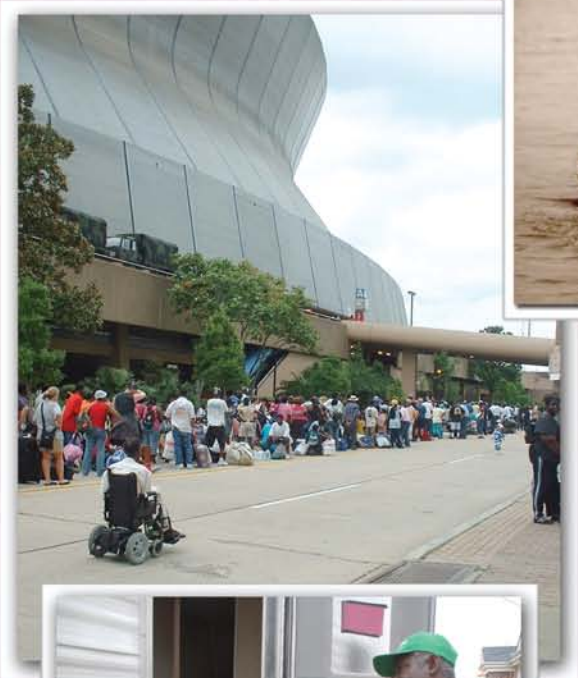


Social Vulnerability to DISASTERS



 CRC Press
Taylor & Francis Group



Edited by
Brenda D. Phillips
Deborah S.K. Thomas
Alice Fothergill
Lynn Blinn-Pike

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Boca Raton London New York

CRC Press is an imprint of the
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CRC Press
Taylor & Francis Group
6000 Broken Sound Parkway NW, Suite 300
Boca Raton, FL 33487-2742

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Printed in the United States of America on acid-free paper
10 9 8 7 6 5 4 3 2 1

International Standard Book Number: 978-1-4200-7856-5 (Hardback)

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Library of Congress Cataloging-in-Publication Data

Social vulnerability to disasters / editors, Brenda Phillips ... [et al.].
p. cm.

Includes bibliographical references and index.

ISBN 978-1-4200-7856-5 (hbk : alk. paper)

1. Disasters--Social aspects. 2. Risk assessment. I. Phillips, Brenda. II. Title.

HV553.S586 2010

363.34'2--dc22

2009024408

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This volume is dedicated to

Mary Fran Myers

(1952–2004)

For many years, Mary Fran Myers served as the codirector of the Natural Hazards Research and Applications Information Center at the University of Colorado at Boulder. Many authors in this volume first met through Mary Fran, an individual dedicated to reducing vulnerability. In 1997, she received the Association of State Floodplain Managers' Goddard-White Award for her efforts, their highest award. In 2002, the Gender and Disaster Network established the Mary Fran Myers Award for her work to advance women's careers and to promote research on gender issues. In 2003, colleagues, family, and friends created the Mary Fran Myers Scholarship. Funds bring under-represented individuals to the annual Boulder Hazards Workshop. Mary Fran is the person most responsible for weaving together the network of authors in this volume. We dedicate our work to her memory.

*All proceeds from this book are donated to the
Mary Fran Myers Scholarship Fund.*



Contents

Dedication	v
Preface.....	ix
Contributors	xi

Chapter 1 Introduction	1
<i>Brenda D. Phillips and Maureen Fordham</i>	

SECTION I Understanding Social Vulnerability

Chapter 2 Theoretical Framing of Worldviews, Values, and Structural Dimensions of Disasters	27
<i>Jean Scandlyn, Carrie N. Simon, Deborah S. K. Thomas, and John Brett</i>	
Chapter 3 The Intrinsic Link of Vulnerability to Sustainable Development.....	51
<i>Katie Oviatt and John Brett</i>	

SECTION II Socially Vulnerable Groups

Chapter 4 Class	75
<i>Nicole Dash, Brenda G. McCoy, and Alison Herring</i>	
Chapter 5 Race and Ethnicity	101
<i>Nicole Dash</i>	
Chapter 6 Gender	123
<i>Elaine Enarson</i>	
Chapter 7 Age	155
<i>Lori Peek</i>	
Chapter 8 Disability	187
<i>Alan Clive, Elizabeth A. Davis, Rebecca Hansen, and Jennifer Mincin</i>	
Chapter 9 Health	217
<i>Deborah S. K. Thomas, Elizabeth A. Davis, and Alan Clive</i>	

Chapter 10 Language and Literacy	243
<i>Betty Hearn Morrow</i>	
Chapter 11 Households and Families	257
<i>Lynn Blinn-Pike</i>	
Chapter 12 Violence and Disaster Vulnerability	279
<i>Brenda D. Phillips, Pamela Jenkins, and Elaine Enarson</i>	
 SECTION III <i>Building Capacity</i>	
Chapter 13 The Nature of Human Communities	307
<i>Eve Passerini</i>	
Chapter 14 Measuring and Conveying Social Vulnerability	323
<i>Deborah S .K. Thomas, Pamela K. Stephens, and Jennifer Goldsmith</i>	
Chapter 15 New Ideas for Practitioners	345
<i>Elaine Enarson, Eve Gruntfest, Brenda D. Phillips, and Deborah S. K. Thomas</i>	
Chapter 16 Promoting Empowerment: Social Change in Disasters	367
<i>William E. Lovekamp</i>	
Biographies of Contributors	383
Index	387

Preface

In 2004 and 2005, the world watched in horror as the Indian Ocean tsunami claimed 300,000 lives across 13 nations and then as Hurricane Katrina stranded thousands on rooftops across the U.S. Gulf Coast. About 80% of the tsunami victims were women and children. Close to 75% of the Hurricane Katrina victims were elderly, many with some type of disability; in New Orleans the majority was African American. In both circumstances, women and girls faced difficult post-disaster choices that too many times exposed them to violence. And in all nations affected by these events, children orphaned or separated from their families required help to find safety. Both of these disasters clearly revealed how social structure and roles produced extensive human suffering and differential impacts. These are just a few recent events that highlight the need for a comprehensive book that explicitly focuses on the social construction of disasters, acknowledging that the characteristics of an event alone do not create the tragedies that unfurl.

Simultaneously, people historically vulnerable stepped up time and time again. Women created rescue efforts and opened shelters. Poor people shared local knowledge that inspired environmentally friendly or “green rebuilding.” People presumed to bear disabilities launched cleanup efforts and located missing family members. In other words, those “vulnerable” also have a great deal of capacity.

The primary purpose of this book is to help readers understand why such vulnerabilities exist and what can be done in order to foster change, and ultimately to reduce vulnerabilities and build capacity. We dedicate this volume to all those who have suffered from natural and technological events. Most importantly, we hope that it will inspire those who work in all aspects of emergency management to directly incorporate social vulnerability as a fundamental principle and goal.

The editing team for *Social Vulnerability to Disasters* gratefully acknowledges the contributions of a number of people who made this book possible. First, the book is based on materials originally created for the Federal Emergency Management (FEMA) Higher Education Program, directed by Dr. B. Wayne Blanchard. We appreciate his vision that fostered a network of experts to create materials supporting the teaching of emergency management. His initiative brought together a number of teams who created college-level materials, including the authors of the original material that launched this book. The original materials can be found at <http://www.training.fema.gov/EMIWeb/edu/sovul.asp> (access date July 17, 2008). FEMA graciously provided those materials to assist in the creation of this book. The content of the book, however, remains the responsibility of the authors and editors and does not necessarily reflect the views of FEMA or its staff.

The creators of the FEMA course on Social Vulnerability to Disasters included lead course developer Dr. Elaine Enarson, who was supported by Dr. Cheryl Childers, Dr. Betty Hearn Morrow, Dr. Deborah Thomas, and Dr. Ben Wisner. Dr. Robert C. Bolin, Lorna Jarrett, Dr. David McEntire, and Dr. Brenda Phillips served as volunteer consultants on the development of those materials.

FEMA, through Dr. Blanchard's efforts, offers an annual Higher Education Conference. At one of those conferences CRC Press editor Mark Listewnik realized the potential of bringing together a team of writers to create a book that could truly make a difference in the lives of those at risk. Through his encouragement, an editing and writing team came together to produce this volume. We very much appreciate the support, guidance, and encouragement that he provided. Our many phone conversations and e-mails spurred us on to write, edit, and share our expertise and hope for a safer world. He is an important part of that effort. Stephanie Morkert, Taylor & Francis Production Coordinator, proved to be our best friend on the project by answering both routine and extremely detailed questions regarding formatting. We thank her and the Taylor & Francis production team (especially those at CRC Press and particularly Prudy Taylor Board) for the many hours that went in and for their high level of professionalism in producing this volume.

The editors are grateful for the efforts of the chapter authors who took time from already busy schedules to write. Authors of original course materials returned for a number of chapters along with additional experts in their respective fields. We engaged authors with reputations for producing materials with scholarly depth and practical applications. They also brought a heightened sense of compassion to the work at hand, to reduce vulnerability among those most likely to be affected. Not only did they bring keen minds to bear on the problem, but equally important, they brought strong, caring hearts to the work as well. The combination produced compelling chapters that are visionary in what the applications might render.

As a person who worked tirelessly to integrate issues of vulnerability into emergency management, we dedicate this book to our friend, colleague, and mentor Mary Fran Myers of the Natural Hazards Research and Applications Information Center at the University of Colorado at Boulder. The editors and authors associated with this book benefited professionally from both direct and indirect association with Mary Fran. She built our network; invited us to meetings; helped us to secure grants; offered writing, publishing, and speaking opportunities; and made a difference with her life. We would not have been able to write this book unless she had connected and inspired us. We miss her so much, but carry on in the spirit and professionalism that she demonstrated.

All proceeds from the sale of this book will go to the Mary Fran Myers Scholarship Fund, which recognizes “outstanding individuals who share Mary Fran’s commitment to disaster research and practice and who have the potential to make a lasting contribution to reducing disaster vulnerability.” By purchasing this volume or adopting it for a class, you are helping to extend her legacy. Past scholarship recipients have come from Honduras, Australia, France, China, Pakistan, Nigeria, Guatemala, India, and the United States. Their work includes Katrina relief, land use planning, sustainable development, mitigation, floodplains, social and economic impacts, university safety, community outreach, poverty, vulnerability reduction, and public education. Dollars spent for this volume will go far. For more information on the scholarship, please visit <http://www.colorado.edu/hazards/awards/myers-scholarship.html> (access date July 17, 2008).

Since the Indian Ocean tsunami and Hurricane Katrina, more events have claimed those vulnerable to disaster. The Burma/Myanmar cyclone and the China earthquake in 2008 are only two such events. May you find the chapters in this volume enlightening guides to a safer, more humane world. *Our work is not done.*

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1 Introduction

Brenda D. Phillips and Maureen Fordham

CONTENTS

1.1	Chapter Purpose	1
1.2	Objectives	1
1.3	Introduction	2
1.3.1	Understanding Vulnerability	4
1.3.2	Perspectives	5
1.3.3	Understanding the Dominant View of Hazards	6
1.3.3.1	How Does the Dominant View Understand Nature, Chance, and Time?.....	6
1.3.3.2	How Does the Dominant View Understand Science and Technology?.....	8
1.3.3.3	How Does the Dominant View Understand People?	8
1.3.3.4	How Does the Dominant View Understand Society?.....	9
1.3.3.5	Who Believes and Applies the Dominant View?.....	10
1.3.3.6	Shortcomings of the Dominant View	10
1.3.4	The Social Vulnerability View	12
1.3.4.1	The Framework of the Social Vulnerability Approach	15
1.4	Overview of Coming Chapters	17
1.4.1	Section One: Understanding Social Vulnerability.....	17
1.4.2	Section Two: Socially Vulnerable Groups.....	18
1.4.3	Section Three: Building Capacity	19
1.5	Summary	20
1.6	Discussion Questions	20
	Acknowledgments.....	21
	References.....	21
	Resources	23

1.1 CHAPTER PURPOSE

This opening chapter provides an overview of why understanding social vulnerability matters for the practice of disaster management. The chapter content contrasts the historically dominant hazards approach with that of social vulnerability and concludes with an overview of upcoming sections and chapters.

1.2 OBJECTIVES

At the conclusion of this chapter, readers should be able to

1. Understand basic terms relevant to social vulnerability.
2. Understand the dominant view of hazards.

3. Identify the shortcomings of the dominant view.
4. Trace the historical development of a social vulnerability approach.
5. Understand the general framework of a social vulnerability approach.
6. Appreciate why considering social vulnerability is necessary in order to reduce risk.

1.3 INTRODUCTION

For many of us, the images of people dying in the Indian Ocean Tsunami (2004) or of those awaiting rescue on the rooftops of New Orleans after Hurricane Katrina (2005) mark a point in time when we understood the extent of human vulnerability in disaster situations (Figure 1.1). The stark images also raised deeper questions. Why were people in harm's way? What could have been done to prevent such loss of life? How could we have prevented the tragedies from happening? What became of those affected? Were they able to return to their homes, recover psychologically, find another source of employment, reunite their families?

The study of social vulnerability to disasters is compelling. For anyone who wondered why so many people were on the rooftops in New Orleans and why so many died, the answers are in this volume; for those who practice professions designed to reduce that same vulnerability, current



FIGURE 1.1 FEMA Urban Search and Rescue team evacuates nursing home residents from New Orleans on September 2, 2005. *Source:* Jocelyn Augustino/FEMA news photo.

practices are critically reviewed. This book is designed to make a difference in our understanding of and efforts to reduce conditions that threaten life safety, personal property, as well as our neighborhoods and communities. We invite you to be part of the solution.

Researchers have been studying and writing about human vulnerability to disasters for decades. Yet, much of that promising body of knowledge has not made its way into the practice of disaster management. Far too frequently, efforts to reduce vulnerability occur only after a major event has claimed lives and destroyed family assets, including homes, businesses, and savings. Measures to reduce vulnerability tend to rely on assessing established practices, analyzing current policies, and revising already-existing plans, but recent research on vulnerability has much to offer managers and practitioners in disaster risk reduction. Consider, for example, the following issues:

- *Class.* Lower income families and households tend to live in housing that suffers disproportionately during disasters. Disaster managers should recognize such inequitable circumstances and act to even the odds (Mileti 1999).
- *Race and ethnicity.* Warning messages tend to be issued in the dominant language with an expectation that people will take the recommended action immediately. Research indicates that culture influences how people may receive and interpret warnings and how they may respond (Lindell and Perry 2004).
- *Gender.* Domestic violence appears to increase after a disaster, yet few communities include women's advocates in their emergency operations planning (Jenkins and Phillips 2009). Further, though women tend to be the ones most likely to secure relief aid for the family, they are under-represented and under-used in recovery efforts (Enarson and Morrow 2000).
- *Age.* Senior citizens are reluctant to secure aid after a disaster out of concern they may lose their independence (Bolin and Klenow 1982; Fernandez et al. 2002). As a consequence, they tend to under-use relief programs and experience delays in returning to their homes.
- *Disability.* People with disabilities experience considerable problems in securing adequate transportation to evacuate as well as appropriate, accessible shelters and post-disaster housing (U.S. Governmental Accountability Office 2006).
- *Health.* Disasters can disrupt access to health care particularly for the poor, the elderly, and people with disabilities. Individuals dependent on health services such as dialysis or cancer treatment experience life-threatening circumstances. Disasters can also create conditions that worsen health conditions, such as debris, mold, and chemicals that cause or aggravate respiratory conditions (Lin et al. 2005; Malievskaya, Rosenberg, and Markowitz 2002).
- *Literacy.* Most emergency preparedness materials are available in written form. Few options exist to inform and prepare people with low reading levels, despite the potential for such materials to help people across literacy levels, language barriers, cognitive abilities, and age ranges (U.S. Department of Justice 2008).
- *Families and Households.* Families provide an important unit in which people can care for each other as they rebound from disasters. Yet many programs fail to address the diversity of families, including households of unrelated individuals. People who cohabit, renters, roommates, and couples who are lesbian, gay, bisexual, or transgendered may experience difficulty in securing aid or the comfort of people who care about them (Eads 2002; Morrow 2000).

Despite these problems, people who live within and across these population groups, or whose circumstances have not been adequately recognized also bring valuable assets to the process of reducing risks. Consider, for example, that Presidential Executive Order 13347 advises the inclusion of people with disabilities in all phases of disaster management. By doing so, we bring fresh perspectives to the planning table and invite a wider partnership. Doing so yields fresh perspectives, insights, networks, and linkages that can help disaster managers to address transportation and

evacuation problems, issues in shelters and long-term housing, and strategies for preparing populations in harm's way.

In this work, knowledgeable authors present up-to-date information on the various ways in which some populations experience higher risks than others, and offer practical strategies to reduce that vulnerability. To set the stage for this volume, this chapter introduces you to understanding vulnerability by first providing an overview of key terms. The chapter then addresses and contrasts two perspectives that have the potential to influence disaster management and how social groups experience crisis occasions.

1.3.1 UNDERSTANDING VULNERABILITY

The term “vulnerability” means different things to varying agencies and organizations and can be conceptualized in several ways. To illustrate, some agencies may use the term to mean physical rather than social vulnerability. For example, the U.S. Geological Survey conducts work on coastal vulnerability to sea level rise. In contrast, the U.S. Department of Homeland Security sees vulnerability as produced via the political intentions of terrorists. As another example, the U.S. Governmental Accountability Office (2006) describes some vulnerable populations as “transportation disadvantaged.” Disaster managers at the local level understand vulnerability in both its physical and social dimensions as they see neighborhoods inundated by floodwaters and work to help residents recover.

In this text, we concentrate on social vulnerability, which results from differential social relations among groups in a given society. As Bankoff (2006) notes,

[b]y the 1980s, it was apparent in both the developed and the developing world that to be “at risk” was not just a question of being in the wrong place at the wrong time, and of regarding disasters as purely physical happenings requiring largely technological solutions. Disasters were more properly viewed as primarily the result of human actions; that while hazards are natural, disasters are not. Social systems generate unequal exposure to risk by making some people more prone to disaster than others and these inequalities are largely a function of the power relations (class, age, gender and ethnicity among others) operative in every society.

Vulnerability results from multiple conditions and circumstances that could include health, disability, age, literacy, or immigration status (Wisner 2006). However, it is not disability or literacy alone that produces vulnerability. Rather, it is the failure of society to recognize that a condition such as poverty means you cannot mitigate risk, live in a safer location, or afford to evacuate when told to do so. When disaster managers and political leaders fail to design warning systems that reach people who are deaf or to provide paratransit systems to evacuate a wheelchair user, society bears responsibility for the consequences. Social vulnerability thus results from social inequalities and historic patterns of social relations that manifest as deeply embedded social structural barriers that are resistant to change:

Race and class are certainly factors that help explain the social vulnerability in the South, while ethnicity plays an additional role in many cities. When the middle classes (both White and Black) abandon a city, the disparities between the very rich and the very poor expand. Add to this an increasing elderly population, the homeless, transients (including tourists), and other special needs populations, and the prospects for evacuating a city during times of emergencies becomes a daunting challenge for most American cities (Cutter 2006).

Vulnerability is “embedded in complex social relations and processes” (Hilhorst and Bankoff 2004, 5) and is best viewed as a social problem that requires social solutions. Doing so requires us to address how complex the problem really is, because it is not just that a hurricane approaches or an earthquake shakes the ground. Rather, the problem stems from an “interface of society and



FIGURE 1.2 An overpass in New Orleans after Hurricane Katrina. Photo by Pam Jenkins and Barbara Davidson. With permission.

environment” (Oliver-Smith 2002) that is a pre-existing condition (Cutter 1996). That interface requires that we “unpack” the idea of vulnerability not only as it affects various social groups but in how we inherently participate in continuation of the disparities that produce risk more for some than for others.

Risk is thus socially produced and is not inherent to the hazard. Disasters, which result from a misfit between human systems, the built environment, and the physical world, tend to reveal clearly the social problems that make response and recovery difficult at the individual and family levels (Mileti 1999; Barton 1969). Risk can be thought of as “the probability of an event or condition occurring” (Mileti 1999, 106). When people are exposed to a risk, they may experience vulnerability as a result of social, economic, and political conditions, many of which are beyond their control. Children who are born into poverty will experience difficulty in climbing into another socioeconomic level. People with disabilities experience incomes far lower than people without disabilities. One third of female-headed single-parent families fall below the poverty line as well. Tens of thousands of elderly Americans attempt to survive solely on social security checks that fall at minimal levels. When an event like Hurricane Katrina occurs before the end of the month when paychecks, social security income, and entitlement funds arrive, evacuation is virtually unaffordable. These socioeconomic realities, which represent real social problems, can be addressed through evacuation planning (Figure 1.2). Or, as done before the 2008 hurricanes that struck the Gulf Coast, entitlement checks like veterans’ and social security checks can be released early to spur departures. By recognizing the nature of vulnerability, we can design solutions and reduce consequences. Because power relations underlie much of the economic, social, and political segregations that marginalize social groups and increase risk, the solution also lies in empowering those most vulnerable, in short, a political solution as well as a social solution (Hilhorst and Bankoff 2004).

This text attempts to elucidate the notion of vulnerability for various social groups, culminating in an understanding of how we might transform vulnerability and disaster management. We start first by examining a historic approach to the practice of disaster management and then expand on the relevance of a social vulnerability approach for disasters.

1.3.2 PERSPECTIVES

In this section, we examine perspectives that try to explain why people experience disaster risks differently. Perspectives provide a means for outlining the assumptions that underlie disaster

TABLE 1.1
The Dominant View of Disasters

Key Questions	Dominant Paradigm
How is nature viewed?	Extreme events in nature are seen as the primary causes of disaster. Nature and extreme events in nature are seen as external to society.
How are chance and time viewed?	Disasters are seen as accidents and freak events. Disasters are seen as operating outside of human history and as break in the normal flow of time.
How are science and technology viewed?	Science and technology are seen as the primary means available to deal with natural hazards. Providing the technological fix has become a major industry in the United States.
How are individuals understood?	People are viewed as having “bounded rationality,” inadequate information and ability to make sound choices in the face of risk. People are viewed as having to be instructed and led.
How is society understood?	Political, social, and economic relations are viewed as not involved in causing disasters but only in modifying the impacts of extreme natural events. Social change in the direction of increasing hierarchy and complexity and increasing wealth and technological capacity is seen as the necessary and sufficient condition for reducing risk of disasters.
Who believes and applies the framework?	The traditional emergency manager. Physical scientists.
What are the shortcomings?	Failure to consider all social, economic, and political conditions that may foster vulnerability. Failure to consider the full range of people’s capacities as well as their vulnerabilities.

Source: Excerpted verbatim from Wisner, B. Session 2: Development of social vulnerability analysis. In *A social vulnerability approach to disasters*. FEMA course, Higher Education Project. Full session is available at <http://training.fema.gov/emiweb/edu/completeCourses.asp>. Reprinted courtesy of FEMA.

management approaches and the consequences those approaches produce. For example, approaches that assume we are at the mercy of nature suggest that little can be done to reduce human vulnerability. Conversely, a perspective that assumes human agency can offer strategies for incorporating any given population appropriately into response plans. By digging into how various perspectives frame our understanding of vulnerability, we can offer tools for change. Perspectives, with the support of empirical research, can inform the practice of emergency management, social work, and trauma counseling, as well as the work of first responders, health care workers, volunteers, and local officials. Consequently, we begin this volume with two paradigms that frame our understanding of risk and influence the solutions we pursue.

1.3.3 UNDERSTANDING THE DOMINANT VIEW OF HAZARDS

We first explore the dominant view of hazards, which has generally been the most common approach taken by most disaster researchers and practitioners (although not all), even today. To do so, we examine how the dominant view understands nature, chance, time, science, technology, people, and society. Following this overview, we then discuss the implications of the dominant view before we identify its shortcomings, and finally turn to an alternative and more recent perspective, the social vulnerability approach. For an overview of this section, see Table 1.1.

1.3.3.1 How Does the Dominant View Understand Nature, Chance, and Time?

The dominant view understands nature as the agent that causes the disaster to occur. While this may seem obvious, the view merits fuller interpretation. As described by Tobin and Montz (1997, 8):

[t]he traditional view of natural hazards has ascribed all or almost all responsibility for them to the processes of the geophysical world. The approach has meant that the root cause of large-scale death and destruction has been attributed to the extremes of nature rather than encompassing the human world. Frequently, disaster victims have been viewed as unfortunates who could do little but react to physical processes. The physical world, then, has been seen as an external force, separate from human forces.

The dominant view explains disasters as the result of nature impinging upon human society but there is little that can be done to change the situation. In the dominant view, then, nature is the cause, the condition, and the propelling force that damages, destroys, and kills. Nature, unharnessed, is to blame. Hewitt (1983, 5) explains:

Conceptual preambles and the development of “risk assessment” appear to have swept away the old unpalatable causality of environmental determinism ... [but] [t]he sense of causality or the direction of explanation still runs from the physical environment to its social impacts.

The dominant view has, for a long time, simply been accepted as the way to understand disasters. It interprets the hazards that society faces as an attack on the functioning and stability of social systems. Communities are perceived as subject to what the storm will bring to bear on their abilities to survive. The dominant perspective has powerfully influenced both research and practice. E. L. Quarantelli (1998, 266), the cofounder of the Disaster Research Center, now at the University of Delaware, writes, “the earliest workers in the area, including myself, with little conscious thought and accepting common sense views, initially accepted as a prototype model the notion that disasters were an outside attack upon social systems that ‘broke down’ in the face of such an assault from outside.” Disasters must be managed, placed under human control and influence where possible, in contrast to approaches that integrate human activity with natural systems and honor ecological integrity.

Disasters are thus viewed as horrendous tragedies, as accidents or even as freak events. Because they are so conceived, in many locations and cultures it is assumed that there is little one can do to prevent their occurrence and consequently their effects. Risk is the result of chance, of being in the wrong location at the wrong time. Society simply cannot do much about such events because they occur naturally and seemingly without prediction. We are at the mercy of nature. Steinberg (2000, xix), in his historical perspective on disasters, illuminates this barrier between society and nature:

These events are understood by scientists, the media, and technocrats as primarily accidents—unexpected, unpredictable happenings that are the price of doing business on this planet. Seen as freak events cut off from people’s everyday interactions with the environment, they are positioned outside the moral compass of our culture.

Disasters, as disruptive influences, are viewed as operating outside of human history and as a “break” in the “normal” flow of time. They are an “other,” an “outsider” to the way in which we view our normal relations, and thus represent the untoward. In the 2008 tragedies that befell Myanmar/Burma and the People’s Republic of China, both media commentators and experts in the field used the dominant view to explain “donor fatigue,” meaning that people had reduced their financial contributions to charitable organizations: “it might be more accurately described as disaster fatigue—the sense that these events are never-ending, uncontrollable and overwhelming. Experts say it is the one reason Americans have contributed relatively little so far” (Tolin 2008). Hewitt elaborates (1983, 10):

The language of discourse is often a good indicator of basic assumptions. In hazards work one can see how language is used to maintain a sense of *discontinuity* or *otherness*, which severs these problems from the rest of man-environment relations and social life. That is most obvious in the recurrent use of words stressing the “*un*”-ness of the problem. Disasters are *unmanaged* phenomena. They are the *unexpected*, the *unprecedented*. They derive from natural processes or events that are highly *uncertain*.

Unawareness and *unreadiness* are said to typify the condition of their human victims. Even the common use of the word [disaster] “event” can reinforce the idea of a discrete unit in time and space. In the official-sounding euphemism for disasters in North America, they are “*unscheduled events*.”

Accepting the dominant view implies that little can be done to prevent catastrophe from striking (Steinberg 2000, xix). Even the word “disaster” implies a discontinuity with normal, routine events (Hewitt 1983, 10). Time stops while we gather the injured and dead and pick up the pieces so as to move on. To recover from disaster then means to restore a sense of normal time, to bring back a routine order, and to provide social stability and functioning.

1.3.3.2 How Does the Dominant View Understand Science and Technology?

If we are at the mercy of nature and unexpected events, how are we to safeguard the stability and functioning of our social systems? How should we move to manage the presumably unmanageable in order to thwart the effects of such disruptions on our time? The dominant view sees science and technology as the main tools available to address disasters. To manage the seeming unpredictability of earthquakes, we place seismic monitoring devices around the planet, hoping to ascertain the connection between foreshocks and main shocks. In the aftermath of the 2004 Indian Ocean Tsunami, nations worked collaboratively to place wave detection systems across vast waterway expanses. Across the United States, dams and levees have been erected to ward off floodwaters and storm surges.

In short, the dominant view prescribes an engineering solution to many hazards, even those that do not emanate from the natural world. Further, disasters usually fall into three general categories: natural (hurricanes, floods, tornadoes), technological (hazardous materials accidents, oil spills, nuclear accidents), and terrorism. It is clear that the dominant view and its emphasis on scientific or technological management is the preferred solution. For example, after September 11th, efforts focused on reinforcing buildings through integrating breakthroughs in “blast performance research.” Tremendous amounts of funding were diverted toward “hardening” targets, especially buildings, with far less funding directed toward evacuation planning, particularly for people with disabilities, seniors, and those lacking transportation. The harsh reality of Hurricane Katrina revealed the consequences of applying the dominant approach. Although new funding and initiatives have addressed human vulnerability to a greater extent than before the storm, far more funding and effort have targeted rebuilding the massive levee system. Environmentally friendly approaches that would restore coastal integrity to stem storm surge and replenish endangered ecosystems have fared badly; in the dominant view, coastal restoration, as a natural means to stem storm surge, is deemed too expensive.

Finally, turning to the practical application of science and technology offers an approach consistent with, and supportive of, a capitalist economy. As Alexander (2000, 25) indicates, “structural mitigation is preferred for obvious reasons by the construction and economic growth lobbies. Technological hardware production ... has offered ever more complex, expensive and sophisticated solutions to the problem of hazards.” Thus, because technology is seen as a near-panacea for the problems produced by disasters of all kinds, engineering and “hard science” applications receive funding far in excess of social science research. The dominant view, then, does not consider solutions that might work in concert with nature. Rather, “the most expensive actions and the most formidable scientific literature, recommending action are concerned mainly with geophysical monitoring, forecasting and direct engineering or land-use planning in relation to natural agents” (Hewitt 1983, 5). Science and technology in this sense serve a perceived need to command and control nature. In fact, command and control is the preferred form of dealing with people too, as we discuss next.

1.3.3.3 How Does the Dominant View Understand People?

The dominant view sees human beings as unable to make good decisions regarding disasters. Conceptually, the term “bounded rationality” means that people lack sufficient information to make well-informed decisions regarding their risks. Although “behavior is generally rational or logical” it

is “limited by perception and prior knowledge” (Tobin and Montz 1997, 5). According to the dominant view, for instance (although the social vulnerability approach would argue differently), the tragedy of the cyclone in Myanmar in 2008 was attributable to such limitations. Local people lacked information or understanding regarding the impending cyclone and thus could not or did not make evacuation decisions. The dominant view also assumes that, even with sufficient information, people would not necessarily process the knowledge adequately and thus would choose from a bounded set of options. The dominant view has been used most recently to explain why so many failed to leave New Orleans despite clear warnings to do so. Burton, Kates, and White (1978, 52) concur:

It is rare indeed that individuals have access to full information in appraising either natural events or alternative courses of action. Even if they were to have such information, they would have trouble processing it, and in many instances they would have goals quite different than maximizing the expected utility. The bounds on rational choice in dealing with natural hazards, as with all human decisions, are numerous.

In many disaster studies, people serve as the individualized focus of inquiry. Researchers “ask how people respond to forecasts, requests to conserve water and hazard zone legislation. They examine how people ‘cope’ when the volcano erupts or when a crop is destroyed” (Hewitt 1983, 7). Such research focuses squarely on the event as a disruptive extreme that causes even seasonal events, such as agricultural production, to cease. Although the intent of the research seems reasonable, it misses “the main sources of social influence over hazards” (Hewitt 1983, 7).

Consequently, the conclusion has been that people must be instructed, led, and managed. Often, this is experienced as a top-down, hierarchical model designed to “command and control” events, as if the disaster itself could be herded into submission. For emergency managers who subscribe to this view, the differential responses of people to hazards and subsequent “orders” seem chaotic and nonsensical. People appear to have lost their way, to have behaved out of compliance with the clear-headed thinking of those in authority.

1.3.3.4 How Does the Dominant View Understand Society?

If nature is at fault, then surely the disaster is not the result of political, social, or economic systems or the misfit of interactions among these systems. Such systems, and the actors within them, are viewed as only modifying the disaster and its effects, and thus the ability of society to respond is obviously limited (Hewitt 1983, 6):

In the dominant view, then, disaster is itself attributed to nature. There is, however, an equally strong conviction that something can be done about disaster by society. But that something is viewed as strictly a matter of public policy backed up by the most advanced geophysical, geotechnical and managerial capacity. There is a strong sense, even among social scientists for whom it is a major interest, that everyday or “ordinary” human activity can do little except make the problem worse by default. In other words, the structure of the problem is seen to depend upon the ratios between given forces of nature and the “advanced” institutional and technical counterforce.

Yet changes within social systems, according to the dominant view, can provide solutions. Consistent with the use of science, technological fixes and engineering solutions are viewed as the means by which to engage in risk reduction. Individuals cannot bear the risk because of limited means. Accordingly, measures consistent with economic interests that distribute risk will emerge. Insurance policies, for example, distribute risk when everyone buys in and shoulders the cost of an event. Burton, Kates, and White (1978, 219) describe the shared solution: “[T]he construction of dams, irrigation systems, or seawalls, and the design or monitoring, forecasting, and warning systems with complex equipment would be clearly beyond the scope of individual action.” Socially shared risk, embedded within existing scientific and economic systems, affords a measure of security to stabilize the functioning of social systems. However, as Burton, Kates, and White (1978, 219)

point out, “these favored adjustments require interlocking and interdependent social organization, and they tend to be uniform in application, inflexible and difficult to change.”

1.3.3.5 Who Believes and Applies the Dominant View?

The implications of the dominant view can be profound, influencing not only how we view nature, time, people, and society but also the means for solving problems associated with disaster. Who would believe in and apply the dominant view? Blanchard (2000) has identified two general groups of emergency managers in the United States, separated typically by age, race, and gender. The older group of emergency managers is more likely to adopt practices based on the dominant approach. Characterized by Waugh (1999) as part of the old-school “air raid wardens,” the older group seems more likely to believe in bounded rationality and to follow a command and control approach (Dynes 1990).

In contrast, people who have entered the emergency management profession more recently are a more diverse group in terms of gender, race/ethnicity, training/education, and professional experience. The newer group is also more likely to belong to professional associations and to recognize issues of social vulnerability. This separation implies a generational difference that is associated with clear periods of social and political change, as well as the increasing professionalization of the practice of emergency management.

The more recent cohort appears to be influencing governmental agencies, in part by challenging the assumptions of the dominant view. For example, some government agencies have acknowledged and incorporated a social vulnerability approach, although it frequently remains in the position of an “add-on” while mainstream thinking, practice, and funding continue to be driven by the more traditional missions of the agencies. To illustrate, only recently has a special journal issue been published on social vulnerability and warning systems. As noted by Lazo and Peacock (2007, 43), “Hurricane Katrina illustrated that even with the improvements in forecasts and warnings, societal factors still exist that can lead to large loss of life” (see also Phillips and Morrow 2007).

In the United States, presidential administrations can also dramatically influence agency approaches through their presidential appointees. For example, President Bill Clinton appointed James Lee Witt to direct FEMA, which subsequently addressed physical vulnerability in its mitigation activities and included social solutions as well. For example, Project Impact included outreach to communities and operated at the grassroots level, where physical and social vulnerability is typically experienced and, according to the advice of authors in this volume, best addressed. Unfortunately, Project Impact was discontinued under the next presidential administration. Organizationally, non-governmental organizations (NGOs) are more likely to spurn the dominant view in favor of vulnerability approaches, although such adoption is not consistent across organizations. Groups that operate on Cold War assumptions tend toward civil defense assumptions consonant with the dominant view (e.g., see <http://www.tacda.org>). Faith-based organizations (FBOs), on the other hand, tend toward the social vulnerability approach and situate their disaster efforts squarely in an understanding of how race, income, gender, age, and disability can influence life chances, personal safety, and property loss (e.g., see <http://www.cwserp.org/>; <http://www.afsc.org/ematasst.htm>).

1.3.3.6 Shortcomings of the Dominant View

A number of shortcomings of the dominant view have been identified. For example, the dominant view does not consider all causes of disasters. Carr (1932, 221) noted that people and societies survive disasters all the time. What is important is that “as long as the levees hold, there is no disaster. It is the collapse of the cultural protection that constitutes the disaster proper.” Given that Carr spoke these words 73 years before Hurricane Katrina, his words seem prophetic. The category 5 storm surge that pushed into New Orleans occurred in large part because of the decimation of natural coastal protections, coupled with engineer-driven levee solutions that were unable to withstand storms exceeding a category 3 level.

Indeed, the dominant view relies heavily on understanding physical processes to the neglect of social forces. Hewitt (1983) emphasized this in his work. First, too much causality has been

attributed to geophysical forces. In contrast, Mileti (1999) identified disasters as the result of a misfit of three systems: the physical world, the built environment, and human systems. Second, disasters occur because society lacks effective measures to reduce the impact; such measures reflect the values and institutions of the society. Whether or not a mitigation measure has been instigated will have much to do with economic and political will. Trailer parks, for example, are continually approved without requiring congregate sheltering facilities. Such homes routinely fail in the lowest levels of tornadic activity. Third, disasters consequently result from social rather than geophysical activity (Tobin and Montz 1997, 11–12).

Overall, critics argue that vulnerability occurs because of the ways in which social systems are constructed, choices are made, and groups are (or sometimes not) protected. In many locations, populations remain vulnerable because we have failed collectively to address the social conditions, such as inferior housing that fails to provide adequate protection. Disasters thus “bring to the surface the poverty which characterizes the lives of so many inhabitants” (Hardoy and Satterthwaite 1989, 203). The assumption (or claim) that the geophysical world is the originator of risk is called into question; critics argue instead that risk stems from “the risks, pressures, uncertainties that bear upon awareness of and preparedness for natural fluctuations [that] flow mainly from what is called ‘ordinary life,’ rather than from the rareness and scale of those fluctuations” (Hewitt 1983, 25).

The dominant view is also accused of failing to consider all effects of disasters. Death, injuries and property loss are not the only consequences,

[t]hey can also redirect the character of social institutions, result in permanent new and costly regulations for future generations, alter ecosystems, and even disturb the stability of political regimes. Costs like these rarely, if ever, are counted as part of the disaster impacts (Mileti 1999, 90).

The dominant view also promotes an emphasis on preparedness and response rather than understanding how to reduce risk through mitigation and adaptation, a common critique levied at the U.S. Department of Homeland Security and FEMA priorities. Mileti (1999, 237–38) and a panel of experts in the United States recognized this disparity and wrote,

[a]chieving patterns of rebuilding that generally keep people and property out of harm’s way is increasingly viewed as an essential element of any disaster recovery program. Rebuilding that fails to acknowledge the location of high-hazard areas is not sustainable, nor is housing that is not built to withstand predictable physical forces. Indeed, disasters should be viewed as providing unique opportunities for change—not only to building local capability for recovery—but for long-term sustainable development as well.

To illustrate, the Northridge, California, earthquake generated \$2.5 billion in direct losses with an estimated total loss of \$44 billion. Over 20,000 people experienced displacement from their homes, and over 681,000 requested federal assistance totaling approximately \$11 billion in individual and public assistance. Bolin and Stanford (1999, 104–5) found that all dimensions of recovery were influenced by one’s location in the social system:

From the individual’s standpoint, relief accessibility is complex and takes up issues of personal knowledge of federal programs, cultural and language skills, and physical location, with the mediating effects of social class, ethnicity, and gender. It is here that language, cultural and residency barriers may hinder households in access to resources for recovery. In Fillmore, with its history of an Anglo-dominated power structure and exclusionary practices aimed at farm-workers (and lower-income Latinos in general), local political culture compounded resource access problems for Latino disaster victims.

The dominant view also is charged with failing to take advantage of the full range of solutions and measures to address risk. Disasters are considered opportunities when “swift action” can be taken to “develop or implement measures” (Blaikie et al. 1994, 224), but the dominant view does not deem those at risk to be possible partners in creating safer conditions. For instance,

[w]omen are pivotal in the intersection between household and community recovery. While their needs and experiences are in many respects gender specific, as well as deeply influenced by class and ethnicity, they also provide critical insights into neglected, yet central, problems, processes, and mechanisms of household and community recovery. We conclude that a gendered analysis is crucial to understanding and mitigating against future impacts of disasters on families and communities (Enarson and Morrow 1997, 135–36).

Churches and other bodies form the centres for citizen response to economic dislocation and crisis. Food banks, community kitchens, and pantries have sprung up all over the US and in many Latin American countries to assist and involve poor and hungry people. People's health centres and public health movements have also emerged in the slums of many of the world's mega-cities from Brooklyn and the Bronx to Rio de Janeiro, Mexico City and Manila. Such formal and informal organizations are woefully underutilized by authorities responsible for disaster mitigation. Non-governmental organizations have been quicker to recognize the potential of such groups (Blaikie et al. 1994, 236).

The dominant perspective provides a limited view of the causes of, and solutions to, disasters and fails, in particular, to recognize the true nature of vulnerability and the capacity that related populations bring to bear on their own risk as well as that of the larger society. We turn next to consideration of an alternative perspective, the social vulnerability approach.

1.3.4 THE SOCIAL VULNERABILITY VIEW

Disaster management is a relatively recent profession. Most writers trace the early days of the occupation to the days of "civil defense" in the 1950s and 1960s. Disaster managers were initially viewed as "air raid wardens" who would sound an alert when an attack came from outside the United States, presumably from what used to be the Union of Soviet Socialist Republics (Waugh 1999; Waugh and Tierney 2007). Concern over the use of nuclear powers prompted air raid drills, the creation of bomb shelters, and the possibility of an external threat. It was assumed that people would respond in panic and shock. However, a series of pivotal studies conducted by the Disaster Research Center (founded at the Ohio State University, now at the University of Delaware) demonstrated that socio-behavioral response in disaster varied from the set of assumptions under which civil defense operated. For instance, altruism and other forms of pro-social behavior were found to be normative, rather than those irrational antisocial responses such as panic and looting. The Disaster Research Center prompted further inquiry into socio-behavioral responses to disaster—looking at organizational response, for instance—in order to arrive at a better understanding of the broader social, economic, and policy conditions that influenced disaster management.

Over time, an increasing awareness of some of the limitations of the dominant paradigm resulted in the incorporation of the concept of social vulnerability into increased research and practice (for a comparison of the two approaches, see Table 1.2). Several historically influential social or political movements began to raise questions about social vulnerability in disasters and produced new ways of thinking about various populations. In the 1930s, spatial concentrations of rural poverty were observed which came to be known as the "other America" (Harrington 1962). These observations laid the foundation for the development of various federally funded entitlement programs, including social security for senior citizens and even large-scale regional development projects like the Tennessee Valley Authority. These "New Deal" era programs recognized that despite their best efforts, people experienced considerable difficulty in securing housing, employment, health care, education, and more. The struggles of people at varying socioeconomic levels to secure scarce resources generated new perspectives for the scientific study of people affected by disasters.

Another major trend in the United States prompted even deeper insights. During the 1950s and 1960s, multiple social movements emerged to promote the rights of various populations. The civil rights movement, for example, conducted concerted efforts to retract segregation, push educational reforms, and extend voting rights for African Americans (Morris 1984). A massive

TABLE 1.2
The Dominant versus Vulnerability View of Disaster

Dominant View	Vulnerability View
The dominant view concentrates on the physical processes of the hazard.	The vulnerability view addresses socioeconomic and political influences.
Management style emphasizes problem solving through hierarchies and authorities.	Management style emphasizes a decentralized approach that involves community-based problem solving.
A top-down approach.	A grassroots or bottom-up approach.
Uses technology, engineering, and science to address the hazard.	Uses local knowledge, networks, imagination, and creativity to address the hazard.
The goal is to reduce physical damage.	The goal is to reduce social vulnerability of people.
The general philosophical approach is utilitarian and the conquest of nature.	The general philosophical approach is equitable approaches to reduce vulnerability and working in concert with nature.
Emphasizes bounded systems.	Emphasizes open systems and complexity.

Source: Enarson et al. Social Vulnerability to Disasters (Course Materials).

women's rights campaign in the 1960s and 1970s expressed concern over political representation, economic rights, health and reproductive care, education, and more (Ferree and Hess 1985). Similarly, a Latino rights movement pursued issues ranging from agricultural labor concerns to more broadly based political representation (Gutierrez 2006). A grassroots environmental movement pushed for recognition of environmental damage (Carson 1962). Gay rights efforts attempted to secure basic human respect and laid a foundation for broader struggles in ensuing decades. In the 1980s, an environmental justice movement linked pollution and pesticides, as one example, to detrimental health effects within marginalized communities (Bullard 1990). Disability rights advocates organized and promoted inclusion and accommodation (Christiansen 1995; Barnartt and Scotch 2001). Senior advocates and senior citizens created a "gray panther" movement that leveraged growing numbers of baby boomers into a more powerful lobby group, recognizing a broad spectrum of issues including health care, elder abuse, crime, and social stereotyping (Kuhn 1978). In short, several decades of social and political organizing raised awareness of issues facing various populations and the ways in which they were historically marginalized. Organized social movements advocated for inclusion and change and, in so doing, laid a foundation to question the dominant view.

Research by social scientists worldwide has revealed strong evidence that social vulnerability to disasters is deeply rooted in a people's history; vulnerability is related to major social structural factors such as the lack of access to political power and the uneven distribution of income. The characteristics of a disaster resilient society—or the lack thereof—are noticeable in these studies. For example, over 8000 people died in 1974 when Hurricane Fifi devastated northeastern Honduras. Farmers, who had been displaced from rich valley land due to the establishment of banana plantations, had cleared steep slopes to grow meager crops. Fifi's torrential rains caused the slopes to fail, leading to significant numbers of deaths and the loss of a means to feed families.

Proponents of the vulnerability approach point out that the assumptions of the dominant view fail to explain the Honduran deaths (Mileti 1999, 28):

Although the "bounded rationality" model of human choice explicitly recognizes the existence of constraining social, political, and economic forces and cultural values, recognizing those boundaries apparently has not helped to break through them to reduce losses. It is possible, in fact, that those forces are much more powerful than previously thought.

Concurrent, then, with the evolution of social and political rights movements in the United States, research on vulnerable groups began to appear in publications and professional meetings in the 1980s. Disaster researchers reported evidence of race, class, age, and gender discrimination and differentiation in the effects of disasters throughout all phases of disasters (e.g., Glass et al. 1980; Bolin 1982; Perry, Hawkins, and Neal 1983; Bolin and Bolton 1986; Bolin and Klenow 1988).

It became even more clear that technological means were insufficient to prevent major damage in the United States as a result of events such as Hurricane Hugo, which tore apart South Carolina in 1989; the Loma Prieta earthquake, which badly damaged the homes of Latino agricultural workers and low-income seniors that same year; Hurricane Andrew, which ripped through south Florida's ethnically diverse communities in 1992; the far-ranging Mississippi River floods of 1993 that affected over a dozen states; and the Northridge, California, earthquake in 1994. Bureaucratic procedures clearly failed when trying to reach historically vulnerable populations as described by one Northridge survivor (personal communication to author):

I was not wearing my hearing aids that morning, of course, it was 4:31 in the morning. When my foot hit the floor, my bare feet felt every piece of glass that had broken. My husband was out of town, I was alone and extremely scared; my husband is profoundly deaf, no one even told him there had been an earthquake. I went to FEMA [and] there was no interpreter. Someone later suggested I call my congresswoman. Almost nine months passed before I got my FEMA check.

FEMA, the American Red Cross, and other organizations who are among the more visible relief agencies in the United States, endured criticism for not taking diversity into consideration. Simultaneously, the economic costs of disasters began to escalate rapidly, a fact that was confirmed by the U.S. insurance industry's recognition of increasing insured losses. Internationally, the 1995 earthquake in Kobe, Japan, reinforced doubts of a technological panacea. Despite the world's best engineering, many structures collapsed, the fire fighting system failed, and more than 6000 people died. Over 50% of the dead were over 60 years of age, and 1.5 times as many women died as men (Seager 2006). In 1991, flooding in Bangladesh killed five times more women than men (Seager 2006), demonstrating that social factors clearly affect life safety.

We should not be surprised, then, that over 70% of the dead in Hurricane Katrina were over the age of 65 and that African Americans died in numbers disproportionately to whites and to their local population numbers (Sharkey 2007). Nor should we be surprised that the Indian Ocean Tsunami claimed over 300,000 lives, including about 240,000 women and children (MacDonald 2005). Such deaths are predictable and, with adequate preparation, their numbers are reducible. New perspectives and practices, accordingly, have been deemed overdue and more than appropriate.

In the 1990s, the United Nations launched the International Decade for Natural Disaster Reduction, a decade-long effort to reduce vulnerability. That effort continues to the present day as the International Strategy for Disaster Reduction. In 1995 the United Nations convened a mid-decade conference in Yokohama, Japan, at which "a strong case was made by many representatives that more needed to be done to understand and to tap the local knowledge of ordinary people and to understand and address social vulnerability" (Wisner 2003).

In the 1990s, a major assessment of disaster research took place in the United States (Mileti 1999). This major undertaking involved over 100 scientists and experts who reviewed the extant literature and evaluated its meaning. The report recommended the adoption of a social vulnerability approach in distinct contrast to the dominant view (Mileti 1999). Several key principles were recommended by researchers as a means to transform the circumstances of socially vulnerable populations. First, a participatory approach that involves and includes stakeholders must be adopted, in contrast to the assumptions of a bounded rationality approach where people must be led or directed. Second, social and intergenerational equity issues must be addressed, to insure that all stakeholders enjoy the right to survive. Third, economic vitality must be considered, including the full range of businesses that employ from all socioeconomic levels including home-based work, agriculture

labor, retail, and industrial employment. Fourth, quality of life issues, as identified by those local stakeholders, must be considered rather than imposed from outside. Fifth, environmental quality must be retained and even enhanced, including rebuilding in ways that reduce impact on marginalized populations and nonrenewable resources. Overall, the vulnerability approach understands that disaster-resilient communities stem from more than the geophysical world, and takes into consideration the full range of social institutions and populations that comprise a richly diverse human system. It is the involvement of those marginalized groups that can produce insights and perspectives to change vulnerability, an emphasis addressed by this text.

1.3.4.1 The Framework of the Social Vulnerability Approach

The social vulnerability approach is not sufficient alone to plan for disasters and must be understood as part of a larger, broader approach that includes understanding geophysical hazards and technological solutions. Vulnerability assessment thus incorporates insights from the physical world but emphasizes the roles of social, economic, and political relations in the creation of hazardous situations in a specific place. Vulnerability analysis examines the social distribution of risk and why some populations bear disproportionate levels of risk to disasters. Research for a number of years has examined the notion that (Blaikie et al. 1994, 9)

[s]ome groups in society are more prone than others to damage, loss, and suffering in the context of differing hazards. Key characteristics of these variations of impact include class, caste, ethnicity, gender, disability, age, or seniority.

Social vulnerability reflects the “classic political economy problem of the allocation of scarce resources among competing individuals, groups and classes,” that is, the problem of differential vulnerability for people “by virtue of where they live, work, or own property” (Boyce 2000). People working at lower waged jobs, as well as those unable to work or those experiencing underemployment, live in housing that fails to withstand high winds, seismic activity, or flood risk. Seniors and people with disabilities lacking accessible public transportation cannot evacuate. Home-based businesses that disasters destroy undermine important incomes especially for low-income households. Yet government programs provide only loans to businesses, not grants. When disasters destroy domestic violence shelters, as they did in three Louisiana parishes, survivors may desperately resort to living with offenders. In short, in a society with scarce resources, there are winners and losers. As Barton argued as far back as 1969, “disasters lay bare the social problems of a society.” It is in understanding those social problems that we can find places of intervention that reduce risk. International humanitarian Fred Cuny wrote (1983), “The most basic issues in disasters are their impact on the poor and the links between poverty and vulnerability to a disaster ... we must address the question of how to reduce poverty ... if we hope to reduce suffering and to make a true contribution to recovery.” For Cuny, the solutions will be found in tackling issues of social justice and social change.

From the vulnerability perspective, it is necessary to understand both the physical impact of disasters and the social conditions that underlie differential outcomes. The degree to which people receive transportation, shelter, warning, and protective action, or are safe from injury, loss of life, or property damage, depends on their level of income, quality of housing, type of employment, and on whether or not they are subject to discrimination and prejudice. Thus, the vulnerability approach seeks to understand how social, economic, and political relations influence, create, worsen, or can potentially reduce hazards in a given geographic location. The vulnerability approach also appreciates the importance of context, meaning that the time, place, and circumstances in which people live matters. For example, historic patterns of race relations may have resulted in segregated neighborhoods or in situations where entire towns remain situated in hazardous locations (Cutter 2006). Gendered patterns of political representation may mean that women remain excluded from policy-making positions that influence the practice of disaster management. Socioeconomic and political

contexts will also differ significantly across geographic locations. Urban populations, for example, will include considerable numbers of seniors and people with disabilities that may overstretch organizational response capacities. Rural areas, or historically impoverished states, may suffer from a lack of funding to assess and plan for those at risk. In a political context, where some hazards are deemed more important to fund than others, local repetitive hazards may fail to be addressed. Coastal areas like the states affected by Hurricane Katrina will feature diverse forms of employment from corporate settings to fishing villages. Understanding the social distribution of risk in those settings vis-à-vis the local socioeconomic context can identify those at risk and locate community resources, which would help ensure a safer environment.

Social vulnerability approaches can be used to inform a reinvigorated risk assessment and planning process. By assuming that social vulnerability exists, key questions can be identified to reveal areas of concern and action items. Most disaster managers, for example, rely on a four-phase life cycle of disaster management that organizes activities around preparedness, response, recovery, and mitigation.

Concern for social vulnerability in the preparedness phase, for example, might look at the types of materials developed to educate the public:

- What language are they written in?
- Do they address concerns with literacy levels?
- Are they accessible to people with visual or hearing challenges?
- Are they relevant for the variety of social groups present in a given community?
- Can they be understood by people of varying ages including children?

The response phase, from a social vulnerability perspective, might suggest that appropriate questions would include

- Are there sufficient numbers of paratransit vehicles to move people from nursing homes or to assist people with disabilities?
- Are first responders trained in basic words in local languages, including American Sign Language, which could help with rescue efforts and emergency medical care?
- Are shelters ready to accept a wide range of cultures, faiths, and ages with different nutritional requirements?

In recovery, social vulnerability perspectives can be applied to identify areas of need and plan accordingly:

- Are sufficient numbers of local units or mobile homes available that are accessible to the local population, including veterans, people with disabilities, and seniors?
- What is the local housing stock like? How old is it and who lives in it? Where is the housing situated vis-à-vis local hazards, and how will that housing fare in a disaster?
- Does the recovery plan address the full range of employment and businesses that need to be supported so that people can return to work?

Mitigation measures offer a means through which risk can be reduced, such as through strengthening a levee or building a safe room. From a social vulnerability perspective, it would be prudent to find out

- Whether there are populations that require assistance in putting up mitigation measures like shutters in hurricane areas, including single parents and seniors.
- Whether local hazards threaten congregate facilities, such as nursing homes, or facilities for people with cognitive disabilities, and whether such facilities can be afforded greater protection.

- Whether some mitigation measures like insurance remain unaffordable and whether local organizations might plan for the needs of those likely to suffer significant losses.

Social vulnerability approaches also emphasize the ways in which local populations bring capacities and capabilities to the disaster management process, which are largely untapped. Hurricane Katrina clearly demonstrated vulnerability through the sheer numbers of people lacking transportation and who were subsequently trapped in the flooded city of New Orleans. Few people heard stories of the tremendous efforts that were brought to aid those in need, including students and staff from the Louisiana School for the Deaf who helped with translation, the building of shelters, debris removal, and distributing donations. Experienced community organizers also pointed out that impoverished groups, though dramatically impacted by the storm, also brought coping methods to their experience by sharing what they had, including food, clothing, and homes. Families doubled and tripled up, took in strangers, and provided comfort. Children, even those separated traumatically from their families, proved resilient in forming new social bonds with peers and shelter workers.

The social vulnerability approach also assumes that local resources can be tapped to address the problems noted in this text. Communities include voluntary, faith-based, community, and civic organizations with track records of assisting those at risk in both nondisaster and disaster situations. Post-disaster, it is also likely that a number of emergent groups will form to address unmet needs. Organizations external to the community will also arrive in many disasters and target those who suffer disproportionately. Though disasters are not equal opportunity events, the human capacity to assist pro-socially exists in abundance. Disaster managers, social service providers, health care staff, voluntary organizations, and others concerned with socially vulnerable populations, then, must tap into these grassroots resources and fulfill their potential for change.

The social vulnerability approach, in concert with one that provides effective means for mitigating the physical consequences of storms, earthquakes, and terrorist attacks, can significantly reduce losses and enhance outcomes for a wider set of those at risk. The goal of this text, therefore, is to reduce human suffering by applying an empirically supported social vulnerability perspective with practical solutions that change disaster circumstances. It is clear, though, that a selective focus on just disaster contexts remains insufficient. As Cuny (1983) understood, “Ultimately, addressing vulnerability means committing to social justice and social change.”

1.4 OVERVIEW OF COMING CHAPTERS

This text adopts a social vulnerability approach that recognizes differential impacts as well as the potential to tap into the capacities of those at risk. Throughout this text, readers will find realistic, empirical assessments of socially vulnerable populations. You will also find practical solutions to the raw circumstances in which too many people find themselves before, during, and after disaster. This text thus aims to provide both insight and solutions. You are invited to be a part of the transformative vision these authors promote and to join us in building a safer, more equitable society for all.

1.4.1 SECTION I: UNDERSTANDING SOCIAL VULNERABILITY

This text unfolds in several sections. In the first section, the following two chapters teach us about key theories and concepts. These chapters also globalize the concerns about social vulnerability. In Chapter 2, “Theoretical Framing of World Views, Values, and Structural Dimensions of Disasters,” Drs. Jean Scandlyn, Deb Thomas, and John Brett (University of Colorado Denver), and graduate student Carrie Simon (Colorado School of Public Health) expand from Chapter 1 on social vulnerability theories and perspectives. Their work helps us to understand how disaster is viewed by disaster planners, individuals, and communities and how we might reduce risks from disasters. In Chapter 3, “The Intrinsic Link of Vulnerability to Sustainable Development,” Kate Oviatt (a

graduate student at the University of Colorado Denver) along with John Brett (UC Denver) help us identify the root causes for disaster losses. Their work then situates this text in an understanding of sustainable development and its links to vulnerability, resiliency, and capacity—themes that will resonate throughout the remainder of the text. Their work helps us to grasp the sustainable livelihoods approach, which is addressed later in the text in Chapter 14.

1.4.2 SECTION II: SOCIALLY VULNERABLE GROUPS

The second section of the text looks at social groups, primarily within the U.S. context, which is the primary audience for this text, by examining the vulnerabilities they experience and the capacities that exist or can be developed for each. Each chapter presents a demographic overview of the social group of concern followed by a summary of relevant scientific literature. Findings are organized into sections that correspond to key disaster management activities. Content first covers warning, evacuation, and response, and then addresses how disasters impact those groups and how they fare during recovery periods. A concluding section discusses implications for action by addressing practical and policy considerations to reduce vulnerability as well as specific suggestions to build capacity. Each chapter offers key books, videos, and Web sites to provide further understanding and practical strategies. Section II includes Chapters 4 through 12 on issues of class, race and ethnicity, gender, age, disability, health, literacy, family and households, and violence.

In Chapter 4, Dr. Nicole Dash, along with graduate students Brenda McCoy and Alison Herring, all from the University of North Texas, examine the influence of socioeconomic circumstances on abilities to prepare for, respond to, and recover from disaster. This chapter helps us to understand the demographic distribution of social class in the United States and how social class influences people's life chances. A connection is made between class and disaster vulnerability through case studies and scenarios that bring the content to life. A concluding section describes practical strategies for addressing vulnerability as experienced at lower income levels.

Dr. Dash continues her work in Chapter 5 on issues of race and ethnicity. She begins by conceptualizing race and ethnicity as socially constructed attributes that differentially influence opportunity. Dr. Dash pursues an understanding of the structural effects of race and ethnicity on U.S. society. This chapter reviews the racial and ethnic composition of the United States, specifically examining the role of race during Hurricane Katrina, and suggests ways to ameliorate existing conditions.

In Chapter 6, Dr. Elaine Enarson, an independent sociologist and the lead author of the FEMA course materials used here, addresses gendered vulnerability. Dr. Enarson focuses on understanding how gender differentiation can influence life safety, abilities to respond, and experiences in recovery for both men and women. It is clear, though, that research finds vulnerability higher for women in most circumstances, and it is to this concern that Dr. Enarson addresses the bulk of the chapter content.

Dr. Lori Peek, from Colorado State University, offers insights into issues of age including children and the elderly in Chapter 7. First, she defines children and the elderly and explains why we should distinguish between various groups of each. Disaster experiences, for example, differ between young children and adolescents as well as those who are older or may be frail elderly. Dr. Peek then provides a demographic profile of youth and elderly populations and helps us to understand how those populations vary by age, race, class, and gender. We then learn about the experiences and risks faced by children and the elderly and what factors increase their vulnerability. Finally, Dr. Peek gives practical ideas and approaches to reduce vulnerability of our children, nieces, nephews, grandchildren, parents, grandparents, aunts, uncles, and friends.

A team of authors provides insights on disability issues in Chapter 8. Authors include Elizabeth Davis, Alan Clive, Jennifer Mincin, and Rebecca Hansen. Davis and Hansen both work out of EAD & Associates, LLC, a consulting firm that specializes in emergency preparedness and people with disabilities. Sadly, Alan Clive passed away just before publication of this book. His lifetime of work as the civil rights program manager for the U.S. Federal Emergency

Management Agency serves as a tangible reminder of the dedication required to reduce vulnerability. Mincin, formerly of EAD & Associates, LLC, is now with the International Rescue Committee where she links refugees with relocation services. Their collective expertise is leveraged to understand specific conditions that contribute to increased risk for the full range of people with disabilities. This chapter also informs us about terminology and concepts used to understand and frame disability. We next move through the life cycle of disasters to understand disability issues for warning, evacuation, response, and recovery. A comprehensive set of strategies and resources are offered to promote resiliency within the disability community and for practical use by disaster managers.

Dr. Deborah Thomas returns in Chapter 9 to present issues on health and medical care along with colleagues Elizabeth Davis and Alan Clive. Disasters disrupt access to medical care and reveal long-standing social problems that underlie and exacerbate health concerns. Her work serves as a reminder that social institutions are not invulnerable to the effects of disaster or societal neglect. This chapter reveals vulnerabilities tied to health concerns and the necessity of preparing this critical part of our disaster response and recovery infrastructure, particularly for those with low incomes, disabilities, and challenging medical conditions.

Dr. Betty Hearn Morrow, an emeritus faculty member from Florida International University and an original author of the FEMA course materials used for this book, looks at language literacy issues in Chapter 10. She starts by presenting disaster cases where language or literacy issues mattered, such as with warning messages or delivering relief. We then learn of the prevalence of language and literacy issues across the United States and their relevance for disaster management such as preparedness materials. Dr. Morrow subsequently presents and explains tools and strategies that help to translate materials into language- and literacy-appropriate resources.

Dr. Lynn Blinn-Pike, Indiana University-Purdue University of Indiana, examines families and households in Chapter 11. She begins by explaining current household and family composition in the United States and the implications for disaster response. Various studies then help us to understand how household and family characteristics, as well as their related resources, are tied to how well they may be able to prepare for, respond to, and recover from disasters. High-risk households and families are discussed along with strategies for reaching out to these units in an effort to reduce the effects of disasters.

Dr. Brenda Phillips, Oklahoma State University, along with Dr. Pam Jenkins, University of New Orleans, and independent sociologist Dr. Elaine Enarson, work through the rarely examined topic of post-disaster violence in Chapter 12. This chapter explains how various kinds of violence differentially impact social groups in the United States. These authors explain why it is important to understand violence in disaster situations and what can be done prior to an event to build partnerships that anticipate and potentially reduce aggression, hostility, brutality, and cruelty.

1.4.3 SECTION III: BUILDING CAPACITY

The final chapters of the book fall into a section that promotes capacity building in various ways. In Chapter 13, Dr. Eve Passerini, Regis University, provides insights into how the social capital and other community resources can be leveraged. Her work reveals the value of what the full set of community members, regardless of income or dis/ability, can bring to the table when responding to and recovering from disaster effects. Dr. Deborah Thomas, along with University of Colorado Denver students Pamela Stephens and Jennifer Goldsmith, reveal practical strategies for community vulnerability analysis (CVA) in Chapter 14. CVA allows emergency managers and planners (among others) to identify, analyze, monitor, and integrate social vulnerability into the full life cycle of emergency management: preparedness, response, recovery, and mitigation. Their work includes explaining how geographical information systems can help us to map vulnerability. The chapter also includes discussion of participatory mechanisms for increasing community input for vulnerability analysis as well as discussion of how to foster more sustainable communities.

Dr. Eve Gruntfest, director of the Social Science Woven into Meteorology (SWWIM) Initiative at the University of Oklahoma and codirector of the WAS * IS (Weather and Society Integrated Studies) movement, offers new ideas for disaster managers, social service providers, voluntary organizations, and others concerned with changing social vulnerability in Chapter 15. She works with Drs. Elaine Enarson, Brenda Phillips, and Deborah Thomas to present fresh ideas that promote transformative and inspiring insights. This unique and innovative chapter challenges us to remain current in the field in order to move forward our efforts to reduce vulnerability.

Finally, Dr. Bill Lovekamp, Eastern Illinois University, thoroughly covers ideas and strategies for empowerment in Chapter 16. He starts by walking us through how social change and empowerment take place. Next, we understand how community-based organizations and nongovernmental organizations can play pivotal roles in leveraging social capital found in social groups. He also helps us to grasp how disasters can influence social change and specifically examines those effects after September 11th and Hurricane Katrina.

1.5 SUMMARY

This chapter introduced the idea of social vulnerability to disasters, which is deemed to be a pre-existing condition deeply embedded in social, economic, and political relations among groups of people. The problem of social vulnerability requires social solutions that redress deeply embedded social problems that require concentrated effort, not only from disaster managers, but from the broader society as well. Such solutions require significant manifestations of political will and social effort. Because these social problems remain resistant to change, disaster managers, social service providers, elected officials, and others concerned with vulnerability and risk must design realistic strategies that impact at the individual, family, household, and community levels. This text sets out to understand how various social groups experience vulnerability and to design practical solutions that can, at least, serve as interim measures. As such, this book takes to heart the Maori proverb, “*Ha aha te mea nui? He tangata, he tangata, he tangata.*” “What is the most important thing? The people, the people, the people.”

1.6 DISCUSSION QUESTIONS

1. Why is there such a strong bias toward technology in the dominant view of disasters?
2. What is the role of “chance” or “random” events in your own life? Describe a “freak occurrence” you’ve experienced.
3. Describe the key elements of the dominant and vulnerability perspectives.
4. What are the strong points of the dominant view of disasters, in your opinion? Explain and justify your views. What critiques make sense to you?
5. Discuss the notion that a disaster is “an act of God.” The dominant view does not explicitly invoke divine causation or agency any more, but do you think there is still some legacy of this earlier view to be found in the dominant approach? Why? Why not?
6. Discuss and explain the deaths that occurred during the Indian Ocean Tsunami (2004), Hurricane Katrina (2005), the Myanmar cyclone (2008), or the Chinese (2008) earthquake from both the dominant and vulnerability perspectives.
7. What are the strong points of the vulnerability view of disasters, in your opinion? Explain and justify your views. What critiques make sense to you?
8. Are there social groups in your community that may experience higher vulnerability to disaster than others? Who are they and why do you believe them to be vulnerable?
9. How might an emergency manager approach warning and evacuation from the dominant and vulnerability perspectives?
10. Using the dominant and then the vulnerability perspectives, how might an emergency manager develop a recovery effort?

ACKNOWLEDGMENTS

The authors are indebted to Dr. Ben Wisner, the original author of the FEMA course materials session on social vulnerability analysis on which this chapter is based, as well as to the full team of course developers who contributed, including Drs. Elaine Enarson, Betty Morrow, Cheryl Childers, and Deborah Thomas. We have taken special care to honor their original intent by following their original outline, perspectives, references, and at times their wording. However, the interpretations and conclusions are those of the authors and do not necessarily represent those of the original team or author. Materials are used courtesy of FEMA's Higher Education Project, which is directed by Dr. Wayne Blanchard.

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RESOURCES

- A powerpoint presentation is available at the original FEMA materials Web site for this chapter, <http://www.training.fema.gov/EMIWeb/edu/sovul.asp> (access date July 18, 2008).
- A series of papers including many from the vulnerability perspective can be found at the Social Science Research Council Web site, Understanding Katrina, at <http://understandingkatrina.ssrc.org/> (access date July 18, 2008). An additional set of papers on a broader array of disasters can be found at the Radix Web site, http://www.radixonline.org/resources_papers.htm.
- For a community-based examination of the vulnerability perspective, visit the Greater New Orleans Community Data Center at <http://www.gnocdc.org> (access date July 18, 2008).

Section I

Understanding Social Vulnerability

2 Theoretical Framing of Worldviews, Values, and Structural Dimensions of Disasters

*Jean Scandlyn, Carrie N. Simon,
Deborah S. K. Thomas, and John Brett*

CONTENTS

2.1	Chapter Purpose	27
2.2	Objectives	28
2.3	Introduction	28
2.4	What Is Theory?	29
2.5	Hazards and Disasters: The Dominant View	32
2.6	Challenging the Dominant View: Social Vulnerability	34
2.7	Conflict and Critical Theory	36
2.8	Structure and Agency	37
2.8.1	Understanding Vulnerability	38
2.9	Systems Theory and Social Vulnerability	40
2.9.1	What Is a System?	41
2.9.2	Ecological Systems	41
2.9.3	Critique of Ecological Systems: Political Ecology	42
2.10	What Are Worldviews?	43
2.11	Worldviews and Values	44
2.12	Community-Based Approaches and Social and Environmental Justice	45
2.12	Summary	46
2.13	Discussion Questions	46
	References	47
	Resources	49

2.1 CHAPTER PURPOSE

This chapter explores the fundamental and significant ways that our worldviews—our representations and assumptions about the world—frame our understanding of and response to hazards and disasters. We begin by defining theory, the formal, explicit, and systematic worldviews that provide the foundation for the scientific analysis of hazards and disasters and for disaster planning and mitigation. This is followed by a discussion of the shift in theory from framing hazards and disasters as primarily natural and unexpected events to framing them as expected outcomes of human and environment interaction. This theoretical shift has led to a focus on social vulnerability: why some individuals, groups, communities, and nations are more vulnerable to hazards and disasters than

others. We then discuss how critical and conflict theories contribute to a comprehensive understanding and analysis of vulnerability at multiple levels of analysis. Because these theories focus primarily on social structure, the structure and agency perspective is introduced to examine how vulnerable individuals and communities view and respond to hazards and disasters within a given social structure. Finally, systems theory, specifically, political ecology theory, provides a practical analytic framework to understand and evaluate social vulnerability and reduce vulnerability by linking it to sustainable development and social justice.

2.2 OBJECTIVES

At the conclusion of this chapter, readers should be able to:

1. Understand what theory is and how it contributes to framing social vulnerability in a way that illuminates the critical elements of this complex issue.
2. Define critical and conflict theories and explain how they contribute to understanding vulnerability in a more comprehensive fashion.
3. Appreciate how structure and agency interplay in the creation of vulnerability.
4. Explain how theory leads to an explanation of worldviews and values that in turn influences how disasters are viewed by disaster planners and by individuals and communities who are vulnerable to hazards and disasters.
5. Appreciate how the theoretical framing of structure and agency illuminate how worldviews and values affect our approaches to tackling disaster reduction.
6. Discuss how systems theory guides a mechanism for understanding and evaluating vulnerability, also linking to sustainable development.

2.3 INTRODUCTION

On February 19, 2002, a severe rainstorm “pummeled” La Paz, the capital of Bolivia, “killing 60, injuring 100 and leaving over 500 homeless. Hailstorms, heavy rains and flash floods tore through the region, destroying homes, washing away bridges and ripping up road surfaces and brick walls.” The mayor of La Paz, Juan del Granado, estimated damages at \$60 million (Steen 2002). Bolivia’s president, Jorge Quiroga, declared a state of emergency, and volunteers joined the city’s emergency staff and the Bolivian Red Cross to provide relief to the injured and homeless, stabilize buildings, and search for missing persons (Enever 2002; Steen 2002).

Why include a chapter on theory in a book about vulnerability to natural disasters? What role can theory possibly play in understanding or responding to a disaster such as the flood that occurred in La Paz in 2002? In this account of a flood disaster, which is presented as a simple recounting of a current event, theory plays a critical, though unstated role. It identifies the agents or actors in the story, explains the results of their actions, provides direction for appropriate response, and predicts what will happen if appropriate responses are (or are not) made. Theories help us to understand the world around us, but they can also limit what we see and how we perceive it. Consequently, if we want to minimize the human, environmental, and social losses from hazards and disasters, it is critical that we are aware of, and deliberate in, our use of theory. Like formalized scientific theories, worldviews also provide us with explanations of how the world works and what motivates and directs human behavior—explanations that are based in shared assumptions and values about human character and our relationship with the natural environment. As much or more than the scientific theories espoused by disaster managers and planners, our various worldviews and values, shaped by history, the physical environment, and social institutions, affect our responses to hazards and disasters.

This chapter defines theory and the role it plays in framing social vulnerability to identify and illuminate the various dimensions of this complex issue. We then discuss the emerging focus on