

# POLICY BRIEF



December 2023  
No. 2

## Building climate-resilient and inclusive cities

### Table of contents

1. Challenges for cities in the 21st century	01
2. A United Nations' strategy to build resilience in cities	01
3. Climate change: Adaptation actions in urban contexts	02
3.1 Making cities more climate resilient	03
3.2 Accelerating financing urban adaptation to climate change	04
4. Integrating vulnerable communities in urban policies for enhanced resilience	05

This policy brief is a summary of the main recommendations that were formulated during the high-level Re:Think 2022 conference Designing resilient cities of the future held in Chengdu (Sichuan Province) on 6th March 2023.<sup>1</sup> The conference brought together top government officials, researchers, members of the international community, civil society organizations as well as members of vulnerable groups.

Re:Think 2022 was hosted by the United Nations Development Programme (UNDP) and the Management Committee of Chengdu High-tech Zone, supported by the China International Center for Economic and Technological Exchanges (CICETE) under the Ministry of Commerce and Institute of New Economy of Centre for China and Globalisation (CCG). This event was the third Re:Think conference, an annual multi-stakeholder innovation event initiated by UNDP's SPARK SDG innovation Lab in Chengdu.<sup>2</sup>

The views expressed in this publication are those of the authors and do not necessarily reflect the views of the United Nations (UN) or the United Nations Development Programme (UNDP).



## 1. Challenges for cities in the 21st century

China's urbanization rate is now 65.2%,<sup>3</sup> and is expected to increase to 80% by 2035 to reach a population of 1 billion.<sup>4</sup> As the heart of human activities, cities are societies' engines of growth and job creation exerting significant pressures on planetary boundaries. In China, cities represent around 85% of national CO2 emissions.<sup>5</sup> As such, they are critical to the achievement of the Sustainable Development Goals (SDGs).

Cities in the world and in China are currently facing four kinds of issues:

1. severe stress on resources (water, energy, ecosystems);
2. environmental stress (e.g., natural disasters such as floods, fires, earthquakes, storms; heat waves; various forms of pollution);
3. socio-economic stresses (e.g., inequality; health; unemployment);
4. uncertainty exacerbated by emerging risks that cannot be fully predicted (e.g., COVID-19 pandemic).

In the context of climate change where these four sources of risks are increasingly relevant, the concept of urban resilience proves particularly useful for urban policy planning and risk management. This brief explores what resilience is in urban contexts (section 2) and what are a selection of actions that can be undertaken to improve climate resilience (section 3) and inclusivity (section 4).

## 2. A United Nations' strategy to build resilience in cities

**What is resilience?** The United Nations define resilience as “the ability of individuals, households, communities, cities, institutions, systems and societies to prevent, resist, absorb, adapt, respond and recover positively, efficiently and effectively when faced with a wide range of risks, while maintaining an acceptable level of functioning without compromising long-term prospects for sustainable development, peace and security, human rights and well-being for all”<sup>6</sup>.

**How to achieve resilience?** Intertwined with the notion of sustainable development, resilience at any level needs to integrate four elements, as presented in Figure 1:

- a multidimensional approach to risks and contexts;
- the connection of various systems in policy design and implementation;
- the inclusion of multiple stakeholders;
- the development of resilience capacities.

Figure 1. The key elements of resilience-building

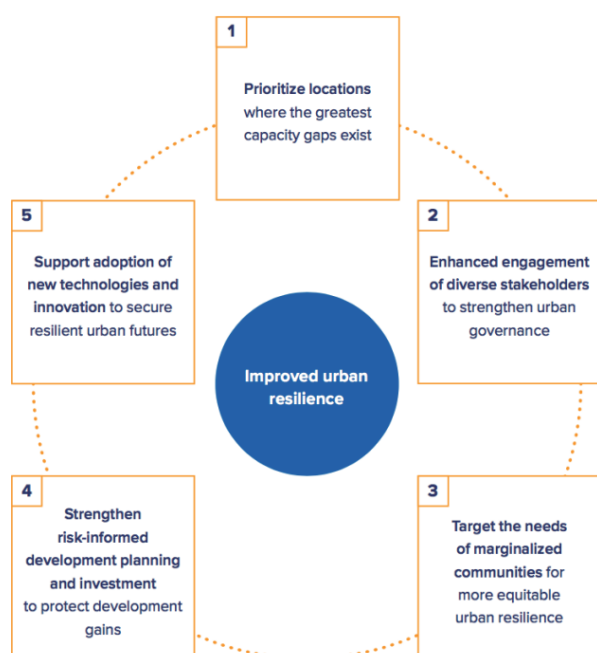


Source: United Nations (2020). UN Common Guidance on helping build resilient societies.

At the urban level, UNDP has specifically designed a global *Urban Risk Management and Resilience Strategy* to help authorities develop resilient strategies across the globe.<sup>7</sup> In particular, the strategy highlighted five priorities that should be considered in most urban contexts (see Figure 2):

1. Prioritize locations where the greatest capacity gaps exist.
2. Enhance engagement of diverse stakeholders to strengthen urban governance.
3. Target the needs of marginalized communities for more equitable urban resilience.
4. Strengthen risk-informed development planning and investment to protect development gains.
5. Support adoption of new technologies and innovation to secure resilient urban futures.

**Figure 2. UNDP's five strategic priorities for improved urban resilience**



Source: UNDP (2021). *Urban Risk Management and Resilience Strategy*

This guideline will enable building the foundations for next generation policy instruments in cities. According to UNDP's urban risk strategy, particular emphasis should be given to:

- Planification and anticipation of risk-informed and climate resilient urban development;
- Adaptive and inclusive governance arrangements;
- Resilient production systems, and resilient public-service infrastructures;
- New economic models and articulation of multiple development pathways for cities;
- Reinforcement of the social infrastructure;
- Deploying financial solutions and partnerships to provide long term investment toward sustainable urban transformation.

### 3. Climate change: Adaptation actions in urban contexts

Climate change adaptation represents a global challenge due to the quickly increasing effects of climate degradation. In China, the National Strategy on Climate Adaptation for 2035 was adopted in 2022.<sup>8</sup> Following a previous version released in 2013, the current strategy lists 20 initiatives in five major areas: (i) strengthening climate change monitoring and early warning and risk management; (ii) enhancing the capacity of natural ecosystems to adapt to climate change; (iii) strengthening the capacity of economic and social systems to adapt to climate change; (iv) building a regional strategy within China<sup>9</sup> for climate change adaptation; and (v) strategy implementation.

In this policy brief, we first introduce a list of adaptive actions that can be identified to improve the climate resilience of cities (section 4.1) and then focus on boosting climate adaptation finance to help implement these measures (section 4.2), as discuss during the Re:think conference.

### 3.1 Making cities more climate resilient

**Anticipate and plan at the urban level:** it is important to develop local urban climate adaptation strategies while ensuring national and provincial plans include cities. While doing so, it is important to be able to identify vulnerabilities of urban systems. Early identification will help solve vulnerabilities enhancing synergies between solutions of these specific vulnerabilities and broader sustainable and low-carbon development plans.

**Build flexible, decentralized and micro-level urban systems to prevent vulnerabilities.** Vulnerabilities need to be identified and mitigated as vulnerable urban structures typically possess large-scale infrastructure with a single center, such as an unique assembly line in a factory. On the contrary, resilient systems are small-scale and multi-nodal and can work in parallel. A diverse modular structure can enable most of an affected area to continue its activities when another area is facing a critical problem. For large urban areas, more than 30 districts or systems can be created within one city. In each group, there will be infrastructure with core functions such as general hospitals, infectious disease hospitals, elderly care centers, food supply, energy, and sewage treatment. These should be relatively independent and decentralized to make the entire city more resilient. This decentralized organizational effort can be replicated at different levels including at the community-level. Similarly, it is important to analyze the vulnerability of each community and make continuous improvements so that these vulnerabilities can be filled.

**Adopting internationally-recognized standards.** Resilience is often considered an abstract concept making it hard to quantify for governments and various stakeholders. It is thus important to have standards that can help assess implemented policies and measure progress. To help guide cities or any urban unit that wish to improve their resilience, a specific international standard (Sustainable cities and communities - Indicators for resilient cities. ISO37123) has been created with the World Council on City Data and the support of the United Nations Office for Disaster Risk Reduction.<sup>10</sup> The ISO37123 include 68 indicators such as the magnitude of urban heat effect, the percentage of city area covered by publicly available hazard maps, and the percentage of a city land area in high-risk zones where risk reduction measures have been implemented.<sup>11</sup> Having better knowledge of the different criteria for urban resilience will improve preparedness for hazards, as well as capacity to respond and rebuild.<sup>12</sup>

**Establish urban climate resilience and adaptation management systems, including early warning mechanisms.** To do so, these platforms should make full use of innovation such as big data technologies that have the potential to improve early warning systems and identify areas where natural disasters will likely occur. These management systems and platforms should include natural disaster related preventions and adaptation, but also focus on economic and social activities. It is important for these organisational arrangements to have inbuilt dynamic mechanisms to facilitate adapting to changing risks and stresses. Organizations need to remain flexible and open to change to perform better in case of hardships.

**Develop and extend the model of "sponge cities".** Initiated in China in the early 2000s by researchers, sponge cities is a concept that enables draining systems that can make better use of rainwaters thanks to porous areas and storage.<sup>13</sup> Distributed rainwater collection can not only greatly reduce the negative effects of rainstorms, but can also save water, and reduce carbon emissions and dependence on external resources. As countries, especially China and in Southeast Asia, are experiencing severe and increasingly pressing water scarcity, sponge cities can help in locally accumulating, storing, and reusing water. In this way, cities are able to address increasingly urgent demand for external water resources. This would improve the city's water resilience, and also the water resource resilience of the entire region, a crucial and increasingly pressing issue.



### **Case study: Chengdu: a “Park City” for green and low-carbon development**

*In the context of China’s dual carbon goal and Government’s environmental targets and plans, Chengdu has taken the lead among other cities in the implementation of carbon-neutrality and innovation. Following a sustainable development planning approach, the city is aiming to build itself as a “Park city” improving the livelihood of its residents. Firstly put forward in February 2018<sup>14</sup>, the concept caters to people’s need for a better living experience and seeks to improve the city’s natural environment in all aspects rather than simply adding more parks and gardens to the city. The “Park city” approach focuses on balanced development between nature, human needs, and productivity. Through the construction of a “Park city”, Chengdu has carried out a series of measures related to urban layout, environmental protection, and industrial development. These action and progress include:*

- *The government of Chengdu launched **10 major projects for a better life**, closely linking urban planning with the well-being of citizens. A major component of these projects focuses on reducing carbon emissions while steadily improving the environment.<sup>15</sup>*
- *Under the “Park City” policy, the **Longquan Mountain Forest Park** will be created in the central area of the city. At the heart of Chengdu, the forest park will cover a total area of 1,275 km<sup>2</sup>, the largest urban forest park in the world.<sup>16</sup>*
- *Chengdu is also building the world’s longest planned urban greenway system. **The Tianfu Greenway**, with a total planned length of 16,900 km<sup>17</sup>, will connect ecological areas such as parks, small amusement areas, and scattered green spaces, turning the city into a giant park.*

### **3.2 Accelerating financing urban adaptation to climate change**

In the National Strategy on Climate Adaptation for 2035, financing climate adaptation is highlighted as one of the implementation priorities for China.<sup>18</sup> In particular, it proposes to:

- Improve financial and fiscal support policies. Guide banks, securities firms, insurance, funds and other commercial financial institutions to invest in climate adaptation projects.
- Promote green financial market innovation. Encourage the development of innovative products such as sustainable development-linked bonds, catastrophe insurance, and climate risk insurance in key areas.
- Build a climate investment and financing guarantee system. Carry out local pilot projects on climate investment and financing, establish a climate investment and financing project bank, and promote innovation in climate investment and financing models and mechanisms.<sup>19</sup>

During the Re:think conference, several recommendations to enhance and accelerate financing for climate-resilient cities were formulated targeting different categories of stakeholders: (i) policymakers; (ii) financial institutions; (iii) investment institutions and (iv) companies and other entities.<sup>20</sup>

### (1) Recommendations for policymakers

- Develop local climate resilience and adaptation investment financing-related laws, regulations, policies, and guidelines.
- Prioritize the development of scopes and methods for measuring climate investment finance, climate benefit assessment and measurement.
- Guarantee that investors share benefits from resilience and adaptation investment projects, especially spillover benefits, through laws and regulations.
- Set medium- and long-term targets for resilience and adaptation investments (e.g., targets for public spending by 2025, 2030, and 2035).
- Conduct resilience and adaptation assessments of investment projects ensuring that new projects would have sufficient resilience and adaptation capacity.

### (2) Recommendations for financial institutions

(development and commercial banks, financial and insurance companies):

- Develop innovative urban resilience and adaptation investment and financing instruments and products that reflect resilience investment needs and provide stable and long-term benefits.
- Use insurance mechanisms to promote resilience and adaptation investments: extreme climate hazard insurance, investment insurance in climate vulnerable areas, like insurance services for building resilient infrastructure in climate-vulnerable areas promoting resilient development in vulnerable areas.

### (3) Recommendations for investment institutions:

- Establish resilience and adaptation investment business teams.
- Project planning and design: make a full assessment of resilience and adaptation criteria to ensure that the project will deliver the desired level of resilience based on likely climate change scenarios and available technologies.
- Project financing design: interface with government agencies and financial institutions to leverage favourable government climate investment and financing support policies and funds; and resilience and adaptation spill-over benefit sharing programs from the project.

### (4) Recommendations for companies and other entities:

- Analyze and assess international and domestic best practices in climate investment and financing for resilient city development for local governments' reference.
- Provide technical support to local governments to build resilient cities: comprehensively assess the vulnerability of cities under different climate change scenarios, and propose strategic planning and major infrastructure construction and response strategies required to enhance urban resilience.
- Assist in climate investment and financing project planning, in the design of innovative climate investment, financing and insurance products, by providing information to other stakeholders and by participating in pilots.

### 4. Integrating vulnerable communities in urban policies for enhanced resilience

Generally urban areas reflect the same social biases that are present throughout society: biases are built into urban spaces with minorities and vulnerable groups and women benefitting less from urbanization. For example, the built environment is a key determinant of a group's condition and experience. Meanwhile, social biases and lack of disaggregated data is a significant challenge to tackle inequality in cities. A cultural shift is needed among decision-makers, development and urban professionals to overcome these issues.

Based on UNDP's Urban Risk Management and Resilience Strategy, several policy measures could help ensure cities are not only adaptive to climate change and natural disasters, but also inclusive and therefore more resilient:

- **Design and formulate urban action plans** that take fully into account social biases helping shaping urban environment for different category of people (e.g., consider access ramps for elderly or rest areas for delivery workers). This could be facilitated by a city-wide Equality Taskforces for Built Environment responsible for integrating specific needs and the delivery of the action plan for each vulnerable group.
- **Administrative and financial support:** ensure that administrative support also caters for the most vulnerable social groups that have less access to city resources; and provide financial incentives to the targeted groups to ensure inclusivity and resilience.
- **Raising awareness:** drafting and implementing specific charters for vulnerable groups matched with education and development programmes.

# Building climate-resilient and inclusive cities



#### Contact Information

arnaud.debauge@undp.org  
jie.liang@undp.org  
violante.di.canossa@undp.org

## POLICY BRIEF

December 2023  
No. 2

1. UNDP (2023, March 6). UNDP's Re:Think 2022 Conference explores how cities can build resilience in an uncertain world. <https://www.undp.org/china/press-releases/undps-rethink-2022-conference-explores-how-cities-can-build-resilience-uncertain-world>.
2. As UNDP's SPARK SDG Innovation Lab's annual flagship event, the Re:Think Conference brings together experts to discuss emerging trends in development and innovative solutions to achieve SDGs. Topics in the past have ranged from digital economy, financial innovation, resilient city construction to just and inclusive low-carbon transition.
3. China National Bureau of Statistics (2023, January 17). National Economy withstood pressure and reached a new level in 2022. [http://www.stats.gov.cn/english/PressRelease/202301/t20230117\\_1892094.html](http://www.stats.gov.cn/english/PressRelease/202301/t20230117_1892094.html).
4. World Bank (2022). China: Country Climate and Development Report. <https://openknowledge.worldbank.org/server/api/core/bitstreams/35ea9337-dfcf-5d60-9806-65913459d928/content>.
5. Methodology and applications of city level CO2 emission accounts in China (2017). <https://www.sciencedirect.com/science/article/pii/S0959652617312453>
6. United Nations (2020). UN Common Guidance on helping build resilient societies. <https://unsdg.un.org/sites/default/files/2021-09/UN-Resilience-Guidance-Final-Sept.pdf>.
7. UNDP (2021). Urban Risk Management and Resilience Strategy. <https://www.undp.org/publications/urban-risk-management-and-resilience-strategy>.
8. China's Ministry of Ecology and Environment (2022). [http://www.gov.cn/zhengce/zhengceku/2022-06/14/content\\_5695555.htm](http://www.gov.cn/zhengce/zhengceku/2022-06/14/content_5695555.htm).
9. Listed regions in the National Strategy on Climate Adaptation include Beijing-Tianjin-Hebei, the Yangze River, and Guangdong-Hong Kong-Macao and Greater Bay Area. China's Ministry of Ecology and Environment (2022). [http://www.gov.cn/zhengce/zhengceku/2022-06/14/content\\_5695555.htm](http://www.gov.cn/zhengce/zhengceku/2022-06/14/content_5695555.htm).
10. ISO (2019). ISO 37123-2019. Sustainable cities and communities: indicators for resilient cities. <https://www.iso.org/standard/70428.html>.
11. iBid
12. ISO (2019, December 13). Building resilient cities with new international standards. <https://www.iso.org/news/ref2464.html>.
13. World Future Council (2016, January 20). Sponge cities. What is it all about? <https://www.worldfuturecouncil.org/sponge-cities-what-is-it-all-about/>.
14. China Daily (2021, June 30). 'Park city' concept leads Chengdu to sustainable development. [http://www.chinadaily.com.cn/regional/2021-06/30/content\\_37545399.htm](http://www.chinadaily.com.cn/regional/2021-06/30/content_37545399.htm).
15. Chengdu Eastern New Area Municipal Administration Committee (2021, February 26). Promoting a happy and beautiful life! The Eastern New Area implements the Ten Major Projects for a Happy and Beautiful Life with the concept of international urban construction. [http://dbxq.chengdu.gov.cn/dbxq/c140833/2021-03/25/content\\_b1cce60f8a5f4a18aed1dfdab7efd541.shtml](http://dbxq.chengdu.gov.cn/dbxq/c140833/2021-03/25/content_b1cce60f8a5f4a18aed1dfdab7efd541.shtml).
16. China Daily (2020, May 15). Mountain top sightseeing terrace becomes latest iconic landmark. <http://epaper.chinadaily.com.cn/a/202005/15/WS5e02c4a3102640f4a6336e.html>.
17. Park City Chengdu Takes a New Look: Today's Chengdu Grows More Landscaped and Livable(2022) <https://www.sc.gov.cn/10462/10758/10760/10765/2022/4/11/76982334f8524c4daaad4903b04e22fe.shtml>
18. China's Ministry of Ecology and Environment (2022). [http://www.gov.cn/zhengce/zhengceku/2022-06/14/content\\_5695555.htm](http://www.gov.cn/zhengce/zhengceku/2022-06/14/content_5695555.htm).
19. iBid
20. These recommendations are extracted from the presentation of Dr. Lu Xuedu, former Climate Change Advisor and Lead Climate Change Specialist at ADB. Lu Xuedu (2023, March 6). Climate finance promotes urban resilience. [https://weibo.com/tv/show/1042211:4876357642158208?from=old\\_pc\\_videoshow](https://weibo.com/tv/show/1042211:4876357642158208?from=old_pc_videoshow).