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NEW BOOK FROM CAMBRIDGE UNIVERSITY PRESS—

SEEDS OF DISASTER, ROOTS OF RESPONSE
How Private Action Can Reduce Public Vulnerability

by

Philip E. Auerswald, Lewis M. Branscomb, Todd M. LaPorte and Erwann O. Michel-Kerjan

Cambridge University Press (\$29.95, paperback; \$59.99, hardcover), 506 pages,
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“With 85% of America's critical infrastructure in private hands, the American people – and America's economy – are not going to be safe without strong, collaborative action by the public and private sector. *Seeds of Disaster, Roots of Response* is thus a timely and important volume that is a **must-read** for anyone concerned about our nation's security.”

**LEE HAMILTON, President, Woodrow Wilson International Center for Scholars,
and Vice Chair, 9/11 Commission**

“**This visionary book** reveals the vulnerability of our systems which provide the framework for humanity to exist. The response to this millennium challenge can only be found in our capacity to demonstrate innovative collaboration, effective leadership, and courage. I strongly urge top decision makers to read this book; it provides the necessary guidance to go from words to action”

KLAUS SCHWAB, Founder and Chairman, World Economic Forum

On the fifth anniversary of the 9/11 terrorist attacks and the first anniversary of Hurricane Katrina, the public may ask: “What new catastrophes lie ahead? Are government and the private sector doing enough to reduce the risks of more such calamities?” All are aware that disasters disrupt critical services—such as fuel and power, food and water, communications and transportation, greatly increasing loss of both life and property and severely delaying recovery. Yet relatively little attention has been directed to critical service vulnerability.

The public depends on government to assure the provision of critical services, but more than 80% of the operation of these services lies in private hands. Government, in turn, is relying on market forces to induce the private firms that provide critical services to invest in making them more robust and resilient. Corporate leaders and academic experts, whose perspectives are presented in *Seeds of Disaster, Roots of Response*, share the view that market forces alone will not reduce public vulnerability to large-scale service disruptions, and call for action by industry and government to reduce the growing vulnerability of the critical infrastructures on which our lives and economy depend.

Seeds of Disaster, Roots of Response is the first book to comprehensively address the manner in which private decisions and operations affect public vulnerability. It describes effective and sustainable approaches—both business strategies and public policies—to ensure provision of critical services under both normal and exceptional circumstances. The authors of the chapters in this volume are business leaders from multiple industries and experts in fields as diverse as risk analysis, economics, finance, engineering, organization theory, and public policy.

The book shows the necessity of deeply rooted collaboration between private and public institutions, and who should bring them together so words can lead to action.

Seeds of Disaster, Roots of Response: How Private Action Can Reduce Public Vulnerability argues that the nation will be at risk until the private sector and public leadership define who is accountable and create robust institutions through which new policies can be implemented. This is the only way our society can become safer while continuing to build its economy and improve the quality of public services, despite the inevitability of human error, natural disasters, and the threat of terrorism. But this will come at a price: strong leadership, courage to act, and willingness to pay for more adequate protection. This visionary book provides concrete ways to do just that!

About the Editors/Authors

Philip Auerswald, PhD is Director of the Center for Science and Technology Policy and an Assistant Professor at the School of Public Policy, **George Mason University**. Professor Auerswald's work focuses on linked processes of technological and organizational change in the contexts of policy, economics, and strategy. He is the co-editor of *Innovations: Technology | Governance | Globalization*, a quarterly journal from MIT Press about people using technology to address global challenges.

Lewis M. Branscomb, PhD is Professor of Public Policy and Corporate Management, emeritus, at **Harvard University's Kennedy School of Government**. He also holds appointment as Adjunct Professor in International Relations and Pacific Studies at the **University of California, San Diego**. Branscomb was the co-chairman of the project of the National Academies of Science and of Engineering and the Institute of Medicine, which authored the 2002 report, *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*.

Todd M. La Porte, PhD is an associate professor at **George Mason University**. He was a member of the Faculty of Technology, Policy and Management at the Delft University of Technology in The Netherlands. He also served for six years as an analyst in the information technology and the international security programs at the Office of Technology Assessment (OTA), a research office of the U.S. Congress.

Erwann O. Michel-Kerjan, PhD is Managing Director of the Risk Management and Decision Processes Center at the **University of Pennsylvania's Wharton School**, a Center with more than 25 years of experience in helping industry and governments cope with catastrophes. His work focuses on financing extreme events, with a primary interest in the creation and implementation of private-public collaboration among top decision makers of organizations and nations. He is a member of the Global Risk Network of the World Economic Forum.

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Other authors include: Robert T. Marsh, Stephen Flynn, Brian Lopez, Robert A. Frosch, Todd R. La Porte, Paul R. Schulman, Emery Roe, Jack Feinstein, Michael Kormos, Thomas Bowe, Jay Apt, Granger Morgan, Lester Lave, Sean Gorman, Geoffrey Heal, Michael Kearns, Paul Kleindorfer, Howard Kunreuther, Lloyd Dixon, Robert Reville, James Macdonald, Franklin Nutter, Daniel Prieto, John Donahue, Richard Zeckhauser, Patrick Lagadec.

More praise for *Seeds of Disaster, Roots of Response*:

"Industries that provide critical infrastructure are becoming more efficient, but more vulnerable. This book introduces 'security externalities,' a phenomenon that inhibits private investments that would make critical infrastructure services more resilient to potential disaster from any source. It calls not only for more leadership but for more realistic policies from both the private and the public sector."

**THOMAS C. SCHELLING, Distinguished University Professor, University of Maryland,
2005 Nobel Prize Laureate in Economics**

"This important book calls for a public-private national infrastructure protection plan to replace the current disorganized and dysfunctional response to catastrophic threats from terrorism, natural disasters, and gargantuan operational errors. It asks the hard questions about how government and business can define and finance respective roles and stop the Alphonse-and-Gaston routine that makes disasters even more disastrous."

**BEN W. HEINEMAN, JR., Senior Fellow at Harvard's Law School and Kennedy School of Government,
Former Senior Vice President and General Counsel, General Electric**

"America must work hard to improve its responses to natural disasters and terror attacks. This book demonstrates that effective coordination with the operators of privately owned critical infrastructure is a vital part of that work, and offers guidance for progress."

**-- U.S. Senator SUSAN M. COLLINS of Maine,
Chair, Committee on Homeland Security and Governmental Affairs, U.S. Senate**

A More In-Depth Look

Seeds of Disaster ...

1) Conventional wisdom holds that federal, regional, and municipal governments are able to reduce the vulnerability of critical infrastructure service providers, and have the power to rapidly ensure recovery from extreme events that do occur. They have neither. Government assumes that market forces will induce the necessary private sector investments and changes, but they do not.

2) As our market economy gets more efficient, firms increasingly outsource critical infrastructure services. At the same time those service providers become less resilient and more vulnerable to rare but catastrophic events, as they too try to get more competitive. Thus the risks to society and the economy grow, even in the absence of terrorism and natural disasters.

3) Because many high consequence events are rare and risks are hard to quantify, firms under-invest in their own protection. Many pay attention to how they might recover, but time and again fail to invest in reduced vulnerability. Firms engaged in providing infrastructure services need to both compete *and* cooperate with one another. If they do not, events such as the Northeast blackout of 2003 become much more likely. Government can mediate this balance of competition and cooperation.

4) But government has shown it is unprepared to deal with the totally new dimension of disasters we are now experiencing. The “scale effect” is critical to understand and prepare for. The new dangers are different in kind, not just in size.

5) To make matters worse, each of the most vital infrastructure services is dependent on several of the others, and these interdependencies do not stop at the US border. The concept of “US homeland” security fades with the growing globalization of social and economic activities world wide.

.... Roots of Response

1) There are major benefits to developing an integrated strategy for addressing deliberate, natural, and technogenic disasters.

2) As the ultimate challenge in protecting critical sectors is the choice of specific allocation of resources, it is crucial that large-scale risk management reflect perception and realities of risk. These include the realization that many critical systems must be operated in increasingly dynamic and uncertain environments, with standards for reliability and continuity virtually unknown to in management experience.

3) Well-defined, new market mechanisms could have a major role to play in assigning responsibility and motivating corporate action to ensure the robustness and resiliency of critical services, as well as internalizing the security externalities. Among the market mechanisms, this book shows why insurance is an appealing candidate: it provides financial coverage and can induce investments in adequate protection.

4) Interdependence is multinational: collective international actions must form an integral part of prevention and response strategies and the book discusses best practices.

SEEDS OF DISASTER, ROOTS OF RESPONSE ***How Private Action Can Reduce Public Vulnerability*** On the web: <http://www.seedsofdisaster.com>

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