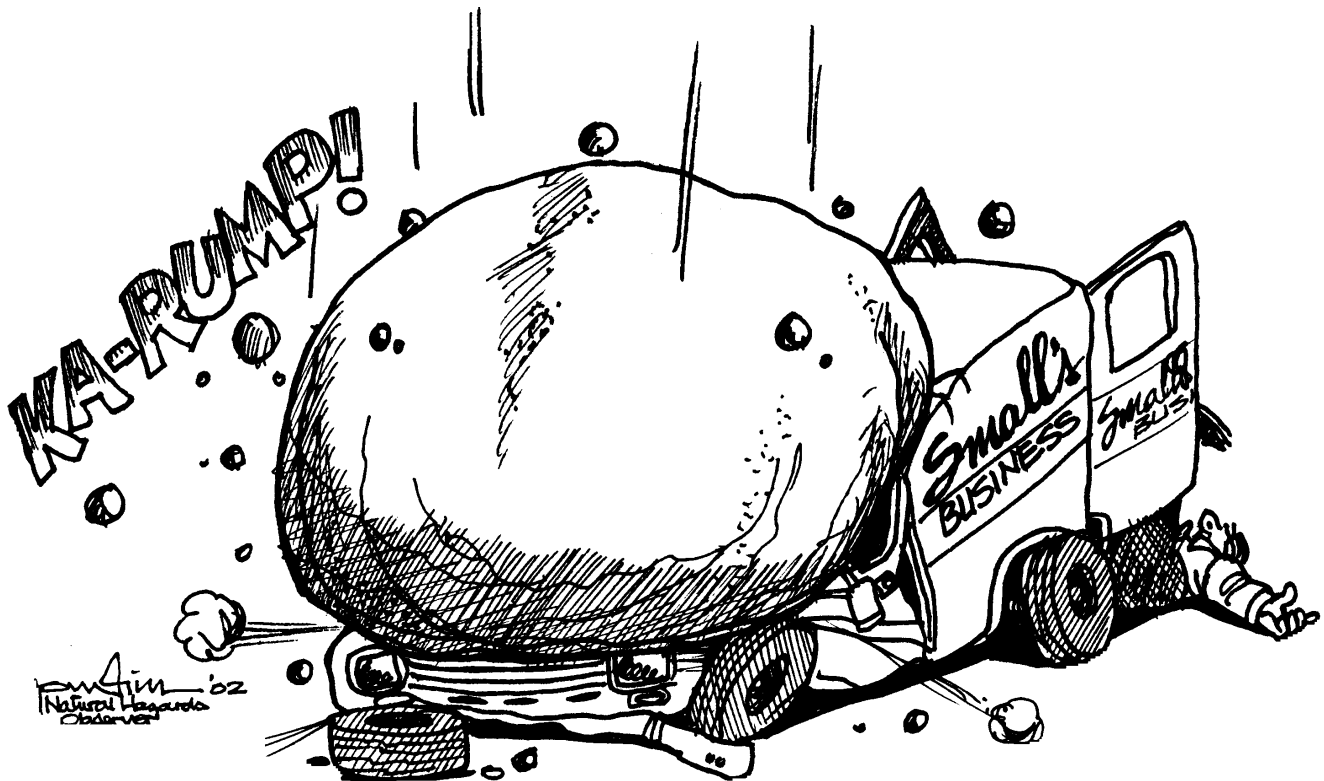




NATURAL HAZARDS Observer

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When Disasters and Small Businesses Collide

—an invited comment

Natural disasters and willful acts of terrorism or civil disruption that result in widespread damage usually inflict major losses on small businesses and not-for-profit organizations. These losses last for years, ultimately forcing many businesses and other organizations to close their doors. Although owners and employees are affected, such events create broader social problems as well, because many entities in a single community fail.

With funding from the Public Entity Risk Institute (PERI) and other sources, we conducted face-to-face interviews with scores of owners and operators of small businesses and organizations that had experienced earthquakes, hurricanes, floods, wildfires, or tornadoes. Interviews were conducted in California, Florida, Georgia, Minnesota, New Mexico, North Carolina, and

North Dakota. Disasters in our study had occurred as long ago as 10 years (Hurricane Andrew, 1992) and as recently as the Cerro Grande Fire in Los Alamos, New Mexico, in 2000. We interviewed retailers, wholesalers, manufacturers, service providers, and not-for-profit organizations, including museums and social service organizations. We sought to determine the differences between smaller businesses that survive and recover from natural disasters and those that do not.

Emotional and Financial Costs

Business owners often suffer substantial long-term financial, emotional, and psychological effects from disasters. One

couple whose business was severely damaged by a tornado three years prior to our interview was still finding glass shards on their company's property. Each fragment was a painful reminder of the losses they had suffered. Although their business was recovering slowly, emotional recovery was taking much longer. The husband was still being treated for depression brought on by the disaster, and both spouses wept while recounting their experiences.

In another case, the owner of a retail shop in a strip mall in California suffered damage caused by the Northridge earthquake, including broken windows, shattered display cabinets, and ruined inventory. Although her shop did not have structural damage, other retailers in the mall suffered so much destruction their stores were condemned. Despite these obstacles, the owner and her employees set up shop outside, cleaned up the debris, and managed to remain open.

In the months that followed, however, business was terrible. Between the demolition of damaged units and retailers who were unwilling or unable to return, customers were scarce. Stress from the continuing struggle affected her home life, and two years after the quake, she and her husband divorced and she lost her house.

The shop owner tried desperately to find a better location for her business. Unfortunately, her store had been funded based on her husband's financial status and credit rating, leaving her unable to obtain a loan. She lost her business three years after the quake.

Recovery: At Best an Elusive Concept

The term "recovery" is used widely in the disaster community. In addressing disasters, we think in terms of preparedness, response, recovery, and mitigation. In that context, recovery has often meant a return to the way things were before the event. We concluded, however, that such a definition works only for small events and simple systems. This traditional notion of recovery is misleading and irrelevant for complex systems affected by disaster.

Small businesses, not-for-profit organizations, and communities do not "recover" in the sense of returning to what existed before. Instead, they struggle, sometimes for years, to achieve viability in an environment that often changes substantially following a catastrophic event. Only rarely, however, do owners and managers immediately understand that they must work with substantially altered circumstances. Typically, participants in our study stated shortly after a disaster that their goal was to return to their former state; yet, a year or more later they understood the irrevocable changes in their lives.

Long after the debris is swept away, long after new buildings are constructed and grass grows over scars in the land, the effects of a disaster linger. For organizations and communities that suffer significant losses, returning to the way things were before a disaster is often a chimera—a mythical illusion that can never be achieved.

More longitudinal case studies are needed to develop a better comprehension of the recovery process because re-establishing viability is a lengthy undertaking and varies greatly among owners, organizations, and communities. Greater understanding will lead to better recovery.

Variables Critical to Post-Event Organizational Viability

We identified five key variables central to the survival of a small business or not-for-profit following a disaster. They are:

- the extent to which customers or clientele are adversely affected by the disaster;
- the amount of an organization's product or service that its customers can defer, replace with another, or acquire elsewhere without significant increases in cost;
- current trends within a specific industry and the individual organization's position within that industry;
- the degree to which the business or not-for-profit organization loses critical production, inventory, or capital assets; and
- the adaptation by an owner or operator to changes in the postdisaster environment.

When a business cannot meet its customer's needs, customers go elsewhere. When customers lose purchasing power, businesses lose income. A business or not-for-profit need not suffer direct damage from a natural disaster or terrorist attack to find itself in peril. Manufacturing firms usually recover more quickly than many kinds of retail firms if their customer base is geographically diverse. Retail and service organizations whose customers are concentrated geographically face serious problems, even if they experience no direct damage themselves.

If customers have money or credit following an event, they buy what they need to survive and to repair their homes and other assets. Consequently, sales of certain items, such as plywood, lumber, paint, and floor covering, boom—at least for a while. And, depending on the scale of the destruction, vendors and contractors from across the country often descend on stricken areas to offer their wares and services.

When customers move away, businesses suffer. Following Hurricane Andrew, large numbers of people left Homestead, Florida, particularly those with reliable incomes and skills who worked at Homestead Air Force Base. The closing of the base, permanently evacuated just hours before the hurricane struck, substantially reduced the area's population. Although the community of Homestead still exists, it is an entirely different place than it was before Andrew struck.

People often show good sense, reasoning that, if they do not have to live in a disaster-prone area, they should leave. In every community we visited, substantial numbers of people moved away. Further, in most communities, those who moved away were replaced by people with lower incomes, less education, or language barriers. These changes pose special challenges to small organizations.

Disasters also exacerbate many pre-existing trends in urban areas, hastening demographic and land use changes. For more than a year before the Northridge earthquake, the area was suffering from a recession. Many retail firms that were in business well before the quake lost revenues long afterward because their customers had moved away. Thus, the earthquake accelerated neighborhood transformations that were already underway.

The Most Important Lesson

Perhaps the most important variable in the survival equation is the extent to which an owner or manager recognizes and adapts to changing circumstances. Those who are aware that things change after a disaster and that a community will never “get back to normal,” then respond quickly and appropriately, have an excellent chance of survival and long-term viability. Those who continue under the old business paradigm, assuming the community will return to its prior state, have the odds stacked against them.

Daniel J. Alesch
and
James N. Holly
University of Wisconsin–Green Bay

The complete 116 page report, *Organizations at Risk: What Happens When Small Businesses and Not-for-Profits Encounter Natural Disasters*, by Daniel J. Alesch, James N. Holly, Elliott Mittler, and Robert Nagy (2002, 116 pp., free) can be found on the PERI web site: http://www.riskinstitute.org/ptr_item.asp?cat_id=1&item_id=1028. The report’s companion guide, *After the Disaster: What Should I Do Now? Information to Help Small Business Owners Make Post-Disaster Business Decisions* (2002, 9 pp. free), provides tips for business owners affected by disasters. It can be found at the same URL. Free printed copies of both documents can also be ordered from the PERI web site.

Further information about the research project can be obtained from the authors at the *Department of Public and Environmental Affairs, 2420 Nicolet Drive, Rose Hall 324, Green Bay, WI 54311-7001; (920) 465-2-45; fax: (920) 465-2791; e-mail: aleschd@uwgb.edu*.

Perspectives from Ground Zero

Our Latest Quick Response Reports



The September 11 terrorist attacks created unique opportunities for hazards researchers to explore an unprecedented disaster in the U.S. Seven new quick response reports now available on the Natural Hazards Center’s web site describe different segments of the recovery effort in the first months following the attacks. The reports explore a wide range of topics, from the response efforts of faith-based organizations to victim identification and management to the effects of the attacks on state-level emergency response. While examining different aspects of the catastrophe, the authors are unanimous in believing the event presented challenges of complexity and scale never before faced in a U.S. disaster.

The Natural Hazards Center sponsors Quick Response investigations that allow researchers to visit the site of a disaster immediately after impact in order to assess response and recovery. In turn, the researchers publish summaries of their findings in reports that are available for \$5.00, plus \$4.50 shipping, from the *Publications Administrator, Natural Hazards Center, 482 UCB, University of Colorado, Boulder, CO 80309-0482; (303) 492-6819; fax: (303) 492-2151; e-mail: janet.kroeckel@colorado.edu*. The newest reports are also available from our web site at the URLs listed below.

<http://www.colorado.edu/hazards/qr/qr146/qr146.html>

- **Quick Response Report #146: Patterns of Media Coverage of the Terrorist Attacks on the United States in September of 2001** (16 pp.), by Christine M. Rodrigue.

<http://www.colorado.edu/hazards/qr/qr147/qr147.html>

- **Quick Response Report #147: The Response of Faith-Based Organizations in New York City Following the World Trade Center Attacks on September 11, 2001** (13 pp.), by Jeannette Sutton.

<http://www.colorado.edu/hazards/qr/qr148/qr148.html>

- **Quick Response Report #148: Victim Identification and Management Following the Collapse of the World Trade Center Towers** (10 pp.), by Steven Stehr and David Simpson.

<http://www.colorado.edu/hazards/qr/qr149/qr149.html>

- **Quick Response Report #149: Oregon Emergency Management: Evaluating Interagency Communication in the Post Disaster Environment** (20 pp.), by Robert Parker, Andre LeDuc, and Kathy Lynn.

<http://www.colorado.edu/hazards/qr/qr150/150.html>

- **Quick Response Report #150: Institutional Warning Response following the September 11th World Trade Center Attack** (8 pp.), by Paul W. O’Brien.

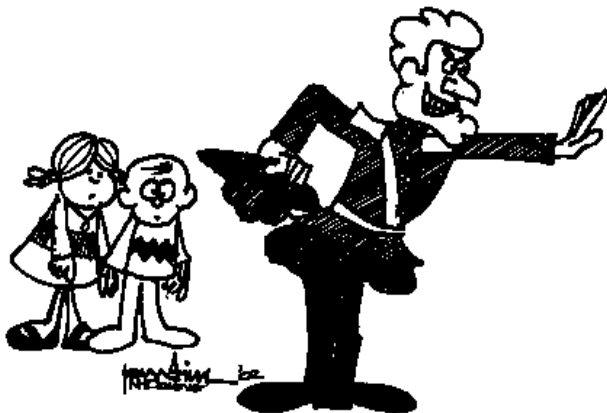
<http://www.colorado.edu/hazards/qr/qr152/qr152.html>

- **Quick Response Report #152: Marginalized Groups in Times of Crisis: Identity, Needs and Response** (8 pp.), by Marci Eads.

<http://www.colorado.edu/hazards/qr/qr153/qr153.html>

- **Quick Response Report #153: Use of Spatial Data and Geographic Technologies in Response to the September 11 Terrorist Attack** (10 pp.), by Deborah S.K. Thomas, Susan L. Cutter, Michael Hodgson, Mike Gutekunst, and Steven Jones.

Canadians Launch Program to Protect Children in Daycare from Disasters



In March, the Canadian Institute for Catastrophic Loss Reduction (ICLR) announced a national program, "Protecting our Kids from Disasters," to protect youngsters in childcare centers. The program was started to ensure that daycare centers are retrofitted and become better prepared to withstand the effects of earthquakes, floods, hurricanes, wildfires, and winter storms. The program is similar to an initiative from the Institute for Business and Home Safety in the U.S. that has successfully retrofitted 1,400 childcare centers.

ICLR, established by the Insurance Bureau of Canada, is a consortium of insurance companies, the University of Western

Ontario, and other organizations. The group has created a 51-page information kit to guide the effort that contains a step-by-step checklist for project leaders; materials to assist in publicizing a project, including sample news releases; an information video that depicts retrofit options as well as how to do them; and other informational materials.

Retrofit instructions are provided for bookcases, cabinets and drawers, large appliances and vending machines, picture frames and bulletin boards, lights and other hanging fixtures, windows and doors, plumbing and water heaters, and landscaping. A handout for families, "Being Prepared Before a Disaster Strikes," presents recommendations for preparing a disaster kit, disposing of paint cans, and keeping poison control information on hand. A series of other handouts, called "Protecting Your Home," provides guidance to parents in making their homes more secure from snowstorms, earthquakes, floods, wildfires, hailstorms, hurricanes, and tornadoes. A three-page "Walk-Through Checklist" provides a form for evaluating childcare centers and identifying possible tools and materials that will be needed to make a center safer.

The instructions, *Protecting Our Kids from Disasters: Nonstructural Mitigation for Childcare Centres* (2002, 51 pp., free), and the checklist can be downloaded from the ICLR web site: <http://www.iclr.org>. Further details about the program are available from Tracy Waddington; (416) 362-2031 ext. 352; e-mail: twaddington@iclr.org.

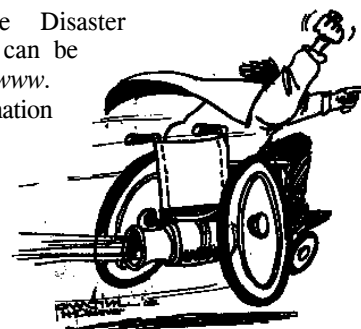
Disability Organization Announces Disaster Mobilization Initiative

As the tragic events at the World Trade Center demonstrated, people with disabilities can be at greater risk in emergency situations than others. In response, the National Organization on Disability (NOD) recently kicked off its Disaster Mobilization Initiative to encourage those involved in emergency response planning to incorporate the needs of people with disabilities. NOD outlined what it believes people with disabilities and their organizations, mayor and city managers, all levels of government, the private sector, and disaster relief and emergency management organizations can do to prepare.

Among its recommendations, NOD urges:

- disability organizations to advocate for emergency plans that account for the needs of their members and others;
- government decision makers to ensure that such planning occurs and that people with disabilities are appointed to relevant boards and commissions;
- federal agencies to include people with disabilities in agency emergency planning and management and to promote best practices;
- state governors to advocate for federal grants to localities for preparedness for those with disabilities and ensure that all state emergency management staff are properly trained and that state organizations regularly conduct exercises regarding procedures for dealing with people with disabilities; and
- leaders in the private sector to ensure that businesses have appropriate preparedness procedures in place that are regularly tested and provide employees with disability-preparedness information.

The text of the Disaster Mobilization Initiative can be found on-line at <http://www.nod.org>. Further information can also be obtained from NOD, 910 16th Street, N.W., Washington, DC 20006; (202) 293-5960; e-mail: ability@nod.org.



Florida Passes Statewide Building Code to Make Structures More Hurricane-Resistant

In 1992, Hurricane Andrew tore through South Florida, killing 43 people and leveling the communities of South Miami and Homestead. With wind speeds up to 155 m.p.h., the storm destroyed 130,000 homes and caused more than \$25 billion in damage. As a result, those who were involved in reducing future losses from hurricanes initiated a comprehensive review of Florida's complex system of building codes.

In 1996, the Florida Building Codes Commission was established to evaluate the existing code system and recommend ways to improve it. Following 16 months of study, the commission uncovered a confusing patchwork of codes and regulations that existed among the 400 local jurisdictions and state agencies with building code responsibilities. The commission made 60 recommendations to the state legislature in 1998. That same year, the lawmakers adopted a law that called for a single statewide code as well as increases in education and training and the creation of a system to approve new building products.

The new law established the Florida Building Commission and charged the group with developing the Florida Building Code, requiring that it be unified and consistent while still addressing regional and local concerns and conditions. The new statewide building code allows individual jurisdictions to amend the code to be more stringent when local conditions warrant. It took effect on March 1, 2002, nearly 10 years after Hurricane Andrew.

The new code focuses on public safety, increases local enforcement powers, and incorporates state-of-the-art hurri-

cane protections. Minimum requirements to ensure that buildings in high-intensity hurricane areas can withstand the impact of wind-borne debris are included. Also, buildings must be designed to withstand wind pressures that occur when windows and doors are pierced in a storm. Otherwise, all exterior glass windows and doors must be made of shatter-resistant glass or protected by shutters.

The American Society of Civil Engineers national wind protection standard, "ASCE 7-98: Minimum Design Loads for Buildings and Other Design Structures," is incorporated into the Florida code.

Among other new regulations, the state standard outlines specific requirements for mapped wind speed zones and coastal areas subject to flooding and high winds. State areas that experience winds in excess of 120 m.p.h. and/or areas within one mile of the coast where wind speeds can reach 110 m.p.h. or higher are subject to

stringent code requirements that improve building safety.

For further information about the new building code, contact the *Florida Department of Community Affairs*, (850) 487-1824; or visit the Code's official web site: <http://www.floridabuilding.org>. Dade County has created a web site that lists all products approved for wind-borne debris regions: <http://www.buildingcodeonline.com>. Additional information about this effort can also be obtained from *Nanette Lockwood McElman, Institute for Business and Home Safety, 1408 North Westshore Boulevard, Suite 208, Tampa, FL 33607; (813) 286-3400, ext. 241; e-mail: nmcelman@ibhs.org*.



Have Expertise, Will Consult

Announcing Our New Referral Service

As an addition to its already considerable store of information, the Natural Hazards Center is now poised to refer inquirers to those researchers and/or practitioners who have expertise and/or practical experience in different facets of sustainable recovery from disaster. As part of the project it recently completed for the Public Entity Risk Institute (see the *Observer*, Vol. XXV, No. 4, p. 3), the center has compiled an in-house database of "experts" in local disaster recovery, economic vitality, environmental quality, social equity, livability, disaster resilience, and the art of combining those attributes in a local context. Persons listed on the database have indicated a willingness to respond to queries of this nature.

Individuals, groups, or local governments who need information about sustainable recovery, advice, on-site assistance, or simply moral support can query the Hazards Center with a phone call: (303) 492-5787; or an e-mail message: wanda.headley@colorado.edu. A staff person will search our database to see who might have the expertise needed and provide their contact information. The Hazards Center's website, <http://www.colorado.edu/hazards>, will also have a link for submitting queries in the near future.



WASHINGTON UPDATE

Homeland Security Director Creates Color-Coded Warning System

Following complaints that broad terror warnings issued by the federal government since the September 11 terrorist attacks raised alarm without providing useful guidance, Homeland Security Director Tom Ridge recently announced the creation of a color-coded warning system to provide greater clarity about the level of risk.

On March 12, President Bush signed Homeland Security Presidential Directive 3, creating the Homeland Security Advisory System (HSAS). Under the new system, the attorney general will be responsible for developing, implementing, and managing terrorist threat warnings in conjunction with the Office of Homeland Security. Among the factors that will be considered in issuing a warning are threat credibility, corroboration of threat, specificity or imminent nature of a threat, and severity of a threat. The five stages of alert are:

- **Green**—low risk of terrorist attack.
- **Blue**—general risk. Agencies should review and update emergency response procedures.
- **Yellow**—elevated condition. There is significant risk of terrorist attack. Jurisdictions should increase surveillance of critical locations and implement some emergency response plans.
- **Orange**—high risk of attack. Localities should coordinate necessary security efforts with armed forces or law enforcement agencies and take additional precautions at public events.
- **Red**—severe risk of attack. Situations may require repositioning of specially trained teams, closure of public and government facilities, and monitoring of transportation systems.

As threats are evaluated, warnings can be modified for the entire country or for specific regions and economic sectors, such as the nuclear industry. HSAS establishes a common vocabulary for citizens and all levels of government. Although the plan does not provide guidance for how private citizens should respond to such threats, the program was designed to motivate local governments to develop plans that will guide the actions of members of their community. In addition, President Bush ordered a review of all federal alert systems, including those relating to weather, that will lead to the creation of a single federal framework for warnings.

Information about the new warning system is available from the *White House, Office of Homeland Security, 1600 Pennsylvania Avenue, N.W., Washington, DC 20500; (202) 456-1414; fax: (202) 456-2461; WWW: www.whitehouse.gov/homeland.*



FEMA Issues Interim Final Rule on Hazard Mitigation Planning and Hazard Mitigation Grant Program

Hazard mitigation planning serves as the vital foundation to saving lives and protecting property. Effective plans can serve to both streamline disaster recovery efforts and lessen potential future damage. In an effort to speed the funding for hazard mitigation planning and the Hazard Mitigation Grant Program under the Disaster Mitigation Act of 2000 (see the *Observer*, Vol. XXV, No. 3, p. 11), FEMA issued an Interim Final Rule to help state and local governments receive mitigation funds as soon as possible. (The requirements of the Disaster Mitigation Act will not fully take effect until November 1, 2003.)



The Interim Final Rule became effective on February 26. It outlines requirements for mitigation plans and for minimum codes and standards in postdisaster reconstruction. It also allows states to adjust their mitigation plans to receive an increase in mitigation funding. The rule:

- Continues the requirement for a Standard State Mitigation Plan as a condition of disaster assistance;
- Provides for states to receive an increased percentage of Hazard Mitigation Grant funds (from 15 to 20 percent of the total estimated eligible federal assistance) if, at the time of a presidentially declared disaster, a state has a plan that meets the factors listed in the rule;
- Establishes a new requirement for local mitigation plans; and
- Authorizes up to 7% of state HMGP funds to be used for state, tribal, and local mitigation plans.

Although FEMA no longer requires states to revise their mitigation plan after every presidential disaster declaration, each state must have a Standard State Mitigation Plan to receive HMGP funding based on 15% of eligible federal disaster assistance. However, an Enhanced State Mitigation Plan, which includes all the elements of the Standard State Mitigation Plan and also demonstrates that the plan is integrated with other state and/or regional planning initiatives, must be approved for a state to receive HMGP funds based on 20% of eligible assistance.

The Interim Final Rule appeared in the February 26, 2002, *Federal Register* (Vol. 67, No. 38, pp. 8844-8854) and can be found in any federal repository library or on-line at <http://www.access.gpo.gov>.

FEMA Creates One-Stop Shopping for Disaster Relief

The September 11 terrorist attacks underscored the need for the federal government to provide fast and easy disaster-related information to citizens. To better aid victims of disaster, the Federal Emergency Management Agency (FEMA) recently established *Disasterhelp.gov*, a web site designed to be a one-stop portal for citizens looking for disaster-relief information and assistance. The site will consolidate federal and other disaster-relief programs on a single site as well as provide links to state and local emergency management groups.

Eventually, the site will provide a secure link for an automated transaction-processing system for disaster assistance. In the meantime, FEMA's Eligibility Assistance Online, the site that provided aid for citizen disaster benefits, will be moved to the Labor Department. *Disasterhelp.gov* began in April.

For more information about *Disasterhelp.gov*, go to the web site or contact FEMA, 500 Street S.W., Washington, DC 20472; e-mail: eipa@fema.gov; <http://www.fema.gov>.



Announcing the Center for Science and Technology Policy Research

Public and private sector decision-makers need scientific and technical information to help them form policy. Too often, scientific information is not readily available or easily grasped. Exploring and understanding the relationship between scientific research and decision-making is the focus of the new Center for Science Policy and Research. The Center is part of the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado. The new program employs research, graduate and undergraduate education programs, and outreach through the Internet, newsletters, and workshops to explore its emphasis in:

- Science policy—studying how scientific information is linked to decisionmaking and how science is governed (funding to peer review) using atmospheric science, energy, and prediction as models;
- Technology policy—understanding, developing, evaluating, and critiquing the transfer of science and technology to useful products and processes; and
- Technology assessment—integrating understanding of technology in society to optimize decisions about future science and technology research directions.

The center has several ongoing projects linking science and society. The Atmospheric Sciences Policy Education and Network Program (ASPEN, formerly within the National Center for Atmospheric Research's Environmental and Societal Impacts Group) focuses on the societal aspects of weather through a World Wide Web portal and the *WeatherZine* newsletter. *Predictcentral.org* evaluates prediction products and

their use in decision-making. Undergraduate students explore how science and society interact to form public policy through the Global Climate Change and Society project. And, researchers in the Western Water Assessment project conduct interdisciplinary research linking climate, water, and society.

For more information about the center and its activities, visit the web site at <http://sciencepolicy.colorado.edu/> or contact the *Center for Science and Technology Policy Research*, 488 UCB, 1333 Grandview Avenue, University of Colorado/CIRES, Boulder, CO 80309-0488; (303) 735-0451; fax: (303) 735-1576.



New Center Launches *Ogmios* Newsletter

A new newsletter published by the Center for Science and Technology Policy Research (see above) highlights ideas, events, and research from the world of science and technology policy. The *Ogmios* newsletter, named after the Gallic god of Eloquence, is published three times a year and contains information of interest to the science policy and hazards communities. Included are topical exchanges from leading policy professionals; news; educational and research opportunities; meetings; updates on the center's projects, web sites, and publications; and media resources. *Ogmios* is available on-line at <http://sciencepolicy.colorado.edu/ogmios>. To be added to the e-mail notification list, use the on-line form at <http://sciencepolicy.colorado.edu/ogmios/subscriptions.html> or send an e-mail message to ogmios-admin@sciencepolicy.colorado.edu with your name, organization, e-mail address, interests and needs, and how you heard about the newsletter.

San Francisco Develops Action Plan for Earthquakes

San Francisco is one of the most seismically active regions in the U.S. The 1906 earthquake on the San Andreas fault was one of the most damaging of the 20th century, causing the largest urban fire in U.S. history and resulting in the destruction of a large part of the city. To address the dangers of earthquakes, the city is developing an extensive program of studies and programs to reduce their impacts in the Bay Area. The Community Action Plan for Seismic Safety (CAPSS) will explore methods to minimize the social, economic, and cultural effects of earthquakes through building upgrade programs, post-earthquake response and repair measures, public education, and other means.

Under contract from the San Francisco Department of Building Inspection, CAPSS is being developed by the Applied Technology Council (ATC), a professional non-profit corporation founded to protect life and property through the appli-

cation of science and engineering. ATC is joined in this effort by a team of other consultants. CAPSS will also be guided by a group of volunteer specialists, stakeholders, and community representatives.

Over the next two years, ATC will:

- Conduct a city-wide earthquake vulnerability assessment to determine the significant impacts that various scenario earthquakes will likely have on the buildings and people in the area;
- Formulate community-backed guidelines and criteria for evaluating and subsequently repairing or demolishing earthquake-damaged buildings; and
- Identify and define other practical, achievable, and community-supported seismic hazard mitigation programs.

CAPSS will focus on both privately owned and city-owned buildings.

For more information about CAPSS, contact *Marcie Adams, CAPSS, 177 Post Street, Suite 910, San Francisco, CA 94108-4712; (415) 989-1446 ext. 13; e-mail: info@capss.org; WWW: <http://www.sfcapss.org>.*



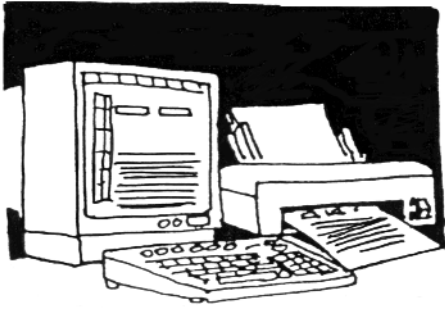
EERI Kicks Off Quake '06 Campaign

The Earthquake Engineering Research Institute (EERI) is an international nonprofit organization that works to reduce the impact of earthquakes through seismic studies, post-earthquake reconnaissance, education about quakes and their potential risks, and technology transfer. Recently, EERI's Northern California Chapter launched a four-year campaign to reduce earthquake risk that will culminate with the 100th anniversary of the devastating 1906 San Francisco earthquake. The campaign is a partnership among earthquake professionals, agencies, and other groups at risk in northern California who work to encourage building owners to identify and reduce their risks.

The chapter hopes to work with managers of hospitals and other medical buildings, public school system officials, owners and managers of commercial buildings, owners of single and multifamily residences, utilities and other lifeline providers, and local government officials. The group is also an active participant in CAPSS, a City of San Francisco program to reduce earthquake risk, described in the article above.

For those who are interested in obtaining more information about this effort or would like to participate, e-mail *Charles Scawthorn* at crs@eei.org or contact *EERI, 499 14th Street Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: eei@eei.org; WWW: <http://www.eeri.org>.*





INTERNET PAGES

Below are new or updated Internet resources the Hazards Center staff has found useful. For a more complete list of some of the better sites dealing with hazards and disasters, see <http://www.colorado.edu/hazards/sites/sites.html>.

All Hazards

<http://www.munichre.com>

Munich Re, one of the world's leading reinsurance groups, has produced *Topics*—its annual review of global natural hazards losses for 2001 (2001, 48 pp., free, Order Number 302-03202). The entire report, along with a downloadable poster depicting the natural catastrophes of 2001 as well as a world map of natural catastrophes, are all available free from this URL. In the past year, at least 25,000 people lost their lives in natural catastrophes, compared to 10,000 the previous year. Economic losses due to natural disasters were about \$36 billion, up six billion over the previous year. Over two-thirds of losses were caused by windstorms and floods. However, Munich Re notes, the greatest burden carried by insurers was caused by terrorism. An additional major natural catastrophe would have stretched the capacity of the international insurance industry a great deal further. Nevertheless, owing to the increase in world population and insured values, especially in highly exposed areas and densely developed urban centers, Munich Re expects significantly steeper growth in insured losses from natural catastrophes than in economic losses in general. Sections in the report include an overview of natural disasters in 2001, major engineering and fire catastrophes (including the losses from September 11 in the U.S.), “the insurance industry’s billion dollar loss list,” the Gujarat earthquake, flooding and storm damage, loss potentials, meteorites, and climate negotiations. As always, the report is full of colorful photos, charts and diagrams, and substantial data about the impacts of destructive natural events. To obtain a printed copy, contact *Gerhard Berz, Thomas Loster, or Angelika Wirtz, Munchener Ruckversicherungs-Gesellschaft, Central Division, Corporate Communications, Koniginstrasse 107, 80802 Munchen, Germany*. For further information about the report and its content, contact *Berz, Loster, or Wirtz*; tel: +49 (0) 89/38 91-52 91; fax: +49 (0) 89/38 91-56 96.

<http://www.un.org/womenwatch/daw/csw/46sess.htm>

During its 46th session in March, the United Nations Commission on the Status of Women examined “Environmental Management and the Mitigation of Natural Disasters: A Gender Perspective.” Using reports from an “Expert Group” meeting that occurred earlier in Ankara, Turkey; roundtable dialogue between governments, non-governmental organizations, and other UN bodies, the commission negotiated a set of “Agreed Conclusions” that advance an integrated approach to gender equality, disaster reduction, and sustainable development. All documentation, including the UN Secretary General’s report on the topic, can be downloaded from this URL, which is the web site of the UN’s Division for the Advancement of Women.

http://www.paho.org/english/PED/Publication_eng.htm

The Pan American Health Organization’s (PAHO) new *Catalog of Disaster Publications and Information Resources* is posted here in both HTML and PDF formats. The catalog contains detailed descriptions of all PAHO disaster training materials (books, CDs, slides, and videos) and other sources of information, including the Virtual Health Library for Disasters, the Regional Disaster Information Center (CRID), and the principal web sites with PAHO content. Printed copies of the catalog are also available; send an e-mail request to disaster-publications@paho.org.



<http://208.184.24.125/>

<http://208.184.24.125/presspass>

The Emergency Email Network provides emergency notifications from local, regional, and national governments, the Red Cross, and civil defense and other public service agencies to subscribers via the Internet and e-mail (computer, cell phone, digital pager, and fax). Users sign up to receive the emergency information alerts by filling out an on-line form and choosing one or more U.S. counties of interest. Messages contain alerts about severe weather, evacuations, health emergencies, natural disasters, utility outage information, locating emergency supplies, organ donations, daily weather forecasts, routine blood drives organized by the Red Cross, and other Internet services (third-party solicitation). Government and public agencies can join the network and distribute their alerts and notices to professional and citizen subscribers.

http://www.fema.gov/mit/planning_toc3.htm

Understanding Your Risks—Identifying Hazards and Estimating Losses, the first entry in the Federal Emergency Management Agency's new series of mitigation planning publications (see the *Observer*, Vol. XXVI, No. 3, p. 4), is now on-line at this URL. Like its printed precursor, the downloadable PDF format of the document gives step-by-step guidance for estimating the physical damage and economic losses a community could suffer from natural hazards.

<http://groups.yahoo.com/group/transport-communications/messages>

The Transportation Communications Newsletter will feature the web sites of U.S. state and Canadian provincial emergency management offices in its "Web Site of the Day" segment. The free, daily e-mail publication lists news items and contains information about all aspects of communications in the transportation and emergency management field. View back issues of the newsletter at the above web address. To subscribe, send an e-mail to: transport-communications-subscribe@yahoo.com.

Terrorism/Biohazards

<http://www.academicinfo.net/usa911.html>

<http://www.worldtradecenterdisaster.com/#Title>

<http://www.evergreen.edu/library/govdocs/hotopics/index.html>

<http://www.freepint.com/gary/91101.html>

These four sites provide detailed but different information about various aspects of the September 11, 2001, terrorist attacks and related background topics. Materials available include academic research studies; personal stories and contributions; pictures; maps; article, video, and audio links; worldwide government documents; commentaries and discussion papers; and much more.

http://www.nist.gov/public_affairs/factsheet/homeland.htm

Homeland security means protecting U.S. citizens from and rapidly responding to terrorism, military, natural disaster, and other threats. The National Institute of Standards and Technology (NIST) assists in preparing the country for homeland security. Its newest endeavors, sparked by the September 11 attacks and outlined on this web page, focus more intently on terrorism and helping those on the front lines cope with and respond to terrorist threats. The projects include safer structures and secure information systems, enhanced threat detection and protection, tools for law enforcement, and emergency response.

<http://www.fema.gov/pte/gaheop.htm>

A new supplement to the Federal Emergency Management Agency's *Guide for All-Hazard Emergency Operations Planning: State and Local Guide* has been produced to help state and local emergency planners develop and maintain terrorism annexes to their emergency plans. The new annexes should specify how local, state, and federal responses to a terrorist incident will be integrated. The guidance has been appended to Chapter 6 of the *Guide* as "Attachment G—Terrorism." The web site listed above has a downloadable PDF version of the whole guide (divided into segments for ease of downloading). Printed copies can also be ordered free from *FEMA, P.O. Box 2102, Jessup, MD 20794-2012; (800) 480-2520; fax: (301) 362-5335*. Specify the item number (9-1051) and the short title (SLG-101).

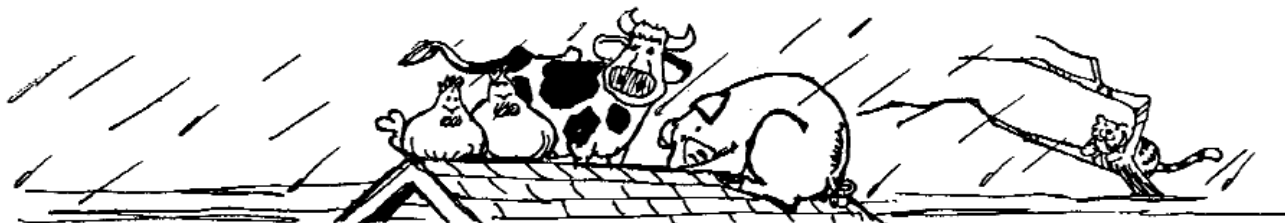
<http://securebuildings.lbl.gov>

This web site is intended for emergency management personnel and building operators. It contains the most up-to-date advice from the Lawrence Berkeley National Laboratory for dealing with a biological or chemical release in a building. The information is appropriate for small and medium-sized releases such as those that would be expected from a terrorist attack, not for industrial-scale releases such as those that occurred in Bhopal, India, or Chernobyl, Ukraine. Tips are provided for immediate and long-term hazard assessment and preparedness and dealing with releases that occur indoors, outdoors, or from an unknown location.

Floods

<http://web1.msc.fema.gov/webapp/commerce/command/ExecMacro/MSC/macros/welcome.d2w/report>

Ordering flood maps and related reports, studies, and other materials from the Federal Emergency Management Agency (FEMA) is easier now that FEMA has opened its on-line Flood Map Store. Customers can search the “store” for maps and products, browse product descriptions, or enter known community and map numbers to find products fast. Users must log in and provide a credit card number before ordering. Products can also still be purchased through the toll-free telephone number: (800) 358-9616.



Hurricane

<http://www.tallytown.com/redcross/hurrproof.html>

What do you get when you combine a leaf blower, construction paper, drinking straws, and tape? A high school science class building hurricane-proof houses. This web site gives background information about this Red Cross project, which helps students explore protecting homes from high wind damage while also having fun. The students learn about and apply science principles about the force of hurricane winds as well about construction techniques—such as roof truss bracing—that make homes more durable in the face of strong winds.

Drought

<http://drought.unl.edu/dm>

The “Drought Monitor” web site uses maps and written summaries to provide a weekly overview of where in the U.S. drought is emerging, lingering, subsiding, or expected. The data, synthesized multiple indices, outlooks, and news accounts are available on-line and via e-mail updates for decision-makers, farm service agencies, the media, and others interested in drought-related information. The “Monitor” is produced jointly by the National Weather Service’s Climate Prediction Center and National Climatic Data Center, the U.S. Department of Agriculture, and the National Drought Mitigation Center at the University of Nebraska–Lincoln. To subscribe to the Drought Monitor’s weekly updates, which appear each Thursday, go to <http://drought.unl.edu/mailman/listinfo/DMupdate>.

Wharton Seeks Info on Insurance Economics and Risk Management

The S.S. Huebner Foundation for Insurance Education, administered by the Wharton School of the University of Pennsylvania, is developing a new web site as an international resource on research and teaching materials in insurance economics and risk management. The site will serve as a central distribution point for both the academic and industry research communities and offer a library of teaching tools to help instructors design and plan courses in insurance economics and risk management.

To unveil the new web site later this year, the foundation is working to accumulate materials and requests that electronic versions of the following be submitted:

- Working papers and accepted-but-not-yet-published articles,
- Unpublished book chapters,

- Seminar and conference announcements,
- New book announcements,
- Insurance and risk management course reading lists,
- Insurance and risk management course syllabi, and
- Innovative teaching materials such as computer simulation models and case studies.

Materials will be listed on the site free of charge and will benefit from having the attention of a wide, international audience. Please e-mail any of the above materials that you would like included in the web site to huebner_foundation@wharton.upenn.edu. PDF format is preferred. For more information, e-mail *J. David Cummins* at cummins@wharton.upenn.edu.

Announcing the Asian-Pacific Network of Centers for Earthquake Engineering Research (ANCER)

ANCER was established in October 2001 to enhance the research, education, and technology transfer activities of earthquake research centers located in countries around the Pacific Rim. Its vision is to broaden research regarding development impacts and earthquake mitigation practices through cooperative endeavors that can best be advanced on a center-to-center basis over a large geographical area.

The concept of a centers network was introduced during an international workshop organized by the Korean Earthquake Engineering Research Center (KEERC) in Seoul in 2000. The first activity of ANCER is the sponsorship of a major international conference on advances and new challenges in earthquake engineering research. The conference will consist of two consecutive back-to-back meetings in Harbin and Hong Kong (see p. 17 of this *Observer*).

For more information about this new organization, see the KEERC web site: <http://www.keerc.net>.

New Stuff from the Flood Insurance Folks

The Federal Emergency Management Agency's Federal Insurance and Mitigation Administration (FIMA) has released updates to two of its manuals that help insurance agents, state and local officials, and others in their efforts to minimize losses from flood hazards under the National Flood Insurance Program (NFIP).

Flood Insurance Manual

New updates to the *Flood Insurance Manual* were issued for changes that went into effect May 1, 2002. Among the revisions are: 1) a clarification that a building in more than one flood zone must be rated, for insurance purposes, according to the more hazardous zone; and 2) a revised application form that specifies that documentation must be included if the building to be insured has openings in its lower area to allow the passage of flood waters.

The full *Flood Insurance Manual*, or just the updated pages, is available free in PDF format at http://www.fema.gov/nfip/manual05_02.htm. Printed copies of the complete manual can be ordered for \$25 from FEMA/NFIP, Map Service Center, P.O. Box 1038, Jessup, MD 20794-1038; (800) 358-9616; fax: (800) 358-9620.

Community Rating System Manual

The Community Rating System (CRS) was launched in 1990 as a voluntary program for recognizing and encouraging community floodplain management activities that exceed the

minimum NFIP requirements. The National Flood Insurance Reform Act of 1994 codified the CRS in the NFIP. Under the program, flood insurance premium rates for policyholders in participating communities are discounted to reflect the reduced flood risk brought about by community activities such as enforcing higher regulatory standards, implementing public information programs, or preserving open space. Today over 900 communities participate, receiving up to 35% in premium reductions for their residents.

The 2002 edition of the NFIP *Community Rating System Coordinator's Manual* incorporates improvements to the system and changes in scoring and other matters agreed to since the 1999 version was issued. Although the changes are not as extensive as those made to the manual three years ago, they do reflect the shifting aspects of the program. For example, credit points are now available to communities for putting flood hazard information and/or FEMA Elevation Certificates on the community's web site, so that people can have better access to this information. The credit points were increased for communities that address multiple hazards in their local planning and in their flood awareness projects. Provision also was made for communities to earn CRS credit for participating in the National Oceanic and Atmospheric Administration's "StormReady" program, which promotes flood preparedness and the effective use of warnings.

FIMA expects to release the new manual this month. The previous manual and other publications about the CRS are available in PDF format on the CRS web site: <http://www.fema.gov/nfip/crs.htm>.



CONTRACTS AND GRANTS

Below are descriptions of recently awarded contracts and grants for the study of hazards and disasters. An inventory of contracts and grants awarded from 1995 to the present (primarily those funded by the National Science Foundation) is available on the Natural Hazards Center's web site: <http://www.colorado.edu/hazards/grants.html>.

Impacts of Extreme Events on Passenger Travel Behavior.

Funding: National Science Foundation, \$50,000, 12 months. Principal Investigators: *Jose Holguin-Veras and Robert E. Paaswell, City College of New York, Institute for Transportation Systems, Building Y-220, 135th Street and Convent Avenue, New York, NY 10031; (212) 650-8060; fax: (212) 650-8374; e-mail: jhv@ce-mail.engr.cuny.cuny.edu.*

This research focuses on the impacts on passenger travel of the terrorist attacks on the World Trade Center. The researchers aim to investigate and model how this tragic event and subsequent actions of firms and transportation providers impacted travel decisions. The objectives are to assess behavioral changes with respect to transportation that have taken place since the attacks and to study the impacts of extreme events on travel choices. Interviews and other data will provide information on changes in transportation, job, and residence choices.

Industry Roadmap for NEHRP-Funded Problem-Focused Research and Development in Earthquake Engineering (ATC-57).

Funding: National Institute for Standards and Technology, \$54,998. Principal Investigator: *Christopher Rojahn, Applied Technology Council, 555 Twin Dolphin Drive, Suite 550, Redwood City, CA 94065; (650) 595-1542; fax: (650) 593-2320; e-mail: crojahn@atcouncil.org.* Information can also be obtained from *S. Shyam Sunder, Structures Division, National Institute for Standards and Technology, Building and Fire Research Laboratory, Building 226, Room B164, 100 Bureau Drive, Stop 8610, Gaithersburg, MD 20899-8610; (301) 975-6713; fax: (301) 869-6275; e-mail: sunder@nist.gov.*

The National Earthquake Hazards Reduction Program (NEHRP) was created by Congress to "reduce the risks of life and property from future earthquakes in the United States through the establishment and maintenance of an effective

earthquake hazards reduction program." In this project, the Applied Technology Council will obtain input from engineering industry representatives on short- and long-term needs for reducing earthquake risks as well as recommendations for ways to meet those needs. The resulting roadmap will offer recommendations regarding such issues as the overall goals and objectives of NEHRP in the context of the four agencies involved with the program (NIST, the Federal Emergency Management Agency, the U.S. Geological Survey, and the



National Science Foundation). Other recommendations will address critical research and development areas, how existing NEHRP experimental facilities should be used to support the research and development program, how industry should work with codes and standards organizations and academic researchers in carrying out the research and development program, which mechanisms should be used to establish annual research and development priorities, which criteria should be established for independent review and broad dissemination of research and development results, and which methods should be enacted for coordinating research and development among the NEHRP agencies.

Narrative Networks: The World Trade Center Tragedy. Funding: National Science Foundation, \$50,000, 12 months. Principal Investigators: *Peter S. Bearman and Mary Clark, Columbia University, Department of Sociology, Institute for Social and Economic Research and Policy, New York, NY 10027; e-mail: psb17@columbia.edu.*

This project will collect the first wave of narrative oral histories from six samples of New York residents with varying degrees of exposure to the World Trade Center disaster. It is the first of three phases of interviews that will track how individuals' accounts of those events are shaped over time by public narratives and whether they will eventually conform to a standard version of events. Researchers will analyze differences in these accounts across the six samples, comparing, for instance, the stories from people who lost family members with those of surviving rescue workers and the general population less directly involved in the World Trade Center tragedy. The oral histories will provide broad textual sources that reveal not only what people know, but how people and society construct narratives and create meanings for critical events such as September 11.

Late Quaternary Tectonics and Environmental History in the Kamchatka-Komandorsky Region, Russian Far East. Funding: National Science Foundation, \$361,000, 48 months. Principal Investigator: *Joanne Bourgeois, Department of Earth and Space Sciences, University of Washington, Seattle, WA 98105; e-mail: jbourgeo@u.washington.edu.*

The goal of this project is to determine the history of earthquakes, tsunamis, and coastal deformation in the northwesternmost Pacific and southwestern Bering Sea since the retreat of glaciers 10,000 years ago. Efforts will include field work, coastal surveying, trench evacuation, and other geologic techniques. This project will also record the history of vegetation changes, and, in cooperation with archaeologists, human-occupation levels that will document the relationship between human habitation and geologic events.

The Impact of Breakdowns of Physical Infrastructure on Social Networks. Funding: National Science Foundation, \$30,000, 12 months. Principal Investigators: *Mark K. Golberg, Kristin P. Bennett, and William A. Wallace, Rensselaer Polytechnic Institute, Department of Computer Science, Troy, NY 12180-3590; e-mail: goldberg@cs.rpi.edu.*

The nature of the terrorist attacks on the World Trade Center in New York City demonstrates the need for under-

standing the interdependencies of physical infrastructure and social networks. The benefits of such understanding may include recommendations for modifying the design of physical infrastructures to improve their resilience to catastrophic disruptions. Models of social networks relying on wireless and wired communication infrastructures would allow the development and testing of efficient algorithms to determine critical failures that would adversely affect the communication traffic inside and among social networks. This research project will model social networks and their reliance on physical infrastructures, focusing mainly on social networks in the New York City area as well as telephone networks, wireless communication towers, transportation, and emergency services. This knowledge will be useful for reducing vulnerabilities, developing countermeasures to mitigate the impacts of disruption, and guiding actions for timely response and recovery.

Understanding and Improving Protective Decision Making. Funding: National Science Foundation, \$304,038, 36 months. Principal Investigators: *David H. Krantz and Howard C. Kunreuther, Center for Decision Sciences, Columbia University, New York, NY 10027; e-mail: dhk@psych.columbia.edu.*

In Istanbul, Turkey, seismologists have predicted that a severe earthquake is highly likely in the next 30 years. This forecast has drawn much attention in the media and raises challenges as to how potential losses may be reduced by protective measures. Decisions made by private individuals, by officials, and by engineers and builders are all relevant to the issue. The principles underlying protective decision-making regarding earthquake safety need to be better understood. Thus, the researchers will investigate how people determine whether to purchase insurance and/or invest in loss-reduction measures against risk from fire, theft, accidents, or natural disasters. They will examine the effects of different ways in which risks can be communicated and different frames in which information and choices can be presented. They will also explore how protective decisions can be affected by instructional modules that aid understanding of probability and suggest useful general strategies for framing decisions. Controlled laboratory experiments, field surveys, and interviews will be conducted both in the United States and Turkey.

Tree-Ring Based Reconstruction of Drought Over the Past 500-1,000 Years in the Eastern United States. Funding: National Science Foundation, \$283,573, 36 months. Principal Investigators: *Edward R. Cook and Brendan M. Buckley, Tree-Ring Laboratory, Lamont-Doherty Earth Observatory, 61 Route 9W, Palisades, NY 10964; e-mail: drdendro@ldeo.columbia.edu.*

This award will support research to reconstruct the drought history of the eastern United States over the last 500 to 1,000 years using the analysis of tree rings from two species of long-lived conifer. The data will greatly improve estimates of the full range of drought variability across the U.S.



NIST Project Examines WTC Occupant Behavior

September 11 produced thousands of unforgettable stories of tragedy and survival. National Institute for Standards and Technology (NIST) building and fire engineers hope to lessen future tragedies by studying how building evacuation plans contributed to both the number of dead and the number of survivors at the World Trade Center. Analysis of World Trade Center occupant behavior will increase safety in high-rise buildings by leading to improved building codes and standards, ability to predict occupant behavior, and education for building occupants.

NIST, through grants and partnerships with other organizations such as the Federal Emergency Management Agency, the New York Fire Department, and World Trade Center businesses, is attempting to understand how the occupants behaved following the crash of the airplanes into the twin towers and how that behavior may have differed from previous incidents. Which aspects of the building design worked well and which did not during the evacuation process? Through examination of videotapes and photographs, 911 transcripts, fire and police

records, and interviews with survivors, NIST hopes to answer these questions. During this three-year effort, NIST researchers will advise the appropriate codes and standards bodies on recommended changes. With the data they collect, the researchers also plan to update and improve building-egress models.

Another NIST effort could help speed evacuation of high-rise buildings. NIST, in a previous study with the National Research Council of Canada, has studied the use of elevators as a secondary way to evacuate occupants and help fire and rescue workers gain access in high rises. Such a system theoretically could reduce egress time by 50%, but it has not been fully tested. A demonstration project would help build confidence in a combined stair and elevator evacuation system. NIST researchers will work with industry and fire services to improve evacuation plans and set up a demonstration project.

For more information on this project, contact *NIST, 100 Bureau Drive, Stop 3460, Gaithersburg, MD 20899-3460; (301) 975-6478; e-mail: inquiries@nist.gov.*

NASA Funds Project to Test Use of Remote Sensing in Emergency Management

On October 5, 2001, the Washington State Emergency Management Division was awarded funding under NASA's Earth Science Applications Program for a new project, the "Strategic and Practical Use of Remotely Sensed Data in Emergency Management" (SPURS-EM). The Western Disaster Center, a nonprofit organization that researches the use of advanced computer, information, and communication technologies, and the University of Washington are partners with the state in this research initiative.

SPURS-EM will integrate products from satellite remote sensing into the operational structure of Washington's Emergency Management Division. The data will be applied to hazard preparedness, response, recovery, and mitigation. As a result, decision makers will have better information regarding the application of resources to reducing the damaging effects of natural hazards, emergencies, and disasters.

The Western Disaster Center will provide outreach and promote the use of remote sensing, and the Emergency Management Division will promote the use of SPURS-EM with the Washington State Emergency Management Association (WSEMA), which represents emergency managers from Washington's local jurisdictions.

A brief description of the project can be found on the Western Disaster Center's web site, under the "Announcements" section: <http://www.wdc.ndin.net>. For further details about the project, contact *Terry Egan, Washington Military Department, Emergency Management Division, Mitigation, Analysis, and Plans Unit, Building 20, M/S: TA 20, Camp Murray, WA 98430-5122; (253) 512-7041; e-mail: t.egan@emd.wa.gov; WWW: http://www.wa.gov/wsem.*





CONFERENCES AND TRAINING

Below are the most recent conference announcements received by the Natural Hazards Center. A comprehensive list of hazards/disaster meetings is posted on our World Wide Web site: <http://www.colorado.edu/hazards/conf.html>.

Second Hemispheric Conference on the Impact of Natural Hazards on Trade Corridors (TCC II). Sponsors: University of South Florida College of Public Health, Center for Disaster Management and Humanitarian Assistance (CDMHA), and the Organization of American States' Unit for Sustainable Development and Environment: Tampa, Florida. June 12-15, 2002. This conference will promote research, training, and technology transfer toward the goal of reducing the vulnerability of the people, infrastructure, and resources of trade corridors, in particular those within the areas of the North American Free Trade Agreement (NAFTA), the Caribbean Community and Common Market (CARICOM), the Southern Common Market (MERCOSUR), the Andean Community of Nations (CAN), and the Central American Common Market (MCCA). Three themes will be explored: the historical impacts of hazards on trade corridors, resilience and recovery of corridors from disasters, and strategies to mitigate losses from future events. Contact Nick Colmenares, (813) 974-2907; e-mail: ermnow@aol.com; WWW: <http://www.cdmha.org>.

Critical Incident Stress Management (CISM). Sponsor: International Critical Incident Stress Foundation (ICISF). Las Vegas, Nevada: June 13-16, 2002. Topics include crisis intervention assistance for individuals and groups, application of CISM to children and in the health-care setting, line-of-duty death, domestic terrorism and weapons of mass destruction, and stress management for trauma survivors. For details, contact ICISF, 10176 Baltimore National Pike, Unit 201, Ellicott City, MD 21042; (410) 750-9600; fax: (410) 750-9601; WWW: <http://www.icisf.org>.

Tenth International Course on Community-Based Disaster Management (CBDM-10). Sponsor: Asian Disaster Preparedness Center. Bangkok, Thailand: July 8-19, 2002. This course offers training in designing and implementing community-based disaster management programs and projects in disaster-prone rural and urban areas. For more information on this and other courses offered by the center, visit the web site: <http://www.adpc.ait.ac.th/training/te-cbdm10.html>, or e-mail a request for information to tadaadpc@ait.ac.th.

Emergency Operations Centers: Develop and Maintain Command Structures that Save Lives, Prevent Damage, and Ensure Continuity of Operation. Sponsors: National Institute for Government Innovation (NIGI), International Terrorism Response Association, Memorial Institute for the Prevention of Terrorism, National Terrorism Preparedness Institute, and the International Association of Emergency Managers. San Jose, California: June 24-25, 2002; and New York, New York: July 15-16, 2002. Attendants at this seminar will explore how to develop or improve an emergency operations center (EOC). Among the topics to be covered are techniques to improve effectiveness and efficiency, determining risks and threats, preparing an EOC, assessing technology, developing training and exercise programs, and evaluating EOC procedures. For a detailed description of the meeting and registration information, contact NIGI, 708 Third Avenue, 4th Floor, New York, NY 10017-4103; (888) 670-8200; fax: (941) 951-7885; e-mail: registration@nigi.org; WWW: <http://www.nigi.org>.

Integrated Risk Management: Strategic, Technical, and Organizational Perspectives: 12th Annual SRA-Europe Conference. Sponsor: Society for Risk Analysis-Europe. Berlin, Germany: July 21-24, 2002. At this meeting, workshops and sessions will feature the following topics: early recognition of risks and rare events; gaps in holistic risk management; the precautionary principle to risk-based decision making; integration of stakeholders and stakeholders; and risk management of intangible assets. For more information, contact Peter Wiedemann or Martin Clauberg; e-mail: sra.europe@fz-juelich.de; WWW: <http://www.sraeurope.org>.

International Conference on Advances and New Challenges in Earthquake Engineering Research (ICANCEER). Sponsors: Asian-Pacific Network of Centers for Earthquake Engineering Research (ANCER), Institute of Engineering Mechanics of China Seismological Bureau, and Hong Kong Polytechnic University. Harbin and Hong Kong, China: August 15-20, 2002. ICANCEER will be a forum for researchers and designers to discuss recent advances and new understanding of earthquake engineering. Some of the issues to be explored include

earthquake observation and data processing, strong ground motion, dynamic properties and response of soil, lifeline systems, and seismic codes and standards. The last two days will emphasize the problems of regions of moderate seismicity, such as slope stability and landslide prevention, and damage detection. Other topics include structural integrity evaluation, use of real-time global positioning and information systems, and implementation of performance-based design and engineering methods. One half day will be devoted to a symposium to inaugurate the official establishment of the U.S.-China Earthquake Engineering Foundation. For details, contact *B.F. Spencer, Jr.*, Department of Civil Engineering and Geological Sciences, 156 Fitzpatrick Hall, University of Notre Dame, Notre Dame, IN 46556-0767; e-mail: spencer@nd.edu; WWW: <http://www.nd.edu/~quake/ICANCEER>.

Securing the Future: Fire Rescue International. Sponsor: International Association of Fire Chiefs. Kansas City, Missouri: August 23-26, 2002. At this meeting, exhibits of the latest technology and equipment will be featured, along with sessions focusing on such issues as emergency management in the fire service, hardening the community against terrorism, critical incident stress management, emergency medical systems, response to wildfire, and effective management of volunteers. For more information about this gathering, contact the International Association of Fire Chiefs, 4025 Fair Ridge Drive, Suite 300, Fairfax, VA 22033-2868; (703) 273-0911; fax: (703) 273-9363; e-mail: jericson@iafc.org; WWW: <http://www.iafc.org/conference.shtml#newsitem1030078800,25903>.

Local Tsunami Warning and Mitigation. Sponsors: IUGG Tsunami Commission (IUGG/TC) and the International Coordination Group for the Tsunami Warning System in the Pacific (UNESCO/IOC/ICG/ITSU). Petropavlovsk-Kamchatskiy, Russia: September 10-15, 2002. Participants in this conference will consider local tsunami problems and discuss fundamental and applied studies that address reduction of local tsunami hazard. Topics include historical catalogues and databases, modeling, mitigation and counter-measures, risk assessment, recent local tsunamis, measurement and data analysis, landslides and other generators of tsunamis, and the 1952 Kamchatka Tsunami. The final product of the workshop will be recommendations on local tsunami warning and mitigation. (See the related grant announcement on page 15 of this *Observer*.) For information regarding this meeting, contact *Joanne Bourgeois*, Department of Earth and Space Sciences, Box 351310, University of Washington, Seattle, WA 98195-1310; (206) 685-2443; fax: (206) 543-0489; e-mail: jbougeo@u.washington.edu; WWW: <http://oceanc47.phys.msu.su/Info.htm>.

Golden Anniversary Meeting of the International Association of Emergency Managers (IAEM). Columbus, Ohio. October 12-16, 2002. This meeting will celebrate the 50th anniversary of IAEM, which was founded in 1952 as the U.S. Civil Defense Council. It will also feature the group's annual technical conference, with updates on and discussion of current disaster management and terrorism issues. To obtain more information, contact *IAEM*, 111 Park Place, Falls Church, VA 22046; (703) 538-1795; fax: (703) 241-5603; e-mail: info@iaem.com; WWW: <http://www.iaem.com>.

Interpraevent 2002. Sponsors: International Research Society Interpraevent for the Pacific Rim, Japan Society of Erosion Control Engineering, and Scientific International Research Society Interpraevent. Matsumoto, Japan: October 14-18, 2002. Interpraevent 2002 will address protection of habitat from floods, debris flows, and avalanches caused by heavy rainfall, typhoons, earthquakes, and volcanic activity. Recognizing that human activities are a part of our physical environment, sponsors of this gathering hope to synthesize various topics that range from geomorphic processes and their controlling measures to landscape planning in order to protect lives from disasters. Topics will be presented around several main themes, including sediment disasters such as debris flows, landslides and avalanches, watershed management, structural and other control measures, forest hydrology, the natural river environment, and the use of new technologies. Persons interested in attending should contact *Interpraevent 2002 in the Pacific Rim*, c/o Japan Society of Erosion Control Engineering, Sabo Kaikan, 2-7-5, Hirakawa-cho, Chiyoda-ku, Tokyo, 102-0093, Japan; tel.: +81-3-3222-0747; fax: +81-3-3230-6759; e-mail: IPR2002@ics-inc.co.jp; WWW: <http://www.sabopc.or.jp/IPR2002/index.html>.

2002 IBHS (Institute for Business and Home Safety) Annual Congress for Natural Hazard Loss Reduction. New Orleans, Louisiana. November 13-15, 2002. Each year IBHS hosts this gathering to explore new ideas in making homes and businesses more disaster resilient, forming workable partnerships among governments and between public and private sector entities, and finding success in mitigating hazards-related losses. To register or to obtain more information about the conference, contact the Institute for Business and Home Safety, 1408 North Westshore Boulevard, Suite 208, Tampa, FL 33607; (813) 286-3400; fax: (813) 286-9960; e-mail: info@ibhs.org; WWW: <http://www.ibhs.org/congress>.

Fourth General Assembly of the Asian Seismological Commission (ASC 2002). Sponsor: National Society for Earthquake Technology-Nepal. Kathmandu, Nepal: November 18-26, 2002. Two years following the conclusion of the International Decade for Natural Disaster Reduction, catastrophic losses of lives and property due to earthquakes are still occurring with alarming frequency. More than 41,000 houses were destroyed in Yunnan, China, on January 14, 2000; over \$920,000 worth of property was damaged in Sakhalin Island, Russia, in August 2000; and over 20,000 people died in Gujarat, India, in January 2001. Organizers ask the question: "Although earthquakes are unavoidable, do disasters have to continue to happen"? Topics to be examined at this gathering will address earthquake vulnerability reduction for cities, earthquake hazard assessment, and risk management for earthquakes. Those interested in participating are invited to submit papers regarding the physical and technical aspects of earthquakes, as well as discussions of the impacts of recent devastating earthquakes, hazard assessment and risk management, public awareness, education and training, and the social aspects of earthquakes. Abstracts are due June 1, 2002. For information, contact the *ASC 2002 Secretariat*; tel: 977-1-474192; fax: 977-1-490943; e-mail: asc@nset.org.np; WWW: <http://www.nset.org.np/ASC2002>.

New Independent Study Course from FEMA

Planning a special event has many challenges, especially when considering the safety of participants. The Federal Emergency Management Agency's Emergency Management Institute is offering a new Independent Study Course, "Special Events Contingency Planning for Public Safety Agencies" (IS-15). The course is intended for any personnel with a role to play in the development of a special event plan, even those without extensive knowledge of planning for large gatherings such as sporting events and parades. Designed for a wide audience, the course will be helpful to new emergency managers, emergency operations personnel (police, fire, medical services, and public works), representatives of private and public community organizations, and others for whom special event planning is not a regular responsibility. The CD-based independent study course and manual provide a general overview of planning considerations and coping with special events.

For more information and course registration, contact the Emergency Management Institute, 16825 South Seton Avenue, Emmitsburg, MD 21727; (800) 238-3358. To enroll on-line or download reading materials designed to help participants in the course, see the web site at <http://training.fema.gov/EMI-WEB/is15.htm>.

NFPA Seeking Comments on Disaster Management Standards Once More

The newest disaster management standards by the National Fire Protection Association (NFPA) are available for review and comment. Suggestions or revisions for the NFPA's **1600 Standard on Disaster/Emergency Management and Business Continuity Programs** are due by June 28, 2002. To see the status of NFPA 1600, visit the web site at <http://www.nasttpo.org> and follow links to the NFPA 1600 status page. Revisions can be submitted to NFPA on their web site: <http://www.nfpa.org/codes/proposalsandcomments.asp> or download forms and mail comments to: NFPA, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101. For questions, contact either Lloyd Bokman, Ohio Emergency Management Agency; (614) 799-3679; e-mail: lbokman@dps.state.oh.us; or Martha Curtis, NFPA; e-mail: mcurtis@nfpa.org.



Announcing a New Program for Recent Ph.D.s in Climate Change Research

Promoting the interdisciplinary understanding and peer networking of climate change and its impacts is the goal of a new initiative recently announced by the American Geophysical Union (AGU), the American Meteorological Society, the Ecological Society of America, and the American Society of Limnology and Oceanography. DISCCRS, the Dissertation Initiative for the Advancement of Climate Change Research, consists of four elements: 1) an on-line, fully searchable dissertation registry; 2) demographic information to better characterize the graduate community for human resource purposes; 3) an electronic distribution list that contains job announcements and other information of interest; and 4) a symposium that will be held in March 2003.

All recent Ph.D.s in relevant disciplines are invited to register their dissertations. The registry, program information, and symposium application instructions are on-line at <http://aslo.org/phd.html>. For more information about this effort, e-mail Susan Weiler at weiler@whitman.edu.





RECENT PUBLICATIONS

Below are summaries of some of the recent, most useful publications on hazards and disasters received by the Natural Hazards Center. Due to space limitations, we have provided descriptions of only a few key publications or those with a title that may not indicate content. All items contain information on how to obtain a copy. A complete bibliography of publications received from 1995 through 2001 is posted on our web site: <http://www.colorado.edu/hazards/bib/bib.html>.

All Hazards

Leveraging Networks to Meet National Goals: FEMA and the Safe Construction Networks. 2002. 48 pp. Free. Copies of this report can be downloaded from the web site of the Pricewaterhouse-Coopers Endowment, Inc.: <http://endowment.pwcglobal.com>. Click on "Grant Award Winners" to locate the report.

This report analyzes the changes implemented by the Federal Emergency Management Agency (FEMA) following a series of natural disasters in the 1990s that caused hundreds of billions of dollars in damage to homes, businesses, and government facilities in the U.S. FEMA shifted its focus from disaster recovery to mitigation, preventing or reducing losses rather than simply reacting to disasters. A major part of that effort has been encouraging safe construction practices, particularly wiser land-use regulation, stronger building standards and codes, and more disaster-resistant construction methods. The report describes how FEMA fulfilled its National Mitigation Strategy, released in 1995, and its greater partnerships between the federal government and state and local governments in achieving hazard reduction. The report describes how FEMA both created parts of a "safe construction" network and then leveraged that network to work toward accomplishing the national goal of preventing and reducing damage from natural disasters.

Archives of Pediatrics and Adolescent Medicine, Vol 156, No. 3 (March 2002). This publication is available free on-line at <http://archpedi.ama-assn.org/issues/v156n3>.

This issue of the *Archives* contains two articles of interest to those who deal with disasters: "Treating Children Exposed to Disasters," by Betty Pfefferbaum; and "Psychosocial Intervention for Postdisaster Trauma Symptoms in Elementary School Children: A Controlled Community Field Study," by Claude M. Chemtob, Joanne P. Nakashima, and Roger S. Hamada. The second article describes a research study that assessed the effectiveness of a school program in Hawaii that combined school-based screening and psychosocial treatment to identify and treat children with persistent disaster-related trauma symptoms two years after Hurricane Iniki.

U.S. Coast Guard Incident Management Handbook. 2001. 282 pp. GPO Stock No. 050-012-00424-2. \$17.00, inside the U.S.; \$21.25, elsewhere. Printed copies can be ordered from the U.S. Government Printing Office, (866) 512-1800 or (202) 512-1800; fax: (202) 512-2250; WWW:

<http://bookstore.gpo.gov/index.html>. Copies can also be viewed on-line at <http://www.uscg.mil/hq/g-m/mor/page1lang.htm> or downloaded from <http://www.uscg.mil/hq/nsfcc/nsfweb/download/IMH/IMH-2001.pdf>.

The U.S. Coast Guard responds to a wide range of emergencies, from natural disasters to human-caused incidents. The **Incident Management Handbook** was developed to help Coast Guard personnel use the Incident Command System during their response to crises. It is a reference aid, laid out to make it easy for the user to find principles or procedures common to any incident, or to locate guidelines on how to proceed in special situations such as search and rescue, hazardous substance release, terrorism, marine fire, and incidents that combine one or more threats. Separate sections specify organizational structures, operations, planning, and logistics useful in any situation. Russian and Spanish translations of the guide are also available.

Disaster Recovery Yellow Pages. 2002. 350 pp. \$98.00, plus \$3.00 shipping. Regular updates are available. Obtain more information or order from the Systems Audit Group, Inc., 25 Ellison Road, Newton, MA 02159; (617) 332-3496; fax: (617) 332-4358; e-mail: dryp@disaster-help.com; WWW: <http://www.disaster-help.com>.

The **Disaster Recovery Yellow Pages** is a directory of recovery services throughout the United States and Canada, including over 3,000 vendors in 270 categories of service. The directory is divided into five sections: "Restoration Services," "Mobile Buildings," "Computer and Emergency Equipment," "Planning and Data Recovery Software," and "Training Publications and Videos." It also includes an alphabetical listing of companies and a tutorial on preparing disaster recovery plans.

Handbook of Environmental Psychology. Robert B. Bechtel and Arza Churchman, editors. 2002. 736 pp. \$95.00. Copies can be purchased from John Wiley & Sons, 1 Wiley Drive, Somerset, NJ 08875-1272; (800) 225-5945; e-mail: custserv@wiley.com; WWW: <http://www.wiley.com>.

The field of environmental psychology has evolved over the past decade from a fairly academic sub-discipline to a field that is aimed directly at understanding the human attitudes, beliefs, and behaviors that are altering—and in some cases destroying—the natural environment and putting people's lives in jeopardy. This handbook is a sampler of the breadth of interdisciplinary issues, both practical and theoretical, that make up this field. Among the topics of pertinence to hazards that the book's 42 chapters touch on are the relationship between weather and crime, community-based approaches to environmental problems, urban planning, applica-

Chapel Hill Announces Five Case Studies of Citizen Participation in Hazard Mitigation Planning

The following papers are now available from the Center for Urban and Regional Studies, University of North Carolina at Chapel Hill. Each document can be downloaded free from <http://www.unc.edu/depts/curs>. E-mail requests for copies should be directed to carolyn_jones@unc.edu.

- *Public Participation in the City of Fort Lauderdale Comprehensive Plan: A Constituency Model of Plan Making*. Samuel Brody. 2001.
- *Pinellas County: The Role of Focussed Participation in the Comprehensive Planning Process*. Samuel Brody. 2001.
- *The City of Sarasota, Florida 1998 Comprehensive Plan: The Role of Communicative Culture and Informal Participation in Plan Making*. Samuel Brody. 2001.
- *Bottom-up Comprehensive Planning: A Case Study of Pierce County, Washington*. Dave Robison. 2001.
- *Citizen-Driven Visioning in Comprehensive Planning: A Case Study of Issaquah, Washington*. Dave Robison. 2001.

tions of computer and satellite technology to environment-behavior research, the use of participatory approaches to planning, special perspectives of women and children, and effective methods and approaches to research on human behavior. One chapter traces the history and describes the current status of the field of disaster research.

The Silver Lining: The Benefits of Natural Disasters. Seth R. Reice. 2001. 240 pp. \$24.95. Copies can be purchased from Princeton University Press, 41 William Street, Princeton, NJ, 08540-5237; (609) 258-4900; fax: (609) 258-6305; WWW: <http://www.pup.princeton.edu>.

In *The Silver Lining*, the author, an ecologist, argues in nontechnical language that the traditional equilibrium paradigm, which holds that stability produces healthier ecosystems than does sudden sweeping change, is wrong. Instead, he describes a very different model, supported in recent years by many biologists and ecologists, of how nature operates. This theory is that profound disturbances in nature help initiate and maintain the biodiversity that benefits both the ecosystem and the humans that rely on it. Two chapters of the book illustrate how this theory plays out in reality. In one, he describes how human efforts to control floods (that is, to "avoid a profound disturbance in nature") have altered river ecosystems. In the other, he examines the effects of the long-standing policy of fire suppression on forested lands in the U.S. Throughout the book, Reice points out that the "disaster" of disturbances in nature is very often just a human construction, brought about by the intersection of human activities with natural processes. The challenge is to foster environmental and resource management policies that take into account the function of the ecosystem and balance what it needs to be self-perpetuating against potential benefits to humans.

Natural Disasters and Energy Policy: A Summary of the Forum on Natural Disasters and Energy Policy, June 12, 2001, Washington, D.C. 2002. 23 pp. Free. This publication can be read on-line or downloaded in PDF format: http://www.nap.edu/catalog/10303.html?do_se55.

The roundtable discussion summarized in this document was convened in part in response to the energy crisis experienced in California early last summer. Topics covered during the one-day forum included earthquake risk management studies at energy facilities; energy and emergency management; the effects of utility deregulation on vulnerability to natural disasters; and the use of qualitative forecasts by utility companies to minimize the impacts of disasters. Strong partnerships are needed among the natural disaster community, energy policymakers, and the public to minimize the vulnerability of the nation's energy supply and distribution networks, and to develop new technologies to create resilient and redundant energy systems.

Terrorism

"Psychological Sequelae of the September 11 Terrorist Attacks in New York City." Sandro Galea, Jennifer Ahern, Heidi Resnick, Dean Kilpatrick, Michael Bucuvalas, Joel Gold, and Davlid Vlahov. *New England Journal of Medicine* Volume 346, No. 13 (March 28, 2002), pp. 982-987. The abstract of the article can be found on-line at <http://content.nejm.org>. Subscriptions can be obtained from the Subscription Offices, *New England Journal of Medicine*, 860 Winter Street, Waltham, MA 02451-1413; (781) 893-3800 ext. 5515 or (800) 843-6356; fax: (781) 893-0413; WWW: <http://content.nejm.org>. Reprint requests can also be made to Sandro Galea, Center for Urban Epidemiologic Studies, Room 556, New York Academy of Medicine, 1216 Fifth Avenue, New York, NY 10029-5283; e-mail: sgalea@nyam.org.

In this study, investigators conducted a sample survey of Manhattan residents to assess the prevalence and correlates of acute post-traumatic stress disorder (PTSD) and depression five to eight weeks following the attacks on the World Trade Center. Participants were asked about demographic characteristics, exposure to the attacks and subsequent collapse of the towers, and psychological symptoms afterward. The researchers found a substantial level of acute post-traumatic stress disorder and depression in Manhattan, including 20% of residents in the World Trade Center neighborhood who suffered from PTSD. They also discovered that as many as 150,000 New Yorkers suffered from either PTSD or depression. Symptoms of PTSD include nightmares, anxiety, irritability, intense guilt, or outbursts of anger and are usually present for at least a month. Depression can manifest itself through loss of interest in life, loss of appetite, sleeping irregularities, trouble concentrating, and feelings of guilt or worthlessness. Considerably higher numbers of respondents suffered some of the symptoms but did not meet the clinical criteria for stress disorder or depression. After conducting their study, the authors concluded that, in the aftermath of terrorist attacks, there may be substantial psychological morbidity in the population.

Terrorism Time Line: Selected Milestone Events and Their U.S. Impacts (1988-2001). Claire B. Rubin, William R. Cumming, and Irmak R. Tanali. Copies are available on-line at <http://www.disaster-timeline.com>.

This 38 x 13 inch poster presents a quick and concise reference to important federal government actions related to terrorism from 1988 through 2001. Categories include major terrorist or related events, major reports and documents, statutes, executive orders, key federal plans, organizational changes, and other department or agency changes.

A National Action Plan for Safety and Security in America's Cities. *United States Conference of Mayors*. 2001. 20 pp. Free. The document is available from the Conference of Mayors web site: <http://www.usmayors.org>.

Through the years, mayors and local governments have consistently worked to prepare their governments and their citizens for disasters. Most cities in the U.S. have plans in place to minimize damage and save lives if a disaster strikes. In recent years, terrorism has been a growing concern

as well. In the wake of September 11, cities have made preparations for disasters of all types and on all scales the highest priority. Efforts to strengthen emergency management plans have redoubled. This document contains the Conference of Mayors action plan for making cities even better prepared. It offers recommendations in what the mayors consider to be four critical areas: transportation security, emergency preparedness, federal/local law enforcement, and economic security.

Consequence Management in the 1995 Sarin Attacks on the Japanese Subway System. Robyn Pang. BSCIA Discussion Paper 2002-4. 2002. 45 pp. Free.

Winning Plays: Essential Guidance from the Terrorism Line of Scrimmage. Peter S. Beering, Paul M. Maniscalco, Hank Christen, Steven B. Stormont, and A.D. Vickery. BSCIA Discussion Paper 2002-6.

Emergency Communications: The Quest for Interoperability in the United States and Europe. BCSIA Discussion Paper 2002-7. 2002. 49 pp. Free.

All three papers are available on-line from the Belfour Center for Science and International Affairs, John F. Kennedy School of Government, Harvard University: <http://ksgnotes1.harvard.edu/BCSIA/Library.nsf/pubs>.

Combating Terrorism: Critical Components of a National Strategy to Enhance State and Local Preparedness. Statement of Randall A. Yin, Managing Director, National Preparedness. Testimony Before the Subcommittee on Governmental Efficiency, Financial Management, and Intergovernmental Relations, Committee on Government Reform, House of Representatives. GAO-02-548T. 2002. 22 pp.

Terrorism Insurance: Rising Uninsured Exposure to Attacks Heightens Potential Economic Vulnerabilities. Statement of Richard J. Hillman, Director, Financial Markets and Community Investments, Testimony Before the Subcommittee on Oversight and Investigations, Committee on Financial Services, House of Representatives. GAO-02-472T. 2002. 19 pp. Free.

Copies of both reports can be obtained from the U.S. General Accounting Office, P.O. Box 37050, Washington, DC 20013; (202) 512-6000; fax: (202) 512-6061; TDD (202) 512-2537; e-mail: info@www.gao.gov. The complete text is also available on-line at: <http://www.gao.gov>.

Protecting Emergency Responders: Lessons Learned from Terrorist Attacks. Brian A. Jackson, D.J. Peterson, James T. Bartis, Tom LaTourrette, Irene Brahmakulan, Ari Houser, and Jerry Sollinger. 2002. 102 pp. Free. The report can be downloaded from the RAND Corporation web site: <http://www.rand.org/publications/CF/CF176/CF176.pdf>.

A Guide to Strengthen Emergency Management of High-Rise and High-Risk Buildings. Ontario Office of the Fire Marshall. 2002. Available on-line at <http://207.107.128.22/english>.

Terrorism Awareness for First Responders. On-line course. Ontario Office of the Fire Marshall. 2002. This course can be downloaded from <http://www.gov.on.ca/ofm/pubsafet/terrorism.htm>.

Information Security: Additional Actions Needed to Fully Implement Reform Legislation. Report No. GAO-02-47T. Testimony Before the Subcommittee on Government Efficiency, Financial Management and Intergovernmental Relations, Committee on Government Reform, U.S. House of Representatives. 2002. Free. Copies can be obtained from the U.S. General Accounting Office, P.O. Box 37050, Washington, DC 20013; (202) 512-6000; fax: (202) 512-6061; TDD (202) 512-2537; e-mail: info@www.gao.gov. The complete text is also available on-line at: <http://www.gao.gov>.

In this review of the first year of implementation of the reform provisions enacted by Congress as part of the National Defense Authorization Act for Fiscal Year 2001, the U.S. General Accounting Office concludes that, although agencies have taken steps to redesign and strengthen their

information security programs, federal systems overall are not being adequately protected from computer-based threats. Possible disruption, tampering, fraud, and inappropriate disclosure of sensitive information pose significant risks to government computer systems and to the critical operations and infrastructure they support, such as telecommunications, power distribution, public health, national defense, and emergency services.

Climate Change

Abrupt Climate Change: Inevitable Surprises. Committee on Abrupt Climate Change, Ocean Studies Board, Polar Research Board, Board on Atmospheric Sciences and Climate, National Research Council. 2001. 205 pp. \$39.95 (\$31.96 if purchased on-line). Copies will soon be available from the National Academy Press, 2101 Constitution Avenue, N.W., Lockbox 285, Washington, DC 20055; (800) 624-6242 or (202) 334-3313; WWW: <http://www.nap.edu>. A full-text pre-publication version is available for on-line reading at http://www.nap.edu/catalog/10136.html?do_se52.

According to this report, the possibility that abrupt regional or global climate changes might be spurred by global warming needs more research. Recent evidence shows that periods of gradual climate change in Earth's past were punctuated in some places by episodes of rapidly changing average temperatures, as well as severe floods and droughts. This report examines current scientific evidence and theoretical understanding of abrupt climate change and identifies gaps in knowledge, including those aspects most important to societies and economies. A research strategy to close the gaps is outlined.

Earthquakes

Recommended Procedures for Implementation of DMG Special Publication 117: Guidelines for Analyzing and Mitigating Landslide Hazards in California. 2002. 105 pp. Printed copies are available for \$10.00 from the Southern California Earthquake Center; (213) 740-5843; fax: (213) 740-0011; e-mail: scecinfo@usc.edu. A free PDF version can be downloaded from the website: <http://www.scec.org>.

Following the enactment of the Seismic Hazards Mapping Act in California, general guidelines for evaluating and mitigating seismic hazards in the state were published by the California Department of Conservation, Division of Mines and Geology (DMG) in 1997 as **Special Publication 117**. This new document, generated by a committee of practicing geotechnical engineers and engineering geologists, presents guidelines for evaluation of seismic-related landslide hazards and for recommending mitigation measures. Its purpose is two-fold. The first objective is to present information that will help building officials properly and consistently review and approve geologic and geotechnical reports that address slope stability and its mitigation. The second goal is to provide a broad-brush survey of some of the most common methods of analyses and mitigation that will be useful to geotechnical engineers, engineering geologists, building officials, and other affected parties. The intent is not necessarily to present the most rigorous possible procedures, but rather to suggest incremental rational modifications to existing techniques and procedures that can reduce the risks of landslides.

Interdisciplinary Observations on the January, 2001 Bhuj Earthquake. Ravis Mistry, Weimin Dong, and Haresh Shah, editors. 2001. 126 pp. Published by the World Seismic Safety Initiative and Earthquake in Megacities initiative. The report is available for downloading in PDF format at the website of Risk Management Solutions, Inc., <http://www.rms.com>. Click on "More Research and Publications," then on "Event Reports."

Shortly after the destructive earthquake in Bhuj, Gujarat (India), in January 2001, an interdisciplinary team of experts traveled to the scene to learn first-hand about the technical, economic, scientific, social, and political forces that contributed to the catastrophic destruction. The team was made up of 21 individuals sponsored by various organizations from both developed and developing countries and from such fields as structural engineering, geography, the social sciences, urban planning, public poli-

cy, seismology, and disaster planning. This summary of the field team's observations discusses the type and extent of damage, differences in the resistance of buildings and infrastructure, issues in disaster management at the state and local level, political and cultural considerations in the response and reconstruction, and coping mechanisms—particularly religion—used by local people to weather the disaster. The team concluded, among other things, that most buildings would have withstood the earthquake had they been properly designed and constructed (and inspected during construction); public education and awareness of the hazard and ways to mitigate it would probably lessen social disruption in a future quake; and economic opportunity and community well-being must be taken into account during recovery to help the region move beyond the pre-disaster state.

Volcanoes

Communication During Volcanic Emergencies: An Operations Manual for the Caribbean. 2002. *The manual can be viewed at the Benfield Greig Hazard Research Centre web site; <http://www.bghrc.com>.*

In light of the continuing eruption of the Soufrière Hills volcano on the Caribbean island of Montserrat, the Benfield Greig Hazard Research Centre at University College London has produced an operations manual designed to improve communications during volcanic crises. The project, funded by the United Kingdom's Department for International Development, is intended for small volcanic islands in the Lesser Antilles, but is applicable to all communities threatened by volcanoes. The manual was created to improve the management of forecasting and warning information during volcanic crises by ensuring effective links and mutually supportive relationships among monitoring scientists, civil authorities, and the media. Separate sections of the manual give advice and specific instructions to scientists on how to deal with local authorities and the media; to local officials on how to deal with scientists and the media; and to the media on how to build relationships with scientific experts and local government officials.

Drought

Water: Local-level Management. David B. Brooks. 2002. 80 pp. \$15.00 (Canadian). *Printed copies can be ordered from the International Development Research Centre, P.O. Box 8500, Ottawa, Ontario, Canada K1G 3H9; tel: +1 (613) 236-6163; e-mail: pub@idrc.ca; WWW: <http://www.idrc.ca/water>. The full text is available for reading on-line at <http://www.idrc.ca/water>.*

This volume summarizes the results of three decades of research on water supply, supported by the International Development Research Centre. Observing that managing water scarcity is one of the most important functions of governments today, and that over the next 25 years, one-third of the world's population will face severe water scarcity, the book reviews ideas about, techniques for, and results of various approaches to solving the problem over the years. A conclusion is that locally based decisionmaking, techniques, and management—while no panacea—are essential.

Technological Hazards

Progress Toward Implementing Superfund: Fiscal Year 1998. Environmental Protection Agency, Office of Emergency and Remedial Response. 2002. 97 pp. Free. *Copies can be downloaded from the EPA's web site at <http://www.epa.gov/superfund/accomp/sarc/index.htm>.*

Electronic Fare

Holding On to Your Roof, Part 1. VHS. Tape 7743. 2001.

Holding On to Your Roof, Part 2. VHS. Tape 7744. 2001.

\$8.50 each. *Copies can be ordered from Clemson University at <http://cufan.clemson.edu/olos>.*

These videos, developed at Clemson University Department of Civil Engineering's Wind Load Test Facility, illustrate various strategies to protect residential roofs in high wind areas. Each comes with a brochure

detailing the specifications and procedures outlined on film. Part one is subtitled *A Guide to Retrofitting Your Roof Sheathing Using Adhesives*. Part 2 is *Retrofitting Your Asphalt Shingle Roof Covering and Sheathing Connections*.

Toolbox for Global Disaster Reduction. Global Alliance for Disaster Reduction. 2002. CD. \$100.00, including airmail delivery. *Copies can be ordered from Walter Hays, 10211 Tamarack Drive, Vienna, VA 22182-1845; (703) 255-2458; e-mail: walter_hays@msn.com.*

This CD is the first product of the Global Alliance for Disaster Reduction, a network of over 1,000 cooperating professionals and organizations throughout the world. It is designed to help researchers, practitioners, and policy makers in ongoing efforts to find the political and technical approaches that will reduce risks from natural and technological hazards. The Toolbox includes:

- Draft elements of strategic and implementation plans on four themes ("Living with," "Building to Withstand," "Learning from," and "Implementation") and 42 technical topics under those themes;
- Working outlines of seven "Regional Blueprints for Change";
- Digital slides on sustainability, professional education, and disaster assistance, which can be adapted for use in different regions of the world;
- The reports produced by participants from 31 countries in the International Workshop on Disaster Reduction, held in August 2001; and
- The names, biographies, ideas, and personal experiences of members of the Global Alliance.

The Global Alliance intends that this CD—and other products to be developed—will further its goal of advancing sustainable urban development (especially disaster resilient buildings and infrastructure), professional education, and disaster technical assistance. A portion of the sale of each CD will be allocated to ensure that the *Toolbox* is available immediately to professionals working in developing countries.

Gender and Disaster Clearinghouse Seeking Donations

The Institute for Emergency Preparedness (IEP) at Jacksonville State University in Alabama is seeking donations of articles, books, reports, bibliographies, audiovisual materials, and other resources for its new Gender and Disaster Clearinghouse. Donated materials will be catalogued, and that information will be posted on the IEP web site: <http://www.iep.jsu.edu>. Photocopies of materials will also be made available for a fee.

To obtain more information about the clearinghouse, contact *Brenda Phillips, Jacksonville State University, Emergency Preparedness Applied Research Center, 700 Pelham Road, Jacksonville, AL 36265; (256) 782-8053; fax: (256) 782-5928; e-mail: brenda@jsucc.jsu.edu.*

THE HAZARDS CENTER

The NATURAL HAZARDS RESEARCH AND APPLICATIONS INFORMATION CENTER was founded to strengthen communication among researchers and the individuals and organizations concerned with mitigating natural disasters. The center is funded by the National Science Foundation, the Federal Emergency Management Agency, the National Oceanic and Atmospheric Administration, the U.S. Geological Survey, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Department of Transportation, the U.S. Bureau of Reclamation, the U.S. Forest Service, the National Aeronautics and Space Administration, the Centers for Disease Control and Prevention, the Institute for Business and Home Safety, and the Public Entity Risk Institute. Please send information of potential interest to the readers of this newsletter to the address below. The deadline for the next *Observer* is May 17, 2002.

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<http://www.colorado.edu/hazards>

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