MEGA-CRISES

MEGA-CRISES

Understanding the Prospects, Nature, Characteristics and the Effects of Cataclysmic Events

Edited by

IRA HELSLOOT ARJEN BOIN BRIAN JACOBS LOUISE K. COMFORT



CHARLES C THOMAS • PUBLISHER, LTD. Springfield • Illinois • U.S.A.

Published and Distributed Throughout the World by

CHARLES C THOMAS • PUBLISHER, LTD. 2600 South First Street Springfield, Illinois 62704

This book is protected by copyright. No part of it may be reproduced in any manner without written permission from the publisher. All rights reserved.

© 2012 by CHARLES C THOMAS • PUBLISHER, LTD.

ISBN 978-0-398-08681-7 (hard) ISBN 978-0-398-08682-4 (paper) ISBN 978-0-398-08683-1 (ebook)

Library of Congress Catalog Card Number: 2011020301

With THOMAS BOOKS careful attention is given to all details of manufacturing and design. It is the Publisher's desire to present books that are satisfactory as to their physical qualities and artistic possibilities and appropriate for their particular use. THOMAS BOOKS will be true to those laws of quality that assure a good name and good will.

Printed in the United States of America MM-R-3

Library of Congress Cataloging-in-Publication Data

Mega-crises : understanding the prospects, nature, characteristics, and the efforts of cataclysmic events / edited by Ira Helsloot... et al. p. cm. Includes bibliographical references and index.

ISBN 978-0-398-08681-7 (hard) -- ISBN 978-0-398-08682-4 (pbk.) -ISBN 978-0-398-08683-1 (ebook)

1. Crisis management. I. Helsloot, I. (Ira)

HD49.M44 2011 363.34–dc23

2011020301

CONTRIBUTORS

David Alexander is Chief Senior Scientist at Global Risk Forum Davos. He is former Ministerial Contract Professor at CESPRO, Centre for the Study of Civil Protection and Risk Conditions, at the University of Florence in Italy (2005–2009) and Professor of Geography at the University of Massachusetts (1981–2002). His books include *Natural Disasters, Confronting Catastrophe,* and *Principles of Emergency Planning and Management.* He is co-editor of the international journal *Disasters* and is a Founding Fellow of the Institute of Civil Protection and Emergency Management. David Alexander teaches emergency planning and management and has reserach interests in this field.

Johannes M. Bauer is a Professor in the Department of Telecommunication, Information Studies, and Media at Michigan State University where he is also the Director of Special Programs of the Quello Center for Telecommunication Management and Law at Michigan State University. Dr. Bauer joined Michigan State University in 1990 after receiving his doctorate in economics from the Vienna University of Economics and Business Administration, Vienna, Austria. Dr. Bauer taught and researched as a visiting professor at the Delft University of Technology, the Netherlands (academic year 2000-2001), the University of International Business and Economics in Beijing, China (May 2002), and the University of Konstanz, Germany (summer 2010).

Arjen Boin is a professor of public governance and crisis management at the Utrecht School of Governance and is an adjunct professor at the Public Administration Institute, Louisiana State University. He received his Ph.D. from Leiden University, The Netherlands where he taught at the Department of Public Administration. Arjen has published widely on topics of crisis and disaster management, leadership, institutional design, and correctional administration. His most recent books are *The Politics of Crisis Management* (Cambridge University Press, winner of APSA's Herbert A. Simon book award), *Governing After Crisis* (Cambridge University Press, 2008), *Crisis Management: A Three Volume Set of Essential Readings* (Sage, 2008), and *Designing Resilience* (Pittsburgh University Press, 2010). Dr. Boin serves on the editorial board of Risk Management (Palgrave) and the *Journal of Contingencies and Crisis Management* (Blackwell) He is the Editor for *Public Administra-*

tion, a premier journal in the field. He is also a managing partner of Crisisplan BV. Dr. Boin is a founding member of the European Societal Security Research Group.

Mark de Bruijne is an Assistant Professor in the School of Technology, Policy and Management, Delft University of Technology, The Netherlands. His research focuses on issues of reliability, the management of critical infrastructure industries, and the consequences of institutional fragmentation that results from developments such as privatization, liberalization, and outsourcing. The research aims to describe and analyze how operators and organizations who manage these infrastructures cope with these changes. He has written articles on this subject, which have appeared in journals like *Journal of Contingencies and Crisis Management* and the *Journal of Public Administration Research*. His broader research interest involves how (high levels) of safety and reliability are achieved in networks (of organizations). His recent work explores the consequences of institutional fragmentation on the reliability of service provision in critical infrastructures. The research focuses on how individuals and organizations who are responsible for the reliable management and operation of these infrastructures cope with these changes. He currently focuses on resilience in the management of critical infrastructure industries.

Hendrik J. Bruins is an Academic Staff Member of the Swiss Institute for Dryland Environmental Research, at the Jacob Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev. He is also a member of the PReparED Center for Emergency Response Research (Ben-Gurion University of the Negev). His numerous publications include four articles in *Nature and Science*, an edited book *The Arid Frontier–Interactive Management of Environment and Development* (Springer Publishing, 1998), Guest Editor of the *Journal of Contingencies and Crisis Management* (June, 2000). He received a Royal Award (Officer in the Order of Orange-Nassau) from Queen Beatrix of The Netherlands, presented in 2006 by the Dutch Deputy Prime-Minister Zalm, for achievements in policy-oriented studies on drought and contingency planning in drylands, and innovative chronological studies about the ancient Near East.

Don M. Chance holds the James C. Flores Endowed Chair of MBA Studies at Louisiana State University where he is Professor of Finance. He is a noted author and expert on financial markets and in particular on derivative instruments. He teaches graduate courses in financial management and risk management and often serves as a consulting expert on financial contracts.

Les Coleman teaches Finance at the University of Melbourne. Les trained originally as an engineer and his Management Ph.D. thesis was published as *Why Managers and Companies Take Risks* (Springer Publishing, 2006). His principal research objective is to build two bodies of theory on the bases of financial decisions, and what leads to uncertainty and loss of value by corporations with a preliminary version of the latter in his latest book entitled *Risk Strategies: Dialing Up Optimum Firm Risk* (Gower Publishing, 2009). His papers have been published in numerous jour-

nals, he is a regular contributor to the media and delivers executive education programs in Australia and overseas, and has received research and teaching awards.

Louise K. Comfort is a Professor of Public and International Affairs at the University of Pittsburgh. She teaches in the field of public policy analysis, information policy, organizational theory, and sociotechnical systems. She holds degrees in political science from Macalester College (B.A.); University of California, Berkeley (M.A.), and Yale University (Ph.D.).

Michel J. G. van Eeten is Professor of Public Administration in the School of Technology, Policy and Management, Delft University of Technology, the Netherlands. He is also a lecturer in several programs for executive education at the Netherlands School of Public Administration in The Hague. He has received a Master's in Public Administration from Leiden University and a Ph.D. in Public Policy from Delft University of Technology. His dissertation, entitled "Dialogues of the Deaf: Defining New Agendas for Environmental Deadlocks," was awarded an honourable mention in the G. A. Van Poelje Award of the Dutch Association for Public Administration for the best dissertation in 1999. He has published on environmental policy, large technical systems, ecosystem management, high reliability theory, land use planning, flood control and dike improvement, transportation policy, symbolic language in policy, and recasting intractable policy issues. In 2001, he won the Raymond Vernon Prize of the Association for Public Policy Analysis and Management and the *Journal of Policy Analysis and Management* for the best paper in volume 20 of the journal. He serves on the editorial board of *Policy Sciences*.

M. Jude Egan holds a J.D. (2004) from the Boalt Hall School of Law, University of California, Berkeley and a Ph.D. in Jurisprudence and Social Policy from the University of California, Berkeley. His research areas include organization theory/behavior, specifically as applied to sociotechnical organizations that manage hazard via complex operations. This research has crystallized in the field of highly reliable organizations which focuses on organizations that manage to succeed in demanding conditions against long odds. His work is also expanding into the emerging field of disasters and the law, which he studies through the lenses of environmental and accident law. His doctoral dissertation research was conducted over a period of four years at the Los Alamos National Laboratory and he has done projects on the organizational impacts of the deregulation of the California electricity grid and on risk-management practices at a commercial airline. Jude qualified for the California bar in 2004 and practiced environmental and land use law for two years in the San Francisco office of a major international law firm and then for another two years at two smaller firms in California. He is an associate of the University of California Institute on Global Conflict and Cooperation, Public Policy and Nuclear Threats program.

Joanna Endter-Wada is an Associate Professor of Natural Resource and Environmental Policy in the Department of Environment and Society, part of the

College of Natural Resources at Utah State University located in Logan, Utah. She conducts research on the human dimensions of ecosystem science and management with emphases on water, fisheries, and forest resources. Her current research focuses on climate change, drought management, urban water conservation, native and low-water urban landscapes, and wetlands. She directs USU's National Environmental Policy Act (NEPA) Certificate Program, teaches policy and research methods courses, and serves in various professional and government policy-related capacities.

Karen Engel is a crisis management expert from COT Institute for Safety, Security and Crisis Management. Her work is aimed at enhancing crisis management capacities to effectively reduce (disaster) risks. One of the disaster risks she regularly deals with is flooding (coastal and rivers). Her work includes stakeholders from both the (semi-) public and (semi-) private sector. Central to her work are resilience, networking and participation.

Georg Frerks received a M.Sc. Sociology of Rural Development and a Ph.D. of Agricultural and Environmental Sciences at Wageningen Agricultural University. He is a Rural Sociologist focusing on emergencies and emergency-related interventions in the developing world. Research interests include local coping and interface mechanisms in disasters as well as formulation of emergency aid policies and their monitoring and evaluation.

John Harrald is a Research Professor at the Center for Technology, Security, and Policy at the Virginia Polytechnic Institute and State University. He previously served as the Co-Director of The George Washington University Institute for Crisis, Disaster, and Risk Management (www.gwu.edu/~icdrm) and is a Professor Emeritus of Engineering Management and Systems Engineering in the GWU School of Engineering and Applied Science. He was the founding Executive Editor of the *Journal of Homeland Security and Emergency Management* (www.bepress.org/jhsem), and is a member of the National Academy of Sciences, National Research Council's Disaster Roundtable Advisory Committee.

Ivar Hellberg is a retired British Army Colonel.

Ira Helsloot is Professor of Crisis Management and the Politics of Safety at Radboud University Nijmegen. He is editor of the *Journal of Contingencies and Crisis Management* and a founder of Crisislab. In the past he has worked at Nibra, COT Institute for Safety and Crisis Management and the Fire Department Amsterdam-Amstelland. He has recently published on various topics, such as public resilience, command and control, risk management and crisis management. He has also been a part of such evaluations as the Dutch handling of the H1N1 pandemic and the crash of a Turkish Airlines flight.

Arnold M. Howitt is executive director of the Ash Institute for Democratic Governance and Innovation at the Kennedy School of Government, Havard University. Howitt is also faculty co-director of the Harvard Kennedy School Program on Crisis Leadership, which conducts research, executive education programs, and action research projects. Among other writings, Howitt is co-author and editor of *Managing Crises: Responding to Large-Scale Emergencies, Countering Terrorism: Dimensions of Preparedness*, and *Perspectives on Management Capacity Building* and is the author of *Managing Federalism: Studies in Intergovernmental Relations*. A Harvard faculty member and administrator since 1976, Howitt has taught at the Extension School since 1980. He received the Extension School's JoAnne Fussa Award for Distinguished Teaching in 1993. Dr. Howitt earned his B.A. degree from Columbia University and M.A. and Ph.D. degrees in political science from Harvard University.

Helen Ingram is a Research Fellow at the Southwest Center at the University of Arizona. She is retired from the University of California at Irvine where she was Warmington Endowed Chair of Social Ecology. Prior to that, she was Director of the Udall Center at the University of Arizona. She is the author and/or editor of fourteen books and over a hundred peer-reviewed journal articles and book chapters on water resources, environmental policy, climate change and public policy.

Brian Jacobs obtained a B.A. in Economics and Politics and an M.A. in Politics at Leeds University, then a Ph.D. at Keele University. Following work in local government and the Civil Service, he developed interests in urban policy, ethnic minority involvement in the local policy process and community regeneration. Brian Jacobs had researched urban policy and community issues internationally and has completed applied research assignments involving local authorities, health and third sector organisations. Recent work has concentrated on community resilience and urban crisis management. Brian Jacobs is a member of the editorial board of the *Journal of Contingencies and Crisis Management*.

Will Jennings is Hallsworth Research Fellow at the University of Manchester and Vice-Convenor of the Executive Politics and Governance Specialist Group of the UK Political Studies Association. He has recently completed an ESRC Research Fellowship dedicated to a programme of research "Going for Gold: The Olympics, Risk and Risk Management." His research interests include executive government, public opinion and public policy, comparative and British politics, political behaviour, the politics and management of risk in mega-projects and mega-events such as the Olympic Games.

Njeri Kabeberi is the Executive Director for the Centre for Multiparty Democracy (CMD) in Nairobi. The CMD-Kenya works to build the capacity and organisational structure of political parties as a way of underpinning democracy and human rights.

James M. Kendra is the coordinator of the Emergency Administration and Planning Program at the University of North Texas. Following graduation from Massachusetts Maritime Academy, Dr. Kendra spent several years at sea aboard a variety of merchant ships and attained a captain's license. Prior to joining the faculty at UNT, he was the Research Coordinator at the University of Delaware Disaster Research Center, managing a number of projects focusing on disasters and emergency planning. His research interests include emergency and crisis management and organizational improvisation and resilience.

Bas Kolen works at HKV Consultants as a senior advisor of Disaster Management in the field of water and safety. His fields are extreme weather, disaster management, evacuation, and self-reliance. He is among others involved with the innovation program Flood Control 2015. In the past, he was involved with activities around the Taskforce Management Flooding (national and regional planning, flooding [including the worst credible flood], and evacuation scenarios, and training activities). He also participated in the organization and exercise control of the Dutch national exercise "Waterproef" International Exercise FloodEx as an expert. He also works at the Radboud University Nijmegen on his Ph.D. research with the subject "The Feasibility of Mass Evacuation During Floods."

Patrick Lagadec is Director of Research at the Ecole Polytechnique. He is a member of the French Academy of Technologies, and the European Crisis Management Academy. His research and expertise focus on crisis prevention and management in increasingly "unconventional" crisis environments; vulnerability and preparedness appraisal; in-crisis steerage–both public and private–of critical infrastructures and vital networks; post-crisis case study, debriefing and training; and the development of sustainable responses to shifting security paradigms and the new challenges of governance that complex systems have to face in the light of global "ruptures." In over 20 years of direct involvement with critical infrastructure operators, public administration, international organizations and NGOs, he has acted in a consulting and training capacity and as a frontline strategic advisor in actual crisis situations. Recent missions include: the 2001 anthrax crisis, the Toronto SARS scare, the 2003 heat wave in France, and hurricane Katrina–once more, with the goal of identifying key emerging challenges, new concepts and frameworks of governance, and creative responses.

Herman B. ("Dutch") Leonard is the Eliot I. Snider and Family Professor of Business Administration at Harvard Business School and the George F. Baker, Jr. Professor of Public Sector Management at Harvard University's John F. Kennedy School of Government. In addition, he serves as co-chair of the HBS Social Enterprise Initiative. He teaches extensively in executive programs at the Business School and the Kennedy School and around the world in the areas of general organizational strategy, governance, performance management, crisis management and leadership, and corporate social responsibility. His work on leadership focuses on innovation, creativity, effective decision-making, and advocacy and persuasion. His

current work in leadership and management is focused on the relationship between governance, accountability, and performance, and emphasizes the use of performance management as a tool for enhancing accountability. He has also worked and taught extensively in the area of crisis management and on issues related to corporate social responsibility. He is the co-editor of *Managing Crises* (2009), the author of *Checks Unbalanced: The Quiet Side of Public Spending* (1984), of *By Choice or By Chance: Tracking the Values in Massachusetts Public Spending* (1992), and (annually from 1993 through 1999) of *The Federal Budget and the States* (an annual report on the geographic distribution of federal spending and taxation).

Martin Lodge is Reader in Political Science and Public Policy in the Department of Government and the Centre for Analysis of Risk and Regulation at the London School of Economics. His primary research interests are in executive politics and regulation.

Augustine Titani Magolowondo is a member of the Netherlands Institute of Multiparty Democracy (NIMD). Before coming to NIMD, Augustine worked as a National Expert in Malawi with the German Technical Corporation in the fields of democracy and decentralisation (1997-2000) and later in the fields of conflict management and dialogue promotion (2005-2006). While at the GTZ, Augustine Magolowondo was instrumental in contributing to the development of Malawi's decentralisation and local governance policy and also in the conceptualisation and designing of a nationwide civic education programme, the National Initiative for Civic Education (NICE). He also played an important role in the introduction of a conflict barometer, a regular newsletter that tracks developments in Malawi and assesses/ forecasts their potential for conflicts. Augustine Magolowondo holds a Ph.D. in Political Science and an M.A. in Development Management from the Ruhr University of Bochum (Germany), and a B.A. in Public Administration from University of Malawi. His main areas of research currently include democratisation aid, political parties and good governance. His works have been published in edited volumes and magazines. Augustine is a laureate of the 2006 Young Researchers Award of the Justus-Liebeg University of Giessen (Germany).

Herman van der Most is an experienced policy analyst and senior advisor on flood risk management. He studied civil engineering at the Delft University of Technology and works at the Deltares research institute. The last 10 years he has dealt with various aspects of flood risk management, ranging from the assessment of flood risk of dike ring areas to interdisciplinary research on risk perception and risk communication. He also works on the development of new standards for flood protection in The Netherlands. Herman van der Most is a member of the Working group on Safety of the Expertise Network for Water Safety.

Erwin Muller holds a professorship on Safety, Security and Law at the Leiden University in the Netherlands and he is a member of the Dutch Safety Board. Muller is also a member of the Dutch Council for Public Administration, a member of the

Board of the Research School Safety and Security in Society, a member of the Supervisory Council of the Royal Dutch Rescue Society, and a member of the Police Knowledge Council. Muller is the editor-in-chief of the Kluwer series *Order and Security* and a member of the editorial council for the *Journal for Security* (Tijdschrift voor Veiligheid). He is Chairman of the Consortium of the European Union project Transational Terrorism, Security, and the Rule of Law. That Consortium houses Dutch, Danish, Spanish, and Czech Republic research institutes.

Aya Okada, student, is a graduate student researcher at Center for Disaster Management, University of Pittsburgh. She is currently pursuing a Ph.D. at the Graduate School of Public and International Affairs. Aya has a B.A. in Policy Management from Keio University, M.A. in Social Sciences from Hitotsubashi University, and a Master of International Development from the University of Pittsburgh.

Cyprian Orina-Nyamwamu is a Democracy and Governance specialist and a leader of the civil society movement in Kenya. He works at the National Convention Executive Council (NCEC) in Kenya as its Executive Director.

Eric Paglia is an analyst at the National Center for Crisis Management Research and Training (CRISMART) at the Swedish National Defence College, and a doctoral candidate at the Royal Institute of Technology in Stockholm. His primary areas of interest are the environment and natural disasters.

Charles Parker is Associate Professor of Political Science at the Department of Government, Uppsala University. His research has focused on the origins and consequences of the warning-response problem, international and EU climate change politics, the impact of international institutions, and international regime theory. His work has appeared in journals such as the Journal of Common Market Studies, Political Psychology, Global Environmental Politics, Foreign Policy Analysis, Public Administration, Cooperation and Conflict, and the Journal of Contingencies and Crisis Management.

Sandra Crouse Quinn is the Associate Dean for Public Health Initiatives, Professor in the Department of Family Science, and Senior Associate Director of the Center for Health Equity at the School of Public Health, University of Maryland at College Park. She is the Principal Investigator on Building Trust between Minorities and Researchers: A Bioethics Research Infrastructure Initiative funded by the National Center for Minority Health and Health Disparities (NCMHD), NIH. She is also the Principal Investigator on a grant to study public attitudes toward H1N1 influenza funded by the Centers for Disease Control and Prevention. She was the Principal Investigator on a CDC-funded study on communication between postal workers and public health professionals during the 2001 anthrax attack. Her research interests include engagement of minority and marginalized communities in research; community advisory boards; and risk communication in emergencies and disasters.

Kees van Ruiten received his M.S. degree in 1979 at the Technical University Delft, Department of Applied Physics in the Seismics and Acoustics group of Prof. Berkhout. Innovation in information provision for decision makers is his key qualification. Being involved in Implementation of National Legislation on Transport Noise, EU-Water Framework Directive and the preparation of European Maritime Policy, he has broad experience in applied knowledge for national authorities. Recently he worked on the field of disaster management related to water crisis in the Netherlands. Recently he started working in the field of disaster management, specifically related to water crisis in the Netherlands. He currently holds a position at the Institute for Delta Technology (Deltares) in which he is active in leading projects and knowledge exchange networks for the improvement of preparedness for water crisis with global perspectives.

Michael D. Siciliano is a Ph.D. candidate at the University of Pittsburgh's Graduate School of Public and International Affairs as well as a research assistant with the Center for Disaster Management. He is a graduate of Carnegie Mellon University's Heinz School of Public Policy and completed his undergraduate work at Penn State University in the field of logistics. Michael's current research focuses on developing models and metrics to understand the antecedents and consequences of network formation in a variety of organizational and interorganizational settings.

Tricia Wachtendorf is an Associate Professor of Sociology at the University of Delaware and the Associate Director of the Disaster Research Center-the world's oldest research center devoted to the social science aspects of disasters. Her research over the past decade has focused on such topics as transnational disaster coordination, community-based approaches to disaster mitigation and partnership building, and multiorganizational responses to natural and terrorist-induced disasters. She has conducted quick response and reconnaissance fieldwork following such major disaster events as the 1997 Red River Flood, the 2001 World Trade Center disaster, the 2004 Indian Ocean Tsunami, Hurricane Katrina in 2005; the 2008 Wenchuan China Earthquake, and the 2010 Haiti Earthquake. Wachtendorf has received several grants from the National Science Foundation and the University of Delaware Research Foundation to study such topics as the waterborne evacuation of Lower Manhattan on 9/11 (with the University of North Texas); material convergence and supply chain systems following disaster (with Rensselaer Polytechnic Institute); community evacuation following hurricane events (with Cornell University); and multiorganizational leadership (with Georgia State University and the Department of Homeland Security's Center of Excellence for Natural Disasters, Coastal Infrastructure, and Emergency Management). She also has funding from the University of Delaware's University Transportation Center to study codified and actor-anticipated interaction to a transportation corridor disaster.

Matthew Watson is Professor of Political Economy in the Department of Politics and International Studies at the University of Warwick, UK. His research interests are in the history of economic thought and how particular interpretations of

appropriate forms of economic agency influence theories of the economy today. He has published over thirty articles in peer-reviewed journals on issues related to this overarching theme, as well as two books, *Foundations of International Political Economy*, 2005, and *The Political Economy of International Capital Mobility*, 2007. Here he applies the same basic questions to the issue of the post-subprime crisis credit crunch.

Rob de Wijk is Professor of International Relations at Leiden University and director of the Centre for Strategic Studies in The Hague.

Lan Xue is the Dean of the School of Public Policy and Management, Tsinghua University. He is a member of the Expert Committee on Emergency Management, State Council.

Ling Zhou is Assistant Professor at the School of Social Development and Public Policy, Beijing Normal University.

CONTENTS

Chapter

Page

	PART I: THE CONCEPT OF MEGA-CRISIS
	AND MEGA-CRISIS MANAGEMENT
1.	THE NEW CHALLENGES OF MEGA-CRISES5
	Ira Helsloot, Arjen Boin, Brian Jacobs, and Louise K. Comfort
2.	THE UNKNOWN TERRITORY OF MEGA-CRISIS:
	IN SEARCH OF CONCEPTUAL AND STRATEGIC
	BREAKTHROUGHS 12
	Patrick Lagadec
3.	LEADING IN CRISES: OBSERVATIONS ON THE
	POLITICAL AND DECISION-MAKING DIMENSIONS
	OF RESPONSE
	Herman B. Leonard and Arnold M. Howitt
PAR	T II: CRISIS MANAGEMENT OF MEGA-NATURAL DISASTERS
4.	HURRICANE KATRINA: CRISIS LEADERSHIP THAT
	FAILED A COUNTRY
	John R. Harrald
5.	HURRICANE KATRINA: THE COMPLEX ORIGINS OF A
	MEGA-DISASTER
	Charles Parker and Eric Paglia
6.	HURRICANE GUSTAV: THE MANAGEMENT OF A
	TRANSBOUNDARY CRISIS
	Arjen Boin and Jude Egan

Mega-Crises

7.	EVOLVING SYSTEMS IN CRISIS MANAGEMENT: THE JANUARY 12, 2010 HAITI EARTHQUAKE	
8.	THE CHALLENGES OF MEGA-CRISIS MANAGEMENT: THE 2008 SICHUAN EARTHQUAKE	
9.	THE MICRO AND MACRO DYNAMICS OF A MEGA-DISASTER: RETHINKING THE SRI LANKA TSUNAMI EXPERIENCE	
10.	MEGA-CRISIS MANAGEMENT DURING THE H1N1 PANDEMIC: AN ARGUMENT FOR CITIZEN AND COMMUNITY ENGAGEMENT	
PART III: CRISIS MANAGEMENT OF MAN-MADE MEGA-CRISIS		
11.	THE MAKING OF A MEGA-CRISIS: 9/11 AS A CASE FOR THE CONCEPT	
12.	THE LONDON BOMBINGS OF JULY 7, 2005 158 David Alexander	
13.	THE MUMBAI TERRORIST ATTACKS 2008 168 Ivar Hellberg and Erwin Muller	
14.	HOW IMPUNITY AND KENYA'S 2008 POST-ELECTIONS VIOLENCE SET FIRE ON EAST AFRICA'S "ISLAND OF PEACE"	
15.	MEGA-CRISIS IN FRAGILE STATES	
16.	CORPORATE MELTDOWNS	

xvi

17.	THE POST-SUBPRIME CRISIS GLOBAL CREDIT CRUNCH
18.	THE SUBPRIME CRISIS 224 Don M. Chance 224
19.	MEGA-CITIES UNDER ADVERSITY: IDEOLOGY, RISK, AND GOOD URBAN GOVERNANCE
PAR	T IV: IDENTIFYING MEGA-THREATS AND VULNERABILITIES
20.	THE OLYMPIC GAMES: COPING WITH RISKS AND VULNERABILITIES OF A MEGA-EVENT
21.	ENERGY: EXPLORING COMPLEXITY AS A DYNAMIC VULNERABILITY IN HIGH-VOLTAGE ELECTRICITY GRIDS
22.	GLOBAL CLIMATE CHANGE AS ENVIRONMENTAL MEGA-CRISIS
23.	THE DUTCH DELTA: A MEGA-CRISIS WAITING TO HAPPEN?
24.	RISKS TO FOOD SECURITY: CONTINGENCY PLANNING FOR AGRI-MEGA-CRISES
25.	MEGA-CRISES AND THE INTERNET: RISKS, INCENTIVES AND EXTERNALITIES

Contents

xvii

MEGA-CRISES

Part I

THE CONCEPT OF MEGA-CRISIS AND MEGA-CRISIS MANAGEMENT

Chapter 1

THE NEW CHALLENGES OF MEGA-CRISES

IRA HELSLOOT, ARJEN BOIN, BRIAN JACOBS, AND LOUISE COMFORT

THE RISE OF MEGA-CRISES

We live in turbulent times with continents and nations facing ever-heightening risks. Natural disasters, intense and protracted conflicts, terrorism, corporate crises, cyberthreats to infrastructures and mega-events. We are witnessing the rise of megacrises.

Mega-crises are not just "more of the same"; they present a new class of adversity with many "unknowns." They defy boundaries, limits, neat demarcations, patterned connections and linear consequences. The impact of mega-crises opens up new futures, some more palatable than others. To avoid the worst possible futures, an effective and timely response is required.

The related problems of governance take on new dimensions. Mega-crises challenge traditional assumptions and working methods of public authorities, corporate leaders and the public at large. Megacrises have a wide, often direct global impact, being difficult to contain in the short and long run, and generating diverging ideas about appropriate solutions. Mega-crises imply not only quantum but also quality jumps in coping with the defining features of crisis: severe threat, uncertainty, urgency (Rosenthal, Charles & 't Hart, 1989). Mega-crises present "mega-threats," create deep uncertainty, and evoke an extreme sense of urgency. A list of recent events reminds us of just how demanding these challenges are.

A Few Examples

Since the start of the twenty-first century, we have seen a series of *mega-disasters*. Asian countries have collectively suffered the misery and heavy tolls inflicted by the Boxing Day Tsunami (2004) and the earthquakes in Kashmir (2005) and Sichuan (2008). Hurricanes Katrina (2005), Gustav and Ike (2008) have confronted the United States with huge problems in the management of increasingly large-scale natural disasters. Africa is suffering from desertification. Many countries are increasingly worried about the consequences of structural climate change and the rise of the sea level that may occur in this century. They may face drastic choices in overcoming new threats to urbanized and industrialized lowland areas. The traditional dichotomy between natural and man-made disasters has become obsolete in many parts of the world, as natural systems interact increasingly with demographic and socioeconomic contingencies.

Since the last decade of the twentieth century, *public health mega-crises* have been on the increase (Garrett, 1995; Ouah, 2007). After the AIDS epidemic and the BSE scare, many countries have experienced the anxieties of other entirely new viral epidemics threats. In 2003–2004 the SARS outbreak in China and Canada demonstrated just how far and how fast epidemics can travel. Since then, pandemics, including the Avian flu and the H1N1 flu, have challenged governments and have provoked public anxiety.