

DISASTER
RESEARCH
CENTER

2001 Annual Report

University of Delaware
Newark, Delaware

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Disaster Research Center Personnel

Research Staff

*Kathleen J. Tierney, Director
Benigno Aguirre, Senior Faculty Associate
Joanne M. Nigg, Faculty Affiliate
Russell R. Dynes, Professor Emeritus
E. L. Quarantelli, Professor Emeritus
James M. Kendra, Research Coordinator
Tricia Wachtendorf, Field Director*

Administrative Assistant

Library Coordinator

Kimberly Habiger

Susan Castelli

Graduate Research Assistants

*Victor Argothy
Rory Connell
Kathleen Curry
Teresa Fahs
Mike Kiley-Zufelt
Brian Monahan
Xuewen Sheng
Nicole Vadino
Tricia Wachtendorf*

Undergraduate Research Aides

*Pamela Borkowski
Jamie Cochran
Elizabeth Curtis
William Keefer
Erin Mell-Taylor
Annie Tanverdi*

*Brittany Campbell
Jill Cope
Michael Edwards
Karen Manship
Susan Sullivan
Edward Wykowski*

* * * *

Resource Collection Staff

*Christine Bush
Justin Logue*

* * * *

2001 Publications

Book

Tierney, Kathleen J., Michael K. Lindell, and Ronald W. Perry

Facing the Unexpected: Disaster Preparedness and Response in the United States. Washington, D.C.: Joseph Henry Press.

Articles and Book Chapters

Aguirre, Benigno

“Sustainable Development as Collective Surge.” *Social Science Quarterly* 83: 101-118.

Book Review of John Farley, Earthquake Fears, Predictions, and Preparations in Mid-America, in *Contemporary Sociology* 29(4): 654-655.

Chang, Stephanie E., Adam Z. Rose, Masanobu Shinozuka, and Kathleen J. Tierney

“Modeling Earthquake Impact on Urban Lifeline Systems: Advances and Integration in Loss Estimation.” Pp. 195-201 in *Earthquake Engineering Frontiers in the New Millennium: Proceedings of the China-US Symposium on Earthquake Engineering.* Exton, PA: A. A. Balkema.

Nigg, Joanne M. and Dennis Mileti

“Natural Hazards and Disasters.” Pp. 272-294 in *Handbook of Environmental Sociology*, edited by Riley E. Dunlap and William Michelson. Westport, CN: Greenwood Press.

Quarantelli, E. L.

“Another Selective Look at Future Social Crises: Some Aspects of Which We Can Already See in the Present.” *Journal of Contingencies and Crisis Management* 9: 233-237.

“Sociology of Panic.” In *International Encyclopedia of the Social and Behavioral Sciences*, edited by Neil Smelser and Paul B. Baltes. Amsterdam: Pergamon.

“Statistical and Conceptual Problems in the Study of Disasters.” *Disaster Prevention and Management* 10: 325-338.

“What Are the Implications for Disaster Planning from the Following Observations Made in the Response to the Attack on the World Trade Center?” *Disaster and Social Crisis Research Network Newsletter* 8.

Book Review of Klaus Gottstein, Catastrophe and conflicts: Scientific Approaches to Their Control, in *Risk Management: An International Journal* 3: 67-68.

Technical Reports

Wachtendorf, Tricia and Kathleen J. Tierney

Disaster Resistant Communities Initiative: Local Community Representatives Share Their Views: Year 3 Focus. Newark, DE: University of Delaware, Disaster Research Center. Final Project Report No. 47.

Wachtendorf, Tricia, Rory Connell, and Kathleen J. Tierney with assistance from Kristy Kompanik

Disaster Resistant Communities Initiative: Assessment of the Pilot Phase- Year 3. Newark, DE: University of Delaware, Disaster Research Center. Final Project Report No. 48.

M.A. Thesis

Kompanik, Kristy L.

“Implementation of Federal Programs at the Local Level: An Examination of Sara Title III Local Emergency Planning Committees and Project Impact.” Center for Energy and Environmental Policy, University of Delaware, Newark, DE.

Academic Presentations

Aguirre, Benigno

“El Desastre en la Practica.” Presentation at the Proceedings, National Congress for the Prevention of Disasters, Mexico, D.F. and Puebla, Puebla, March 28-31.

Connell, Rory

“Hospital Rehabilitation Impediments and Incentives.” Presentation at the Natural Hazards Workshop, Boulder, Co, July 18.

“Hospital Rehabilitation Impediments and Incentives.” Presentation at the MCEER Student Leadership Council Retreat, State College, PA, August 11.

Dynes, Russell R.

“What Research Suggests About Preparedness and Contingency Planning.” Presentation at the Interagency Working Groups, Institute for Humanitarian Dialogue, Geneva, Switzerland, April 3.

Kendra, James M.

“Looking Out the Window: Issues of Surprise, Ambiguity, and Trust in Maritime Hazards.” Presentation at the Association of American Geographers Annual Conference, New York City, March.

Kendra, James M. and Tricia Wachtendorf

“Response and Resilience in the World Trade Center Attack.” Presentation at Rutgers University, New Brunswick, NJ, December.

“Elements of Community Resilience in the World Trade Center Attack.” Presentation at the Regional Science Association International Annual Conference, Charleston, SC, November.

Kiley-Zufelt, D. Michael

“Senate Bill 1953.” Presentation at the MCEER Student Leadership Council Retreat, State College, PA, August 11.

Quarantelli, E. L.

“Risk Communication and Disaster Management.” Presentation at the Cranfield Disaster Management Centre, Cranfield University, England, August 13.

“Data Gathering by Social Science Disaster Researchers.” Paper presented at the Mid-Atlantic Regional Archives Conference, Richmond, VA, October 26.

Tierney, Kathleen J.

“Public Support and Priorities for Seismic Rehabilitation in the East Bay Region of Northern California.” Paper presented at the First Comparative Workshop on Urban Earthquake Disaster Management, Kobe, Japan, January 18-19.

Tierney, Kathleen J., Benigno Aguirre, James M. Kendra, and Tricia Wachtendorf

“Organizational and Community Resilience in the World Trade Center Disaster.” Invited presentation at the workshop Learning from Urban Disasters: National Science Foundation Response and Opportunities for Future Research sponsored by the National Science Foundation and the Institute for Civil Infrastructure Systems, December 12, New York, NY.

Wachtendorf, Tricia

“The Implementation of Community-Based Disaster Mitigation Initiatives: Findings From An Ongoing Assessment.” Presented at the Natural Hazards Research and Applications Workshop, July 17, Boulder CO.

“Building Community Partnerships Toward a National Mitigation Effort: Inter-organizational Collaboration in the Project Impact Initiative.” Presented at the Workshop for the Comparative Study on Urban Earthquake Disaster Management, Jan 18, Kobe, Japan.

*Presentations to Governmental Bodies
And
Professional Organizations*

Tierney, Kathleen J.

“The Crisis Management Planning Process.” Presentation at University of Delaware Retreat on Disaster Preparedness, July 11.

“Business and Community Resilience Following Disasters: Lessons From the Social Science Research Literature.” Invited presentation at the Urban Land Institute Larson Forum on the Future of Cities, Washington, DC, November 16.

Disaster-Related Academic Activities

Aguirre, Benigno

Book Review Editor. *Natural Hazards Review*, American Society of Civil Engineers.

Member. Editorial Board, *Journal of Marriage and the Family*, *Contemporary Sociology*, *Social Science Quarterly*, *Handbook of Latin American Studies*.

President. International Research Committee on Disasters.

Dynes, Russell R.

Proposal Review Panel. Memorial Institute for the Prevention of Terrorism, October 3-5, Washington, DC.

Discussant, on major transportation disasters, *The Most*, The History Channel, May 28th.

Manuscript Reviewer. *Disasters*, *Journal of Mass Emergencies and Disasters*, *Gender and Society*, *Journal of Contingencies and Crisis Management*.

Quarantelli, E. L.

Book Reviewer. Klaus Gottstein, "Catastrophe and Conflicts: Scientific Approaches to Their Control", in *Risk Management: An International Journal* 3(2001): 67-68.

Manuscript Reviewer. *Disasters: The Journal of Disaster Policy, Studies, and Management*, *Risk Management*, *The Policy Studies Journal*, *Journal of Contingencies and Crisis Management*.

Tierney, Kathleen J.

Member. Editorial Board, *Natural Hazards Review*.

Member. Executive Committee, Multidisciplinary Center for Earthquake Engineering Research.

Member, Campus Disaster Planning Committee, University of Delaware.

Manuscript Reviewer, Earthquake Spectra, *Natural Hazards Review*.

Proposal Reviewer, National Science Foundation.

Member. Technical Advisory Committee, Project on Managing Catastrophic Risk, Wharton Risk Management and Decision Processes Center, University of Pennsylvania.

Member. National Institute of Building Sciences panel to develop a national methodology for assessing the costs and benefits of mitigation.

Other Disaster-Related Professional Activities

Aguirre, Benigno

Member. Lee Founders Award Committee, Society for the Study of Social Problems.

Member. Committee on Status of Racial and Ethnic Minorities, American Sociological Association.

Quarantelli, E. L.

Observer. New York City Office of Emergency Management EOC Exercise on Surveillance for Bioterrorist Event, New York City, May 11.

Organizer. Session on “Disaster Research and Management: New Sociological and Other Perspectives.” 5th Conference of the European Sociological Association, Helsinki, Finland, August 29th.

Tierney, Kathleen J.

Member. Nominating Committee and Learning From Earthquakes Committee, Earthquake Engineering Research Institute.

Member. Working group to develop plan for coordinating federally-sponsored post-earthquake investigations.

Wachtendorf, Tricia

Contributor. Assessment of Natural Hazards and Disasters in Canada.

Interview. Discussed findings from research activities following the World Trade Center attack, Manitoba local radio program “Information Radio,” Canadian Broadcasting Corporation, October 26.

Interview. Discussed findings from research activities following the World Trade Center attack, Canadian national radio program “This Morning,” Canadian Broadcasting Corporation, December 7.

2001 Research Projects

Organizational and Community Resilience in the World Trade Center Disaster. This project focuses on the manner in which emergency management and crisis-relevant organizations in the City of New York coordinated with other responding organizations and jurisdictions to develop multi-organizational strategies for managing the World Trade Center Disaster. The project uses the World Trade Center attack and its aftermath as a case study to address longstanding issues in the disaster research literature, such as the relationship between planning, emergence, and improvisation in disaster response activities; how multi-organizational response networks develop and function, and how resilience is achieved in complex response networks. Research activities for this study consist of fieldwork and direct observation in settings in which response and recovery activities are coordinated; interviewing; and document collection and analysis. This study is being conducted with support from the National Science Foundation and the Multidisciplinary Center for Earthquake Engineering Research, and the Public Entity Risk Institute.

Evacuation and Vulnerability in Mexico. In 1999, major floods impacted the Mexican states of Veracruz and Puebla. In collaboration with investigators from Mexico City's Centro de Investigacion y Estudios de Antropologia Social (CIESAS), the Disaster Research Center is conducting research in communities affected by the flooding in order to: (1) obtain data on the services at-risk populations received from public agencies charged with disaster mitigation and reduction responsibilities; (2) document the ethno-knowledge and customs used by these populations to minimize flood risks and impacts; and (3) explore the extent to which existing social science knowledge on disaster-related evacuation behavior most of which is based on studies conducted in the United States can be replicated in a Third-World context. Funding for this project has been provided by the National Science Foundation and the Federal Government of Mexico.

Mobilizing Support for Earthquake Loss Reduction: Lessons and Guidance for Seismic Safety Advocates. The objective of this project, which is being carried out in collaboration with social science investigators from the Mid-America Earthquake Center and the Pacific Earthquake Engineering Research Center, is to analyze findings from social science research in order to develop guidance for advocates of earthquake safety at state and local levels. DRC's research activities for this study consist of analyzing research findings on risk communication and on collective action strategies that can be applied to enhance earthquake loss-reduction efforts. This project is supported by the Federal Emergency Management Agency.

Perceptions of Earthquake Impacts and Loss-Reduction Policy Preferences Among Community Residents and Opinion Leaders. This study, which is being conducted under the National Science Foundation's US/Japan "Common Agenda" collaborative research program on urban earthquake hazards, focuses on public and stakeholder views of the potential consequences of major earthquakes, their support for loss-reduction policies, and their attitudes with respect to acceptable levels of risk. The study site for this project is Alameda County, in the eastern San Francisco Bay Area. In 1999, in the first phase of the study, DRC conducted a mail survey with a representative sample of over 700 households in Alameda County/ Oakland, California. In the second phase of the project, eight focus group discussions were carried out to obtain information on the risks perceptions and seismic policy views of members of four East Bay stakeholder groups: public officials, community residents, business owners, and practicing engineers. DRC is collaborating on this project with investigators from the Center for Disaster Reduction Systems at Kyoto University's Disaster Prevention Research Institute.

Multidisciplinary Center for Earthquake Engineering Research (MCEER). DRC is a core member of MCEER, a multi-university consortium that conducts research on earthquake loss reduction issues and strategies from a range of disciplinary perspectives. The MCEER consortium, based at the State University of New York at Buffalo, is funded by a 5-year, \$10 million grant from the National Science Foundation. In addition to the World Trade Center study outlined above, other MCEER-sponsored projects conducted by DRC include the following:

1) Loss Estimation Methodologies. DRC's extensive datasets on disaster-induced business losses, business interruption, and post-disaster business coping strategies were employed in a collaborative MCEER study aimed at improving earthquake loss-estimation methodologies. This study was undertaken in collaboration with other MCEER researchers who have been working on the development of a "seamless" loss estimation model that integrates seismic hazard analysis, analyses of direct earthquake damage, and indirect earthquake-induced losses within a single probabilistic model framework.

2) Impediments and Incentives for the Rehabilitation of Critical Facilities. This study, which began in 1998, focuses on how administrators and other decision makers in hospitals evaluate the seismic vulnerability of their facilities, assess ways of lessening that vulnerability, and decide whether to undertake mitigation measures for their facilities. Data are being collected through focus group discussions with decision makers in twelve hospitals located in high, moderate, and low-risk areas of the country. In addition to conducting focus groups, DRC is also reviewing the literature on the adoption and implementation of safety and loss-reduction measures to better understand barriers, facilitating factors, and strategies for enhancing hospital seismic safety.

3) Use of New Technologies in Emergency Management. It is commonly assumed that advances in information technology have revolutionized operations in both public and private sector emergency management organizations. However, in the disaster field, little is known about the extent to which promising technologies are actually being employed to manage hazards and disasters, and to what effect. The study, which began in 1999, attempts to learn more about how local emergency management agencies use technology for hazard assessment, planning and training, and emergency response management. Data for the project are being collected through focus group discussions with emergency personnel in six communities around the US.

4) Measures of Community Resilience. Over approximately the last ten years, recognition has grown that rather than responding and recovering when disasters strike, communities should be paying much more attention to pre-event mitigation that is, to activities designed to lessen the impact of disasters. While the concept of "disaster resistant community" is gaining widespread acceptance, more research is needed to better define and operationalize that concept. The "Measures of Resilience" project attempts to develop measures or indicators of disaster resistance that span engineering and societal definitions of resilience as well as all phases in the disaster cycle. When developed, this comprehensive set of measures will make it possible to assess the extent to which communities are moving toward higher levels of disaster resistance.

Disaster Resistant Communities Initiative: Process Evaluation of FEMA's Project Impact. In 1997, the Federal Emergency Management Agency began the pilot stage of Project Impact, a program designed to encourage local communities to step up their efforts to contain future disaster losses. The goals of the program are to mobilize resources, stimulate the development of partnerships, spur mitigation activities, and enable communities to cope more effectively when disasters occur, so as to reduce long-term losses. Using face-to-face and telephone interviews, focus group discussions, and other data collection methods, DRC has been charting the progress of Project Impact, first in the seven pilot communities in which the program was initiated, and later in an additional ten communities that joined Project Impact in subsequent years. In the next stage of this study, DRC is conducting fieldwork in ten communities (matched on hazards and sociodemographic characteristics) that do not have Project Impact programs, to determine whether such programs have a discernable effect on community loss-reduction activities. This study is being conducted under the sponsorship of the Federal Emergency Management Agency.

*Disaster Research Center
Field Studies*

<i>March 8</i>	<i>New York, New York</i>
<i>May 7-13</i>	<i>Oakland, California</i>
<i>June 16-21</i>	<i>Memphis, Tennessee</i>
<i>August 3</i>	<i>New York, New York</i>
<i>August 23-25</i>	<i>New York, New York</i>
<i>August 23-25</i>	<i>Memphis, Tennessee</i>
<i>September 13-20</i>	<i>New York, New York</i>
<i>September 25-28</i>	<i>New York, New York</i>
<i>September 25-26</i>	<i>Memphis, Tennessee</i>
<i>October 29</i>	<i>New York, New York</i>
<i>October 20-25</i>	<i>New York, New York</i>
<i>October 28-29</i>	<i>New York, New York</i>
<i>November 11-16</i>	<i>New York, New York</i>

Visitors to DRC

Austria

*International Institute for
Applied Systems Analysis*

Japan

*Kyoto University
Disaster Prevention Research
Institute, Research Center for
Disaster Reduction Systems*

*Tokyo University
Department of Media and
Communication*

Iceland

*University of Iceland
Earthquake Engineering
Research Center*

U.S.A.

Princeton University

*New Jersey Institute of
Technology*

*Institute for Special Populations
Research at National
Development and Research*

*John Hopkins University
Center for Civilian Biodefense
Studies*

U.S.A

*Texas A&M University
Hazard Reduction & Recovery
Center*

Companeros de las Americas

*Mayor's Office of Emergency
Management- New York*

New Preliminary Papers

Aguirre, Benigno

“Sustainable Development as Collective Surge.”

“Can Sustainable Development Sustain Us?”

“A Conceptual Framework for Collective Behavior and Action and its Application to U.S. Student Riots in the 1990s.”

“A Test of Culture of Opposition’s Power Grid.”

“Testing Shibutani’s Prediction of Information Seeking Behavior in Rumor.”

Bruneau, Michel and Kathleen J. Tierney

“Market-Focused and Open-Systems Approaches to Earthquake Loss-Reduction: Contextualizing the Role of Engineering Research.”

Connell, Rory

“Collective Behavior in the September 11, 2001 Evacuation of the World Trade Center.”

Kendra, James M.

“A Regulationist Approach to the Occupational Status of Navigation Officers in the U.S. Merchant Marine.”

Kendra, James M. and Tricia Wachtendorf

“Rebel Food...Renegade Supplies: Convergence After the World Trade Center Attack.”

“Elements of Community Resilience in the World Trade Center Attack.”

Monahan, Brian and Carol Gregory

“From Ground Zero to Ground Hero: Status Appropriation and the FDNY.”

Tierney, Kathleen J.

“Strength of a City: A Disaster Research Perspective on the World Trade Center Attack.”

Tierney, Kathleen J. and Gary R. Webb

“Business Vulnerability to Earthquakes and Other Disasters”

Wachtendorf, Tricia

“Suggestions for Canadian Inter-Organizational Collaboration in Disaster Mitigation.”