key factors, including greater access

to resources, a wealth of technical expertise and robust governance systems. Additionally, cities in developed countries have established practices for integrating long-term risk considerations into their land use planning processes. While adaptation efforts in these cities may entail substantial costs, the primary focus is often on integrating new data, cutting-edge technology and advanced practices into their existing planning procedures, investments and regulations.

Conversely, the context for cities in developing countries is markedly different and presents a unique set of challenges for climate change adaptation. These challenges mirror the existing deficiencies within systems coping with rapid urbanization.[5] These shortcomings include ineffective land use practices, inappropriate and inadequately enforced regulatory systems, the vulnerability of housing stock to disasters, inefficient infrastructure planning and funding mechanisms, and poorly functioning land markets.

4.1.2 Trends in urban vulnerability to climate change

Urban areas are increasingly becoming hotspots of vulnerability to climate change, driven by a convergence of factors including rapid population growth, economic activities and inadequate infrastructure. Limited drainage, sanitation and other essential systems is rendering many cities in Sub-Saharan Africa especially vulnerable to the current and future impacts of climate change. In Antananarivo, Madagascar, for instance, regular bouts of heavy rainfall coupled with deforestation have increased the risk of urban floods and landslide. The danger is especially pronounced in the city's rapidly expanding informal settlements, where the impacts of climate change and extreme weather are exacerbated by the absence of functioning stormwater management or waste management.[6]

Cities in the developed world are better placed to address the consequences of the climate crisis compared to their counterparts in the developing world

Cities located along the world's tidal zones are highly vulnerable to sea-level rise, a challenge that is likely to intensify in the years to come. By 2050, over 570 low-lying coastal cities are projected to face sea level rise of at least 0.5 metres in a high-emission scenario, putting them at risk of flooding.[7] The intersection of climate change volatility and poorly managed urban growth in flood-prone locations has troubling implications for the exposure of coastal cities in the coming decades. One study, extrapolating from a 2013 estimate that put average flood losses among the 136 largest cities worldwide at a total of US$6 billion every year, projected that by 2050 the impact of continued urbanization in these areas would have increased their potential exposure to US$52 billion annually. However, when factoring in a relatively modest scenario of 20 centimetres of sea-level rise, this figure increased exponentially to as much as US$1 trillion if no efforts were made to upgrade existing protections.[8]

This vulnerability is globally distributed. In the Caribbean, where the bulk of housing, industry and urban infrastructure are concentrated in Low Elevation Coastal Zones (LECZs), it is projected that almost all port and harbour facilities in the region will suffer inundation in the future.[9] Among the capital cities, Nassau in the Bahamas is the most highly exposed to risks of sea-level rise and flooding, with 82.8 per cent

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of its population living in LECZs.[10] A similar picture emerges in the Arab region, where coastal flooding and saltwater intrusion will impact at least 43 port cities:[11] from Alexandria (Egypt) and Beirut (Lebanon) to Kuwait City (Kuwait) and Bandar Abbas (Iran), many major cities are located in high-risk areas vulnerable to sea level rise.[12]

Asian cities are exceptionally susceptible to the severe repercussions of climate change, amplifying the urgency for proactive measures and strategic investments in resilience and sustainability.[13] Their increasing exposure is illustrated by the cities of Guangzhou, Mumbai, Shenzhen, Tianjin (China), Mumbai, Kolkata (India), Jakarta (Indonesia) and Ho Chi Minh City (Viet Nam), all large cities in increasingly high-risk locations: while in 2005 they collectively suffered a total of US$1.5 billion in losses due to coastal flooding during the year, their collective loss from coastal flooding is projected to increase to an annual average of almost US$32.1 billion by 2050.[14] This stark increase underscores the imperative for urgent and substantial action in building resilience against the growing risks of coastal flooding. In Europe, too, with the exception of the Baltic coastline, most cities have already witnessed sea-level rise and are projected to experience greater exposure in future.[15]

Climate-induced heatwaves have become one of the deadliest threats confronting cities, a trend that is only likely to worsen in the future. Cities on the eastern China seaboard, for instance, such as Beijing and Shanghai, witnessed multiple record-breaking temperatures in 2023, only to experience another cycle of extreme heat in 2024.[16] At the same time, the global urban water crisis is expected to worsen as a result of climate change, impacting on hundreds of millions of residents worldwide.[17] Across Asia, many cities are already enduring acute climate-induced water scarcity and droughts: in India, 22 of 32 major cities are experiencing shortages while in Kathmandu, Nepal, community members are in some cases forced to queue for hours to obtain drinking water.[18] Limited water supplies will in turn trigger food insecurity. By 2050, according to one projection, 2.5 billion urban residents in over 1,600 cities will live in countries where one or more major crop (wheat, maize, rice or soya) is projected to decline.[19] As these and other climate-induced threats become more frequent and intense, societies may struggle to recover from one event before the next one occurs.[20]

4.2 Existing Patterns of Urbanization and Differential Vulnerability to Climate Change

Urbanization exhibits heterogenous patterns across regions, shaping the varying degrees of vulnerability to climate change.[21] Globally, most cities

are experiencing rapid urban sprawl, characterized by the unchecked expansion of urban areas into previously rural or undeveloped land. Indeed, the physical extent of urban areas is growing much faster than their population, thereby consuming more land for urban development.[22] This has serious implications for energy consumption, greenhouse gas (GHG) emissions, pollution, climate change and environmental degradation. Moreover, as suburbanization–long evident in developed countries such as the United States (US)—has become increasingly prevalent in affluent neighbourhoods in developing countries too, it has led to the privatization of public spaces and the decline of public infrastructure, green projects and local ecosystems.

The growth of informal settlements, while driven by very different social and economic dynamics, is similarly characterized by their rapid expansion at the periphery of sprawling cities. Densely populated but lacking even basic infrastructure, frequently situated in flood-prone or unsanitary locations, they are particularly vulnerable to climate-induced disasters. These expanding peri-urban settlements, evident across Africa, Asia and Latin America, pose specific structural constraints to addressing climate risks. In addition to their environmental vulnerability, institutional factors such as limited land ownership and tenure insecurity hinder the ability of residents to invest in permanent infrastructure to buffer themselves from flood events. The multi-faceted nature of these vulnerabilities was illustrated by the protracted flooding in Nairobi, Kenya, in 2024 that disproportionately affected its slums: among other factors, the location of many informal settlements in flood-prone areas, the absence of adequately functioning drainage and the steady depletion of open spaces that previously would have absorbed some of the water all contributed to the severity of the situation.[23]

Globally, most cities are experiencing rapid urban sprawl, characterized by the unchecked expansion of urban areas into previously rural or undeveloped land

By contrast, more systematically planned urban areas demonstrate a more resilient infrastructure but still face unique challenges related to climate adaptation. Even in well-planned cities, urban sprawl can lead to increased surface runoff, reduced green spaces and the urban heat island effect, which exacerbates the impacts of extreme weather events. Nevertheless, it is not inevitable that cities should be exposed to these threats. If well-managed, urbanization can lead to a reduction in vulnerability to the direct and indirect impacts of climate change; if poorly managed, however, it can increase levels of climate risk for large sections of the urban population, particularly the most marginalized residents.

4.3 Disproportionate Impact of Climate Change on Vulnerable Groups

The climate crisis is unevenly experienced due to differences in the degree of vulnerability, exposure and adaptive capacity between urban residents and communities. Even among the most marginalized populations, there are often complex power dynamics at play around access to resources, social recognition and even the fundamental right to be in a particular city: migrants, refugees and stateless persons, for instance, may lack

More systematically planned urban areas demonstrate a more resilient infrastructure but still face unique challenges related to climate adaptation

legal residency regardless of the length of time they have lived there, creating specific risks and deprivations. As discussed below, an array of intersectional factors can shape how different individuals or groups may be more or less susceptible to the same shocks, including the impacts of climate change.

4.3.1 Diversity and differential vulnerability to climate risks

The urban poor are not a homogenous group: they experience a multitude of differentiated vulnerabilities that are shaped not only by factors like age, health, disability, ethnicity and gender, but also by considerations such as income stability, tenure status (including renters or property owners), educational levels and the duration of their residence in the city. Women, for example, often bear the brunt of climate risks since they are largely responsible for domestic chores such as fetching water—duties further complicated by growing water stress in these communities—and in many contexts are more exposed to climate-related disruptions due to patriarchal laws, customs, and institutions that discriminate against them.[24]

To take one example, when Hurricane Katrina struck New Orleans in the US in 2005, almost two-thirds of jobs lost in the wake of the disaster belonged to women. Furthermore, close to 80 per cent of the people living in the flood-affected part of the city were members of ethnic minorities.[25] This illustrates how individuals can have different degrees of sensitivity, despite experiencing the same event in the same community. For those with limited social support or precarious housing situations, the effects of Hurricane Katrina were more traumatic and long-lasting. In Australia, too, a similar picture emerges where the physical effects of climate change interact with the legacy of racism and social exclusion. Aboriginal populations face a disproportionate level of exposure to a spectrum of climate extremes, including but not limited to heatwaves, erratic rainfall patterns and prolonged droughts. This existing imbalance in exposure is expected to intensify in the coming decades because of climate change.[26]

Climate change also interacts with pre-existing inequalities to further entrench urban poverty. In India, for instance, a clear correlation exists between states marked by elevated urban poverty and heightened social vulnerability to climate change risks. This connection is particularly evident in central and eastern states, such as Bihar, Chhattisgarh, Jharkhand and Orissa, where a significant portion of the urban population grapples with persistently high poverty rates, substantial inequality and limited access to essential services like clean water and sanitation. The challenge in these states is further compounded by the rapid expansion of urban populations without a proportionate increase in income levels to meet essential needs, as well as the inadequate development of urban infrastructure, including safe drinking water, sanitation facilities and housing.

While people living with disabilities are highly vulnerable to the climate crisis and "up to four times more likely to die in disasters", [27] they remain marginalized or invisible in climate adaptation efforts, with limited

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access to essential resources, information, programmes or support (as noted in Chapter 1). Therefore, cities and subnational governments need to implement processes and mechanisms to understand and address the needs of people with disabilities as part of their response to the climate crisis. They also need to ensure the full participation of disabled people as experts, decision makers and participants in climate action. Additionally, cities should develop climate policies to help eliminate existing barriers faced by people with disabilities. Toronto's First Resilience Strategy (2019), for instance, stresses the importance of prioritizing measures for the city's most vulnerable residents and identifies persons with disabilities as an "equity-seeking group" in this context.[28] Nevertheless, while Toronto has committed to a raft of disability-inclusive policies, like other cities it is still working to undo the accumulated effect of many years where people with disabilities were overlooked. For instance, the physical design of public spaces and transportation infrastructure continues to be a source of obstruction for some residents, despite the city's stated intentions to be fully accessible for all:[29] these and other general vulnerabilities will need to be addressed to strengthen the resilience of people with disabilities to climate change impacts specifically.

4.3.2 Urban informality and climate vulnerability

Informality, which manifests through unplanned settlements, irregular housing and employment is highly vulnerable to climate change. Indeed, Chapter 1 shows that countries with a higher share of informal employment and informal settlements are more likely to be vulnerable to the extreme weather events and shocks associated with climate change. Current estimates suggest that more than 1 billion urban dwellers live in slum-like conditions where they endure precarious living conditions with inadequate infrastructure, little or no basic services, overcrowded housing and tenure insecurity.[30] Given that many slums and informal settlements suffer from inadequate drainage systems, substandard construction and precarious locations such as riverbanks, these challenges are likely to worsen with climate change as the environmental risks facing residents intersect with social drivers of vulnerability, such as gender discrimination.[31] For instance, the impact of climate change falls disproportionately on the livelihood sources of the poorest residents (especially those living and working informally), undermining their already limited income streams and increasing their vulnerability (Figure 4.1).

Figure 4.1: Climate-induced impacts on urban populations living in slums and informal settlements and working in the informal economy

PROJECTED CHANGES	LIKELY IMPACTS	IMPLICATIONS FOR THE POOR
Changes in simple extremes: Higher (and increasing) maximum temperatures, more hot days, and heatwaves over nearly all land areas	Rise in mortality and illness from heat stress in many urban locations.	Higher population densities and poor ventilation amplify health risks. The largest impacts are among particularly vulnerable groups - infants and young children, the elderly, expectant mothers, and those wit certain chronic diseases. There are health risks from outdoor workers
Higher (increasing) minimum temperatures, fewer cold days, frost days and cold waves over nearly all land areas	Decreased cold-related human morbidity and mortality. Extended range and activity of some disease vectors - including mosquito and tick borne diseases	Most informal settlements are without public health measures to control or remove disease vectors and without health care systems that provide needed responses. Infants and young children are particularly vulnerable.
More intense precipitation events and riverine floods	Increased flood, landslide, avalanche, and mudslide damage resulting in injury and loss of life, loss of property and damage to infrastructure	Many informal settlements are concentrated on sites most at risk of flooding, with a lack of risk-reducing infrastructure and poor-quality housing less able to withstand flooding. Homes, possessions and assets for generating income are not covered
Changes in complex extremes: Increased summer drying over mid latitude continental interiors and associated risk of drought.	Decreased water resource quantity and quality: increased risk of forest/bush fire; decreased crop yields and higher food prices.	Informal settlements residents (Including home-based enterprises) usually face more water constraints and are more vulnerable to food and water price rises.
Changes in the mean: Sea level rise	Coastal erosion, land loss, more floods from storm surges, and hundreds of millions of urban dwellers living in low elevation coastal zones.	Many informal settlements close to the sea have poor quality housing and lack drainage infrastructure

Source: Prepared based on information from Dodman et al., 2019.

The climate crisis is exacerbating pre-existing vulnerabilities within slums, trapping the urban poor in an unrelenting cycle of enduring hardship

Figure 4.1 shows that the climate crisis is exacerbating pre-existing vulnerabilities within slums, trapping the urban poor in an unrelenting cycle of enduring hardship. The failure to take decisive action not only undermines the overall well-being of these vulnerable groups, but also stifles the prospect of an inclusive and prosperous urban future for all. Informal workers in most developing regions already face precarious living and working conditions that intersect with various climate-related risks. Climate change, although intertwined with socioeconomic, political and environmental factors, exacerbates some of these issues and introduces new challenges for informal workers. For instance, extreme weather events can further deteriorate the substandard shelter and working conditions experienced by informal workers, potentially leading to increased health issues, deepening poverty and even displacement.

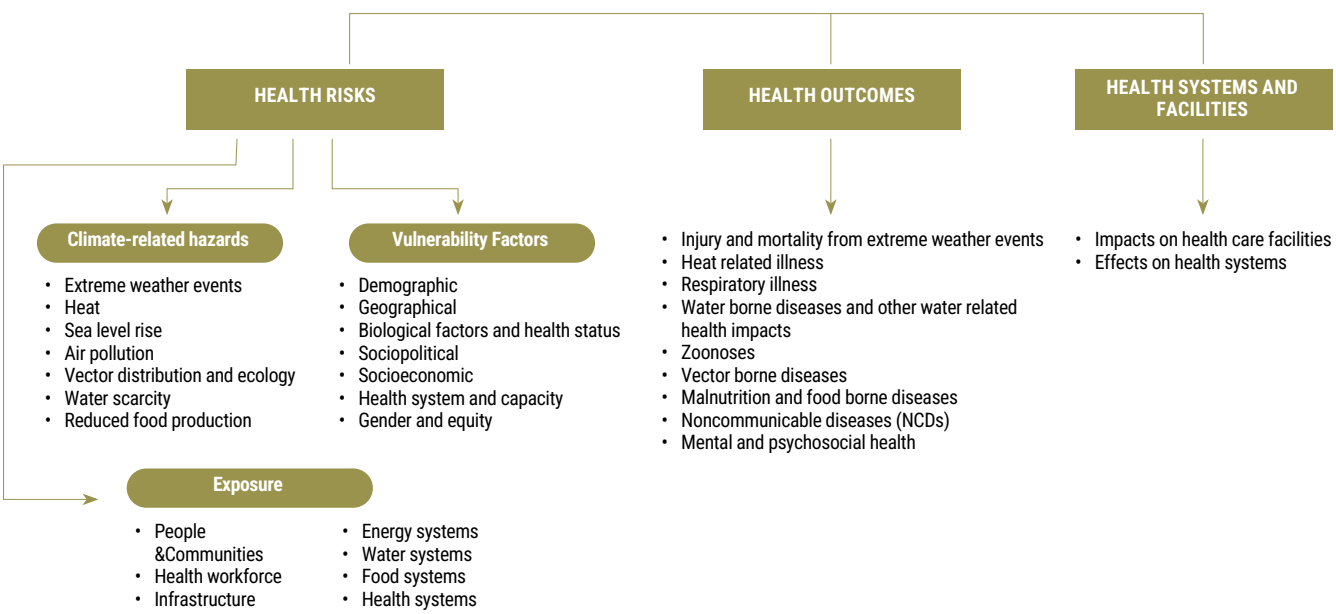
For those living in slums and informal settlements and other poor neighbourhoods, climate change can place a huge strain on their lives and livelihoods by disrupting disrupt local economies, especially those dependent on agriculture or vulnerable industries. Extreme weather events such as heatwaves, exacerbated by difficulties in accessing proper water, sanitation and hygiene services, can profoundly affect informal workers in particular, restricting working hours and productivity. This, coupled with the increased cost of living due to climate impacts, can lead to economic instability for vulnerable urban populations. When the financial burden on low-income urban residents intensifies—for example, due to unexpected expenditures such as housing repairs resulting from extreme weather events—it can result in the escalation of debt and erosion of assets, pushing vulnerable populations deeper into poverty and making it harder for them to recover from shocks. Vulnerable urban populations may face challenges in accessing essential resources such as water, food, and energy, which can further contribute to economic vulnerabilities. These findings underscore the underlying risk factors faced by informal workers, which, in conjunction with climate change impacts, can exacerbate health issues and socioeconomic exclusions. If governments fail to act urgently and aggressively, the consequences on the urban poor will be catastrophic.

4.3.3 The impact of climate-induced health risks on marginalized populations

Climate change poses a variety of potential threats to public health and well-being. Besides death and injury arising from more frequent extreme weather events such as storms or heatwaves, there is also the impact of food system disruptions, water contamination and the spread of vector-borne disease and zoonoses, not to mention the considerable negative effects on mental health. Climate change is undermining many of the social determinants of health and welling, such as sustainable livelihoods, equality, access to medical treatment and social support structures. These climate-sensitive health risks are disproportionately felt by the most vulnerable and disadvantaged, including women, children, ethnic minorities, poor communities, migrants or displaced persons, older populations and those with underlying health conditions (Figure 4.2).

Extreme weather events such as heatwaves, exacerbated by difficulties in accessing proper water, sanitation and hygiene services, can profoundly affect informal workers in particular

Figure 4.2: An overview of climate-sensitive health risks, their exposure pathways and vulnerability factors



Source: WHO, 2023.

Climate change is undermining many of the social determinants of health and welling, such as sustainable livelihoods, equality, access to medical treatment and social support structures

There has been a sharp increase in the prevalence in non-communicable diseases (NCDs), such as cancers, cardiovascular disease, diabetes and chronic respiratory diseases: collectively, NCDs now account for 74 per cent of deaths worldwide, impacting low-income countries disproportionately.[32] Climate change also threatens to aggravate health risks in underserved communities like slums and informal settlements, exposing residents to increasingly unsanitary conditions as both the quality and quantity of water supplies diminish. These trends have already been observed in Accra, Ghana, for example, where climate change is interacting with challenges of urban informality to create a host of public health hazards.[33]

The combined effects of climate change and the continued expansion of urban areas will amplify the phenomenon of urban heat islands (UHIs), resulting in increasing heat-related illness and mortality that will affect the most vulnerable first and foremost while driving up energy consumption for air conditioning (among those who can afford it) and air pollution levels. This will lead to more frequent and extreme heatwaves that will impact particularly on vulnerable groups, including the elderly, children and people with disabilities or chronic diseases. Social factors such as class, gender and migrant status also contribute to differentiated vulnerability to urban heatwaves.[34] In cities across the US, for example, Latino, Black and poor individuals routinely reside in areas most affected by UHIs, exposing them disproportionately to the threat of severe dehydration and heat stress.[35] Similarly, when the City of Montreal in Canada was hit by a succession of heatwaves in the summer of 2018, much of the death toll was concentrated among older residents, the homeless and people with severe mental illness.[36] Similarly, intensifying urban heat in Johannesburg (South Africa) is disproportionately affecting the urban poor (Box 4.2). To address the problem of intensifying heatwaves and their particular impact on certain groups, Barcelona (Spain) has implemented its ground-breaking Climate Shelter Network (discussed in detail in Chapter 3), offering a variety of cost effective, accessible areas throughout the city by reconfiguring public spaces such as schools and libraries. Its success provides a replicable model for other cities to tackle the intensifying issue of heatwaves.[37]

The combined effects of climate change and the continued expansion of urban areas will amplify the phenomenon of urban heat islands

Box 4.2: The discriminatory impacts of urban heat rise in Johannesburg, South Africa

Johannesburg, a South African city known for its historically mild climate, is expected to experience a significant rise in temperatures in the coming decades. This temperature increase will have a disproportionate impact on impoverished neighbourhoods, which tend to absorb and retain heat more effectively. The Highveld region, where Johannesburg is located, has already seen a 1.2 degree Celsius (°C) rise in average temperatures compared to preindustrial levels: by 2050, it is projected to warm by an additional 1.2–1.7°C, in the process transitioning from a temperate to a hot and dry climate zone. Detailed heat maps generated from a community monitoring initiative reveal that Johannesburg is already grappling with a pronounced UHI effect: most neighbourhoods in the city are 3–4°C warmer at night than nearby rural areas. Particularly affected are neighbourhoods like Alexandra, Katlehong, Soweto, Tembisa and the Central Business District, where temperature differences can reach up to 6.5°C higher.

Notably, these neighbourhoods—which have a history of marginalization and are predominantly inhabited by non-white and low-income communities—exhibit high building and population density, along with minimal vegetation and tree cover. Many of the residences in these areas are cheaply constructed and prone to overheating, while their occupants often lack the means to adapt to extreme heat, such as by using air conditioning. Historical factors, including land use practices from the apartheid era, have contributed to stark inequalities in heat distribution that may widen in the years ahead. Urban climate models suggest that by 2050, the number of hot nights (when the temperature remains above 20°C) annually will increase significantly, with the hottest neighbourhoods (primarily the most impoverished townships) experiencing the most substantial rise.

These disparities in heat exposure pose significant health and livelihood risks, particularly for disadvantaged communities already contending with significant challenges. Modeling indicates a notable increase in heat-related deaths by 2050, potentially resulting in several hundred additional fatalities each year. Vulnerable populations, such as the elderly and individuals with conditions like tuberculosis or HIV/AIDS, as well as those living in homes that absorb and retain heat, face higher health ri ks. Indoor temperature measurements conducted in February 2022 reveal that indoor temperatures in dwellings constructed with wood frames and corrugated iron can be as much as 15°C higher than in nearby brick and concrete homes. Furthermore, outdoor and informal sector workers may experience reduced labour productivity as heat stress becomes more frequent and severe, affecting their ability to work effectively.

Source: Souverijns et al.,2022.

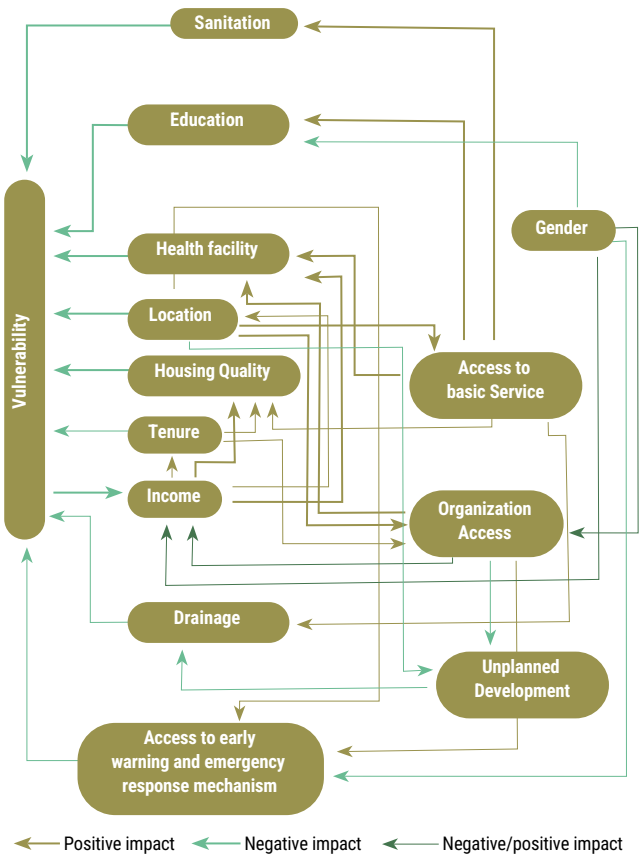
4.3.4 Governance and institutional drivers of vulnerability to climate change.

Governance and institutional structures determine the allocation of resources, implementation of policies and overall adaptive capacity, significantly influencing how urban communities prepare for and respond to climate-related impacts. Weak and fragmented governance, characterized by corruption, lack of transparency and insufficient policy enforcement, exacerbates vulnerabilities by hindering efficient resource distribution and stymieing proactive climate action. Conversely, strong institutions with clear, inclusive and forward-looking policies can enhance resilience by fostering sustainable development, ensuring equitable resource access, and promoting community engagement in climate adaptation strategies. This section explores the complex interplay between governance, institutional effectiveness and the varying degrees of vulnerability experienced by different populations in the face of climate change.

Governance and institutional structures determine the allocation of resources, implementation of policies and overall adaptive capacity, significantly influencing how urban communities prepare for and respond to climate-related impacts

In developed and developing country contexts alike, social exclusion or limited political representation can serve to undermine protection from climate change impacts. In the US, for instance, a comparative study of African American communities in the Eastern Shore of the Chesapeake Bay identified the role of racial injustice (namely, the apparent neglect of vital local infrastructure) as an important factor in the flooding of certain neighbourhoods by Hurricane Sandy.[38] Similarly, in slums and informal settlements across the world, vulnerability to climate change also stems from historical legacies of (post)colonial and (post)apartheid discrimination, reflected in inequalities in infrastructure and service provision that persist to this day.[39] In Bengaluru, India, the discriminatory effects of colonial-era land use and planning policies continue to affect the ability of the city's poorest residents to access safe drinking water.[40] The vulnerability of the urban poor to climate change is further amplified by inefficient urban planning (discussed further in Chapter 5), weak institutional coordination and ad-hoc adaptation efforts that do not contribute to sustainable outcomes. Within slums and informal settlements, there are complex and multifaceted drivers of risk and exposure that are often mutually reinforcing, contributing to a vicious cycle of deepening vulnerability (Figure 4.3).

Figure 4.3: Vulnerability system in low-income urban settlements



Source: Haque, 2020, 112.

Note: Bold lines refer to reinforcing loops. To avoid excessive complexity, the influence of each factor on different types of vulnerability (i.e., social and physical) has not been shown.

People carrying their belongings as they wade through a flooded street after heavy monsoon rains in Vijayawada, Andhra Pradesh, India/Shutterstock

This systems analysis underscores the pivotal role of institutional accessibility in shaping the vulnerability of low-income urban populations, as a multitude of system drivers are either directly or indirectly influenced by it. Without representation of the urban poor in governance processes, climate resilience planning is likely to be irrelevant or even hostile to their needs.[41] In the cases of informal settlements, their lack of official recognition as part of the larger city fabric often results in them lacking meaningful risk-reducing infrastructure such as storm drains, roads, bridges and sanitation facilities.[42] For instance, in Bangladesh, the urban poor are routinely overlooked in national climate strategies. This invisibility leaves them even more exposed to potential disasters and closes off the possibility of meaningful collaboration between local authorities and communities.[43]

Without representation of the urban poor in governance processes, climate resilience planning is likely to be irrelevant or even hostile to their needs

As depicted in Figure 4.3, the variables within the system exhibit not only close interrelations but also mutual reinforcement. For example, insufficient income is frequently exacerbated by the absence of organizational access to various financial schemes, loans and savings initiatives. This financial strain, in turn, ultimately results in precarious living conditions and limited access to essential services, including health facilities and education. Each of these deficiencies contribute to a diminished adaptive capacity, creating a feedback loop that exacerbates vulnerability and perpetuates poverty.[44]

4.3.5 The challenge of climate-induced migrants in cities

The climate crisis has displaced millions of people who have been forced to leave their homes or country as a result of natural disasters, extreme weather or other impacts. Current projections suggest that by 2050 over 216 million people could move within their countries for climate-related reasons across six regions, including Sub-Saharan Africa (86 million), East Asia and the Pacific (49 million), South Asia (40 million), North Africa (19 million), Latin America (17 million) and Eastern Europe and Central Asia (5 million).[45] Based on trends to date in climate-vulnerable countries such as Bangladesh, a large proportion of climate-induced migrants are likely to end up settling in urban areas, many in informal settlements or disaster-prone areas.

For children, climate-induced displacement can have deadly consequences. For example, an estimated 2.5 million children across the Philippines are at risk of being displaced during the next 30 years by storm surges, with the worst affected areas projected to be around large cities including Davao, Cebu and Manila.[46] Climate change impacts and displacement may also exacerbate the potential for local conflicts.[47] For instance, competition over scarce water resources can lead to elevated tensions as the arrival of migrants may place additional demands on already limited water supplies in host communities. Data produced by the Pacific Institute in 2019 suggested that over the previous 10 years, reported cases of water-related conflict had more than doubled, including incidents where urban water supplies had been specifically targeted.[48] While the connections between conflict, migration and climate change differ depending on the political, economic and social contexts, inadequate institutional capacity and a lack of state support for affected individuals worsen pre-existing vulnerabilities. This neglect leaves the underlying causes of vulnerability unaddressed and, in some instances, contributes to maladaptation.[49]

As the climate crisis looms, a key question remains: when the impacts of flooding, landslides, storms, drought, water scarcity, disease and high food prices become overwhelming, what choices do, or will, migrant or displaced population in urban areas have? Urban migrants who lack the capital or connections to move will likely experience repeated instances of forced or involuntary immobility, leaving them with few options for survival. In situations of protracted immobility, the vulnerability of these groups may develop into a full-scale humanitarian emergency, exerting additional pressure on already overstretched national and local resources. Those who choose to move to cities may also face heightened vulnerabilities as they grapple with the dual challenges of forced displacement and the harsh realities of navigating precarious conditions in host communities.

Consequently, migrant and displaced populations who have had to move to cities in contexts of environmental stress or climate change are often among the most vulnerable populations worldwide. Besides the risk of becoming officially "invisible", making any form of targeted support difficult, the irony is that many climate-induced migrants face new climate threats in the cities where they sought refuge and new opportunities. Despite these pressures, some urban destinations have risen to the challenge of climate-induced migration and developed their own solutions. From São Paulo (Brazil) to Freetown (Sierre Leon), Nairobi (Kenya) to Makassar (Indonesia), there are many cities that have welcomed and integrated migrants by providing services such as emergency housing, health care and access to services.[50]

Migrant and displaced populations who have had to move to cities in contexts of environmental stress or climate change are often among the most vulnerable populations worldwide

Cities will likely face many different iterations of climate change, with unpredictable repercussions. The urban crises that climate change could cause or contribute to may become a source of destabilization and civil unrest, with potentially increased discrimination and destitution for the poorest urban residents, including those who arrived within mixed migratory flows. In Bangladesh, residents of vulnerable coastal communities have already begun moving inland to towns and cities already struggling with overstretched resources, limited institutional capacity and social tensions, issues that could be exacerbated by rapid and unmanaged population growth.[51]

Despite these challenges, there have been notable efforts to address climate-induced migration in cities. Organizations such as C40 Cities and 100 Resilient Cities (2013-2019) have linked climate change to cities, while the Mayors Migration Council is the most

recent municipal governance network to have a specific focus on migration issues in cities. São Paulo, Brazil, is one example of a city that has taken concrete steps to support inclusive migration policies, committing to implement its first-ever municipal plan for migrants, developed through a collaborative process with IOM, UNHCR, refugees and migrants living in the city.[52] Some local governments in countries that have already been impacted by the dual pressures of climate change and mass displacement, such as Burkina Faso, have even begun to factor these trends into their spatial planning to accommodate future population growth.[53] Similarly, in Baidoa, Somalia, in a context of widespread displacement as a result of drought and conflict, municipal authorities have taken steps to strengthen emergency preparedness, regularize public land and expand basic facilities to provide internally displaced persons with durable solutions.[54]

A key takeaway for cities struggling with the impacts of climate-induced migration and displacement, such as Dhaka in Bangladesh (Box 4.3), is to create the enabling conditions for new arrivals to integrate fully into city life. This is important to break the vicious cycle of cumulative vulnerability and set the stage for resilience building. However, more concerted action is required to decisively address the many issues that climate migrants may face. Climate mitigation and adaptation actions can advance the inclusion of migrants in cities or further entrench their marginalization and exposure to inequality and risk. Support for climate-induced migrants should be embedded within wider city strategies or plans for the urban poor: doing so can increase the level of assistance displaced people receive, as well as manage social tension, promote integration into local economies and increase access to public services, thereby building resilience to climate shocks. Cities, in collaboration with subnational governments, civil society and community organizations, should design targeted programmes to improve their access to critical services such as housing and employment.[55] By doing so, cities can enhance social cohesion and economic opportunities for migrant and displaced populations.

Box 4.3: Inclusive and equitable service provision: Emergency shelter for migrants in Dhaka, Bangladesh

In response to increasing climate-induced migration from across Bangladesh, Dhaka South City Corporation has developed an emergency shelter to meet the needs of thousands of migrants at perhaps their most vulnerable moment—their arrival in the city. Capable of accommodating as many as 1,500 people, with designated areas for men and women, the space provides a range of recreation and support, from yoga to childcare, as well as other essential resources to meet their complex and wide-ranging needs. While the shelter only offers temporary housing, it serves as a vital lifeline for new migrants to orient themselves, providing them with the information and support to settle safely and sustainably in Dhaka in the longterm.

Source: C40 Cities, 2021, p.25.

4.3.6 Social capital and vulnerability to climate change

One of the most significant impacts that climate-induced displacement can have is the disruption of social capital, such as the fragmentation of familial and communal bonds. At the same time, social capital plays a crucial role in determining the vulnerability of communities to climate change. As networks of relationships and social structures within a community, social capital can enhance resilience by fostering cooperation, resource sharing and collective action in the face of environmental challenges.

Social capital is an important asset to leverage when building resilience to climate risks in marginalized urban areas such as slums

Social capital is an important asset to leverage when building resilience to climate risks in marginalized urban areas such as slums. Communities with pre-existing networks of trust and reciprocity are more likely to prepare for, respond to and recover from climate change shocks and natural disasters.[56] For example, residents of Abese old quarter, an informal settlement in Accra (Ghana), have successfully mobilized their social capital by pooling their minimal resources together and modifying their houses to address structural weaknesses, poor housing conditions and overcrowding.[57] This local initiative highlights the potential for community-led actions to address housing challenges and climate vulnerability in informal settlements. Local action and advocacy play a vital role in both building and rebuilding social capital, driving meaningful change in the face of climate change. For instance, recent research suggests that disaster-prone Japanese cities with higher levels of bonding social capital generally experienced lower levels of vulnerability to disasters overall.[58] Across multiple slums and informal settlements in diverse settings across the world, strong social capital has enabled vulnerable populations to tackle climate-related threats such as flooding and sea-level rise. In Small Island Developing States (SIDS), for example, evidence shows that adaptation projects have a higher chance of successful implementation in urban communities with high social capital.[59]

4.4 Climate Urbanism and Emerging Forms of Climate Injustice

Climate urbanism, an evolving paradigm that integrates climate resilience and sustainability into urban planning, is becoming a cornerstone in the quest to mitigate and adapt to climate change. However, as cities implement ambitious climate policies and infrastructural projects, new forms of climate injustice are emerging. These injustices often manifest in the form of "green gentrification", which aggravates existing urban inequalities. This section discusses the paradox of climate urbanism, focusing mainly on green gentrification, unintended outcomes of flood mitigation as well as the dynamics of participation in climate adaptation planning.

As cities implement ambitious climate policies and infrastructural projects, new forms of climate injustice are emerging

4.4.1 The paradox of climate urbanism and green gentrification

Urban climate adaptation and planning interventions are aimed at promoting resilience and address the underlying drivers of vulnerability in cities.[60] Despite the good intentions of climate adaptation measures, these interventions have the potential to drive new vulnerabilities, particularly for low-income communities.[61] When these projects are not inclusively planned and executed, they can inadvertently exacerbate social inequalities and displace vulnerable populations. This process, sometimes referred to as green gentrification, is a frequent by-product of environmental improvements in urban areas (such as parks, green spaces and other sustainability initiatives) that lead to an increase in property values and living costs. This, in turn, often results in the displacement of poor residents and small businesses, who can no longer afford to live or operate in the improved areas.[62] A case in point is Medellín's El Cinturon Verde Metropolitano initiative, an ambitious programme of housing and greenbelt encircling the city: while it has already brought substantial benefits to public health, safety and well-being, the redevelopment of what was the city's main waste dump has also led to the displacement of 14,000 low-income households to the periphery and deprived local waste pickers of their livelihood.[63]

Despite the good intentions of climate adaptation measures, these interventions have the potential to drive new vulnerabilities, particularly for low-income communities

Poor urban residents, particularly people of colour, Indigenous Peoples and migrant communities, are disproportionately likely to be the victims of green gentrification. Experiences from urban settings as diverse as Amsterdam (the Netherlands) and Dhaka (Bangladesh) point to a common theme of climate injustice and "racial capitalism" underpinning the logic of urban resilience interventions in developed and developing country contexts alike.[64] In these and other cities, urban climate adaptation projects hold the potential to inadvertently intensify existing inequalities. Therefore, the critical question is how to invest in climate resilience through green infrastructure projects without amplifying existing urban inequalities.

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This can be achieved through a people-centred approach where cities identify vulnerable populations, understand local experiences by engaging directly with communities and respond to their needs through just adaptation strategies which unlock social and economic benefits. Additionally, to ensure accountability, municipal governments should invest in measuring and tracking inclusion and equity impacts of climate actions. Disaggregated data by neighbourhood, income, gender and other key indicators will inform city decision-makers whether policies are well-designed and if their impacts are equitably distributed. For example, Pittsburgh (US) has identified key indicators (such as access to green space) that the city can use to measure improvements in equity (for instance, the ratio of access between black and white residents over time) to ensure equitable outcomes of its climate interventions.[65]

4.4.2 Unintended outcomes of flood mitigation

Another common side effect of failing to factor in social considerations into climate resilience programmes is *maladaptation*, when adaptation measures have an adverse impact on sections of the urban population.

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For instance, flood mitigation strategies can potentially exacerbate inequalities if they only prioritize the protection of affluent neighbourhoods or exclude peripheral and unrecognized informal settlements from their plans.[66] The construction of the Great Garuda Sea Wall in Jakarta (Indonesia) to defend against flooding and sea-level rise has been criticized for favouring elite ambitions to achieve "world class" city status over the needs of vulnerable populations.[67] In Lagos (Nigeria), similarly, the development of the Great Wall of Lagos had unintended outcomes: informal settlements outside its protective area are as a result more exposed to the threats of erosion and coastal inundation as the sea wall pushes waves and storm surge towards them.[68]

In other instances, poor residents are excluded from the benefits of a project through conscious design. In Hanoi, Vietnam, an Ecopark developed in the flood-prone delta has not only led to the displacement of local farming households, but is also largely inaccessible to the urban poor as entry is carefully monitored by security guards.[69] These and other examples represent a stark picture of the phenomenon of "climate apartheid" discussed at the beginning of this chapter. To return again to the case of New Orleans (US) in the wake of Hurricane Katrina, the continued gentrification of relatively flood-safe areas and the failure of subsequent recovery efforts to address the persistent vulnerabilities of the city's impoverished African American communities has left them exposed to future disasters. Efforts to address this through the 2015 Resilient New Orleans Strategy, which proposed various improvements to strengthen the resilience of low-income communities, had the perverse effect of gentrifying some poor, predominantly black neighbourhoods by pushing up housing prices to unaffordable levels.[70]

4.4.3 Participation and inclusivity in urban adaptation planning

Urban climate adaptation is a complex and cross cutting challenge that requires the active participation of different stakeholders. As municipalities undertake climate adaptation planning, many are exploring alternatives to promote broad participation and engage diverse civil society actors. Table 4.2 summarizes the key indicators of inclusivity in urban climate adaptation planning and implementation. This framework can be useful for cities to assess the extent to which they are adequately engaging with multiple voices and experiences when planning, implementing and evaluating adaptation plans.

Man on a wheelchair spending time with friends outdoors/Shutterstock

Table 4.2: Dimensions of social inclusion in urban climate adaptation action

Indicator	Definition	Examples
Consideration of the needs of vulnerable residents	The extent to which the social, economic and political interests of the urban poor, underrepresented minorities and other groups in vulnerable situations are considered in the adaptation process.	▪ Recognizing and prioritizing the needs of the urban poor. ▪ Linking adaptation needs to infrastructure development, service provisions, and livelihood requirements of vulnerable communities. ▪ Recognizing existing community-based adaptation initiatives.
Procedural representation and equity	The degree to which all urban public, private and civil society actors adequately participate in the adaptation process.	▪ Involving the public in framing the most acute climate risks, socioeconomic vulnerabilities, and adaptation priorities. ▪ Addressing existing class, gender, caste, age, and wealth hierarchies in political decision-making.
Just adaptation outcomes	The degree to which formal or institutionalized adaptation projects and programmes achieve just results.	▪ Improving capabilities and capacities for adaptation of the urban poor. ▪ Preventing unequal spatial distribution of losses and damages attributed to climate impacts. ▪ Protecting assets and property of underrepresented communities.

Source: Adapted and modified from Chu et al., 2016, p.376.

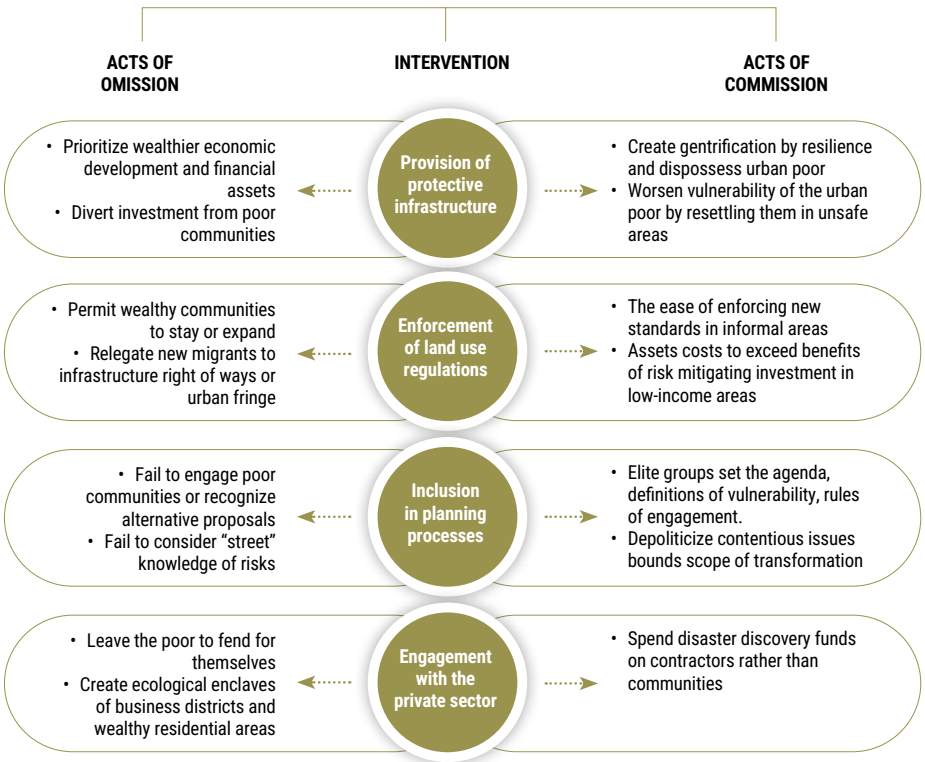
The needs of the urban poor and other socially and spatially disenfranchised populations have historically featured highly in the policy and planning agenda of Quito, Ecuador. The city has tried to facilitate the participation of a wide range of stakeholders to ensure socially inclusive adaptation programmes that adequately reflect local priorities.[71] In Boston (US), too, when producing its 2017 Resilient Boston strategy, the city government involved 11,700 residents who participated in 167 community meetings, 18 workshops and 12 public presentations. In doing this, the city made explicit connections between climate risks and entrenched forms of class-based or race-based injustices.[72]

However, most municipal adaptation planning processes do not engage sufficiently with social justice advocacy groups or the urban poor. It is evident that climate adaptation plans can prioritize the involvement of privileged segments of the population at the expense of the very communities they are intended to support. This can occur through the recalibration of what is considered vulnerable, the selective incorporation of particular groups within these definitions, and the negotiation of problems that may disproportionately affect marginalized populations. Furthermore, planners may at times seek to de-politicize the adaptation process by sidestepping contentious historical development issues and policies that underlie disparities in resource access. However, this avoidance can be counterproductive in addressing the fundamental causes of unequal resource distribution.

Consequently, strategies emerging from adaptation processes often reinforce the vulnerability of urban underprivileged communities, while also giving rise to new disparities in land use. Figure 4.4 shows some of the land use inequities that result from the unequal participation of affected communities in climate adaptation interventions. Therefore, it becomes essential to delve deeper into the intricacies of community engagement and adaptation planning to ensure that the voices and needs of vulnerable populations are not suppressed.

Climate adaptation plans can prioritize the involvement of privileged segments of the population at the expense of the very communities they are intended to support

Figure 4.4: Types of land use planning inequities associated with urban climate change adaptation interventions



Source: Adapted and modified from Anguelovski et al., 2016.

A significant number of cities persist in neglecting equity considerations within their climate and sustainability strategies. In some cases, equity goals are either omitted entirely or relegated to secondary or tertiary status, overshadowed by environmental and economic objectives. This misalignment of priorities poses a challenge to the pursuit of holistic, socially just urban sustainability. Thus, developing climate plans that emphasize equity requires a considerable upfront commitment to building authentic participation from frontline communities and ensuring that it is reflected in implementation. The Barcelona Climate Plan, launched in 2018 following extensive consultations with urban communities and the deployment of a digital platform to increase resident engagement, represents a good example of how cities can generate more informed decision-making through participatory processes involving civil society organizations. Even then, however, the process of its development revealed that local residents and other stakeholders may have conflicting priorities and interests: balancing these differing viewpoints can be challenging and might slow down, or even compromise, the "co-production" processes if local authorities lack the capacity to fully implement equitable participation in practice.[73]

4.5 Towards a Transformative and People-Centred Urban Climate Action Agenda

In the face of the escalating challenges posed by the climate crisis, urban areas have emerged as both the epicenters of environmental vulnerability and crucibles for innovative solutions. To address the climate crisis and ensure the well-being of urban populations, a fundamental shift is needed towards transformative and people-centred urban climate action. Such an approach places the experiences, needs and aspirations of residents at its core, recognizing that effective climate strategies must empower communities, prioritize equity and foster resilience in the face of evolving environmental threats.

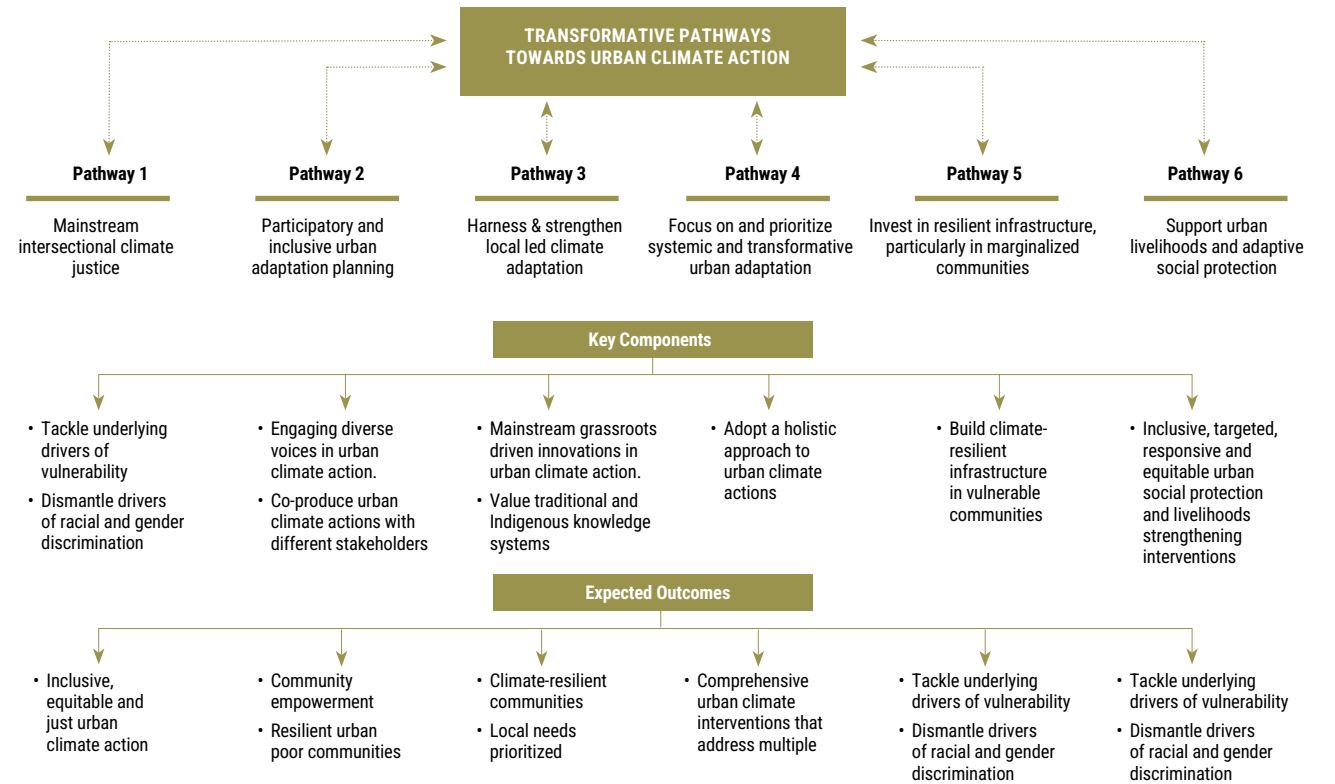
As highlighted in Chapter 1, a people-centred approach to climate action has the potential to address many of the risks faced by marginalized groups because it adopts an inclusive process, tackles the underlining drivers of vulnerability and in the process unlocks social and economic benefits. A study conducted by Carbon Disclosure Projects (CDP) in 2022 concluded that "cities taking people-centred climate actions identified seven times as many co-benefits from climate actions as other cities", with the large majority reporting an array of social, economic, environmental and public health benefits that made them "happier and more inclusive places to live, work and invest in".[74] With urban communities front and centre of climate action, adaptation and mitigation efforts could support decarbonization in cities whilst creating a more just, equitable and sustainable future for all.

Based on the analysis presented in this chapter, the following transformative pathways are critical to implementing people centred urban climate action: 1) mainstream intersectional climate justice in urban adaptation plans, 2) promote participatory and inclusive urban

adaptation planning, 3) harness and strengthen locally-led urban climate adaptation, 4) focus on and prioritize systemic and transformative climate adaptation in cities, 5) invest in resilient infrastructure, particularly in marginalized communities, and 6) strengthen urban livelihoods and adaptive social protection. These components are outlined in Figure 4.5 and explored in more detail in this section.

These interventions collectively should help address current vulnerabilities while building the capacity of poor and marginalized populations to deal with future impacts in the context of the ongoing climate crisis. It is important to reiterate that there is no one-size-fits-all approach to ensuring that climate adaptation efforts have positive results and include the concerns of everyone affected. While these transformative pathways provide a useful foundation for urban leaders, we need to acknowledge that cities and local communities are diverse and thus have differing perspectives on what responses to prioritize. Therefore, cities should consider interventions that might work effectively given their prevailing socioeconomic and geopolitical context, while ensuring that no one is left behind.

Figure 4.5: Transformative pathways towards urban climate action



Urban Biodiversity in Greenwich - People Rest on Stone Benches Next to Wild Plants, with Urban Apartments in the Background/Shutterstock

While investing in resilient infrastructure through green interventions is important, mainstreaming vulnerable urban populations in such initiatives is just as urgent

4.5.1 Mainstream intersectional climate justice into urban adaptation plans

While investing in resilient infrastructure through green interventions is important, mainstreaming vulnerable urban populations in such initiatives is just as urgent. Simply identifying vulnerable populations is not enough; successfully adapting to climate change requires resolving broader societal issues that lead to the systematic vulnerability of certain groups. Therefore, an intersectional climate justice framework becomes a critical tool for promoting inclusive, responsive and just urban climate action.[75] Such a framework would place a central focus on the real-life experiences of individuals facing climate risks, while also critically examining and addressing the deep-rooted legacies of racism and sexism that continue to be felt in cities marked by insecurity, environmental vulnerability and an inequitable economic system whose rewards disproportionately accrue to a privileged few (Figure 4.6).

To effectively implement this approach, it is essential to develop policymaking strategies that not only acknowledge but actively incorporate the intersecting identities, perspectives and unique needs of historically marginalized groups. For instance, cities should strive to adopt and implement intersectional climate mitigation and adaptation plans that explicitly prioritize the protection of the most vulnerable groups of residents (including people who live in slums, women, the elderly, children and people with disabilities).[76] By adopting planning methods that are informed by intersectional, feminist and anti-racist principles, cities can embark on a transformative journey to dismantle oppressive systems and structures that have long perpetuated racial and gender inequalities (Chapter 10).

It is essential to develop policymaking strategies that not only acknowledge but actively incorporate the intersecting identities, perspectives and unique needs of historically marginalized groups

Figure 4.6: Intersectional climate justice framework, drivers of injustice and pathways to achieve intersectional climate justice

Component	Tackle underlying systemic reinforcers of racial and gender inequalities.	Redress drivers of differential vulnerabilities.	Adopt place-based and place-making approaches.	Promote cross-identity climate action and community resilience building.
Drivers of justice	Racial & gendered Capitalism gender and race-blind climate policies.	Historical & structural inequalities, pre-existing risks and urban vulnerabilities Exclusionary land use planning.	Colonial, scientific, technocratic, and expert driven approaches to planning and development.	Limited citizen involvement and engagement in adaptation planning, implementation, and evaluation. Limited or tokenistic civil society participation.
Intersectional climate justice pathways	• Recognize and question economic reinforcers of racial and gender inequalities. • Devise racial and gender equality goals in key regulations, plans and programs.	• Consider historical legacies of social and environmental injustices in adaptation planning. • Address enduring inequality in land use planning. Include the most vulnerable in decision-making.	• Foster decolonial postcolonial approaches to planning and development • Recognize traditional, situated, and local knowledge arising from diverse and often invisible experiences of place and space.	• Foster decolonial/ postcolonial approaches to planning and development • Recognize traditional, situated, and local knowledge arising from diverse and often invisible experiences of place and space.

Resilient, sustainable, inclusive, just and fair urban climate action

Source: Prepared based on information from Amorim-Maia et al. 2022,

The intersectional approach requires cities and subnational governments to take bold and proactive measures in confronting the power structures and systems that have historically upheld privilege while disenfranchising vulnerable populations. Therefore, embracing the intersectional approach in urban climate action represents a commitment to fostering inclusive, equitable and just urban environments where the impacts of climate change are mitigated and the benefits are accessible to all, regardless of their gender, race or socioeconomic status. The City of Portland, Oregon (US) has been at the forefront of implementing urban climate initiatives using an anti-racist approach, including the launch of its Five-year Racial Equity Plan in 2017.[77] Designed to address its long history of environmental racism, the programme was followed in 2023 by a US$750 million Climate Action Plan that includes, among other elements, an emphasis on activities that "address climate change while advancing racial and social justice".[78] While commendable, the extent to which Portland can achieve these aspirations will ultimately depend on the comprehensiveness of the plan, ongoing community engagement and a commitment to addressing the issues over the longterm. Encouragingly, other larger North American cities including Boston, New York City and Los Angeles (US) have initiated a significant shift by prioritizing justice within their climate change adaptation plans.[79] In the United Kingdom (UK), meanwhile, the city of Bristol now implements "equalities impact assessments" as a means to determine the impacts of potential policies (including climate programmes) on disadvantaged groups, thereby integrating social and environmental concerns.[80]

The intersection of urban climate action with the equally urgent agenda of slum and informal settlement transformation is also a crucial avenue for simultaneously achieving social inclusion and environmental sustainability. For instance, in Buenos Aires, Argentina, the informal settlement of Villa 20 has been undergoing an ambitious multi-stakeholder programme of participatory slum upgrading. As part of these activities, the organization Transformative Urban Coalitions has been supporting efforts to integrate decarbonization into urban justice strategies by addressing local issues such as UHI effects, air pollution, water quality and run-off.[81] In the context of climate justice, the project demonstrates that it is possible to achieve multiple objectives: reducing GHG emissions, improving the quality of life for marginalized communities and fostering a more inclusive, equitable urban environment.

In addition, city networks, foundations and international development agencies are actively integrating justice into their initiatives—from UN-Habitat's calls for "just urban resilience",[82] to the Rockefeller Foundation's creation of a Climate Advisory Council to "both reduce emissions and enhance opportunities for communities most vulnerable to the effects of a warming world".[83] They are providing valuable resources and practical examples that directly support the development of adaptation plans centred around justice considerations. These and other programmes signal a growing awareness that, if the global community hopes to effectively build resilient cities that leave no one behind, the structural cycle of exclusion and discrimination must be broken.

Communities at the frontline of climate risks should be treated as partners in understanding climate-related impacts and determining adaptation priorities

4.5.2 Promoting participatory and inclusive urban adaptation planning

The success of urban climate action hinges on the ability of city governments to appreciate the lived experiences of those being impacted by climate change. Communities at the frontline of climate risks should be treated as partners in understanding climate-related impacts and determining adaptation priorities. For instance, if complemented with scientific information and innovations, grassroots knowledge systems can enhance adaptation planning and improve the well-being of poor urban residents. One example of a collaborative initiative is the city of Surrey, Canada: the government worked collaboratively with the Semiahmoo First Nation to develop their coastal flood adaptation strategy, which created opportunities to integrate Indigenous priorities into local climate action.[84]

Inclusive urban climate change policymaking goes beyond tokenistic involvement and ensures that marginalized communities have genuine influence and decision-making power

Furthermore, the skills and capacities that cities have at their disposal can only be fully realized through inclusive approaches that overcome barriers to participation. Besides racial injustice, another hurdle to full participation is gender inequality, a problem frequently entangled in cultural norms, discriminatory legislation, institutional exclusion and economic precarity. However, climate programmes can challenge the invisibilization that certain groups experience due to gendered roles and hierarchies, such as women and transgender people, by enabling them to play a leading role in project design and implementation. For instance, recognizing the proven transformative power of women's savings groups, a project in Myanmar led by the non-governmental organization (NGO) Women for the World complemented an ongoing community-driven housing initiative with a project to mitigate extreme heat using strategic building practices and landscape design.[85]

Inclusive urban climate change policymaking goes beyond tokenistic involvement and ensures that marginalized communities have genuine influence and decision-making power. This requires creating spaces for meaningful participation, building capacity among underrepresented groups, and fostering collaboration and dialogue between stakeholders. At the global level, UN-Habitat through its Cities and Climate Change Initiative (CCCI) stands as a beacon, highlighting the crucial importance of participation and stakeholder engagement in shaping and executing urban climate actions. The success of this initiative underscores how involving a diverse range of voices and expertise can lead to more effective, inclusive and sustainable solutions for cities grappling with climate challenges. In Port Vila, Vanuatu, for instance, government officials harnessed the power of the CCCI's climate change vulnerability assessment as a pivotal resource in their efforts to formulate early recovery strategies following the devastating impact of Typhoon Pam in 2015.[86] This example vividly illustrates how the process of gathering and analyzing data, combined with the active participation of local stakeholders, empowers decision-makers to develop timely and contextually relevant interventions in response to climate-related disasters. This approach allowed for the development of recovery actions

that not only addressed immediate needs, but also laid the foundation for long-term resilience and sustainability.

The essence of participation lies in its ability to harness the collective wisdom and insights of the communities and individuals directly affected by climate change. By involving residents, experts, and government officials in the process, urban climate action becomes more inclusive, responsive, and, ultimately, effective. In Dosquebradas, Colombia, for instance, co-creating urban resilience strategies with local residents was instrumental in amplifying the voices of vulnerable populations: knowledge exchange between local communities and technical experts was an essential component on this, enabling discussions around the protection of sensitive nature-based assets from urban expansion.[87] The key take-away from these cases in that co-producing adaptation plans with diverse urban groups is critical to creating effective and inclusive solutions that address the needs of all members of society and build their resilience to climate-related shocks and stresses.

By involving residents, experts, and government officials in the process, urban climate action becomes more inclusive, responsive, and, ultimately, effective

4.5.3 Harnessing and strengthening locally-led urban climate adaptation

Top-down climate adaptation initiatives can fail if they ignore grassroots practices and people's lived experiences. Instead, urban governments should harness and strengthen locally-led climate adaptation interventions because this approach recognizes the value of local knowledge and expertise to address climate risks and ensures that local actors on the front lines of climate change have equitable access to power and resources to build resilience. There is emerging evidence that community-driven, incremental solutions can address underlying drivers of vulnerability, boosting household and local resilience while supporting city-wide urban climate action.[88] If cities harness Indigenous and local knowledge, they can generate significant co-benefits for addressing Indigenous dispossession, historical inequities and marginalization of Indigenous values.[89] For instance, in Quito, a deliberate effort was made to integrate local traditional and Indigenous wisdom into the city's climate adaptation policies and plans. The priorities outlined in the Quito Climate Change Action Plan (CCAP) not only align with, but also enrich, traditional practices of biodiversity conservation, urban agriculture, ecosystem protection, water harvesting, and land management. Crucially, youth leaders have emerged as instrumental champions in the identification and revival of traditional Indigenous practices that actively contribute to conservation and the promotion of sustainable agriculture. Their role was pivotal in ensuring the preservation and adaptation of these invaluable practices for the benefit of the city and its residents.[90]

People in slums and informal settlements are resourceful and have for decades demonstrated ingenuity, resilience and agency in face of complex urban challenges

People in slums and informal settlements are resourceful and have for decades demonstrated ingenuity, resilience and agency in face of complex urban challenges. In coping with shortcomings in service delivery and livelihoods, slum dwellers have frequently developed or adopted flexible solutions, such as alternative technologies, urban agriculture and recycling. If acknowledged, coordinated and supported, their bottom-up strategies may effectively complement wider urban climate action.[91] For instance, in slums of Nairobi (Kenya) there are emerging practices of grassroots-driven urban climate adaptation interventions, with children playing a key part in these efforts.[92]

Locally driven initiatives play a crucial role in actively engaging residents and other stakeholders, fostering co-design and co-creation processes

Furthermore, the "Know Your City" campaign run by Slum Dwellers International (SDI) has helped gather and validate climate data at the community level. Beyond data collection, tangible actions include a full range of alternative design solutions, like sustainable or green infrastructure, ecosystem-based approaches to adaptation and nature-based solutions.[93] Another exemplary case that underscores the power of locally-led climate adaptation can be observed through the Mahila Housing SEWA Trust in Ahmedabad (India). This pioneering organization is dedicated to empowering communities by employing innovative strategies to combat the escalating temperatures. One such innovative strategy involves the use of biodegradable polymers to create roofing materials that effectively reduce indoor temperatures. This not only showcases a commitment to environmental sustainability but also highlights the organization's dedication to improving the living conditions of vulnerable populations.[94] Such endeavours serve as a model for how localized solutions can be integrated into the broader framework of urban climate resilience, emphasizing the importance of innovative thinking and community engagement in the face of climate-related challenges. This example also underscores the significant role that NGOs and grassroots initiatives play in the global effort to build climate-resilient communities.

Locally driven initiatives play a crucial role in actively engaging residents and other stakeholders, fostering co-design and co-creation processes in some instances. This not only cultivates a sense of community ownership and buy-in, but also helps mitigate feelings of alienation or dependency. Although the quality and effectiveness of these initiatives may vary, the strong element of local ownership often enhances their sustainability and encourages ongoing maintenance, which can exceed what is typically achieved through conventional local government interventions.[95] One of the key lessons from these cases is that low-cost, locally-led innovations and solutions can boost community resilience while supporting city-wide planning and action. Their effectiveness can be greatly enhanced when implemented through partnerships with local and municipal governments.[96]

Despite being the most well-placed for implementing effective climate adaptation initiatives due to their knowledge of local conditions, needs and customs, community-based organizations are also very

limited in terms of resources and political power. Furthermore, their ability to scale-up successful initiatives to the city level is also limited by the impossibility of overriding community boundaries without the involvement of the municipality. Therefore, it is imperative that these bottom-up initiatives are not perceived as mere gap-fillers or substitutes for official urban climate action. Instead, they should be seamlessly integrated with official strategies as part of a comprehensive approach to urban planning (Chapter 5). This integrated approach aims to construct a holistic, multi-stakeholder, cross-sectoral framework for urban resilience, ensuring that both local efforts and government interventions collectively contribute to building resilient cities.

4.5.4 Focusing on and prioritizing systemic and transformative adaptation in cities

Cities are dynamic, characterized by intricate interconnections among diverse communities and sectors. As demonstrated in this chapter, there are multiple channels through which the climate crisis impacts vulnerable urban populations. These channels, at times, reinforce one another, creating a web of challenges that will lead to cumulative vulnerability. These realities have demonstrated that incremental or single-sector urban climate interventions are no longer effective and sustainable (Chapter 7). Therefore, the complexity and uncertainties of the climate crisis and other shocks underscore the urgent need for applying a systems approach to building resilience in cities.[97]

Narrowly focusing on a single sector or intervention can inadvertently heighten overall vulnerability

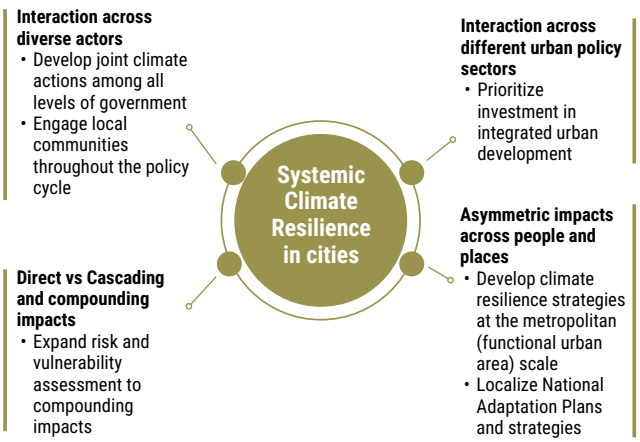
An effective urban climate action should encompass and cater to the entirety of the urban system, rather than isolating individual components. Narrowly focusing on a single sector or intervention can inadvertently heighten overall vulnerability. Systemic climate resilience in cities thus requires a better understanding of the interactions between various dimensions of the urban system, enabling policy instruments to address multiple objectives together through synergies and co-benefits while minimizing trade-offs (Figure 4.7). For instance, cities should explore the interactions between the impacts of climate shocks and other societal challenges such as health, social marginalization or labour productivity. Proper identification of such interactions would allow cities to prioritize climate actions that also benefit other social objectives.

Embracing a more holistic approach to urban climate resilience requires diverse urban actors to collaborate, identify and implement appropriate solutions to address the complex interaction of climate and other economic, social and health systems[98] (Chapter 10). Moreover, by adopting a city-wide perspective and discerning the intricate interrelationships between neighbourhoods and sectors, it becomes more feasible to devise a comprehensive model that addresses the needs of the entire urban system and all its residents. For instance, in 2017, Paris (France) launched its Resilience Strategy, aimed at addressing a spectrum of urban challenges, including climate-related risks such as floods and heatwaves, as well as broader issues like social and spatial inequalities and security. In October 2022, the city initiated a review

Embracing a more holistic approach to urban climate resilience requires diverse urban actors to collaborate, identify and implement appropriate solutions

process to evaluate progress and ensure the strategy's effectiveness in addressing the evolving needs of residents. As part of this process, the city is undertaking various parallel initiatives to gather insights and inform the renewal of the strategy, including studies on the spatial distribution of climate shocks and the socioeconomic consequences of water stress.[99]

Figure 4.7: A framework to understand and enhance systemic climate resilience in cities



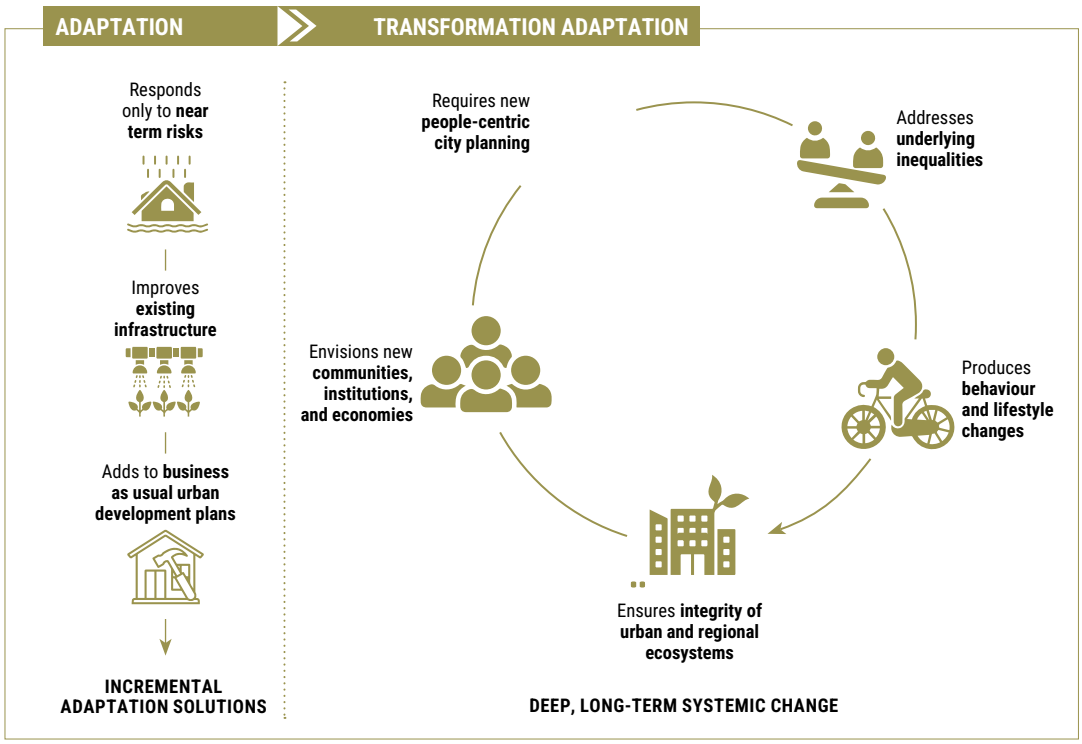
Source: OECD, 2023, p.20.

In urban settings, adopting a systems approach presents a distinctive and valuable opportunity for urban policymakers to gain a comprehensive understanding of the intricate nature of urban climate challenges. By doing so, it enables policymakers to anticipate and mitigate unintended consequences that may arise from climate adaptation and resilience policies. In many cases, well-intentioned policies can inadvertently lead to negative side effects or exacerbate existing urban problems: a systems perspective helps identify and address these unintended consequences, fostering more effective and sustainable urban development. For example, when implementing policies to enhance urban resilience, a narrow focus on one aspect, such as flood control, might inadvertently displace vulnerable communities or exacerbate existing disparities. A systems approach would consider the broader implications, including social, economic and environmental factors, to ensure that the policy aligns with wider sustainability goals and does not unintentionally harm certain populations. In Bangkok (Thailand), the Baan Mankong program has led to systemic change in the city's urban development strategy and relationships between authorities and urban poor communities, enabling the city to build necessary flood prevention infrastructure without disrupting the lives of slum communities.[100]

Cities, subnational governments and other relevant stakeholders should urgently embrace transformative urban adaptation.

Moreover, cities, subnational governments and other relevant stakeholders should urgently embrace transformative urban adaptation. Transformative adaptation reorients urban climate actions around addressing entrenched equity and climate justice challenges (Figure 4.8). It focuses on systemic changes to development processes that improve people's quality of life, enhance the social and economic vibrancy of cities, and ensure sustainable, resilient and inclusive urban futures. [101] In this transformative journey, it is necessary to involve those disproportionately affected by climate change, including women, elderly people, people with disabilities, young people, migrants, and minorities. For transformative urban adaptation to be successful, there are several enabling conditions required. These conditions include strong leadership, finance (Chapter 9) and local capacity, evaluation and learning, and accountable institutions and governance (Figure 4.11).

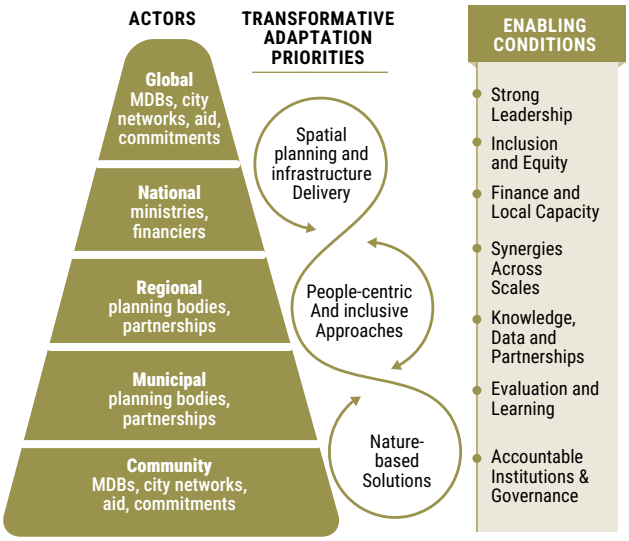
Figure 4.8: Incremental vs. transformative urban adaption to climate change



Source: Chu et al., 2019.

Figure 4.9: Transformative adaptation priorities in cities with enabling conditions and scales of decision-making

Aerial view of Manhattan Central Park, New York City/Shutterstock



Source: Chu et al., 2019.

4.5.5 Investing in resilient infrastructure, particularly in marginalized communities

As highlighted earlier on, slums and informal settlements suffer chronic infrastructure underinvestment, hampering development and putting millions of people at daily risk from climate change. Thus, investing in climate-resilient infrastructure, especially within marginalized communities, is an imperative and forward-looking strategy for cities (Chapter 6). As the impacts of climate change intensify, vulnerable and underserved neighbourhoods often bear the brunt of environmental disasters and infrastructure failures. By directing resources towards the development of resilient infrastructure in these areas, cities can not only enhance the immediate well-being of their residents but also fortify their long-term ability to withstand and recover from climate-related challenges. This approach involves upgrading critical systems like flood defences, sustainable transportation networks, energy-efficient housing and green spaces designed to mitigate urban heat islands.

While most informal settlement upgrading interventions do not have explicit climate adaptation objectives, improving infrastructure has great

Investing in climate-resilient infrastructure, especially within marginalized communities, is an imperative and forward-looking strategy for cities

potential for reducing climate-induced risks such as flooding. If slum and informal settlement upgrading works well, it can greatly increase the resilience of low-income households, buildings, infrastructure and services to extreme weather.[102] Climate action in cities should also start with transformative upgrading of housing to build resilience in marginalized neighbourhoods. Equitable housing, integrated with low-carbon and affordable key services like water, sanitation, energy and accessible transportation, is a crucial entry point to advance climate action and achieve sustainable development.[103] Focusing on marginalized communities ensures that the benefits of resilience extend equitably to all residents, addressing social disparities while fostering a more inclusive and sustainable urban future. This is already being amply demonstrated in cities as diverse as Durban (South Africa) and Rosario (Argentina), where low-income and underdeveloped neighbourhoods are being actively targeted with infrastructural upgrading as part of resilience efforts.[104]

4.5.6 Strengthening urban livelihoods and adaptive social protection

Strengthening the financial and social infrastructure of vulnerable urban populations is a critical component of adaptive and transformative capacity. Chapter 1 notes that adaptation must contribute to sustainable livelihood as indicated in the people-centred approach to climate action. Underpinned by a commitment to rights and justice, this approach promotes equitable development and enhances the resilience of livelihoods, ensuring that communities can thrive in the face of environmental and socioeconomic challenges.[105] Cities and subnational governments should adopt a livelihood resilience approach, which emphasizes people's capacity for, and differences in, perceiving risk and taking anticipatory actions, either individually or collectively.

Social protection measures play an important role in building the

Social protection measures play an important role in building the resilience of marginalized populations to climate change

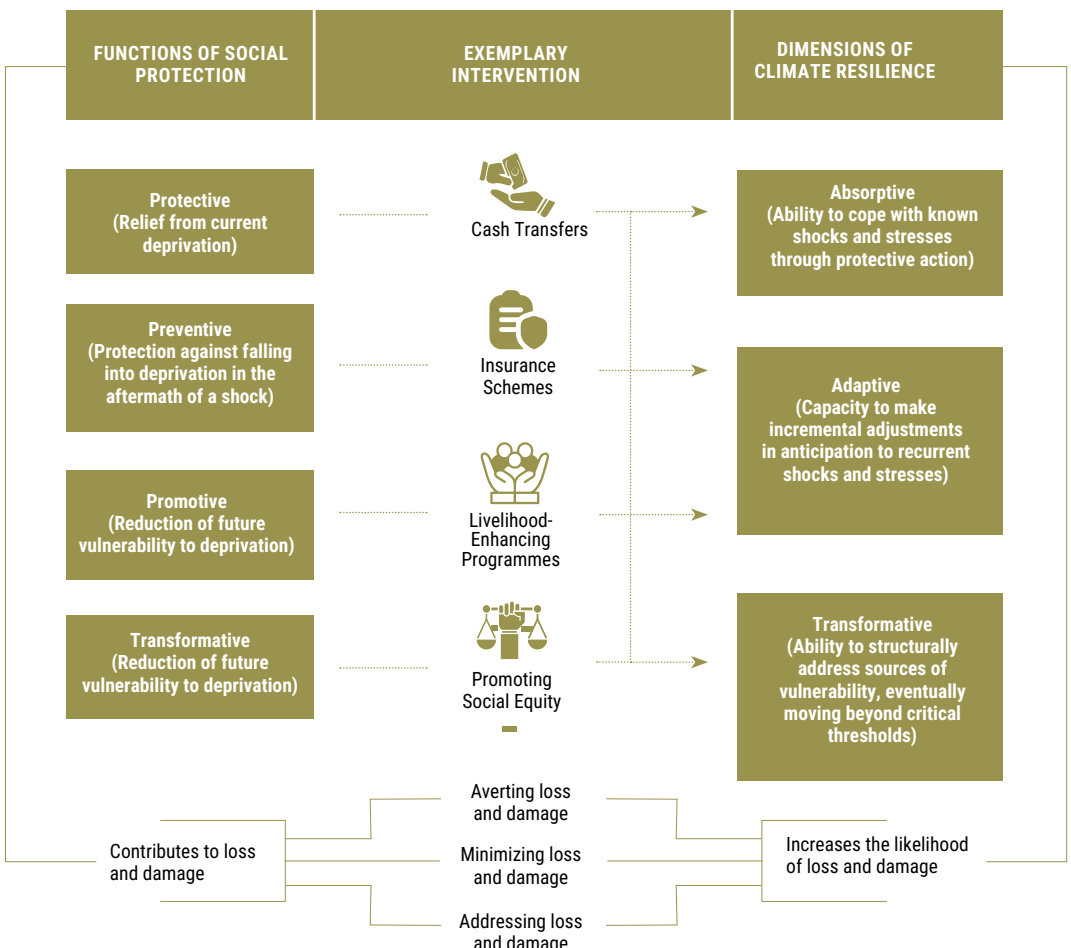
resilience of marginalized populations to climate change. The Sendai Framework for Disaster Risk Reduction (2015-2030) emphasizes the need to "promote and support the development of social safety nets as disaster risk reduction measures linked to and integrated with livelihood enhancement programmes to ensure resilience to shocks".[106] One policy tool that government could explore in this regard is Adaptive Social Protection (ASP). ASP is a powerful tool to integrate poverty reduction, disaster risk reduction and humanitarian development into climate change adaptation strategies. As a resilience-building approach, ASP combines elements of social protection, disaster risk reduction and climate change adaptation, to break the cycle of poverty and vulnerability of households by "investing in their capacity to prepare for, cope with and adapt to shocks", especially under climate change and other global challenges.[107] Given the escalating climate crisis, ASP holds the potential not only to prevent and reduce loss and damage, but also strengthen resilience by addressing latent structural vulnerabilities (Figure 4.10).

China provides compelling examples of how social protection measures can significantly enhance the adaptive capacity of urban communities. These measures include social medical insurance, housing subsidies, weather-index insurance, post-disaster construction, relocation planning and livelihood shift strategies.[108] To enhance the effectiveness of social protection programs in their contribution to adaptation, there is a need for improved coordination across various agencies, a deeper integration with climate data to anticipate when vulnerable groups will require support, and a closer alignment with other risk management tools like insurance.[109] Furthermore, when implementing ASP, cities should ensure that such interventions reach the most vulnerable urban

Damage done to trees after a hurricane/Shutterstock

populations and do not lead to maladaptation by disincentivizing risk reduction:[110] for instance, insurance coverage of housing in flood-prone areas, while an important protection for communities exposed to risk, should be calibrated so that it does not at the same time encourage continued settlement in these areas in future.

Figure 4.10: The interconnections between social protection, climate resilience, and loss and damage



Source: Huber & Murray, 2023, p.14.

4.6 Conclusion and Lessons for Policy

As cities across the world continue to grapple with the unprecedented climate crisis, its disproportionate impact on people in vulnerable situations is becoming increasingly evident. From scorching heatwaves to perennial flooding, gruelling water shortages to food insecurity, its effects will compound existing urban vulnerabilities in ways that will make it harder for cities to achieve an inclusive, resilient and sustainable future for all. The cascading effects of these climate-related challenges will exacerbate social and economic inequalities, creating differentiated vulnerabilities that are also shaped by unequal access to infrastructure and services, unresponsive policy and governance frameworks, poorly planned urbanization and various intersectional factors (such as gender, race and ethnicity socioeconomic status). Therefore, for the collective vision of an inclusive, sustainable and resilient urban future to be realized, this chapter has placed emphasis on the following key transformative pathways:

- **Mainstreaming intersectional climate justice in urban adaptation plans:** Unless urgent, people-centred climate action is taken and amplified, climate injustices will escalate, leading to increased loss and damage that will further aggravate the suffering of those who contribute the least to the climate crisis. In implementing climate adaptation measures, cities should prioritize the protection of marginalized populations from the unintended outcomes of processes such as green gentrification.

- **Promote participatory and inclusive urban adaptation planning:** Only through comprehensive and inclusive approaches can cities hope to mitigate the adverse impacts of climate change and foster a sustainable future for all residents. This requires a concerted effort to ensure that consultative and decision-making platforms are accessible to all residents, including informal communities but also women, children, minorities, migrants, people with disabilities and LGBTQ+ groups.

- **Harness and strengthen locally-led urban climate adaptation:** This will require targeted, localized interventions, supported by an understanding of the distinct vulnerabilities that different groups face and the resources that can be used to build resilience at a local level. Furthermore, these interventions should be community-focused, drawing on the unique knowledge, skills and lived experiences of residents themselves.

- **Focus on and prioritize systemic and transformative climate adaptation in cities:** It is imperative for urban leaders and policymakers to integrate equitable and just solutions into their climate adaptation strategies to ensure that marginalized and at-risk groups are protected and supported from growing climate threats. However, to achieve long-lasting and systematic improvement to their resilience, these interventions should involve a multi-pronged approach that combines climate mitigation and adaptation strategies with social and economic policies that prioritize equity and inclusion. For example, investments in social safety nets, healthcare systems and other areas can help address the wider structural challenges that contribute to vulnerability.

- **Invest in resilient infrastructure, particularly in marginalized communities:** Cities and subnational governments should prioritize investing in climate-resilient infrastructure, including improving the quality of housing, drainage and sanitation in informal settlements. Through these commitments, cities and subnational governments not only address the immediate needs of residents, but also build the capacity of these communities to withstand and adapt to the growing challenges posed by climate change.

- **Strengthen urban livelihoods and adaptive social protection:** Targeted interventions on informal livelihoods have the potential to serve as a powerful catalyst for far-reaching urban climate action, particularly when accompanied by a commitment to equitable strategies co-developed in partnership with the workers themselves, including social protection.

The call to action is clear: a collaborative effort from all levels of governments, private sector, multilateral institutions, civil society organizations and communities is needed to ensure that the poorest urban residents are not left behind in the wake of the climate crisis. In the end, a collective urban future founded on resilience, equity and sustainable development is still possible, if we choose it, but it requires urgent, bold and sustained commitment to address the unique challenges faced by the most vulnerable urban populations.

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