



RISK & INNOVATION

Natural Disasters: How Can We Build For Resilience?

OVERVIEW

When a weather-related catastrophe hits a coastal city, homeowners and businesses elsewhere in the U.S. often count their blessings, convinced that such an event could never happen to them.

Their rationale: Houston was the victim of a 500-year storm delivering unprecedented rainfall, while Irma was the first Category 5 storm to make landfall in Florida. Similarly, major floods this year in Bangladesh and India might be seen as the result of unique weather conditions.

But all that confidence could be misplaced. “The truth of the matter is that every state in the U.S. has had a flood in the past decade,” says John Dickson, President, NFS Edge Insurance, Aon.

The lesson is that making sure a property or neighborhood is resilient to flooding has become increasingly important and should guide the actions of property owners or communities who face any level of flood exposure. For towns, cities and neighborhoods, resilience can limit the physical and economic impacts of floods, while improving the safety and quality of life for residents. For businesses who have planned and prepared to be up and running quickly after a flood, it can be a competitive advantage.

The most effective resilience efforts are undertaken on a community-wide basis, with help from government bodies promoting and investing in resilience and factoring it into risk management decisions and land-use planning.

IN DEPTH

The disastrous flooding caused by August’s Hurricane Harvey is on track to be one of the U.S.’s costliest natural disasters, with AccuWeather estimating the ultimate cost at as much as \$190 billion. Settling over the Houston area, the storm dropped more than 50 inches of rain in some spots over the course of four days, the heaviest rainfall ever experienced by a U.S. city.

Exacerbating Houston’s flood issues was the area’s flat terrain – it’s built on a coastal plain. In addition, large areas of land had been developed, paved over with impermeable surfaces that affected drainage and stripped of native vegetation that would have served as a natural sponge to absorb rainwater.

A close look at what Houston went through can help other areas learn the lessons of flood resilience. “Every one of those land use decisions has consequences,” says Dickson. And Houston’s experience shouldn’t be dismissed by inland communities that feel their lack of hurricane exposure reduces their flood risk. “It doesn’t matter where you live, you are susceptible to flooding,” said Cynthia DiVincenti, VP, Aon National Flood Services.

Paths To Resilience

The Netherlands

Around the world, many of the most flood-exposed areas have worked to improve their resilience. The Netherlands, where much of the country is below sea level, has spent centuries dealing with flood risk, and this ever-present risk has made it a leader in flood management.

In recent years, the country's flood management efforts have taken a new tack: living with water rather than relying strictly on barriers to contain it. The strategy involves reducing the reliance on levees and instead allowing more room for water. This has included rethinking where to build new developments and using parks and other public spaces as emergency reservoirs.

Japan

Tokyo has also moved to bolster its flood resilience, spending billions on a system of tunnels and cisterns intended to divert flood waters from the city. Despite the investment, experts in Tokyo are debating whether the system can adequately protect the city in the face of climate change, worsening storms, and rising sea levels.

United States

In the northeast United States, 2012's Superstorm Sandy was the wake-up call that prompted considerable debate about the proper path to flood resilience and reducing flood risk. Officials in Boston, New York, and elsewhere on the East Coast have been studying their exposures and looking for ways to create flood resilience to protect residents, businesses, and essential infrastructure.

Taking The Right Steps

While flood risk exists even well away from coasts, investments as massive as those of the Netherlands or Tokyo might not be necessary for many areas. It's always appropriate to consider the extent of local flood risk and take the steps necessary to mitigate it. In addressing an area's flood risk, zoning, infrastructure and water control systems should be examined, with flood risk built into civic planning and development. "With any development effort, you're being irresponsible if you're not thinking about hydrological consequences," Dickson says.

On top of placing more scrutiny on regional planning, local governments and property owners can also consider the U.S. Federal Emergency Management Agency (FEMA) and its National Flood Insurance Program (NFIP) Community Rating System (CRS), which provides incentives to engage in community floodplain management activities that exceed minimum NFIP requirements. Participating communities enjoy discounted flood insurance premiums. They are also credited for efforts that strengthen and support the NFIP by facilitating accurate insurance ratings and promoting flood insurance awareness. Lastly, participating communities can earn credits for encouraging a comprehensive approach to floodplain management.

In Florida, for example, most communities have taken the necessary steps to earn CRS credits. They also automatically receive CRS credit points for various activities associated with the Florida Building Code, water quality, and local drainage protection regulations. The Florida Division of Emergency Management has implemented a Florida CRS Initiative, which is aimed at helping participating communities improve their CRS ratings, and encouraging nonparticipants to take advantage of the program and increase their resilience.

On the other side of the country, King County, Washington state, also has been involved with the CRS program. The county is the only one in the U.S. to earn a 2 rating on the program's 1–10 scale, which corresponds to discounts in 5 percent increments – ranging from no credits for Class 10 nonparticipating communities, to discounts of up to 45 percent for Class 1 participants. King County's Class 2 status provides flood insurance premium discounts of up to 40 percent in some areas.

Property Owners And Resilience

Individual property owners can take their own steps to increase their flood resilience. Building owners can employ such methods as increasing the building's elevation, constructing levees, and creating water diversion systems, according to Kevin Madden, Real Estate Practice Leader, Aon.

Building owners can further increase resilience through pre-loss provisions that lock in contractors at set rates for rebuilding and recovering after a flood, Madden says. The aftermath of any major storm typically results in a limited number of contractors and a finite amount of supplies for rebuilding. Post-event demand surge can increase costs by as much as 50 percent, and businesses or property owners without pre-loss contracts in place can see their costs go even higher.

"Property owners smart enough to take such steps will experience substantially lower losses than real estate owners without those protections in place," Madden says.

Finally, property owners with any sort of flood exposure can consider purchasing flood insurance and shouldn't be deceived by flood maps that suggest their area is at low flood risk. "Too often lower risk is perceived as no risk," Dickson says. "That's not the case. There is always risk."

Building Resilience: Working Together To Reduce Flood Losses

As recent storms have demonstrated, floods can be truly catastrophic events, devastating communities and resulting in fatalities, business disruption, and personal losses including homes and belongings. But floods can also affect areas far removed from hurricane-exposed coastal regions.

Lessons from recent tragedies highlight both the need for creating flood resilience and some of the keys to achieve it. Individual property owners with any level of flood exposure would be wise to consider the risk and take steps to increase their resilience. Although the efforts of one homeowner are important, the best path to flood resilience involves a community-wide effort, with local officials teaming up with property owners to realize the benefits of flood resilience.

History has shown that it's impossible to completely defeat flood risk, and recent events suggest the risk might be increasing in many areas. But, by acknowledging flood risk and taking the right steps to build resilience, it's possible to reduce the devastating impact of flooding on communities and their residents and businesses.

TALKING POINTS



"We urgently need reform to the flood insurance market in the U.S. to make these communities more resilient. All parties – governments, the insurance industry, and policyholders – have a responsibility to do this" – Inga Beale, CEO, Lloyd's of London



"Every one of these storms should force anybody who's been a victim of them to rethink where they are, where they live and how they respond to natural disasters that continue to come and come with more frequency. If you spend money on the front end on mitigation projects, you'll save a lot of money and potential loss of life on the back end" – Mitch Landrieu, Mayor, New Orleans



"I do think that cities need a good reason to change, sometimes that comes from a crisis that they have or sometimes from a crisis that a neighbor has that they relate to, but they need to have that. The Dutch are a good example, they have kept the crisis of the 1953 flood alive in a way that has allowed them to change, because they tell it in school, show it in stories, have movies about it, the flood of 1953 is alive and as a Dutchman you understand that water and climate is an existential threat" – Michael Berkowitz, President, 100

Resilient Cities

FURTHER READING

- Five Years After Sandy, New York Is Updating Its Flood Resilience Zoning – The Architect's Newspaper, October 6, 2017
- After An August Drenching, Karachi Confronts Rising Flood Risk – Thomson Reuters Foundation News, October 18, 2017
- Hurricanes Propel Forward Thinking On Risk, Resilience – Engineering News-Record, September 20, 2017
- A Stronger, More Resilient New York – City of New York, June 2013
- Storm Resiliency Enters Senate Debate On Flood Insurance – Bloomberg BNA, September 25, 2017
- What Would An Entirely Flood-Proof City Look Like? – The Guardian, September 25, 2017

