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Introduction

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THE CAMBRIDGE HANDBOOK OF DISASTER LAW AND POLICY

This century's major disasters from Hurricane Katrina and the Fukushima nuclear meltdown to devastating Nepalese earthquakes and the recent crippling volcanic eruptions and tsunamis in Tonga have repeatedly taught that government institutions are ill-prepared for major disaster events, leaving the most vulnerable among us unprotected. These tragedies represent just the beginning of a new era of disaster – an era of floods, heatwaves, droughts, and pandemics fueled in part by climate change. Laws and government institutions have struggled to adapt to the scope of the challenge; old models of risk no longer apply. This Handbook provides timely guidance, taking stock of the field of disaster law and policy as it has developed in this century. Experts from a wide range of academic and practical backgrounds address the root causes of disaster vulnerability and offer solutions to build more resilient communities to ensure that no one is left behind.

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The Cambridge Handbook of Disaster Law and Policy

RISK, RECOVERY, AND REDEVELOPMENT

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Contents

| | |
|---|----------------|
| <i>List of Figures</i> | <i>page</i> xi |
| <i>List of Maps</i> | xii |
| <i>List of Tables</i> | xiii |
| <i>List of Contributors</i> | xiv |
| <i>Foreword</i> | |
| Daniel A. Farber and Lisa Grow | xxv |
| <i>Acknowledgments</i> | xlvi |
| Introduction | 1 |
| John Travis Marshall, Ryan Rowberry, and Susan S. Kuo | |
| PART I CRITICAL PERSPECTIVES ON THE EVOLUTION OF DISASTER LAW AND POLICY | |
| 1 Catastrophe Is Not the End but the Beginning: Two Centuries of Evolution in US Disaster Law and Policy | 25 |
| Donovan Finn | |
| 2 The Flood: Political Economy and Disaster | 48 |
| Mari Matsuda | |
| PART II EFFECTIVE GOVERNANCE AS AN IMPERATIVE FOR RESPONSIVE DISASTER LAW AND POLICY | |
| 3 Governance Structures for Recovery and Resilience | 59 |
| Susan L. Cutter | |
| 4 Governance Strategies for Mitigating Urban Heat Island Effect | 71 |
| Dawid Sześciło | |
| 5 Regulatory Institutional Considerations for Preventing Mining Dam Disasters in Brazil | 81 |
| Patrícia Sampaio and Rômulo Sampaio | |

| | | |
|---|---|-----|
| 6 | Integrating Disaster Risk Reduction and Climate Change Adaptation in the Context of Sustainable Development in Africa Livhuwani David Nemaikonde and Dewald van Niekerk | 95 |
| 7 | Climate Resilience in the Greater Bay Area of South China Maria Francesch-Huidobro | 107 |
| 8 | An Adaptive Legal Framework for Water Security Concerns in the Guangdong-Hong Kong-Macao Greater Bay Area Ping Yu Fan and Kwok Pan Chun | 131 |
| PART III LAW'S ROLE IN PROMOTING HAZARD MITIGATION: INTERGOVERNMENTAL, INTERNATIONAL, NATIONAL, AND LOCAL APPROACHES | | |
| 9 | Local Resilience, Land Use Law, and Disaster Planning John R. Nolon | 151 |
| 10 | Financing City Resilience Arthur C. Nelson | 181 |
| 11 | Disaster, Land Use, European Union Law and the Impact on EU Member States: The Relevance of the 2019 Decision of the Dutch Supreme Court Ordering Cuts in Greenhouse Gas Emissions Juli Ponce | 207 |
| 12 | Covid-19 and Cooperation in Times of Disaster Matiangai Sirleaf | 221 |
| 13 | Disaster Recovery in Rural Communities Ann M. Eisenberg | 229 |
| 14 | Wildfire Federalism: A Framework for Local Government Participation in Disaster Planning Stephen R. Miller | 240 |
| 15 | A Comparative Review of Hazard-Prone Housing Acquisition Laws, Policies, and Programs in the United States and Aotearoa New Zealand: Opportunities to Improve Practice Gavin Smith and Wendy Saunders | 250 |
| 16 | Urban Transformation as a Resilience Strategy: Earthquake Preparedness in Istanbul Asli Ceylan Oner and Haluk Özener | 270 |
| 17 | How Do Green Cities Prevent Disasters? Wellington Migliari | 283 |
| 18 | Constructing a Resilient Energy Supply Shelley Welton | 301 |

| | | |
|--|---|-----|
| 19 | Building a Resilient Power Grid Robert R. M. Verchick | 313 |
| 20 | Weaponizing Private Property and the Chilling Effect of Regulatory Takings Jurisprudence in Combating Global Warming Danaya C. Wright | 327 |
| PART IV PRIVATE SECTOR INITIATIVES TO PROMOTE DISASTER RESILIENCE AND RECOVERY | | |
| 21 | Averting Disasters through Watershed Policy Advocacy: The Case of the Philippines' Largest Highly Urbanized City Chinkie Peliño-Golle and Florence Chio Baula | 353 |
| 22 | Insuring Natural Catastrophes in America Christopher C. French | 366 |
| 23 | Corporate Compliance and Climate Change Susan S. Kuo and Benjamin Means | 378 |
| PART V LAWYERS AS DISASTER LAW AND POLICY LEADERS: TRAINING FOR STUDENTS AND GUIDANCE FOR PRACTITIONERS | | |
| 24 | Creating Blueprints for Law School Responses to Natural Disasters Jeffrey R. Baker, Christine E. Cerniglia, Davida Finger, Luz E. Herrera, and JoNel Newman | 389 |
| 25 | Law and Lawyers in Disaster Response Clifford J. Villa | 408 |
| PART VI CULTURAL HERITAGE PROTECTION AND CROSS-DISCIPLINARY OPPORTUNITIES FOR ADVANCING DISASTER LAW AND POLICY | | |
| 26 | Scheduled Monuments and Sites at Risk of Coastal Erosion: Danish Heritage Legislation and Actions Pernille Denise Frederiksen and Marianne Rasmussen Lindegaard | 423 |
| 27 | Heritage-Related Disaster Policy in the United States Sara C. Bronin | 436 |
| 28 | Love for Heritage in the Time of Covid-19: Pandemics and Preparedness Jack Tsen-Ta Lee | 451 |
| 29 | Reflections on Urban Cultural Heritage, Public Health, and Public Participation Ryan Rowberry | 468 |

PART VII DISASTERS AND VULNERABLE COMMUNITIES

- 30 **After the Storm: The Importance of Acknowledging Environmental Justice in Sustainable Development and Disaster Preparedness** 479
Brie Sherwin
- 31 **Social Constructions of Disaster Survivors and Displaced Populations: Implications for Policy Design** 497
Alka Sapat, Arjola Balilaj, and Ann-Margaret Esnard
- 32 **From Covid-19 to Climate Change: Disaster and Inequality at the Crossroads** 511
Cinnamon P. Carlarne
- 33 **Disasters and Disability** 525
Lance Gable

Introduction

John Travis Marshall, Ryan Rowberry, and Susan S. Kuo

“The greatest comeback since Lazarus” is how Peter Ricchiuti, professor at Tulane University, often described New Orleans’ recovery from Hurricane Katrina’s near-total devastation. In the years immediately following Katrina, Ricchiuti frequently welcomed students, graduates, and business professionals to New Orleans. Seeing visitors and newcomers amazed and inspired him, his colleagues, and his neighbors. Outside the Central Business District hotels where he often spoke at conferences, there were scores of shops, restaurants, and offices reopening for business, undeterred by vacant office towers and the lingering odor of basements still damp and moldy from floodwaters. A little farther away, across dozens of city neighborhoods, thousands of residents and volunteers were slowly rebuilding homes, businesses, and churches submerged for weeks following Katrina’s catastrophic levee breaches. For those who had observed firsthand New Orleans’ near-complete devastation, its resurgence was solemn and awe-inspiring.

The field of disaster law and policy has origins older and broader than the August 2005 storm that ravaged the US Gulf Coast.¹ Its roots are sometimes traced back to California’s 1989 Loma Prieta and 1994 Northridge earthquakes, the 1995 Kobe, Japan earthquake, the September 11 attacks, and the 2004 Banda Aceh, Indonesian tsunami. Growing alarm about climate change has also influenced the field’s growth. The Intergovernmental Panel on Climate Change (IPCC) delivered its second report in 1995 and a third report in 2001, both issuing stern warnings about the advancing onset of global warming.² The Kyoto Protocol was drafted in 1997, activating the United Nations Framework Convention on Climate Change (UNFCCC). That Protocol went into effect in 2005, without the United States as a signatory.

In other words, climate change and catastrophes preceding Katrina led policymakers and scholars to evaluate more closely the unusual, but critical, law and policy considerations surrounding disasters and the onset of climate change.³ Few, however, would dispute that Hurricane Katrina was a turning point. It was a tragic, pivotal event that led policymakers,

¹ See DANIEL A. FARBER, JAMES MING CHEN, ROBERT R. M. VERCHICK, & LISA GROW SUN, *DISASTER LAW AND POLICY* (3d ed. 2015). See also Finn, *infra*, Chapter 1.

² The IPCC released its 6th and most recent Assessment Report on climate change as this volume was being edited. Chapter 11 of the draft report describes climate change as a likely driving force behind recent weather-related hazard events. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), *CLIMATE CHANGE 2021: THE PHYSICAL SCIENCE BASIS* (2021), <https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/#:~:text=THE%20REPORT%20Authors,Report,54th%20Session%20of%20the%20IPCC>.

³ LAURIE A. JOHNSON & ROBERT B. OLSHANSKY, *AFTER GREAT DISASTERS: AN IN-DEPTH ANALYSIS OF HOW SIX COUNTRIES MANAGED COMMUNITY RECOVERY* (2017); Witold Rybczynski, *Rebuilding NOLA*, 10 *WHARTON REAL ESTATE REV.* 92 (Spring 2006).

scholars, and a wide range of professionals to engage in a more comprehensive assessment of whether and how laws and policies promote community resilience to disaster events.⁴

In unprecedented fashion, Katrina demonstrated fundamental ways in which laws and government institutions proved inadequate both before and after the storm, and it revealed precisely how those shortfalls have enormous human consequences. Disaster planning and response largely overlooked the needs of residents who lacked the resources to evacuate or to return and rebuild – in New Orleans and across southern Louisiana and Mississippi. Government-led long-term recovery programs were well-intentioned but anemic and disappointingly calibrated, failing to help those in greatest need.

Professor Ricchiuti's droll characterization of the city's post-storm resurrection captures the irrepressible spirit of a community determined to rebuild following disaster.⁵ It also aptly describes a city's extraordinary recovery from a near-death experience. Ordered evacuated and then largely abandoned for weeks, New Orleans had been laid waste by failing flood walls that unleashed tidal waves throughout the city. Two-thirds of the city's residents – 300,000 people – permanently or temporarily lost their homes.⁶

To bring New Orleans back required rebuilding and revitalizing a city at a scale that was, outside of war, almost unparalleled in modern times.⁷ Many of New Orleans' fundamental functions had to be reinvented or revived, from administrative hearing procedures, to government ethics guidelines and healthcare services, to housing stock, parks, retail stores, roads, stormwater systems, and the city's comprehensive plan and zoning code.⁸ Each of these enormous recovery efforts demanded concurrent reexamination of complex legal and institutional considerations that controlled response and recovery initiatives. The laws and government agencies impeding and complicating recovery were many. They included: a city charter restricting the mayor's ability to execute long-term contracts; a state insurance regime uninterested in exploring ways to reward investment in newly constructed and rehabbed storm-resistant structures; a state constitution that effectively barred public agencies from acquiring long-derelict private properties and redeveloping them for affordable housing; and federal agencies who refused to disburse recovery funds to families who could not sufficiently demonstrate ownership of storm-damaged homes.

History and legend supply iconic reminders that disasters can dramatically alter the human landscape and the communities it supports. Atlantis, ancient Alexandria, and Pompei furnish three examples of cities wiped away by disaster.⁹ A catastrophe of Katrina's magnitude seemed a fantastic fictional narrative until August 29, 2005. But other natural disasters have followed – albeit on a much smaller scale – that have jeopardized entire small cities and towns, including the wildfires in Ft. McMurray, Alberta (2016), Paradise, California (2018), and Lytton, British

⁴ These included calls for change from lawyers, architects, engineers, healthcare professionals, planners, and others.

⁵ Generally speaking, disaster law and policy scholars have cautioned that the post-disaster drive to rebuild might best be tempered for the sake of making prudent decisions about expenditure of recovery funds as well as the future safety and security of residents who are rebuilding. See Alexander B. Lehman, *Stronger Than the Storm: Disaster Law in a Defiant Age*, 78 LA. L. REV. 437 (2018); Rob Olshansky, *Recovery After Disasters: How Adaptation to Climate Change Will Occur*, in CLIMATE CHANGE AND ITS IMPACTS: RISKS AND INEQUALITIES (Colleen Murphy, Paulo Gardoni, & Robert McKim eds., 2018).

⁶ Rybczynski, *supra* note 3, at 93–94.

⁷ Rybczynski observes that many other large cities have been devastated by natural disasters over the past several hundred years, but that New Orleans stands out.

⁸ See David A. Marcello, *Ethics Reform in New Orleans Progress – And Problems Ten Years Post-Katrina*, 62 LOYOLA L. REV. 435 (2016); ROBERT B. OLSHANSKY AND LAURIE A. JOHNSON, CLEAR AS MUD: PLANNING FOR THE REBUILDING OF NEW ORLEANS 238–44 (2010).

⁹ See Rowberry, *infra* Chapter 29.

Columbia (2021). The looming specter of Katrina and the major disaster events that have followed raise the question of whether communities and nations are prepared to deliver the critical, time-sensitive, and highly specialized interventions necessary to enable all sectors of a community to recover and thrive. The growth of disaster law and policy as a field is, of course, not so much driven by the prospect of a single calamity befalling a community as it is tied to the near certainty that we have entered an era when the frequency, severity, and potential redundancy of major disaster events demands a robust, creative, and inclusive response from lawmakers and policymakers.¹⁰

Katrina emphatically demonstrated that laws and policies matter. Constitutions, statutes, ordinances, procedures, and judicial decisions set basic priorities. They articulate overarching values and establish a critical infrastructure for engaging citizens, businesses, and philanthropic interests in the work of nurturing stronger and more equitable communities.¹¹ The *Handbook* is intended to help practitioners, scholars, and leaders assess the progress that disaster law and policy has made – and must continue to make – to ensure that communities have the laws and institutions in place to enable meaningful disaster preparation, mitigation, response, and recovery. We celebrate New Orleans’s continuing recovery from a disaster, as well as recoveries in cities across the globe from New York, to Istanbul, to Kobe. At the same time, we recognize that there is much to learn and, unfortunately, more disasters to come, including those that may seem unimaginable to us. Moreover, as Professor Ricchiuti suggests, our work in service of disaster response and recovery may even require us to become adept at the extraordinary feat of bringing communities back from the brink.

This introduction provides an overview of the disaster law and policy topics explored in the chapters that follow. Before sharing that overview, there are a few threshold questions to consider. What does the word “disaster” mean? What concerns are reasonably encompassed by the field of disaster law and policy? And where might disaster law and policy be headed in its evolution as a field of practice and study? The answer to each of these questions is malleable, and the developing and dynamic nature of disaster law and policy is reflected in the contributions the chapter authors have made to this volume. The *Handbook*’s Foreword and thirty-three chapters highlight a range of ongoing efforts to advance international, national, and local responses to disasters as well as plans to prepare for them. We offer here brief initial thoughts on three foundational considerations.

I DEFINING DISASTER

When a storm, earthquake, accident, or other calamity puts lives, livelihoods, and community in jeopardy, it seems easy to overlook questions about a word’s meaning. Those engaged actively in disaster response, recovery, and preparation don’t ordinarily have the time to think about such

¹⁰ See Farber & Grow, *supra* Foreword.

¹¹ Ordinances, statutes, and state constitutions help define a city’s capability to respond to disasters. See, e.g., J. R. Nolon, *Disaster Mitigation Through Land Use Strategies*, 23 PACE ENVTL. L. REV. 959, 963–64 (2006); P. E. Salkin, *Sustainability at the Edge: The Opportunity and Responsibility of Local Governments to Most Effectively Plan for Natural Disaster Mitigation*, 38 ENVTL. L. REP. NEWS & ANALYSIS 10158, 10158 (2008). We also recognize that the law may be inadequate to address fundamentally destabilizing challenges, such as those posed by climate change, and that sometimes law even acts at cross-purposes to fundamental goals, such as environmental protection. See R. Henry Weaver & Douglas A. Kysar, *Courting Disaster: Climate Change and the Adjudication of Catastrophe*, 93 NOTRE DAME L. REV. 295 (2017) (“We are concerned . . . with the more profound ways in which climate change destabilizes the concept of law”); Jan G. Laitos & Lauren Joseph Wolongevicz, *Why Environmental Laws Fail*, 39 WM. & MARY ENVTL. L. & POL’Y REV. 1 (2014) (“natural resources and environmental laws have been unsuccessful and in some cases even destructive”).

elemental questions. They are busy tackling challenges encountered as a city or town works to bounce back from a catastrophe or prepares for a future encounter with a potential hazard event. However, the definition of disaster is not simply a matter of vocabulary. It matters to the individuals caught in the disaster's crosshairs as well as the government, for-profit, and nonprofit entities responding to a disaster event.

To an extent, the determination that a hazard event qualifies as a disaster is subjective.¹² It depends on perspective. In the United States, the decision regarding whether a disaster meets the federal definition of a "major disaster" can be the difference between receiving a modest level of state aid or millions of dollars in federal assistance. Decisions about the quantum of damage suffered by affected communities can sometimes boil down to a matter of interpretation. It is not unusual for local governments in the United States to learn that the federal government has refused their state governor's request for a major disaster declaration. These communities may then choose to make the case that storm damage rises to the level of a major disaster. In January 2017, Dougherty County, Georgia suffered widespread and severe wind damage caused by strong in-line thunderstorms.¹³ Although Georgia's governor declared a disaster, a federal declaration did not follow. The County quickly hired a former state emergency management professional who advised the local government how to gather and present the block-by-block structural damage assessments that would be needed to make the County's case to the Federal Emergency Management Agency (FEMA). Only with detailed data in hand and persuasive appeals through social media and national television news outlets did the County secure a federal declaration of major disaster. "All disasters are local," and sometimes those closest to a hazard event must demonstrate to those not on the ground that the event meets the technical definition of a disaster.

More than money and expert assistance are at stake when judging what constitutes a disaster. Recognizing an event as a disaster is also about justly and fairly validating the experience of communities affected by a disaster. People who endure traumatic events find their lives permanently transformed. Acknowledging an event as a disaster not only helps confirm that those affected have suffered loss, but it also signals to others that survivors warrant and may require special assistance. Consider, for example, community members who suffer long-term displacement following a devastating drought. Whether members of a community have been displaced within their home country or beyond its borders, those driven out by the drought and the communities receiving them face enormous adversity and significant peril. Historically, government and nongovernmental organizations have not considered such displacement a disaster. As Alka Sapat, Arjola Balilaj, and Ann-Margaret Esnard explain, those who are displaced internally, within their own county, cannot even be recognized as refugees of disasters.¹⁴ Mass displacement, of course, for whatever reason, creates conditions which are almost by definition beyond the ability of a local government or even some national government to manage.

Scholars and commentators have scrutinized the wide range of definitions that governmental, intergovernmental, and nongovernmental organizations have given to the term "disaster." We do not attempt here to cover them in detail, but we recognize that they have consequences, potentially shaping our response to, and preparation for, disasters. Just as Dougherty County,

¹² Ryan S. Keller, *Keeping Disaster Human: Empathy, Systematization and the Law*, 17 MINN. J. L. SCI & TECH. 1, 10–12 (2016).

¹³ Interview with Christopher Cohilas, Chair, Dougherty County Commission, June 13, 2019 (notes on file with editors).

¹⁴ See Sapat, Balilaj, & Esnard, *infra* Chapter 31.

Georgia officials found that the Stafford Act’s definition of “major disaster” permitted a somewhat subjective interpretation that initially excluded their loss, other definitions arguably support broader recognition. In the international context, Matingai Sirleaf observes that the International Law Commission’s (ILC) definition of disaster likely covers even events surrounding pandemic and epidemic diseases.¹⁵ Similarly, definitions crafted by the United Nations Office for Disaster Risk Reduction (UNDRR) and the International Federation of Red Cross and Red Crescent Societies (IFRC) also support more expansive definitions of disaster.¹⁶ Not only as scholars and practitioners, but also as businesses, nongovernmental, governmental, and inter-governmental organizations who may have a legal responsibility to prepare for, or respond to, disasters, it is important for us to consider carefully the contours of how disaster is defined.¹⁷

II THE EMERGENCE OF DISASTER LAW AND POLICY AS AN AREA OF PRACTICE AND STUDY

Hallmarks of an emerging field in any discipline frequently include textbooks, courses of study, and growth of professional and academic communities of interest – to name just a few.¹⁸ There is no mistaking that disaster law and policy is a new and growing field. Over the last fifteen years, the field has matured significantly to allow undergraduate, graduate, and professional students to take classes that focus on disasters, choose from dozens of books, and join organizations devoted to advancing all range of concerns pertaining to disasters.¹⁹

At a time when it is impossible to read a newsfeed without encountering stories of droughts, fires, floods, or heatwaves, the growth of disaster law and policy seems inevitable and unremarkable. But the field’s growth and development was not always foreseeable. In the United States, major disasters had been historically handled in a reactive manner and as more or less distinct events.²⁰ Response and recovery roles evolved slowly, and disaster-related concerns were treated as a kind of “orphan” law and policy subject, lacking not only a steady governmental home, but also a well-coordinated system of programs and policies.²¹ Ad hoc and disjointed disaster response and recovery efforts took their toll and so too did a steady number of major disasters. Beginning with Hurricane Hugo, the Loma Prieta (1989) and Northridge (1994) earthquakes, and extending to the September 11 attacks, the 2010 BP Gulf of Mexico Oil Spill, and Super Storm Sandy, policymakers, scholars, business leaders, and philanthropists took increasing notice of disasters. They focused on the social, economic, and political costs of disasters and, more importantly, the far-reaching and persistent burdens that disaster events placed on the large number of citizens vulnerable to the disaster events. Although laws and policies had long helped

¹⁵ See Sirleaf, *infra* Chapter 12.

¹⁶ See Sampaio & Sampaio, *infra* Chapter 5 (discussing the UN Office for Disaster Risk Reduction definition); James M. Chen, *Modern Disaster Theory: Evaluating Disaster Law as a Portfolio of Legal Rules*, 25 EMORY INT’L L. REV. 1121, 1121–22 (2011) (discussing the International Federation of Red Cross and Red Crescent Societies (IFRC) definition of disaster).

¹⁷ See Anastasia Telesetsky, *Beyond Voluntary Corporate Social Responsibility*, 48 VAND J. TRANSNAT’L L. 1003, 1006 (2015).

¹⁸ See generally, THOMAS S. KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* (1962). There were few teaching resources available as recently as the 1990s. See Claire Rubin, *Reflections on 40 Years in the Hazards and Disasters Community*, 12 J. HOMELAND SEC. & EMERGENCY MGMT. 763, 765 (2015), <https://www.degruyter.com/document/doi/10.1515/jhsem-2015-0050/html>.

¹⁹ FEMA lists more than 260 colleges and universities that offer a course of studies in disaster and emergency management. FED EMERGENCY MGMT. AGENCY (FEMA), *The FEMA Higher Education College List*, <https://training.fema.gov/hiedu/collegelist/>.

²⁰ See Rubin, *supra* note 18, at 765 (2015).

²¹ See Finn, *infra* Chapter 1.

promote the recovery of many communities destroyed by disasters, it became clear that there were too many instances in which laws and policies were failing to protect the needs and rights of the poor, the chronically ill, young children, single parents, and others who faced special adversities.

Disasters usually reshape a community's physical landscape. Earthquakes can cause tsunamis, landslides, and soil liquefaction that wipe out wide swaths of neighborhoods. Coastal and riverine flooding can tear block after block of buildings from their foundations. Disaster law and policy examines all aspects of these far-reaching effects: physical impacts to homes, businesses, the electrical grid, levees, dams, or other infrastructure; compensation that insurance offers to cover these losses; or impressive deployment of state and federal resources to assist with a community's disaster preparation or management of the immediate response.

Although the law and policy changes prompted by disasters are not photogenic and not nearly as sudden as the physical upheavals, disasters frequently set law and policy changes in motion. The disaster event can alter the way in which we see pre-existing laws, exposing policies and procedures that function inefficiently or, even worse, frustrate the post-disaster recovery process.²² Laws that prove problematic to key recovery objectives are often targeted for repeal or amendment. In Louisiana, following Hurricane Katrina, a key facet of New Orleans' federally funded neighborhood revitalization strategy was to tap a state-created redevelopment authority to use its expropriation power to acquire abandoned residential properties and to transfer those properties to private developers who would build housing for low- and moderate-income families. Standing in the way of this important plan was a provision in the Louisiana constitution prohibiting state and local governments from using their eminent domain power to transfer expropriated land to private parties. In 2010, Louisiana voters approved a constitutional amendment finally authorizing this post-disaster neighborhood redevelopment tool.

Disasters also expose critical gaps in a community's legal infrastructure. If these gaps are to be addressed, they must be bridged in the chaos of a community's recovery, which is never ideal and frequently rushed. One of the most common and problematic gaps is the failure of communities to plan for, or to provide for, temporary and long-term post-disaster housing.²³ These housing options are particularly critical for individuals and families who lose their housing during disaster events because their homes are substandard or poorly maintained. Unfortunately, some of these gaps go unfilled.

Among the important contributions made by pioneers in the field of disaster law and policy is the appreciation that major disasters have extensive and interconnected impacts at the local, subnational, and national levels.²⁴ The physical wreckage associated with these disasters completely upends life at the neighborhood level. To help citizens bounce back requires coordinated emergency response and debris removal services from all levels of government. It also necessitates financial assistance from the national government, contextually appropriate infrastructure repairs from the local and state or provincial government, and fine-tuned resilience investments from all levels of government – just to name several urgent post-disaster needs.

Helping communities recover from disaster is no easy task, and it has certainly proven that it is not an endeavor for those who are unprepared, untrained, and overwhelmed. The broadly encompassing nature of disasters requires integrated thinking about the specific needs and

²² See, e.g., Frank S. Alexander, *Louisiana Land Reform in the Storms' Aftermath*, 53 LOYOLA L. REV. 727 (2007).

²³ See Jeffrey Lubell, *Housing Displaced Families*, in REBUILDING URBAN PLACES AFTER DISASTER (Eugenie L. Birch & Susan M. Wachter eds., 2006).

²⁴ See Farber & Grow, *supra* Foreword, and Cutter, *infra* Chapter 3. See also ERNEST B. ABBOTT & OTTO J. HETZEL, *HOMELAND SECURITY AND EMERGENCY MANAGEMENT: A LEGAL GUIDE FOR STATE AND LOCAL GOVERNMENTS* (2d. ed. 2010).

goals of communities at each phase of the ongoing cycle of disaster: from response to recovery and mitigation, to preparation for future disaster events. Much progress has been made since the field emerged, but far greater advances are needed to meet the challenges associated with climate change and persistent vulnerability of communities whose welfare has long been pushed to the margins, including people of color, ethnic and religious minorities, the elderly, the disabled, and our children.²⁵

III THE FUTURE OF DISASTER LAW AND POLICY

We accepted Cambridge University Press's invitation to write and edit this *Handbook* early in 2019. So, as the volume's editors, we share now a collective chuckle as we try to predict where the practice and study of disaster law is headed. After all, front of mind for many in 2018 and 2019 were the then-recent major disaster events such as Hurricane Michael, the first Category 5 Hurricane to hit the continental US in more than twenty-five years, and the September 2018 Indonesian earthquake and tsunami that killed more than 4,300 people and destroyed thousands of homes. Michael was a ferocious storm that ripped through largely rural and poorer areas of Florida and Georgia where many structures were built long before contemporary building codes were adopted. At that time, we were asking whether Georgia and Florida would be able to build on lessons learned in a succession of storms beginning in 2005 with Hurricane Katrina and continuing to Hurricanes Harvey and Maria in 2017. Those storms displaced hundreds of thousands of low-income, elderly, disabled, minority, and undocumented families who struggled to find temporary and long-term housing options. The 2018 Indonesian earthquake and tsunamis raised similar questions. Could the government mobilize to create temporary housing for the thousands left homeless by the catastrophic tremors and waves?

Each year brings extraordinary and tragic new events to the study of disasters and disaster law, but in 2019 we did not foresee what the next two years would bring. Beginning in late 2019, Covid-19 spread rapidly from China. In March of 2020, the World Health Organization declared a global pandemic, and thus began a public health crisis that has visited almost every nation with devastating consequences. The pandemic has taken millions of lives, afflicted hundreds of thousands with debilitating long-term health conditions, left tens of thousands of young children without one or both parents, and completely upended the world's economy.²⁶

This volume's *Foreword*, authored by Dan Farber and Lisa Grow, insightfully plumbs critical challenges that will influence the future of disaster law and policy. We add here just one reflection regarding the field's trajectory. Mindful that the world remains gripped by a public health disaster as 2022 advances toward its midpoint, we continue to see the role that the pandemic is playing in framing the future study of disaster law and policy. Practitioners, policymakers, and scholars are just beginning to write about the pandemic's lessons.²⁷ Several

²⁵ MICHAEL B. GERRARD & KATRINA FISCHER KUH, *THE LAW OF ADAPTATION TO CLIMATE CHANGE: U.S. AND INTERNATIONAL ASPECTS* (2012); Jacqueline Patterson, *Equity in Disasters: Civil and Human Rights Challenges in the Context of Emergency Events*, in *BUILDING COMMUNITY RESILIENCE POST-DISASTER* (Dorcas R. Gilmore & Diane M. Standaert eds., 2013).

²⁶ *COVID-19 Coronavirus*, CTR. DISASTER PHILANTHROPY (Aug. 20, 2021), <https://disasterphilanthropy.org/disaster/2019-ncov-coronavirus/>. All fifty US states, five territories, and the District of Columbia were covered by federal disaster declarations. See FEMA, *COVID-19 Disaster Declarations*, <https://www.fema.gov/disaster/coronavirus/disaster-declarations>.

²⁷ Broad consensus exists that the pandemic represents a transformative crisis event, but we acknowledge there is an active debate as to whether it constitutes the type of "focusing event" that usually influences agenda setting and policymaking. See Rob A. DeLeo et al., *During Disaster: Refining the Concept of Focusing Events to Better Explain Long-Duration Crises*, 3 INT'L REV. PUB. POL'Y 5 (2021), <https://di.rg/1.4/irpp.1868>.

of the *Handbook's* contributors refocused their chapters to address its implications for disaster law and policy.²⁸ At this juncture, we believe that one of the most important lessons that the pandemic provides is that the foundation for meaningful disaster response and recovery is best laid with pre-disaster “blue skies” investments in more equitable development. Farber and Grow explain that the concept of disaster resilience demands some fine-tuning. We believe they would agree that the better definitions of resilience are suffused with principles of equity and justice. In an era when we are also suffering the profound effects of climate change, the Covid-19 pandemic serves as a dramatic and hard-earned reminder that investments in more equitable housing, community resources, and infrastructure are essential to achieve a greater degree of disaster resilience.

Covid-19 has yielded a searing and detailed picture of vulnerability at national and local levels. That is, the pandemic has exposed in vivid detail the critical shortcomings almost all communities harbor in their responsibility to help residents with special needs and challenges, whether they be people of color, the oldest or youngest among us, the chronically ill or disabled, or LGBTQ, or undocumented. Past major disasters have indeed provided snapshots of localized vulnerability. Citizens, businesses, nonprofits, philanthropic interests, and governmental entities have, with varying degrees of success, used those snapshots to try to inform their response. Global in reach and ongoing in nature, the pandemic has supplied a comprehensive, contextual, and penetrating image of community vulnerability that helps us understand and preview how major and broad-based stressor events, such as disasters associated with climate change, may cause distress to the communities where we live and work. Whether or not a region has been spared the effects of a major disaster in the recent past, Covid-19 puts local, subnational, and national governments on notice regarding some of the most serious vulnerabilities that communities can and will face.

Each disaster is laden with tragedies that we wish could have been avoided or prevented. The Covid-19 pandemic has been unspeakably horrible, ravaging almost every nation. It is, however, important not to lose sight of the fact that this public health crisis must be carefully sifted for the valuable, albeit deeply painful, lessons. Disasters vividly identify those who are struggling and those debilitated by the loss of their home, health, jobs, or social support networks. By functioning as a kind of x-ray that illuminates all that is broken and bruised, the disaster provides an opportunity to rectify unjust circumstances that helped give rise to a catastrophe. Further, the pandemic also highlights and reminds us that the greatest disasters jeopardize the well-being of those we typically consider insulated from significant environmental or economic shocks. By taking jobs away from a wide range of people working in service-related industries, we now see that the pandemic revealed a broader profile of vulnerability – a profile that suggests potentially widespread exposure to major hazards associated with climate change.

The pandemic can be used by policymakers and scholars as an inflection point for allowing communities to correct their course and to refashion and improve the historic systems that have made a community inequitable.²⁹ Over the last two years, governments, nonprofits, and philanthropic organizations have had to serve this broad population of need. With this information in hand, policymakers, scholars, and practitioners must focus on developing plans for equity-driven community investments. All public sector investments should be driven in part by the need to counter this broader understanding of vulnerability. Resilience must now be understood to be principally about achieving greater equity in our communities. Investments should be about

²⁸ See, e.g., Carlarne, *infra* Chapter 32; Gable, *infra* Chapter 33; and Lee, *infra* Chapter 28.

²⁹ Remarks by Bobby Milstein, Director of System Strategy, ReThink Health, to Georgia Health Policy Center (July 20, 2021) (notes on file with the authors).

raising up the least of those in our community and, by doing so, strengthening the ability of communities to navigate disaster and to continue to thrive during a community's long-term recovery.³⁰

The *Handbook on Disaster Law and Policy* is divided into seven parts. The volume begins by providing the reader historical context for our examination of disaster law. It then proceeds to critical questions surrounding governance, government interventions to address disaster risk and recovery, lawyers and law schools' roles in disaster response and recovery, the private sector's intersection with disaster law and policy, and the evolution of historic and cultural resources law in response to climate and natural hazards threats. The volume concludes with consideration of how our laws and policies fail vulnerable communities.

PART I CRITICAL PERSPECTIVES ON THE EVOLUTION OF DISASTER LAW AND POLICY

Disaster events are chaotic and messy. They demand urgent response and quick action to save lives and protect communities. These exigencies tend to focus practitioners and scholars on the essential, but now almost routine aspects of disaster response and recovery: removal of debris, reconstruction of schools and homes, and drafting of recovery action plans. Easily overlooked are the fundamental questions about how governmental, nongovernmental, business, and citizen groups carry out the monumental task of disaster response and recovery. We rarely take time to question fundamental assumptions about who has been harmed and the steps necessary to help those persons recover from and prepare for catastrophes. It is, of course, also essential to consider the lessons and insights that the history of disasters – recent and otherwise – offers us. The stories of disaster law's evolution, including both its milestones and its failures, should be instructive, if not sobering.

Donovan Finn creates a genealogy of the current US system for disaster response and recovery to help explain why federal, state, and local governments here in the United States continue to struggle with catastrophic events. This history informs our understanding of a federal government long concerned with sending aid to states in their hour of need and engaged in addressing repetitive disaster risk. But it also tacitly underscores a federal government that, until recently, made little progress in creating a coherent framework for disaster response and community long-term recovery – a framework that sprawls across the Department of Agriculture, to the Federal Emergency Management Agency (FEMA), the US Army Corps of Engineers, the US Department of Housing and Urban Development (HUD), and the Small Business Administration.

First delivered as a lecture in the wake of Hurricane Katrina in 2005, **Mari Matsuda's** indictment of government failure retains its relevance today. As Matsuda explains, pre-Katrina New Orleans was replete with failing schools, gun violence, outdated infrastructure, and stark inequality. In Matsuda's view, New Orleans, both before and after the flood, symbolizes our nation's neglect of the public good. Instead of seeking to protect our most vulnerable, we allow market logic to dictate outcomes so that those with resources amass more wealth (and the security and safety that come with wealth). Those who lack those resources must make do without childhood vaccinations, basic dental care, or adequate educational opportunities. When the flood comes, those without the means to save themselves are left to drown. More than fifteen years later, the fundamental political economy Matsuda describes has not changed.

³⁰ See, e.g., Malcolm Grant, *Land Use Planning and Urban Governance: Lessons from the Pandemic*, 5 J. OF COMP. URB. L. & POL'Y 9, 18-20 (2022) (explaining that the Covid-19 pandemic has highlighted interventions that national and subnational governments, public health actors, and urban planners can pursue to foster urban development investments and practices that will broadly promote the heightened vitality and well-being of our communities).

There are those with the resources to enjoy resilience, perhaps booking a last-minute flight to Cancun if the power goes out at home. When disaster strikes, everyone else can expect to be left behind.

PART II EFFECTIVE GOVERNANCE AS AN IMPERATIVE FOR RESPONSIVE DISASTER LAW AND POLICY

Major disasters and the onset of climate change represent challenges so significant and fundamental that they require governments at all levels to reevaluate their approaches to governance. A few minutes of browsing government websites suggest that cities, states, provinces, special purpose governmental institutions, and national governments recognize these challenges. Local, subnational, and national governments are all pledging to work toward a more sustainable or resilient future for their communities. The pathway to resilience is, however, paved with more than just catchwords and concepts. As scholars have noted, local governments chart their course for resilient futures through careful management and consideration of how they do their work.³¹ Yes, it remains important for governments to operate efficiently, responsively, ethically, inclusively, and with adequate capacity. But can those governments help all citizens thrive if they fail to cultivate new core capacities for operating adaptively, equitably, and regionally – and in some cases nationally and internationally?³²

Susan Cutter argues that our current governance structures are not sufficient to address the threat of disaster. She first observes that disasters are challenging because: (1) by definition they overwhelm local resources and require outside aid; (2) they can have a cascading effect, as when flooding causes a factory to emit dangerous pollutants; (3) they exacerbate existing inequalities of wealth and resources; and (4) they require long-term solutions. Having described some features of the problem, Cutter then observes that our government’s ability to devise a cogent response is fractured across federal, state, local, and municipal levels. Also, at every level, public officials may focus more on patching short-term problems than on developing a strategy for mitigating disaster vulnerability. As Cutter points out, elected officials who are worried about votes may not have the right incentives to engage in an effort that involves immediate costs for later benefits. She describes this dynamic as “the single greatest impediment” to wise public policy that could foster a stronger culture of resilience. Cutter concludes by identifying specific laws and policies in need of reform and by urging public officials to adopt the principles outlined in the National Academies Report, *Disaster Resilience: A National Imperative*.

Dawid Sześciło recommends paying close attention to the work of local governments in their efforts to combat hazards associated with the Urban Heat Island (UHI) effect. In the last two decades, cities have sidestepped old doctrines, classifying them as subordinate to their provincial and national counterparts. They have elbowed themselves into national and international discussions regarding climate change and disaster resilience.³³ Sześciło suggests cities are in

³¹ Thomas D. Beamish et al., *Climate Change and Legitimate Governance: Land Use and Transportation Policy in California*, 82 BROOK. L. REV. 725 (2017); J. B. Ruhl, *General Design Principles for Resilience and Adaptive Capacity in Legal Systems – With Applications to Climate Change Adaptation*, 89 N.C. L. REV. 1373 (2011); Sarah J. Adams-Schoen, *Sink or Swim: In Search of a Model for Coastal City Climate Resilience*, 40 COLUM. J. ENVTL. L. 433 (2015); Andrea McArdle, *Storm Surges, Disaster Planning and Vulnerable Populations at the Urban Periphery: Imagining a Resilient New York After Superstorm Sandy*, 50 IDAHO L. REV. 19 (2014).

³² Janice C. Griffith, *Regional Government Reconsidered*, 21 J.L. & POL. 505 (2005); Craig Arnold & L. Gunderson, *Adaptive Law and Resilience*, ENVTL. L. REP. 10426 (2013).

³³ Janne Elisabeth Nijman & Helmut Aust, *The Emerging Roles of Cities in International Law*, in RESEARCH HANDBOOK ON INTERNATIONAL LAW AND CITIES (Helmut P. Aust & Janne E. Nijman eds., 2021).

the best position to manage and solve problems related to heat islands. After all, our local governments exercise a strong hand in controlling real estate development, for years encouraging density and allowing open space to be covered with asphalt or rooftops. Based on his examination of a range of local interventions to address urban heat hazards, Sześciło contends that three local governance strategies seem to have achieved some measure of success from Berlin to Basel, Copenhagen, Malmö, Tokyo, Singapore, Toronto, and Vienna. The strategies are: (1) decentralization, which emphasizes a local government's special ability to tailor interventions to local needs, geographies, and development patterns; (2) a strategic holistic approach, which weaves UHI mitigation measures into the whole range of local government programming from construction standards to water management to transportation and urban planning initiatives; and (3) so-called mosaic governance, which mixes traditional command and control approaches to governance with incentives such as subsidies. The key, urges Sześciło, is for cities to take action: as climate change pushes temperatures to extremes, it is a city's poorest and most disadvantaged – the elderly, low-income residents, immigrants, and minority communities – who frequently live in urban areas and who remain at the greatest risk.

Disasters have also required examination of the institutions that govern and serve nations and communities. Those governmental institutions are themselves grounded in the codes and constitutions that originally authorized them. Legislatures, courts, executives, and administrative agencies have played crucial roles in helping communities respond to, recover from, and prepare for disaster. But recent disasters demonstrate that institutions at all levels have stumbled in their oversight of critical public and private activities as well as their responses to catastrophic events. **Patrícia Sampaio** and **Rômulo Sampaio** explore the consequences of the Brazilian government's maladministration of the nation's mining industry. Focusing on two major Brazilian mining accidents, which occurred in 2015 and 2019, the authors point to the enormous costs to communities when governments fail to exercise sufficient oversight of dangerous activities such as mining. They argue persuasively that the Brazilian mining disasters are an example of the potential link between poor governance and elevated risk of disaster.

It is tempting for disaster law scholars and practitioners to focus on the specific laws or policies that may have provided obstacles to helping communities respond and recover. But in so doing, it is easy to miss the critical overarching questions concerning the architecture of our legal systems and the capacity of governing institutions to respond to disasters and integrate their lessons. **Livhuwani NemaKonde** and **Dewald van Niekerk** address a central structural issue with which lawyers and policymakers must grapple – how can we more efficiently deploy our scarce resources (particularly in the global South) to address the twin threats posed by climate change and natural disasters. They note also that most countries in Africa still “silo” the climate change adaptation (CAA) and disaster risk reduction (DRR) functions. Separating CAA and DRR functions divides government roles and responsibilities in inefficient or even counterproductive ways. NemaKonde and Van Niekerk engage fundamental questions concerning the challenges that states face to adapt their institutions and laws in ways that will help lead their citizens to a future more resilient to hazards and climate change. They describe how the Paris Climate Accord, the Sendai Framework, and the UN's Sustainable Development Goals (SDGs) are all forces that are now channeling government resources toward CCA and DRR goals, but not necessarily in an integrated fashion.

Working within a single nation to structure and align government institutions and laws represents a significant, long-term investment of money and time. Consider the added complexity of attempting to accomplish this goal across three separate legal systems spanning eleven major cities. For good measure, add to the challenge that these cities are part of a region that

a national government is trying to sew together into a single megacity through a program of massive public works and economic development projects that includes airports, highways, bridges, and rail lines.

The Guangdong-Hong Kong-Macau Greater Bay Area of China (GBA) is an economic powerhouse. Comprised of two Special Administrative Regions (SARs) – Hong Kong and Macau – and nine other major mainland cities including Shenzhen, Guangzhou, and Dongguan, the GBA is home to approximately seventy-two million people and supports manufacturing, educational, research, technology, and trade facilities with extensive global reach and impact. China is currently pursuing an enormous project to link the GBA's cities so that they function as a unified urban conglomeration.

Maria Francesch-Huidobro warns that China's ambitious project, which promises to enhance the GBA's already distinguished global economic standing, does not adequately consider the threats posed by natural hazards and climate change. She argues that just as formidable as the GBA's projected potential for future growth and development is the region's alarming vulnerability to sea level rise. Two of the region's eleven cities rank among the nine most vulnerable urban areas in the world. Even more concerning is that the mounting threats of sea level rise and coastal flooding mean that the proposed development plans for the GBA may put its businesses and citizens at significant risk. The good news, writes Francesch-Huidobro, is that the GBA can pursue technological innovations to control flood risk and other hazards related to climate change. The troubling news is that the GBA currently lacks a process for designing, testing, and incorporating lessons learned into China's continually unfolding plans for the region.

Ping Yu Fan and **Kwok Pan Chun** agree that climate change and urban growth have already created complexities and uncertainties surrounding the GBA's water systems. They also contend that the region's current legal architecture, which includes three distinct legal regimes, promises to frustrate future growth and jeopardize the safety and well-being of the GBA's residents and businesses. Fan and Chun propose that the way forward must include developing a new adaptive legal framework for water hazards to address emerging uncertainties and complexities of water hazards related to climate change and the GBA region's rapid development. According to Fan and Chun, this adaptive legal framework can support continuously improving water governance and increasing water system adaptability and resilience. Based on these interventions, water governance can help to alleviate climate change challenges and sustain water resources.

PART III LAW'S ROLE IN PROMOTING HAZARD MITIGATION: INTERGOVERNMENTAL, INTERNATIONAL, NATIONAL, AND LOCAL APPROACHES

The field of disaster law and policy finds itself at a crossroads.³⁴ Communities face a continuing tide of extreme weather events, a paralyzing global pandemic, and a heightened state of alarm regarding climate change. These ongoing pressures and risks confirm that private, governmental, and intergovernmental interests must move threats posed by major disasters to the foreground of their concerns. The last few decades have witnessed significant growth in the collective consciousness regarding disaster risks as well as the development of new laws and programs for responding to disasters and mitigating risks. However, each new disaster event spotlights fundamental and even shocking shortcomings. We must redouble our efforts to ensure that laws, policies, and practices are responsive to those who find themselves in greatest need and

³⁴ See Susan Cutter, *infra*, Chapter 3.

that those same laws, policies, and practices, can serve as a framework for managing the challenges inherent in an unknown future.

Almost all local governments are intimately familiar with planning: master planning for schools and other government facilities, planning for future growth, or strategic planning that articulates a community's overarching goals for the future and specific steps for reaching its objectives. But planning for disasters still represents a blind spot for many municipal-level governments. Part of the reason for this oversight may be the city's lack of capacity or funding; however, another reason to put off planning is that it is not easy and requires local governments to think carefully about catastrophic scenarios they would rather not consider. **John Nolon's** chapter succinctly explains why thoughtful hazard planning is imperative for local governments. Aware that planning for disaster resilience is not a cookie-cutter process – every community and every major disaster event is different – Nolon drills down to find and consider examples that will be useful to a broad range of cities and towns, providing detailed insights from more than fifteen local governments' experiences with hazard mitigation plans.

A local government that has the resources to cover critical disaster response and recovery costs can speed the community's overall recovery. In the United States, however, the reality is that local development of infrastructure to protect communities from the threat of climate-change-related hazards is still a relatively new idea. In fact, it is hard to find hazard-related infrastructure projects paid for by someone other than the federal government. Scholars and commentators already recognize that it is not fiscally sustainable for the federal government to carry the cost of local hazard mitigation projects. Only a handful of local governments are looking at how they can raise funds to finance the infrastructure that climate change will require. With more than four decades of experience advising local governments on how to pay for public facilities, services, and infrastructure, **Arthur C. Nelson** recognizes that local governments can only begin to develop the necessary hazard mitigation projects if they can find a way to augment a city's general fund. Nelson's chapter outlines the range of tools that local governments might consider adopting to rise to the formidable challenge of protecting citizens from the impacts of major disasters.

Climate change and disaster events do not recognize local, state, provincial, or national borders. As much as we might hope that disaster laws and policies will help foster communities that are more prepared for disasters and more equitable and forward-looking in how they protect their citizens, we are mindful that, at a minimum, the impact of these laws and policies will be limited by geography. The European Union's role in promoting disaster risk reduction across a large part of the European continent is instructive. As a supranational organization, the EU exerts significant control over the laws and policies of its twenty-seven member states. Although those member states largely control local matters involving land use planning, the EU has managed to play a significant role in advancing disaster law and policy through grants to member countries and legal directives focused on addressing specific disaster risks such as flooding, oil spills, and nuclear power installations. **Juli Ponce** details how Spain has gradually calibrated its local land use and development laws and even its jurisprudence to align with the laws and programs implemented by the EU. He notes that significant problems remain, particularly due to incidences of poor local oversight and administration of the laws. But he underscores the critical role that strategic deployment of laws and policies around urban and environmental affairs can play in promoting change at the national, subnational, and local levels.

Few nations are bound by treaties or other agreements requiring general adherence to laws formulated by a supranational body such as the EU. So, what promise, if any, might

international law hold for the emerging principles of disaster law and policy? This is an open question, and it is one that the Covid-19 pandemic highlights as important for us to consider. After all, just as Covid-19 has spread widely around the world – and ferociously among countries of the global South – climate change likewise promises to ravage nations who, due to the long-lasting and isolating effects of colonialism, slavery, or political strife, lack the necessary resources to keep their citizens safe. **Matiangai Sirleaf** writes that the Covid-19 pandemic and previous epidemics have revealed the fact that nations of the global South suffer from a shared and broad lack of capacity to navigate major public health crises. Sirleaf suggests that disaster law and policy can inform international public health law. Citing, in particular, the Sendai Framework on Disaster Risk Reduction and its emphasis on promoting international cooperation to mitigate disaster risk, Sirleaf posits that the Sendai Framework suggests a possible pathway for nations to cooperate to help build health systems capabilities.

Much attention is paid to the potential impact of disasters on cities and rightly so. They are densely settled, particularly with neighborhoods where residents have few resources to navigate the hardships that come with catastrophic events. Rural communities have also historically been highly vulnerable to natural hazards, and when disasters strike, the losses are significant. Home to many residents, their pastoral landscapes support farms, forests, outdoor recreational areas, and historic and cultural sites that are important economic drivers. Frequently, however, rural communities lack the investments in hazard planning and infrastructure that help mitigate the impacts of disaster events. **Ann Eisenberg** draws our attention to rural communities and explains why they are especially vulnerable to disasters. As Eisenberg explains, there are two components to the problem: a relative absence of preparation for disaster and a lack of resources to assist with disaster recovery. Regarding the planning phase, rural communities are less likely to have robust land use controls or floodplain management, and their economies often lack diversification. They are also at a disadvantage after a disaster occurs. Notably, FEMA aid programs tend to reward those who already have wealth and resources. Victims from rural areas may not be able to navigate the application process, much less establish that they are entitled to relief. Other types of assistance, such as homeless shelters, are often in short supply. Eisenberg also raises the issue of environmental injustice, observing that disaster vulnerability is greater for low-income minority populations in rural areas, often concentrated in the least desirable, most dangerous locations. Eisenberg concludes that rural areas need greater assistance for disaster planning, a reduction of barriers to disaster aid, and focused attention on the problem of environmental injustice. To be successful, such reforms must be implemented in partnership with local leadership and based on full community participation.

Stephen Miller echoes Eisenberg's concern for rural areas. He also notes that rural communities have a custom of following more informal planning processes and are frequently distrustful of initiatives spearheaded by federal and state government agencies. Unfortunately, these preconceived concerns regarding government-led planning efforts jeopardize these same rural communities in an era when climate change is dramatically enhancing wildfire risks and ravaging small cities and towns. Miller explains that if we aim to help rural communities cope with hazards, then it is critical we invest in planning efforts that meaningfully engage them. But Miller adds that we must recognize that these planning efforts may not conform to the models federal and state governments have historically asked their local partners to follow. Building on experience working with Idaho towns situated in the wildland-urban interface (WUI), Miller details the steps that rural communities can take to create effective wildfire hazard plans by recognizing and employing local informal governance powers.

Natural hazard events, including wildfires, seem to have a knack for finding our neighborhoods, business districts, and public facilities. That's not a coincidence. Disaster events often reveal that we have developed our communities in and around places that expose them to risks. One of the most effective hazard planning tools is also one that demands refinement. This tool focuses on permanently moving residents out of harm's way. **Gavin Smith** and **Wendy Saunders** comparatively examine programs that Aotearoa New Zealand and the United States have implemented to relocate residents from high-risk areas through government-managed buy-out programs. Drawing on extensive experience and detailed programmatic knowledge, Smith and Saunders explain the accomplishments and shortcomings of recent buy-out efforts, stressing the critical importance of detailed planning, sufficient funding, and adequate staff training.

Major disasters frequently leave the landscape strewn with wreckage. The 1989 Loma Prieta earthquake, 1999 Izmit earthquake which devastated Istanbul, the 2008 Wenchuan earthquake, and the 2011 Christchurch earthquake destroyed thousands of housing units and revealed thousands more as vulnerable to future disaster events. Recovery from these catastrophes required much more than cosmetic repairs to homes, buildings, and infrastructure. Local, subnational, and national governments were faced with rebuilding entire towns and large stretches of city neighborhoods. In effect, the long-term community recovery process unfolded as large urban or community development projects. In an era when climate change threatens increasingly severe weather events, including tropical cyclones that inundate regions with storm surges and flooding rainfall, communities may increasingly face the prospect of widespread rebuilding. And if that choice should come to pass, what considerations might inform a community's decisions? **Asli Ceylan Oner** and **Haluk Özener** offer Istanbul as a case study for post-disaster recovery as urban revitalization. While mindful of the potential pitfalls with big government-led development projects, including gentrification and displacement of already marginalized community members, Oner and Özener urge that these expansive post-disaster redevelopment projects present an opportunity not just to renew and improve the built environment, but to revitalize a city's social fabric around improved amenities and healthier living environments.

Many of the *Handbook's* contributors analyze the tools communities need to address the challenges of increasingly severe disasters. The range of promising new laws and policies for promoting hazard mitigation that could be available to local governments should not cause us to overlook prudent growth and development laws that may have long informed community and regional development. Sometimes it is to the past that we look for solutions to current and future problems. **Wellington Migliari** acknowledges that disaster resilience was not front of mind for the architects, planners, and leaders who influenced the development of major Nordic cities. Copenhagen, Oslo, Helsinki, and Stockholm all deployed planning and development strategies that balanced economic development with prudent conservation of the natural environment. While recognizing that these cities do not necessarily have a head start in thinking about solutions to hazards associated with climate change and sea level rise, he suggests that they may have laid a historic foundation for future disaster resilience.

Loss of electrical power is among the most debilitating and life-threatening aspects of any disaster event. Not only does power loss burden healthcare institutions and infrastructure, but at a minimum, it strands a community without heat or air conditioning. In January 2021, peaking demand during an unusually cold period strained the electrical grid throughout Europe, leaving the continent on the precipice of widespread electrical power loss. An even more alarming situation unfolded across the state of Texas just a month later. A rapid succession of winter storms, combined with an extended period of record cold temperatures, triggered a sudden failure of the electrical power supply. More than four million homes were affected in almost

every corner of the state. The results were grim. Hundreds died, and most struggled to find fuel, shop for food, and access drinking water. If these recent lessons on the power grid's fragility aren't sobering enough, a future under the dark cloud of climate change raises fundamental concerns about our ability to cope with dramatic variability in temperature and weather conditions. **Rob Verchick** and **Shelley Welton** address two critical questions that must be solved if we are to navigate the century's challenges.

Welton helps us frame the significant legal challenge that we face in reconceiving and rebuilding our energy infrastructure. Welton lays responsibility for the grid's current shortcomings and vulnerability at the feet of the fields of energy law and energy systems. She points out that the majority of deaths in Puerto Rico following Hurricane Maria were caused by the long-term failure of the power grid, not from the storm itself. One problem is that energy infrastructure issues are highly technical and those in charge of setting energy policy are too often unaware of what is needed to ensure community resilience. Drawing from disaster law and policy, Welton argues that the concept of energy resilience should not just be a technocratic analysis of the entire system of power generation, transmission, and distribution. Rather, it is important for those in charge of energy law and policy to hear the voices of communities and to understand their needs. Notably, policymakers should be aware that power grid failures often have a disproportionate impact on communities of color. Taking local interests into account would help energy law and policy planners target investments to create a more resilient and just energy system.

Like Welton, **Verchick** observes that the United States urgently needs to upgrade the resilience of its power grid. His chapter explores the possible pathways we might explore to reach this goal. Verchick explains that the current system combines 3,300 utility companies and a mishmash of federal, state, and municipal regulation. While this balkanized system may once have had the capacity to deliver reliable, affordable electricity, it is increasingly at risk of failing whenever a major disaster strikes. Climate change brings with it the prospect of more disasters and requires us to rethink our energy system. For example, power generation plants and fuel storage facilities are often located near water, which makes them vulnerable to sea level rise caused by climate change. High voltage lines become less efficient when the temperature rises and are vulnerable to weather-related disruption. Without power, post-disaster recovery is impaired by a lack of basic amenities and hospital care. Power outages pose the greatest threat for poor people, people of color, the elderly, and the disabled. In a heatwave, a blackout may mean no elevator access or no ability to even call for help. Verchick proposes reforms to: (1) protect physical infrastructure, (2) implement efficient digital technology for power delivery, and (3) encourage the use of renewable sources of energy. To implement these reforms, he recommends resilience assessment and planning – “you can't manage what you don't measure” – coupled with price incentives. Verchick concludes with the observation that increasing the reliability of the US power system will require government intervention.

Many of the *Handbook's* contributors argue that communities need and deserve laws crafted to address hazard risks and people trained and well-funded to administer them. There is no doubting that better statutes, codes, ordinances, and programs are essential elements of any community's disaster infrastructure. It is important to recognize, however, the critical way in which courts influence strategies communities can adopt to deal with hazards. Dr. Kathleen Tierney, former director of University of Colorado Boulder's Natural Hazards Center, observed that “the US Supreme Court has a huge role in disaster recovery policy as it interprets the 5th and 14th Amendments to the US Constitution.”³⁵ **Danaya Wright's** chapter explores how the arc of

³⁵ Kathleen Tierney, PhD, Comments Delivered at the Third International Conference on Urban Disaster Reduction (3ICUDR) – US Field Study Workshop, Boulder, CO (July 12, 2013).

the Supreme Court's "takings" jurisprudence over the last forty years has profoundly impacted the ability of state and local governments to protect communities from natural hazards and the onset of climate change. Wright traces the roots of American eminent domain law back more than 100 years, explaining that US courts had originally developed relatively clear guidance on how to distinguish between government actions that took someone's property, thus requiring compensation, and government actions that merely regulated property and did not require compensation. But much has changed. Wright not only analyzes the Supreme Court's most recent four decades of takings jurisprudence, which have circumscribed governments' ability to implement programs that more effectively protect communities against the threat of hazards, but just as important Wright suggests a new way forward, identifying property law tools that local governments may be able to use to help their residents meet the increasing climate-related challenges that lie ahead for our country and our world.

PART IV PRIVATE SECTOR INITIATIVES TO PROMOTE DISASTER RESILIENCE AND RECOVERY

A discussion of disaster law and policy naturally pulls scholars and professionals toward an analysis of public sector roles and responsibilities. This tendency to dwell on government involvement in disaster response and recovery makes sense. After all, we define disasters as overwhelming local capacity and requiring broader assistance, which typically comes from governmental entities. The private sector's connection to disaster law and policy may be less obvious, but the reality is that the private sector plays an instrumental part in formulating public policy and establishing marketplace norms and practices. Businesses, nonprofits, and grassroots organizations all play important roles in carrying out recovery functions and promoting community resilience to natural hazard events.

Disasters have not only reshaped our relationship with the laws and institutions that govern us, but just as importantly, they have highlighted the inherent limitations of government institutions and the laws and policies they craft. Private organizations, including for-profit and nonprofit businesses, faith-based groups, and philanthropic entities have played, and must continue to play, important roles in helping communities prepare for and respond to disasters. **Chinkie Peliño Golle** and **Florence Chio-Baulu** write the compelling story of Davao City, a rapidly growing community in the southern Philippines, and an NGO's efforts over two decades to protect the city's future water source in a rural upland community. Peliño Golle and Chio-Baulu describe the challenges that the NGO faced in carrying out its roles as both partner with, and opponent of, the governmental entities charged with overseeing development decisions impacting Davao City. They explain that the NGO's public information initiatives and its advocacy for laws and public policies protecting nearby natural resources and landscapes have both preserved the integrity of the city's future water resources and protected the city from natural hazards associated with climate change and imprudent development decisions.

Insurance represents a core component of any community's resilience to hazard events. The reason is simple. Few have the savings to adequately rebuild their lives or businesses after a disaster event. Unfortunately, US homeowners and business owners are falling short in protecting themselves and their neighbors from disasters' short-term and long-term impacts. Of California homeowners, 13 percent are insured against loss from earthquakes. Approximately 10 percent of US homeowners carry flood insurance. As many as 60 percent to 70 percent of small businesses lack business interruption coverage. These numbers indicate that communities across America will struggle to bounce back from disaster events for lack of adequate funding.

Christopher French reviews in detail the range of insurance coverages available to Americans to help protect them from all manner of casualties. He explains, however, that the approach to insuring against hazards is functioning poorly, leaving the great majority of Americans without coverage. Drawing on examples from other countries, French argues that the United States can do better. He recommends that the federal government consider well-established approaches employed by peer nations including: (1) selling insurance that covers the range of natural catastrophes, (2) serving as reinsurers of private insurers who cover natural catastrophes, or (3) mandating that private insurers cover natural catastrophes.

Susan Kuo and **Ben Means** address the role of corporations in climate change mitigation and adaptation. They point out that current efforts to control global warming require corporations to make far-reaching changes. Yet, today's environmental laws are not strong enough to push corporations to take the necessary steps. Nor is it reasonable to expect corporate risk management or social responsibility to fill the gap; there are practical limits to how far corporate managers can depart from strategies designed to maximize profits for investors. Although some scholars, environmental activists, and even CEOs have taken the position that by addressing climate change corporations protect their long-term viability, Kuo and Means caution that this is a fragile alignment. Achieving net-zero carbon emissions will involve massive economic dislocation and not all of it can be justified from the standpoint of profit maximization. Kuo and Means argue instead that climate change is a compliance issue. They contend that a compliance-based approach best captures the rationale for holding corporations responsible for climate change and provides a robust framework for achieving results.

PART V LAWYERS AS DISASTER LAW AND POLICY LEADERS: TRAINING FOR STUDENTS AND GUIDANCE FOR PRACTITIONERS

Major disasters tear communities apart. They sever key transportation routes; they strip roofs and walls from homes; they leave businesses without customers or workplaces – or both; and they separate residents from the social and commercial associations that bind cities together. In the arduous journey to renew and revitalize a city's physical, social, and civic landscape, it is easy to overlook lawyers' important roles.³⁶

In the United States, lawyers working to advance a community's long-term recovery execute many tasks essential to carrying out a jurisdiction's action plan. Hemmed in by a thicket of local, state, and federal requirements, and under intense time pressure, lawyers help fashion long-term recovery programs and draft ordinances and contracts to effect recovery goals.

Harder for many to see, but just as important as any other post-disaster recovery function, lawyers help individuals, families, and businesses resolve contentious disputes with private insurers and navigate complicated programs the government deploys to assist those in need. Unfortunately, a significant number of the elderly, minority, disabled, and low-income individuals who most need legal representation cannot afford it. It is no surprise that following Hurricane Katrina, thousands of homeowner applications for assistance were delayed or denied for failure to satisfy legal requirements. Generally speaking, low- or moderate-income families and individuals who are denied government funding frequently cannot return home or reopen their businesses. The results of such denials are readily observable: dilapidated homes and vacant storefronts.

³⁶ CRISIS LAWYERING: EFFECTIVE LEGAL ADVOCACY IN EMERGENCY SITUATIONS (Ray Brescia & Eric K. Stern eds., 2021).

In many cities such as New Orleans, more than 25 percent of people live below the poverty line. Without the assistance of counsel post-disaster, these and other vulnerable persons are denied recovery. They are denied access to justice. **Jeffrey R. Baker, Christine E. Cerniglia, Davida Finger, Luz Herrera, and JoNel Newman** are professors who lead nonprofit law clinics at five leading US law schools. Their chapter details the critical work that four of these clinics, staffed by law students, have completed following four major disasters including Hurricanes Katrina, Harvey, and Irma, and the Woolsey Fire. In a post-disaster environment, where the need for legal services is urgent, but the supply of pro bono lawyers has historically been tight, the authors argue that it is important to build a framework for institutional responses in the legal academy. In so doing, law schools and the law students they are training can help promote faster, fairer, and more equitable community recovery from disaster.

The lesson that emergency response lawyering literature teaches is that no matter the expertise that an attorney brings to her post-disaster work in aid of a community, it is essential that the lawyer quickly develop a working knowledge of the local, state, and federal laws applicable to that community's recovery.³⁷ **Cliff Villa** identifies the need for legal expertise as part of a coordinated governmental effort to plan for disasters and respond to them. Effective disaster planning must comply with existing legal constraints; delay and uncertainty can cost lives. During the Covid-19 pandemic, for example, numerous questions arose concerning the legality of measures taken to control the virus. In some cases, epidemiologists recommended measures that could not be fully implemented. To assist future planning efforts, Villa provides an overview of key statutes that comprise disaster law, including the federal Stafford Act, and foundational theories such as the Disaster Cycle. Villa also introduces useful materials, such as the National Response Framework, and key operational concepts, including the Incident Command System. Villa's chapter provides a valuable resource for lawyers who work in disaster law and policy.

PART VI CULTURAL HERITAGE PROTECTION AND CROSS-DISCIPLINARY OPPORTUNITIES FOR ADVANCING DISASTER LAW AND POLICY

Coastlines and riverbanks have long been home to cities, towns, and other settlements, but development at the water's edge has accelerated dramatically in the last century. Rising sea levels, more intense storms, and in some places land subsidence, will increasingly put these communities at risk. Large areas of some cities, such as Lagos and Miami, may even be uninhabitable by the end of the twenty-first century. Natural disaster events and the onset of climate change will pose greater threats to lives and properties in the coming decades. These events also threaten to erase the historic landscapes, sites, monuments, ruins, sacred places that are foundational to culture, religions, and traditions. Just as communities largely lack detailed laws and policies to address the loss of homes and businesses to encroaching and inundating waters, so too are national, subnational, and local governments still figuring out how to protect or otherwise preserve important cultural and historic resources. **Pernille Denise Frederiksen and Marianne Rasmussen Lindegaard** detail the challenges that Denmark currently faces in protecting its most treasured historic and cultural sites. They explain that coastal storms and accelerated coastal erosion have already destroyed important sites and that more are in immediate jeopardy. Frederiksen and Lindegaard argue that Denmark urgently needs to craft laws and policies that guide public and private sector interests in safeguarding or memorializing these

³⁷ Joseph Jarret & Michele Lieberman, "When the Wind Blows": The Role of the Local Government Attorney Before, During and in the Aftermath of a Disaster, 36 *STETSON L. REV.* 293, 294 (2007).

sites. They observe that the government's administrative response will necessarily force policy-makers to reconsider fundamental concepts and principles of Danish cultural heritage practice. Most notably, explain Frederiksen and Rasmussen, the impending loss of these treasured cultural sites will require the government to jettison its long-held "hands-off" approach to resource management in favor of authorizing interventions that allow the nation to decisively address the calamitous threats posed to Danish monuments by global warming and more frequent natural disasters.

Legal frameworks for protecting historic resources are the scaffolding whose strength (or weakness) determines whether priceless cultural heritage is preserved when disaster strikes. Recognizing this, **Sara Bronin** provides an in-depth overview of the fractured nature of legal protections for cultural heritage in the United States at the federal, state, and local levels. Elaborating on key topics such as data collection and data sharing, rehabilitation standards for historic resources, and the all-important issue of funding, she offers two case studies outlining Connecticut and Louisiana's efforts to integrate historic preservation into disaster planning and mitigation plans. These state examples are helpfully followed by four different local approaches taken by the cities of Annapolis, Philadelphia, Charleston, and New Orleans to effectively protect their cultural heritage from natural disasters.

Cultural and heritage tourism supply almost every nation with a robust economic engine. This engine has sputtered with devastating consequences for the millions that rely on the visitors that museums, sacred places, archeological sites, and natural resources, generate for urban and rural communities. **Jack Tsen-Ta Lee** explores the largely unseen challenges that nations, regions, cities, and cultural institutions face in protecting historic and cultural resources when few, if any, can visit them. He also examines the related challenge of giving the public a means of remote, online access to cultural and historic treasures in a way that grounds and inspires communities in times of great loss and distress. One thing is for certain: a government that stands by and fails to assist cultural institutions is taking a risk that treasures will be squandered. Lee understands this risk and he provides guidance both to cultural institutions and governments about the private institutional, legal, and policy options available to address these challenges.

Historic resources are potent threads that bind communities past, present, and future. In his chapter, **Ryan Rowberry** examines how the preservation of the past is critical to today's public health and how current governments can partner more fully with the public to effectively preserve the past for future generations. In the area of mental wellness, he shows how historic resources are foundational to our well-being in providing a sense of place. Rowberry also reveals how archaeological sites, folk tales, and ancient texts are rapidly transforming our knowledge of disease, spurring medicinal innovations and offering forgotten remedies to long-standing ailments. Looking to the future, Rowberry outlines two technological-legal strategies that governments should use today to involve the public in the identification and protection of historic resources.

PART VII DISASTERS AND VULNERABLE COMMUNITIES

Earthquakes, heat waves, and tropical cyclones strike all range of communities, but they tend to have more disabling effects on low- and moderate-income families, minorities, the disabled, immigrants, and the elderly. These vulnerable groups often live in neighborhoods with greater exposure to natural hazards and deficient infrastructure to protect against those hazards. Their homes are lower-lying and thus subject to more frequent flooding. Their schools and businesses are older and lack the structural reinforcement necessary to withstand tremors. They live in

neighborhoods with fewer trees where temperatures are significantly higher, and they must work on the hottest days to earn subsistence wages and thus are more likely to succumb to heat stroke. Major disasters expose and exacerbate extant vulnerabilities.

Low-income communities and communities of color suffer permanent setbacks in the wake of major disasters, but their losses are not merely economic, social, and cultural. Many of these vulnerable individuals and families live in neighborhoods surrounded by hazardous waste disposal facilities and industries that use hazardous substances. Disasters bring not just high water or lost roofs, but short- and long-term exposure to elevated environmental health risks. To address the root causes of these threats of post-disaster contamination and illness, **Brie Sherwin** proposes guidelines for sustainable development. Her proposal is informed by several recent disasters that caused flooding and that resulted in the leaching of hazardous environmental contaminants into nearby, often low-income, communities. Sherwin observes that state governments not only failed to plan adequately for disaster but, in some cases, flatly rejected scientific data gathered by their own appointed experts. In the aftermath of a disaster, moreover, at least one state suspended the collection of data concerning environmental contamination. Thus, states have blinded themselves to the threat of disaster and then have refused to assess data concerning the impact of disasters that could facilitate enhanced resilience to future disasters. Sherwin argues that as state and local government officials assess modifications to zoning, land use, and real estate development, it is critical that they acknowledge climate science, however inconvenient, and take measures to address disaster preparedness, aimed particularly at helping the most vulnerable communities.

Laws and legal institutions that permit schools and housing proximate to hazardous waste or industries associated with dangerous environmental conditions reinforce and augment existing community vulnerabilities. Laws also can fail individuals and families in the wake of disaster by not providing sufficient recognition that individuals and families displaced by disaster experience profound vulnerability. **Alka Sapat, Arjola Balilaj, and Ann-Margaret Esnard** argue that the social construction of disaster survivors is an underappreciated threat. Survivors may receive different treatment based on factors such as race, ethnicity, gender, and age. Instead of focusing on what survivors need, policymakers may instead seek to decide who is “deserving” or “undeserving.” The authors observe that clear legal categories need to be established for these survivors to help limit pernicious stereotyping. For example, survivors who cross international borders to escape armed conflict or persecution are designated “refugees,” and thus qualify for certain human rights protections. By contrast, those who are fleeing the consequences of climate change do not qualify for refugee status, nor do internally displaced survivors who remain within their country of origin, regardless of the reason for the displacement. In the absence of a formal legal definition for their status, displaced persons fall outside the scope of international human rights and humanitarian law – but they should not be overlooked in this way.

Cinnamon Carlarne argues that the Covid-19 pandemic has something important to teach us about our shared vulnerability to disaster. Although it is relatively easy to dismiss climate change-fueled disasters that happen elsewhere – a heatwave in the Pacific Northwest, flooding in Germany, record heat in Siberia – the truth is that these disasters are linked by climate change, a problem that affects everyone. In the case of Covid-19, the global nature of the problem is inescapable, as is the need for a global solution. Carlarne argues that climate change deserves the same level of urgency and global cooperation as a pandemic. Carlarne further contends that Covid-19 illustrates how disasters typically have a more severe impact on those who are already vulnerable, and she shows that the same is true of climate change. Those who bear the brunt of climate change will not be the people responsible for the majority of carbon emissions.

Consequently, in addressing our shared vulnerability to climate change, Carlarne contends that we should seek to achieve climate justice. To this end, she recommends the Warsaw International Mechanism for Loss and Damage as an example of a framework for fairly allocating rights and responsibilities.

Troubling inequities in healthcare service delivery continue to unfold and overwhelm even the world's most richly resourced hospitals and healthcare systems. **Lance Gable** explores how the Covid-19 pandemic has revealed disquieting shortcomings in public and institutional disaster plans for the provision of healthcare services. None is more serious than the fundamental ethical concerns spotlighted by hospitals' need to consider how they deliver basic care and services to people with disabilities when medical care is in desperate demand.³⁸ During this extended Covid-19 crisis, individuals with disabilities are suffering substandard care and even discrimination. In an effort to ensure that the frightening deficiencies do not repeat themselves, Gable suggests steps to improve legal protections and support systems for the rights and needs of people with disabilities when disaster strikes.

Citizens, scholars, policymakers, and practitioners have their work cut out for them. As our overview of the handbook's thirty-three chapters suggest, countries and local communities continue to grapple with even the most basic challenges associated with disaster mitigation, response, and recovery. Consider also that time is of the essence.

A connecting theme for this volume's chapters is that climate change threatens more significant and frequent disasters. Despite the specter of these formidable threats, we bring this introduction to a close in the same spirit with which it began. Stories of vulnerability and catastrophe – even the unspeakable tragedies that unfolded in cities like Kobe and New Orleans – can inspire rebirth. Law and policy must be part of that renewal and a vehicle for disseminating strategies, tools, and tactics that could be used to support the “comebacks,” as observed by Professor Ricchiuti, but much more importantly, the stronger, better prepared communities that are more likely to be resilient to disaster. We will lack for a more just and equitable realization of community until we meaningfully address the types of concerns that are identified by this handbook's thoughtful contributors.

³⁸ Gable and collaborators have written the definitive work on the pandemic's deep and broad public health impacts. *ASSESSING LEGAL RESPONSES TO COVID-19* (Scott Burris et al. eds., 2020).