

STRENGTHENING
RESILIENCE

RESILIENT CITIES NEED A MULTI-DISCIPLINARY APPROACH

The need to build resilience into our cities has never been greater. AECOM urban sustainability experts **Mike Henderson** and **Renard Teipelke** argue that a holistic, multi-disciplinary approach is needed to protect our urban communities.

The density of assets and people in urban areas increases risk as there is a greater concentration of value. As the coronavirus pandemic has put into stark relief, overcrowding can also make cities highly vulnerable to health hazards. City dwellers have been disproportionately impacted by rapid transmission rates, a fragility that is only likely to be exacerbated in the future, given that some 70 percent of the world's population — 6.8 billion out of a total of 9.8 billion — is expected to be concentrated in urban areas by 2050 ¹.

With coronavirus, the world is dealing with two crises simultaneously. As the climate

crisis mounts, natural disasters are exacting an increasingly heavy toll. In the two decades up to 2017, natural disasters killed 1.3 million people and affected another 4.4 billion people with direct costs amounting to nearly \$3 trillion ². A record \$340 billion in natural disaster losses in 2017 ³ points to what lies ahead. Expanding urbanization means the human and financial costs of freak weather incidents is likely to rise, and the impact will ripple far into interdependent global communities. That is unless we take bold action, both in terms of climate change and disaster resilience.

Resilience is likely to be a rising priority among the mobile people,

firms, and resources that cities compete against each other for. To attract talent and investment, cities increasingly need to show that they can provide an attractive, healthy, safe and secure environment that is resilient to future shocks and stresses. In the future, resilience strategies should be embedded from the outset into major urban interventions such as strategic masterplans and large-scale infrastructure projects.

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A holistic approach

At AECOM, we have a long experience in partnering with municipal and metropolitan governments to devise resilient development pathways. Our holistic approach draws on a diverse and global network of infrastructure engineers and planning specialists including sustainability and — increasingly important given recent events — public health experts. Take for instance our work developing the Istanbul 2050 Urban Transformation Master Plan. →

We put improving the resilience of this rapidly growing metropolis at the heart of the masterplan design. First, we mapped the city to identify the most risk-exposed areas in terms of natural hazards, as well as infrastructure and social vulnerabilities. Linking these areas with major regeneration opportunities will enable structural change in the urban form that increases resilience by allowing for a triple dividend of avoided disasters, enabled household and business investments, as well as positive economic, social, and environmental co-benefits.

Building on our track history as a global strategy partner to the 100 Resilient Cities program pioneered by the Rockefeller Foundation, we are now supporting clients such as the World Bank and the European Bank for Reconstruction and Development. In their work with cities we are providing combined spatial and infrastructure expertise to improve the understanding of urban climate and disaster risks. This forms a foundation for co-developing infrastructure investment portfolios that actively contribute to cities' resilience — not just from an asset perspective but also with regard to planning and management processes, development opportunities for citizens and the private sector, as well as in terms of improved quality of life for all.

Disaster resilience: A scorecard for cities

Together with IBM, we have developed a Disaster Resilience Scorecard for Cities for the United Nations Office for Disaster Risk Reduction (UNDRR). This helps cities understand their ability to withstand and bounce back from disruptive events.

Structured around the UNDRR's Ten Essentials for Making Cities Resilient, the scorecard establishes a baseline measurement of a city's current level of disaster resilience and enables progress to be tracked against either 47 preliminary indicators or 117 detailed indicators. A subsequent Public Health Addendum, to which



THE DISASTER RESILIENCE SCORECARD FOR CITIES HELPS CITIES UNDERSTAND THEIR ABILITY TO WITHSTAND AND BOUNCE BACK FROM DISRUPTIVE EVENTS. THE BENEFITS OF COMPLETING THE SCORECARD EXTEND FAR BEYOND REPORTING – THE CONVERSATIONS THE PROCESS CAN GENERATE MAY EVEN BE MORE IMPORTANT THAN THE SCORE.

AECOM contributed in 2019, aligns with the structure of the Ten Essentials, integrating and strengthening the many elements of public health that are relevant to disaster planning, mitigation, and response.

The scorecard provides a set of assessments that cover the policy and planning, engineering, organizational, financial, social and environmental aspects of public health within the context of disaster resilience. The benefits of completing the scorecard extend far beyond reporting — the conversations the process can generate may even be more important than the score. Collaborative implementation can enable dialogue between key city stakeholders who may not otherwise collaborate regularly or see the overall picture; enable discussion of priorities for investment and action, based on a shared understanding of the current situation; enable the development of a city resilience strategy/action plan; and ultimately lead to implementable community and infrastructure projects that will deliver increased resilience for the city over time.

The Public Health Addendum is currently forming the basis of AECOM's rapid urban management response plan for two cities in Africa, supporting them in the mitigation of the coronavirus pandemic. This builds on an existing resilience strategy we have delivered for both cities, from which a set of short, medium and long-term actions can be prioritized in order to support the most vulnerable residents and areas.

The importance of seeing the whole picture

In addition to potential shock impacts of disaster events, such as floods, cities also need to tackle longer-term stresses that exacerbate vulnerability, such as environmental degradation and spatially-pronounced inequality. However, not all resilience solutions are necessarily sustainable. Measures such as redundancy are often built into resilience plans, leading to increased resource consumption and associated impacts. With a data-informed assessment of the costs and benefits from different disaster and climate-proofing measures, however, interventions can be designed to have benefits beyond an immediate project and positively impact community wellbeing. This requires a more systematic approach to planning for, and managing, urban processes across different disciplines.

Informed by a holistic analysis and supported by genuine stakeholder engagement, resilient urban planning and development can be transformative with short, medium and long-term payoffs — but it cannot be done in silos. A multi-disciplinary approach is needed to integrate development and infrastructure and deliver places that are attractive, prosperous, and ultimately safe. 