



## What is Urban Resilience?

Cities face a growing range of adversities and challenges in the 21st century, from the effects of climate change to growing migrant populations to inadequate infrastructure to pandemics to cyber-

attacks. **Resilience is what helps cities adapt and transform in the face of these challenges, helping them to prepare for both the expected and the unexpected.**

100 Resilient Cities is funded by the Rockefeller Foundation and defines urban resilience as *“the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.”*

Building urban resilience requires looking at a city holistically: understanding the systems that make up the city and the interdependencies and risks they may face. By strengthening the underlying fabric of a city and better understanding the potential shocks and stresses it may face, a city can improve its development trajectory and the well-being of its citizens.

**CHRONIC STRESSES: are slow moving disasters that weaken the fabric of a city.** They include:

- high unemployment
- overtaxed or inefficient public transportation system
- endemic violence
- chronic food and water shortages

**ACUTE SHOCKS: On the other hand are sudden, sharp events that threaten a city,** including:

- earthquakes
- floods
- disease outbreaks
- terrorist attacks

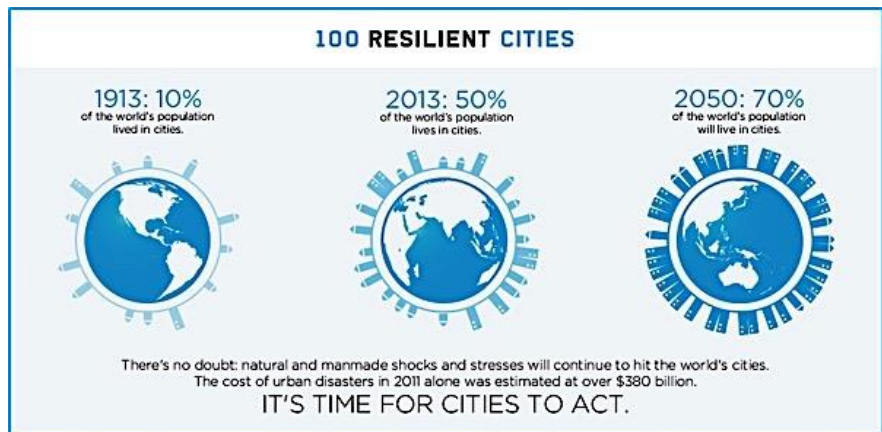
Of course, the challenges cities face often aren't a single shock or stress. **Most cities face a combination of these challenges, which can contribute to further threatening a city's resilience.** A good example of this is Hurricane Katrina, which hit the southeastern U.S. in 2005 with devastating consequences. But it wasn't Hurricane Katrina alone that led to such a crisis in the city of New Orleans. The storm's impact was exacerbated by stresses like institutional racism, violence, divestment and aging infrastructure, poverty, lack of macroeconomic transformation, environmental degradation, and other chronic challenges. The compounding pressure of these unaddressed stresses undermined the city's resilience and, when a terrible shock hit the city, it exposed and exacerbated these weaknesses—ultimately making it far more difficult for the city to bounce back.

### The Resilience Dividend

Applying a resilience lens leads to better designed projects and policies that address multiple challenges at one time, improving services and saving resources. This is known as the resilience dividend—the net social, economic and physical benefits achieved when designing initiatives and projects in a forward looking, risk aware, inclusive and integrated way.

## Characteristics of Resilient Systems (CRF)

Just understanding the systems of a city isn't sufficient. In order to build a city's resilience, those systems must be designed and functioning in a way that they can withstand, respond to, and adapt more readily to shocks and stresses. The CRF builds on decades of research on resilient systems, and identifies 7 characteristics that various city systems need.



**Reflective: using past experience to inform future decisions.** Individuals and institutions that are reflective use past experience to inform future decisions, and will modify standards and behaviors accordingly. For example, planning processes that are reflective are better able to respond to changing circumstances.

**Resourceful: recognizing alternative ways to use resources.** Resourceful people and institutions are able to recognize alternative ways to use resources at times of crisis in order to meet their needs or achieve their goals. For example, although households in cities in Chile's Central Valley use water provided by municipal networks on a daily basis, the service is often interrupted after strong earthquakes. As a response, many households maintain wells to continue provision of water.

**Inclusive: prioritize broad consultation to create a sense of shared ownership in decision making** Inclusive processes emphasize the need for broad consultation and 'many seats at the table' to create a sense of shared ownership or a joint vision to build city resilience. For example, early warning reach everyone at risk will enable people to protect themselves and minimize loss of life and property.

**Integrated: bring together a range of distinct systems and institutions** Integrated processes bring together systems and institutions and can also catalyze additional benefits as resources are shared and actors are enabled to work together to achieve greater ends. For example, integrated city plans enable a city to deal with multidisciplinary issues like climate change, disaster risk reduction or emergency response through coordination.

**Robust: well-conceived, constructed, and managed systems** Robust design is well-conceived, constructed and managed and includes making provision to ensure failure is predictable, safe, and not disproportionate to the cause. For example, protective infrastructure that is robust will not fail catastrophically when design thresholds are exceeded.

**Redundant: spare capacity purposively created to accommodate disruption** Redundancy refers to spare capacity purposively created to accommodate disruption due to extreme pressures, surges in demand or an external event. It includes diversity where there are multiple ways to achieve a given need. For example, energy systems that incorporate redundancy provide multiple delivery pathways that can accommodate surges in demand or disruption to supply networks.

**Flexible: willingness, ability to adopt alternative strategies in response to changing circumstances** Flexibility refers to the willingness and ability to adopt alternative strategies in response to changing circumstances or sudden crises. Systems can be made more flexible through introducing new technologies or knowledge, including recognizing traditional practices. For example, in times of crisis, cities may redeploy public buses for emergency evacuations.