

# **IN HARM'S WAY**

**How Communities Are Addressing  
Key Challenges of  
Building Climate Resilience**



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HOW COMMUNITIES ARE  
ADDRESSING KEY CHALLENGES  
OF BUILDING CLIMATE  
RESILIENCE

# HARM'S WAY

John Cleveland & Peter Plastrik

Foreword by Amy Chester



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Also see:

*Life After Carbon: The Next Global Transformation of Cities*  
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*Connecting to Change the World: Harnessing the Power of  
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*The future is already here—it's just not very evenly distributed.*

— William Gibson

*It's a choice in the end. It's a human choice.*

*We can think about that future as an opportunity or we can close our eyes and do nothing and let it happen to us, and see more death and despair, more assets and people lost.*

— Henk Ovink



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## FOREWORD

We are at a crossroads.

Students are walking out of classes around the world to demand divestment from fossil fuels. In the United States, frustrated homeowners ask local governments to buy their land because they can no longer withstand the increased flooding. Bond rating companies have warned that they will take into consideration localities' vulnerabilities when assessing their bond risk. Banks are unloading mortgages that could be underwater—in both senses of the word—by the end of a 30-year loan.

Everyone seems to be talking about the climate crisis, but are we taking enough action to solve the problem that communities face?

It could be that we are on the verge of something great. However, the cohesiveness of governance, budget, and political practices that is needed to work through this challenge is so great that, unless we can take apart the systems that we have been living with for decades, we will never get there. How we make these choices and who is at the table when these projects will be implemented is even more important than what we implement. We must, therefore, plan for the future using the lessons of the past.

A few months after Hurricane Sandy devastated the northeast United States, Rebuild by Design was born. It began as an initiative of the federal government that coupled innovation and global expertise with community insight to develop implementable solutions to the region's most complex needs. At the heart of the process was a collaborative research and design challenge that called for the best minds of the world to work with local communities and local governments to address their newly understood vulnerabilities to climate change. In a first-of-its-kind process, design teams worked with hundreds of community organizations and government entities to design large-scale projects to address impending climate risks. That program grew into a family of interdisciplinary experts, organized in Design Teams that began to understand what our nation was facing. The Designers recognized that the only way through the challenges of climate change is to work alongside the communities who are most affected and to ensure that every piece of infrastructure we build can help the most physically and

socially vulnerable communities every day, as well as on days of extreme weather.

What we learned on that journey is that there is no such thing as a “natural disaster,” but rather, disasters are the result of a natural event coupled with poor preparation, infrastructure, policies and responses. Nature isn’t an equal opportunity destroyer. Disasters have a higher impact on the most vulnerable populations, which includes characteristics such as income, age, race, and health. After Hurricane Sandy, renters had challenges accessing government grants and low-income owners were more likely to have their flood insurance lapse, leaving themselves without needed relief and thus taking longer to recover. Community members who were told to evacuate before the storm, who already had a high distrust in government, decided to stay behind instead of going to a government-run shelter. This left them trapped in their high-rise, low-income public housing without power—no lights, refrigeration or phone charging, and no elevators.

We need to prepare our communities for a future that can withstand these increasing unfortunate events. Just as we are seeing with the COVID pandemic, the unexpected hits the most vulnerable the hardest. Along with solving how our communities will physically adapt to climate change, we need to address the underlying inequities that will be further exacerbated by climate change, including institutional racism, a broken healthcare system, and disparities in education.

It was not only in the immediate days after Sandy that we saw communities innovate in resilience planning, it has also been in the months and years that have followed Hurricanes Katrina, Harvey, Maria, and others. Examples, such as working with local doctors to set up databases of prescriptions that could easily be transferred to an open pharmacy for seniors to have uninterrupted access to medicine, and creating a community-led strategy to map out each organization’s responsibility so there will be no loss of time coordinating after the impact of a disaster, are innovative and scalable. These efforts can be relevant and potentially life-saving for communities who have not yet experienced disasters, and those who have.

However, to reach the scale that is needed, funding and governmental support are essential. For the past 10 years, taxpayers have spent on average

\$8 billion on disasters such as heavy rainfall, wind and wildfires. Governments need to commit to incorporate the learnings to create and implement policies to adapt to climate change. The silos of geographic and political boundaries, electoral limits, and governance and budget practices are holding us back from solving this crisis.

In the years that I have been working with John Cleveland and Peter Plastrik, it has been clear they understand the complexities of solving these problems and offer a reliable path forward. They bring a unique outside-inside perspective to all their work—looking across multiple cities and systems to understand how to build the practice of resilience, the challenges of changing governance models, and the funding cycles and mechanisms which all work adheres to—whether we realize it or not. Through John and Peter's research and vast networks, *In Harm's Way* was born as a guide for governments and practitioners to gain the clearest understanding of how to plan and finance climate adaptation projects in ways that are equitable and implementable.

A bold leader at the top is not what will save us this time. We need leaders at all levels of government, along with community leaders, to do their part to collaboratively plan a full-scale revamping of existing zoning, planning, and building measures, deciding the parts of communities that will retreat, and how residents can migrate into new communities without causing additional stresses of gentrification and the dissolving of social networks.

This book provides recommendations of how to adapt our entrenched government and financial systems to respond to these challenges—so communities and community members can address this issue head on. Though it often feels like adapting to climate change is moving too slowly, a great deal can be done quickly if local, state and federal leaders step up for bold action, prioritize the most physically and socially vulnerable, and pilot new decision-making processes. We can strengthen communities while also providing basic security to vulnerable people and places.

The analyses, insights, and strategies of *In Harm's Way* can hold our collective hands through the journey as the emerging practice of community resilience develops and institutionalizes. Where we fortify, where we retreat, what types of materials we use, such as green infrastructure (increasing wetlands and restoring riparian buffers) or gray infrastructure (such as build-

ing sea walls, dykes and levees), will have lasting decisions on our communities, supply chains and job growth. Some actions will be based on science, others budgets, others on the partiality of policymakers.

The choices we make now will affect communities for generations. We must not make the same mistakes as before by excluding communities from the decisions that will impact them. All stakeholders—residents, land owners, businesses, and local organizations—need to be brought into the planning processes from the beginning, so we can align our goals and work towards change. Everyone plays a role in manifesting the world we want to see. Together, we can ensure our communities are prepared for a changing climate.

*In Harm's Way* provides guidance and tools, will we now step up to address the challenge of climate resilience?

*Amy Chester*

*Rebuild by Design*

*December 2020*



## **INTRODUCTION:**

# **The Uncertain Future of Climate Resilience**

As 2020 came to a close, Nic Hunter, the mayor of Lake Charles in coastal Louisiana, had a message for the nation after his city of 78,000 was devastated by two hurricanes just six weeks apart that killed people, destroyed blocks of homes, displaced residents, cut power, and left mountains of debris on streets: “I am begging, I am pleading for Americans not to forget about Lake Charles.”<sup>1</sup>

Americans are hearing this sort of post-disaster plea more and more, and many of us have experienced flooding, extreme heat, drought, and other climate hazards in recent years. Not surprisingly, concern about climate-driven risks is on the rise. But anxiety and actual climate changes are moving faster than our actions to protect and adapt our communities.

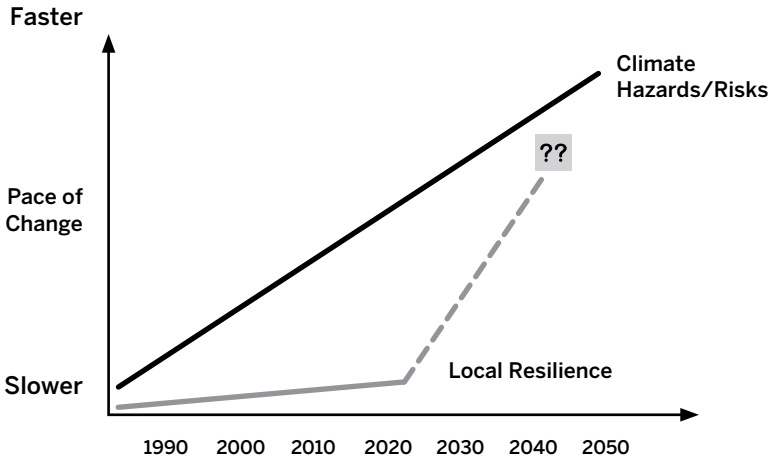
Climate change is undeniably upon us—unchecked and getting more dangerous, already delivering damage and disruption to Lake Charles and many other communities. But most places are not prepared to withstand the assault that has begun and will intensify.

Will we eventually be overwhelmed by numerous appeals for help from numerous places that, like Lake Charles, go through a climate-propelled disaster and then must beg not to be forgotten? Or will our communities get their climate-resilience act together, with appropriate support from state and federal governments and the private sector, and reduce their vulnerability to climate changes?

For the past four years we have assessed and reported on what it takes for communities to build their resilience to what’s coming. We assumed that vast changes in climate will happen, that the vector of the risk is nearly certain and accelerating. Our critical question has been, how rapidly and effectively will local resilience be strengthened? When will local readiness for climate changes intersect with and protect against the increasing existence of climate hazards and risks?

It is quite possible for communities to know what their climate risks are and to figure out which resilience-building actions to pursue. But the pace of local climate-resilience building by American communities has been agonizingly slow, much like the sluggish pace of local, state, and national efforts to

### When Will Resilience Building Catch Up With Climate Change?



reduce climate risks by cutting back sharply on greenhouse gas emissions. Back in March 2017 we estimated that roughly 125 US cities had completed or were doing planning for climate adaptation—out of the more than 1,000 cities with populations above 25,000.<sup>2</sup> More local governments have joined the list since then, but there's little doubt that only a small fraction of all communities is preparing. And many of those that are organizing resilience face big challenges in implementing the plans they develop.

The barriers to local climate-resilience building are many: lack of sufficient public demand and political will; opposition from businesses and individuals who fear their economic interests will be damaged; the worry of community organizations that investments in resilience will discriminate against marginalized groups; complicated technical challenges involved in planning, designing, and implementing resilience actions; shortage of money to pay for projects, programs, and policies; inconsistent and conflicting policies of national, state, and local government policies; and more.

Even when market forces start to respond to climate risks by reducing investment in property, some local officials may try to override the signals. In



October 2020, for instance, researchers identified a decline in home sales and sales prices in low-lying coastal areas of Florida that were highly vulnerable to sea level rise and flooding. Their database: 1.4 million home sales over a 20-year period. But some mayors and realtors in affected communities argued there were other reasons for the declines or claimed that the communities can (and presumably will) protect homeowners from worsening storms and floods.<sup>3</sup>

The failure of the federal government to do much more than provide funding for relief and rebuilding after climate disasters is well known. But it's also the case that few state governments have stepped fully onto the climate-resilience stage. Our September 2020 survey drew responses from 30 states, finding that few of them were implementing key elements of a climate resilience framework (including creation of a state coordinating body, a state resilience plan, and resilience standards for state infrastructure). Few were moving to generate new revenue exclusively for resilience strengthening or to authorize local governments to raise and spend new local revenue for resilience.<sup>4</sup>

Looking at these and other trends, we concluded that acceleration of local progress in resilience building will depend on addressing many tough challenges and we selected three for research and development of actionable insights and advice:

- **Local capacities.** Building the essential capacities that communities need to plan and implement resilience actions.
- **Financial system.** Developing a “plug-and-play” financial system to support public and private investment in local resilience.
- **Managed retreat.** Deciding whether, where, when, and how communities will retreat—eliminate existing development and prohibit future development—from places that climate change is making uninhabitable.

Working with various research partners, we have interviewed more than 100 climate-resilience leaders in scores of local and state governments around the US and read cities' climate-adaptation plans and numerous expert studies and news articles. This allowed us to generate multiple reports and a chapter in *Life After Carbon: The Next Global Transformation of Cities*, the book we

wrote about cities and climate change,<sup>5</sup> which presented frameworks for understanding each challenge and recommendations for how communities might respond, individually and collectively. Among the ideas developed:

- There are seven capacities that communities need to develop so they can undertake effective preparation for climate change. (See chapter 2)
- An effective system for city climate resilience finance would integrate three elements: city transaction capabilities, ramped up state and federal government policies, new financial, insurance, and real estate market capacities. (See chapter 3)
- The eight strategies communities are using to pay for resilience, which we called “Playbook 1.0,” are evident, but there is much that this initial approach cannot accomplish; a Playbook 2.0 will have to be developed and activated. (See chapter 4)
- State governments have six ways to build a state-local financial system for investing in community-level resilience strengthening. (See chapter 5)
- There is an emerging roadmap for generating community acceptance of managed retreat as a part of building a city’s climate resilience. (See chapter 6)

Over the years, however, not enough urgency and resources have been dedicated to making these and other resilience-building approaches happen. It’s critical to accelerate the emergence of a professional practice for urban climate resilience.

This book takes up that task. In chapter 1 we introduce a set of encouraging trends for local resilience strengthening that cut across the key challenges and inform local action. In chapters 2-6 we update and present our previous analyses and recommendations. The information and advice they contain remain highly relevant—because the pace of resilience building has been slow, and the basic work of local climate resilience will persist for decades. In chapter 7, all new material, we identify emerging challenges that can be found in communities moving down the path to resilience. For this chapter we use the case of Boston, where coauthor John Cleveland serves as executive director of the Boston Green Ribbon Commission.<sup>6</sup>

Local practitioners of climate resilience know that we are in an early and still-fragile stage of building a new and complex practice that communities will have to embrace and with which all levels of government, as well as the private sector, will have to align. There's no time to waste! We have learned a great deal about this emerging practice from places that have been developing and advancing them. And there is more to learn and do—this is the crucial work of the next generations of professionals and activists who rise up to tackle climate change and community sustainability.

This book will help ensure that communities prepare now instead of having to plead for help later.

