Protecting Low-Income Housing from Climate Risks

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Abstract

Buildings are vulnerable to short term extreme weather events such as flooding, high winds, wildfires and heavy precipitation, and to longer term forces such as soil erosion and extended heat waves. A warming global climate increases the risks of these types of events, necessitating a strategy to manage them. Protocols have been developed to incorporate climate risks into risk management strategies in response to rising interest from public authorities, bond rating agencies, insurance companies and others. By incorporating climate risks into their risk management strategies and acting to mitigate such risks, public housing authorities can (1) recognize the emergence of such risks, (2) quantify them via localized climate impact projections, (3) develop plans to mitigate them, and (4) engage in strengthening or other strategies to protect buildings and their residents and to save money when severe weather events occur.

Introduction

Buildings can be severely damaged or even destroyed by severe weather events such as flooding, high winds, wildfires, and heavy precipitation. Projections of a warming climate and rising ocean levels indicate that the risks of these types of events are likely to increase over time. Those who manage buildings such as public housing authorities can deal with these risks by incorporating them into their overall risk management strategies and taking actions to address them. This article provides background regarding what others are doing to deal with climate risks and then discusses how managers of the nation's low-income housing can deal with it in their overall risk management plans and actions.

Exhibit 1

Building Damage from a Hurricane

A warming climate will increase the frequency of severe high-wind events, with potentially devastating consequences for buildings. Photo courtesy DailyCaller.com.

Background

Increasing risks related to climate change have become ever more apparent to governments and to private sector entities as worldwide efforts to control carbon and other greenhouse gas emissions have languished. Assets vulnerable to severe weather such as buildings, factories and communication infrastructure therefore have become increasingly subject to scrutiny. Entities such as the Climate Disclosure Project and the Task Force on Climate-related Financial Disclosures (TCFD) are calling upon firms to disclose the potential impacts of climate risks on their assets.[1] Meanwhile, insurers and investors have become aware that their liabilities or holdings may be adversely affected by climate risks and are putting increased pressure on private firms to respond accordingly. Many firms now report on climate risks affecting their assets although few have publicly identified the potential impacts.

On the public-sector side, a system called the Climate Risk and Adaptation Framework and Taxonomy (CRAFT) has been developed by two nonprofit entities, C40 and Arup, to offer cities a way to report what they have done to anticipate and deal with climate risks. So far, more than 500 cities have utilized this system. They have been incentivized by Moody's Investors Service, which has warned municipalities that it will take account of their climate risk awareness and actions in rating their bond offerings (Flavelle, 2017). Standard & Poor (S&P) likewise has indicated that it will take climate risks into account in rating private and public sector bond sellers (S&P, 2019).

[1] The TCFD was created by the Financial Stability Board, an international organization that monitors and makes recommendations about the global financial system.

Policymakers also have taken an interest. Since 2013, the Government Accountability Office (GAO) has recommended to Congress that the federal government identify significant climate risks and create appropriate responses (GAO, 2019). Office of Management and Budget (OMB) Circular A-11, a guidance document for federal agencies, at one point required climate adaptation planning and resilience analysis for construction and renovation projects, although the language was removed in a 2018 update. In addition, some in Congress have proposed a series of policies called the "Green New Deal" to confront climate change, indicating legislative interest in climate-related actions.

Managing Climate Risk

Risk management has become a standard technique to deal with the various risks faced by asset owners or those who manage the assets for them. The technique involves assessing the risks of various events and the impacts of those risks if they materialize and developing plans to deal with them. Financial accounts and planning documents are written to incorporate identified risks and monies are set aside for purposes of taking actions to ameliorate the effects of the events, should they transpire. If especially severe events occur, monies can be saved by having avoided sudden, very large losses. In addition, disruptions to ongoing activities can be reduced if not altogether avoided.

Housing authority management of climate risks in particular involves incorporating such risks into overall risk management planning by identifying the types of events that may occur because of climate change, their impacts upon local publicly subsidized housing, and steps that are being taken to reduce such potential damage. With federally subsidized housing, the welfare of residents is of particular importance because their choices can become even more limited should drastic weather events occur that suddenly damage or destroy the housing they occupy.

Exhibit 2

Public Concern over Low-Income Housing Resident Welfare

Severe weather events may impose difficult choices upon low-income residents and generate concern among their supporters.
Photo courtesy MarketMadHouse.com.

How can climate risks be dealt with? There are both general and specific steps to be taken. Among the more general steps, first, treat the issue seriously. There is plenty of evidence that the climate is changing and with it the probabilities of various weather events. Such probabilities may make little difference in some geographic areas, but have clear implications for others, particularly coastal areas subject to flooding and frequent hurricanes.

Second, identify probable local impacts from a changing climate. A number of climate models have been developed that project the local impacts of future climate change to at least the county level. They are inexact, to be sure, but are still a useful tool that is accessible for those engaged in climate risk identification. Further, their accuracy has improved with time to the point where localized quantitative risk assessment is feasible.[2]

Third, incorporate climate risks into reports and plans and set monies aside to execute such plans. This reporting, planning, and budgeting not only inform internal staff of the importance of recognizing climate risks but also lets outside parties such as policy makers, investors, and bond rating agencies know that actions to ameliorate such risks are being anticipated if not already implemented.

Fourth, communicate with local authorities to discover what plans are in place to deal with severe weather events. Depending on what form these plans take, a housing authority may be able to make use of local resources (for example, emergency housing) in its own response to such events.

A number of specific actions also can be taken to protect residents and structures from climate-related events. Among these are to:

- Site and design buildings to minimize their exposure to severe weather events.
- Use fire-resistant building materials such as concrete made with tough, flame retarding aggregate.
- Protect building points of entry from floodwaters, for example, with portable flood barriers.
- Protect glass windows or doors in areas subject to high winds with shutters, for example, accordion shutters.
- Perform electrical upgrades to ensure continued power in case of prolonged outages, for example, installation of backup generators. Also, be sure switches, sockets, circuit breakers and wiring are placed well above the expected flood levels in your area.
- Provide means for residents to communicate with the housing authority in case of severe weather damage to facilities, for example, emergency telephone lines.
- Maintain secure means of access to and egress from damaged buildings to enable emergency personnel and residents to get in or out in worst-case scenarios.

[2] The Federal Emergency Management Agency (FEMA) offers a broad tool called RiskMAP (available at https://toolkit.climate.gov/tool/risk-mapping-assessment-and-planning-risk-map-program) while a number of firms offer models with more specific localized information (for example, The Climate Service, LLC offers a tool called Climanomics, at http://www.theclimateservice.com/).

- Conduct comprehensive maintenance on structures more frequently and completely than otherwise.
- Prepare plans to temporarily house residents while rebuilding occurs.
- Maintain a list of trusted contractors the housing authority has worked with who can assist with rebuilding damaged properties.
- Make sure key suppliers of goods or services to the housing authority's buildings (for example, trash collectors) are themselves taking measures to protect their assets against severe weather events.

Exhibit 3

Building Construction Using Concrete

Concrete construction has low thermal conductivity and protects against the spread of fire.
Photo courtesy DesigningBuildings.co.uk.

Exhibit 4

Removable Doorway Flood Barrier

Removable flood barriers can retard or prevent water access into buildings.
Photo courtesy DesigningBuildings.co.uk.

Exhibit 5

Accordion Shutters

Accordion or other high-quality shutters protect glass from intense winds and flying objects.
Photo courtesy SecurityRollingShutters.com.

Conclusion

Climate risks are real and public sector entities who recognize them, understand their implications, and meet them head-on will have a leg up with policy makers, investors, bond ratings agencies, and others with direct concerns. Housing authorities who assess the local consequences of such risks and take actions to manage these will better protect not only the buildings they are responsible for but the low-income residents who inhabit those buildings as well. Housing authorities also are likely to save money over the longer term. Tools exist to help manage climate risks within broader risk management strategies and can be readily accessed by the public housing authorities who wish to do so.

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