



NATURAL HAZARDS Observer

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The New Direction of FEMA

—an invited comment

Our Commitment

Since my arrival as director of the Federal Emergency Management Agency (FEMA), the organization has faced many challenges that have reaffirmed our commitment to building the strongest and most well-equipped emergency management, fire service, and disaster prevention communities possible.

We have experienced the very real challenges of preparing for and responding to earthquakes, fires, floods, and tornadoes. And now, unfortunately, we must add terrorist attacks to the list. As we move forward into the New Year and further into the 21st century, we remain committed to our core values

of reducing the loss of life and property from *all* hazards by preparing the country for both human-caused and natural disasters. FEMA stands ready to respond with our regional, state, and local partners when disasters occur and to remain with those partners through the recovery process.

Three Primary Areas

The country's focus was forever changed following the terrorist attacks of September 11th. Prior to these events, I had established three primary areas of focus for FEMA, each built on a solid foundation and that still apply today. I believe we must continue to:

- emphasize preparedness for and capability to respond to catastrophic disasters,
- continue our efforts to reduce damage from disasters through disaster mitigation, and
- work to enhance the capabilities and resources of our nation's fire community.

Throughout all of these focus areas we will continue our long-standing commitment to heightening the country's readiness to respond to the challenges of the future.

To meet these goals, FEMA is moving forward on two parallel tracks. First, we realigned our internal operations to optimize agency resources in support of these focus areas (see the *Observer*, Vol. XXVI, No. 1, p. 8). Second, we are working closely with Governor Ridge and the Office of Homeland Security to enhance the country's efforts to prepare for and respond to attacks of terrorism. FEMA is bringing to bear its vast all-hazards experiences and capabilities in our preparedness, response, and recovery activities.

Strengthening our nation's all-hazards capabilities includes:

- Effectively implementing the Disaster Mitigation Act of 2000 (see the *Observer*, Vol. XXV, No. 3, p. 8);
- Implementing pre-disaster mitigation and fire prevention programs that encourage the building of disaster resistant communities; and
- Making FEMA an even more vital national resource in preparing for and responding to all types of disasters, including domestic terrorism.

Our commitment to pre-disaster mitigation remains strong. We have an obligation to the American people to work to reduce the personal and financial costs associated with disasters.

Reducing Risks

We want to elevate prevention and pre-disaster mitigation from conceptual and educational ideas to actions that are applied in all of America's communities. We believe that every program within FEMA should be designed and implemented to reduce the risks faced by our communities.

To be successful, every community needs to identify its risks and work locally to find ways to reduce the impacts of those risks. We at the federal and state levels have the responsibility to provide local communities the technical tools, training, and expertise to address all risks and their associated challenges.

When we talk about prevention and mitigation, we must include our partners within the fire service and prevention communities. During non-disaster times, members of the fire service not only respond to emergencies, they are also champions of hazard prevention within their communities. We often forget that firefighters are frequently the first to respond to a disaster. As we saw on September 11th, these heroes make great personal sacrifices for their communities, without any expectation of thanks or recognition, often giving their lives to protect others. I believe that we must continue to find ways to

provide our nation's firefighters and other first responders with the training and equipment they need to protect us from all the dangers we face (see page 4).

FEMA's efforts to strengthen the capabilities of local communities are off to a great start, but we have much more to accomplish. Last year we distributed \$100 million to local fire departments across the country to strengthen their essential capabilities. This year, Congress has appropriated \$150 million to continue this effort.

Responding to Terrorism

FEMA is also working with its state and local partners to more clearly assess their capabilities to respond to terrorist attacks. Following these assessments, we will work with our other federal partners to maximize available resources to enhance state and local capabilities to respond to acts of terror. This will include training, technical assistance, and equipment.

FEMA and the Department of Justice recognize the importance of seamless integration of crisis and consequence management when responding to an act of terror. In support of the Federal Response Plan, which provides a framework for coordinating federal agency efforts during a disaster, FEMA and the Department of Justice have re-signed agreements clarifying our response roles.

In addition, we will be working with FEMA's 28 Urban Search and Rescue Task Forces to enhance all of the teams' capabilities to address weapons of mass destruction events. These teams played a critical role in the nation's response to the September 11th attacks, and we must ensure that they have the equipment, personnel, and training to continue to serve our country.

The same disaster response capabilities that served us so well during the response to the World Trade Center and the Pentagon tragedies will be there for future disasters or terrorist attacks. We continue to remain ready and able to respond.

Preparing for Challenge

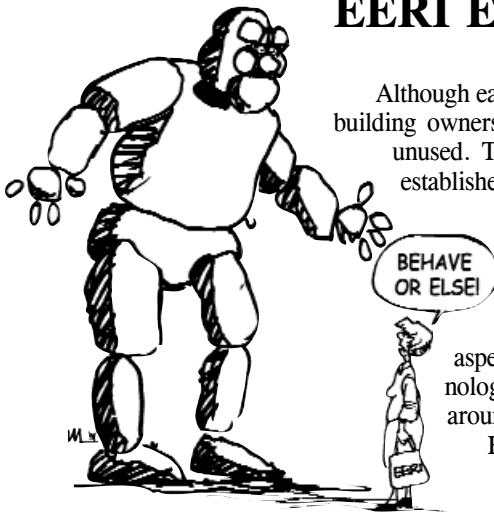
Our goal is to develop a holistic local, state, and federal effort that includes all participants. For this reason, we will continue to solicit the advice of local and state officials and first responders to improve our effectiveness and ensure their participation. And, it is important that we, as leaders in government, community, and business, take the time to protect our own employees, citizens, and places of work. We must address our own continuity of operations so that we can continue in times of crisis.

I challenge each of you to work within your communities to help identify your risks, develop plans to address those risks, and ensure the safety and viability of your fellow citizens.

Together, we will be successful in preparing for and reducing the risks not only from natural disasters, but also from the heightened challenges from acts of terror.

Joe Allbaugh
Director
Federal Emergency Management Agency

EERI Establishes Earthquake Mitigation Center



Although earthquake scientists and engineers regularly develop new tools to aid local officials and building owners in mitigating seismic risks, many of these advances in earthquake safety remain unused. To address this problem, the Earthquake Engineering Research Institute (EERI) has established an "Earthquake Mitigation Center" to identify tools and other resources and to train earthquake professionals to use them to promote seismic safety.

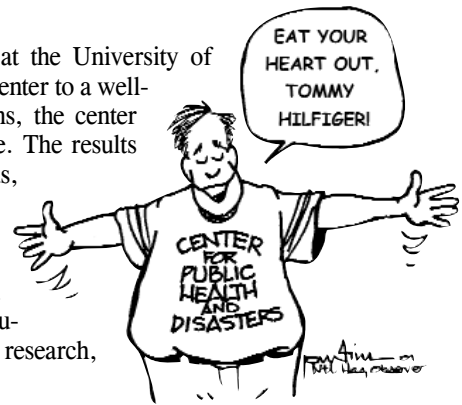
The center will be a repository for all such materials and will develop new materials as appropriate. It will also provide training for multidisciplinary teams of professionals. EERI has recruited an advisory committee for the new center, and now is particularly keen to find people at the local level who wish to be involved in some aspect of the training and education mission. Recognizing the changing nature of technology and communication, EERI hopes eventually to collaborate with other institutions around the globe involved in similar issues.

For more information about EERI's new Earthquake Mitigation Center, contact *EERI*, 499 14th Street, Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: eri@eri.org; WWW: www.eri.org.

New Clothes for UCLA Center

Over the past four years, the Center for Public Health & Disaster Relief at the University of California at Los Angeles School of Public Health has developed from a fledgling center to a well-established entity in the disaster community. Having outgrown its strategic plans, the center called upon its friends and associates to help it re-examine its vision and purpose. The results are a new name—Center for Public Health & Disasters—that better reflects its focus, an updated logo, and a remodeled website. The center has also adopted a new mission statement: "To promote interdisciplinary efforts to reduce the health impacts of domestic and international, natural and human-generated disasters . . . by facilitating dialogue between public health and medicine, engineering, physical and social sciences, and emergency management. This philosophy is applied to the education and training of practitioners and researchers, collaborative interdisciplinary research, and service to the community."

For more information, see the center's website: www.ph.ucla.edu/cphdr.



NEMA Makes Recommendations for Domestic Preparedness

The United States needs a national strategy to better respond to catastrophic disasters, including terrorism, according to the National Emergency Management Association (NEMA). By enhancing state and local programs and using the nation's existing all-hazards emergency management and response system, a more effective approach would result.

The group recently released its *White Paper on Domestic Preparedness* that outlines recommendations NEMA will present to congressional leaders and the director of the Office of Homeland Security. The document expands on the *NEMA Resolution on States' Principles for a National Domestic Preparedness Strategy* that was adopted in 2000. Recommendations in the *White Paper* include:

- providing federal funding for catastrophic disaster coordinators for moderate and high-risk U.S. localities,
- emphasizing community and family disaster preparedness,

- allocating funding to upgrade emergency operations centers to deal with terrorist events,
- encouraging and adopting interstate and intrastate mutual aid assistance agreements,
- requiring hospitals to maintain a minimum standard of capacity to deal with mass casualty events,
- providing funding for equipment purchases to respond to weapons of mass destruction, and
- improving coordination to help states identify federal resources and assistance.

Both the *White Paper* and the *Resolution* are available from the NEMA web site: www.nemaweb.org. Additional information about this initiative can be obtained from *NEMA, Council of State Governments*, P.O. Box 11910, Lexington, KY 40578-1910; (859) 244-8143; fax: (859) 244-8239.



WASHINGTON UPDATE

FEMA Launches New Mitigation Series

In an effort to improve natural hazards mitigation planning capabilities in states and communities, the Federal Emergency Management Agency's Federal Insurance and Mitigation Administration has started a new series of mitigation planning "how-to" guides, and released the first entry in the series. The new document, *Understanding Your Risks—Identifying Hazards and Estimating Losses*, provides step-by-step guidance for estimating the physical damage and economic losses a community could suffer from natural hazards.

Using the fictitious town of Hazardville ("a small town with big problems") as an illustration, the guide takes readers through a series of general and hazard-specific instructions and worksheets to help them decide: 1) which hazards could affect them, 2) what local areas are vulnerable to the hazards, 3) what structures and infrastructure could be affected, and 4) what the dollar losses are likely to be. The guide covers seven hazards (flood, earthquake, tsunami, tornado, coastal storm,



landslide, and wildfire) and tells readers how to use historic records, newspapers, and other resources to figure out which hazards their community would face.

Graphics, tables, checklists, and worksheets help answer the question, "How bad can it get?" A key step demonstrated in the guide is developing a base map and investigating how to superimpose additional data on it, such as parts of the community that would be affected or the return frequency of the hazard. Examples are given of ways to inventory and assign a

value to such local assets as buildings, critical facilities, historic or cultural resources, communications or transportation infrastructure, public recreation areas, and natural resources. The examples illustrate techniques ranging from computer models to spreadsheets to simple paper-and-pencil charts. The last section of the guide shows how to assess the overall level of damage from a given hazard event by combining the losses to structures, contents, and functions for each type of asset expected to be affected.

The loss estimate that is reached as a result of following the steps in the guide should serve as a basis for developing a local mitigation plan. Subsequent guides will explain the process of developing and implementing such a plan.

Copies of *Understanding Your Risks*, FEMA 386-2, are available free by calling the *FEMA Publications Warehouse*: (800) 480-2520.

FEMA Issues Final Rule on Disaster Assistance and Fire Management Grants

When Congress passed the Disaster Mitigation Act of 2000, it created a new program under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 106-390) called the Fire Management Assistance Grant Program (see the *Observer*, Vol. XXV, No. 3, pp. 8-10). The act authorizes the president to provide grants, equipment, supplies, and personnel to any state or local government for the mitigation, management, and control of "any fire on public or private forest land or grassland that threatens such destruction as would constitute a major disaster."

Recently, the Federal Emergency Management Agency (FEMA) issued the final rule for implementing the Fire Management Assistance Grant Program, which provides wild-fire disaster assistance to states and their subgrantees, local jurisdictions, and tribal governments (see the *Federal Register*, Vol. 66, No. 220, pp. 57342-57353). Effective October 30, 2001, the rule lays out a new threshold concept for awarding funding that is untested. Essentially, the rule states that, in order to determine that a declared fire was of such a size and magnitude that it was beyond state and local capabilities to respond, it must meet two financial formulas established in the rule. For an individual fire, states must incur costs in fire-fighting that exceed 5% of \$1.07 per capita. If a state suffers several wildfires, the total costs of all declared and non-

declared fires for which a state assumes responsibility must be three times the individual fire cost threshold or \$500,000, whichever is higher.

FEMA also outlines rules for eligibility to receive federal, out-of-state, and international resources that are prepositioned, that is, resources that are moved from an area of lower fire danger to one of higher fire danger in anticipation of a major fire disaster. The federal government will pay 75% of costs, and state and local governments will pay 25%. Other costs eligible for federal assistance include equipment and supplies, labor, and fires on state lands that adjoin federal lands.

The *Federal Register* can be found in any federal repository library or on-line at www.access.gpo.gov.

Congress Creates Demonstration Program for Minority Emergency Preparedness

Congress wants to ensure that minority communities, particularly African American and Hispanic communities, are better prepared for emergencies. As a result, while passing a recent appropriations bill, the legislators amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act to include a new Minority Emergency Preparedness Demonstration Program. President Bush signed the bill, Public Law 107-73, which includes appropriations for FEMA for fiscal year 2002, into law on November 26, 2001.

The demonstration program will “research and promote the capacity of minority communities to provide data, information, and awareness education by providing grants to or executing contracts or cooperative agreements with eligible nonprofit organizations to establish and conduct such programs.” It will support activities that research the status of emergency preparedness and disaster response awareness in African American and Hispanic households, particularly those states and regions most affected by disasters and emergencies. It will also work to develop and promote awareness of emer-

gency preparedness education programs within minority communities, including the creation of materials that can be used to disseminate information to minority organizations and institutions. Congress provided \$1.5 million for 2002 “and such funds as may be necessary” for fiscal years 2003 through 2007.

As part of the minority program, Congress transferred funds to the Department of Housing and Urban Development for Community Development Block Grants to the state of New York for assistance for properties and businesses damaged by, and for economic revitalization related to, the September 11 terrorist attacks on New York City.

Congress Appropriates Funds for Other FEMA Programs

Public Law 107-73, mentioned in the previous article, provides funding to FEMA for the next fiscal year, including \$664 million for expenses in carrying out the Stafford Act, containing \$2.9 million for emergency management planning and assistance; \$25 million for the Flood Map Modernization Fund; and \$25 million for pre-disaster mitigation activities. Congress also designated \$1.5 billion to remain available, pending an official budget request by the president, for disaster relief. Legislators also provided \$25 million for pre-disaster mitigation projects, \$150 million for emergency management planning and assistance under the Federal Fire Prevention and Control Act, and \$140 million for the Emergency Food and Shelter Program.

For flood damage reduction activities, the agency received \$29 million for salaries and expenses associated with flood mitigation and flood insurance operations and up to \$76 million for flood mitigation activities, including operating expenses for the National Flood Insurance Fund. The National Flood Mitigation Fund received \$20 million for activities designed to reduce the risk of flood damage to structures, and \$2.5 million for purchasing flood-prone properties in Austin, Minnesota.

The complete text of the legislation can be obtained from any federal repository library or on-line at the *Library of Congress web site*: thomas.loc.gov. Further information about the programs mentioned above can be obtained from the *FEMA Office of Emergency Information and Public Affairs*, 500 C Street, S.W., Washington, DC 20472; (202) 646-4600; fax: (202) 646-4086; e-mail: eipa@fema.gov; WWW: www.fema.gov.

President Issues Executive Order on Critical Infrastructure Protection

In order to ensure protection of information systems for critical infrastructure, including emergency preparedness communications, President Bush issued Executive Order 13231 on October 16, 2001. Because information technology has changed the way business is transacted, government operates, and national defense is conducted, these systems now rely on an interdependent network of critical information infrastructures. The protection program authorized by this order “shall



consist of continuous efforts to secure information systems for critical infrastructure, including emergency preparedness communications, and the physical assets that support such systems.”

The order states that it is the policy of the United States to protect against disruption of these systems, thus helping to protect the people, economy, essential human and government systems, and national security of the United States, and to ensure that any disruptions are infrequent, of minimal duration, manageable, and cause the least damage possible. The implementation of this policy will include establishment of a voluntary public-private partnership that involves corporate and nongovernmental organizations.

The order creates the “President’s Critical Infrastructure Protection Board” to coordinate federal efforts and facilitate cooperation with the private sector, state and local governments, academic organizations, and federal agencies. The director of the Office of Management and Budget will oversee the implementation of government-wide policies, principles, standards, and guidelines for the security of executive branch information systems. The Secretary of Defense and the Director of Central Intelligence will perform similar functions for the operations under their respective control. The heads of executive branch departments and agencies are responsible and accountable for providing and maintaining adequate levels of security for information systems under their control.

The newly established board will coordinate outreach to the private sector and state and local governments; academia; and the private sector, particularly businesses involved in telecommunications, transportation, energy, water, health care, and financial services. The board will also assist in the development of voluntary standards and best practices, as well as consult with potentially affected communities and sectors. It will also work on policies and programs related to information sharing; incident coordination and crisis response; recruitment, retention, and training of security professionals for the executive branch; research and development; law enforcement coordination with national security components; international infrastructure protection; legislation; and coordination with the recently established Office of Homeland Security.

The order also establishes the National Infrastructure Advisory Council (NIAC) to advise the president on the security of information systems in banking and finance, transportation, energy, manufacturing, and emergency government services. Thirty members will be appointed by the president and will represent the private sector, academia, and state and local government.

Executive Order 13231 appeared in the October 16, 2001, *Federal Register* (Vol. 66, No. 202, pp. 53063-53071). Copies of the *Federal Register* can be found in any federal repository library on on-line at www.access.gpo.gov.

President Creates Task Force on Citizen Preparedness in the War on Terrorism

On Thursday, November 15, 2001, President Bush issued an executive order to establish the Presidential Task Force on Citizen Preparedness in the War on Terrorism. The task force is charged with identifying, reviewing, and recommending appropriate means by which the American public can:

- prepare in their homes, neighborhoods, schools, places of worship, workplaces, and public places for the potential consequences of any terrorist attack within the United States; and
- volunteer to assist or otherwise support state and local public health and safety officials and others engaged in the effort to prevent, prepare for, and respond to any possible terrorist attacks in the United States.

The task force will be composed of the heads of the following federal agencies or their designated representatives: the Office of the Vice President; the Office of Homeland Security; the Domestic Policy Council; the Office of Science and Technology Policy; the Office of Management and Budget; the Departments of the Treasury, Justice, Labor, Health and Human Services, Housing and Urban Development, Transportation, Energy, and Veterans Affairs; the Environmental Protection Agency; the Federal Emergency Management Agency; and the Corporation for National and Community Service. The heads of the Office of Homeland Security and the Domestic Policy Council will serve as co-chairs of the task force, which must submit its recommendations to the president within 40 days, and will cease to exist 30 days after submitting its report.

The full text of Executive Order 13234, *Presidential Task Force on Citizen Preparedness in the War on Terrorism*, can be found in the November 15 *Federal Register* (Vol. 66, No. 221, p. 57355). Copies of the *Federal Register* can be found in any federal repository library or on-line at www.access.gpo.gov.



Secretary of HHS Creates Council on and Office of Public Health Preparedness

In response to the terrorist attacks on September 11, the Secretary of the Department of Health and Human Services, Tommy Thompson, created the Council on Public Health and Preparedness to provide advice regarding ways to improve response to public health emergencies, particularly bioterrorism events and other emergencies; to ensure there are comprehensive contingency plans at federal, state, and local levels to respond to a public health emergency; and to improve public health preparedness generally at all levels of government.

26 members of the council will be selected from state and local public health agencies, other members of the public health community, academia, and other stakeholders.

On November 1, Secretary Thompson also created the Office of Public Health Preparedness within HHS to coordinate the national response to public health emergencies. Its new director, Donald A. Henderson, will work with all agencies within the department to enhance the response to bioterrorism attacks as well as any possible incidents in the future. Henderson will also chair the national advisory council.

Information on these efforts can be found in the *Federal Register*, Vol. 66, No. 211 (October 31, 2001), p. 54998. Further information may also be obtained by calling *Harold P. Thompson*; *Department of Health and Human Services, Office of Public Health and Science, 200 Independence Avenue, S.W., Washington, DC 20201; (202) 690-5605; WWW: www.hhs.gov.*

President Issues Executive Order on Office of Homeland Security and Homeland Security Council

In the last issue of the *Observer*, we mentioned that President Bush had created the Office of Homeland Security (see the *Observer*, Vol. XXVI, No. 2, p. 5). On October 10, the White House released Executive Order 13228, describing the duties and functions of the Office of Homeland Security. The order describes the office's national strategy as well as its role in detecting threats of terrorism against the United States; preparedness for, protection against, and response to and recovery from such attacks; incident management; continuity of government; and other activities.

The order also established the Homeland Security Council, consisting of cabinet-level and other senior government officials, to oversee homeland-security-related activities.

The executive order appeared in the October 10, 2001, *Federal Register* (Vol. 66, No. 196, pp. 51812-51817). Copies of the *Federal Register* can be found in *any federal repository library* or on-line at *www.access.gpo.gov.*

HHS Announces New Funding for Mental Health and Substance Abuse Emergency Response

In recent years, the Department of Health and Human Services (HHS) Substance Abuse and Mental Health Services Administration (SAMHSA) has been providing crisis counseling services in the aftermath of presidentially declared disasters, through an interagency agreement with FEMA, under the Robert T. Stafford Disaster Relief and Emergency Assistance Act. This jointly administered program allows states to apply for federal support following major disasters.

In 2000, Congress recognized the need to expand these services in the aftermath of disasters that do not receive a presidential disaster declaration as well. Public Law 106-310 adds a new "Emergency Response" section to the Public Health Services Act that makes funding available to public entities

to address emergency needs. Recently, HHS published an Interim Final Rule in the *Federal Register* that describes the procedures by which the department can provide funds.

Funding will be made available to state, tribal, and local jurisdictions that are overwhelmed or unable to meet existing mental health or substance abuse needs following an emergency. Funding is directed toward events that result in significant death, injury, exposure to life-threatening circumstances, hardship, suffering, loss of property, or loss of community infrastructure (e.g., treatment facilities, staff, public transportation and utilities, or isolation from service).

The agency will provide two types of grants. Immediate awards are to be used over the initial 90-day period commencing as soon as possible after a precipitating event and will be for up to \$50,000, however greater amounts may be awarded by the Secretary on a case-by-case basis. Intermediate awards have no predefined budget limit and are to be used to meet systemic mental health and/or substance abuse needs during the recovery period (90 days or more following an event). These funds may be used for up to one year, with a possible second year supplement.

The text of the Interim Final Rule can be found in the October 11, 2001, *Federal Register* (Vol. 66, No. 197, pp. 51873-51880). Further information about the new program can be obtained from *Judith B. Braslow*, *Deputy Associate Administrator for Policy and Program Administration, Substance Abuse and Mental Health Services Administration; 5600 Fishers Lane, Rockville, MD 20857; (301) 443-4111; WWW: www.samhsa.gov.*

CDC Makes Disaster Funds Available for Asthmatics in New York

On October 24, The Centers for Disease Control and Prevention (CDC) announced funding for a cooperative agreement program for New York Emergency Disaster Relief Related to Asthma. The effort will assist the New York State Department of Health and Human Services in assessing public health threats and addressing public health issues related to asthma as a result of the terrorist attacks of September 11 on the World Trade Center.

The funding, approximately \$5.2 million, is authorized through the 2001 Emergency Supplemental Appropriations Act for Recovery from and Response to Terrorist Attacks on the United States. Further information about this program is available from *Liane Hostler*, *Air Pollution and Respiratory Health Branch, National Center for Environmental Health, Centers for Disease Control and Prevention, 1600 Clifton Road, NE (MS E-17), Atlanta, GA 30333; (404) 498-1009; e-mail: lch2@cdc.gov.*





SUSTAINABILITY AND NATURAL HAZARDS

Understanding Vulnerability

Introduction

An overriding theme of the past decade has been sustainability and disaster mitigation. In 1995, Dennis Mileti, Mary Fran Myers, and their Natural Hazards Center colleagues asked “who will manage continued sustainability and in whose interest will it be managed?” (Mileti, et al., 1995). To answer this critical question, they urged us to consider social and economic stratification, to respect cultural diversity, and to place global inequality in perspective. As international disaster humanitarian Fred Cuny said, “the most basic issues in disasters are their impact on the poor and the links between poverty and vulnerability to a disaster” (1983).

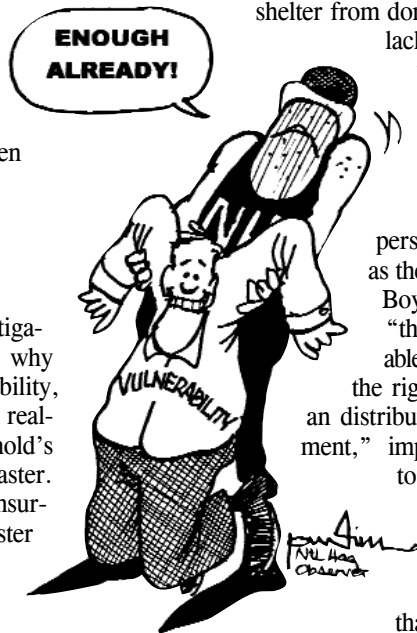
Understanding Vulnerability

To implement equitable, sustainable mitigation we must know who is vulnerable and why vulnerability exists. To understand vulnerability, we need to examine the economic and social realities of local life. Poverty reduces a household’s abilities to mitigate for and recover from disaster. For example, if you can’t afford adequate insurance (or insurance at all), your post-disaster housing options diminish or disappear.

Poverty alone does not explain vulnerability. In places where gender inequalities marginalize women, their risk of death, injury, and property loss escalates. People with special physical needs likewise are more susceptible to loss and disruption. Consider this letter from a disaster victim. “I was not wearing my hearing aids that morning, of course, it was 4:31 a.m. After the shaking stopped, I was too afraid to get up. When my foot hit the floor, my bare feet felt every piece of glass that had broken. My neighbors interpreted everything via lip-reading for me regarding the radio announcements. My husband was out of town, I was alone and extremely scared; my husband is profoundly deaf, no one even told him there had been an earthquake or that Northridge was the epicenter. FEMA [Federal Emergency Management Agency] made no attempts to find an interpreter

for me and the interpreter I had brought did not have the skills needed to convey my message.”

In addition, we need to consider vulnerability as the result of the intersection of multiple social and economic characteristics. Think, for example, about the special situations faced by the following people: an elderly Latina woman who speaks Spanish but not English; a recent immigrant to the area who follows different cultural norms; a battered woman who seeks shelter from domestic abuse and disaster, in a community that lacks affordable housing. Who bears responsibility for these vulnerabilities? The individual, the larger community, or both?



Perspectives on Vulnerability

Social vulnerability can be viewed from two perspectives, described by James K. Boyce (2000) as the wealth-based versus rights-based approaches. Boyce describes the wealth-based approach as “those individuals who are willing (and, perforce, able) to pay more, deserve to get more.” Alternately, the rights-based approach emphasizes “the egalitarian distribution of the right to a clean and safe environment,” implying that each person holds an inherent right to live despite money and other resources that permit wealthier households to reduce risk.

Boyce also suggests that a rights-based approach is likely to prevail in countries that emphasize such democratic rights as voting and public education, with constitutions that spell them out. The rights-based approach is also consistent with how University of South Carolina professor Susan Cutter defines equity: “In its broadest sense equity means freedom from bias or favoritism . . . equity refers to the equal access to resources, equal allocation and treatment of societal risk, and the equal consideration of competing interests” (1995).

Identifying Marginalized Populations in Our Communities

Efforts to more fairly distribute risk begin with getting to know all parts of our community (certainly well in advance of

disaster) and engaging in community-based, participatory mitigation. We can start by looking at census data and learning about recorded diversity: race, ethnicity, income, gender, and age. We then need to seek out a broad array of community organizations, groups, and settings and collaboratively identify localized vulnerability. Actively working with community-based organizations can reveal hidden vulnerability: persons homeless before the earthquake who lost their doorway and regular set of survival routes and relationships; a university with illiterate employees; a janitorial staff of a retrofitted building that still bears risk at home.

Working with Marginalized Groups

To reduce vulnerability through social change, we must work with marginalized groups, bringing them more into the process of reducing impacts from disasters.

Historically excluded groups may believe they are not able to effect change and may need opportunities to develop their collective strengths and to become re-empowered. When we widen representation, people who previously felt powerless to effect change may very well speak up and lead. When we listen to and include marginalized groups, we enhance mitigation activities and sustain disaster recovery. Empowering people enables them to contribute to and buy into this process. Participatory processes that help build this inclusiveness typically include consensus-building activities in public meetings, panel discussions, workshops, field trips, and charettes.

Involving a wide variety of recovery partners has the added benefits of diversifying ideas and potential solutions as well as the labor pool, fostering creative problem-solving, and building local capacities within and across groups. Going to people in their communities and listening to their concerns lets affected citizens know that not only do officials and emergency managers care, but that individuals are stakeholders in the long-term viability of their community. It honors the realities and experiences of the affected and the vulnerable; breaks the notion of insiders and outsiders; and undermines the social, economic, and political splits that institutionalize inequity. Finally, reaching out and including diverse stakeholders lessens the potential that a decision imposed on a minority will be rejected (Roseland, 1998).

Good News About Vulnerability

Researchers and emergency managers work to reduce vulnerability, though the challenge remains a lifetime commitment. The Second U.S. Assessment of Research and Applications for Natural Hazards (see the *Observer*, Vol. XXIII, No. 4, p. 3) emphasizes the importance of equity and shared risk in mitigation efforts, particularly the value of community-based recovery. FEMA is sponsoring a Higher Education Project course on vulnerability. Web sites have been launched (www.anglia.ac.uk/geography/gdn and www.preparenow.org); journal articles and special issues have been written; books are slowly being published; and courses on vulnerability and populations at risk are being taught in several emergency management degree programs. Many social service agencies continue to focus on vulnerable populations, and

nongovernmental organizations in developing nations target women, children, and persons with disabilities. Some communities are addressing affordable housing, hazards, and related issues in their comprehensive and emergency management plans, often through participatory processes. Beyond the community level, the Organization of American States' Hemispheric Eduplan reduces vulnerability through citizen participation (see the *Observer*, Vol. XXV, No. 1, p. 12).

In 1996, the Hemispheric Conference on Disaster Reduction and Sustainable Development recommended that we engage and empower those most at risk; build partnerships among researchers, managers, vulnerable groups, planners, and activists; institutionalize vulnerability training; give sustained attention to poverty conditions that increase vulnerability; recognize diversity in family arrangements; practice flexibility in resource distribution; and launch program reviews for biases, prejudices, and discriminatory practices.

To reduce loss of life and injuries and to protect property, we must reduce vulnerability based on ethnicity, culture, national origin, disability, age, gender, or social class. If we want to reduce vulnerability, we must work for justice.

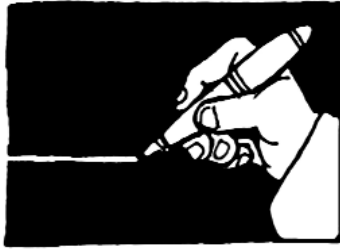
Brenda D. Phillips
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Jacksonville State University

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Our Sincerest Apologies

In the last issue of the *Natural Hazards Observer*, we featured the article, "A Global Drought Preparedness Network: Creating a Network of Regional Networks" (Vol. XXVI, No.2, p. 15), but left out information on how our readers can contact the author. Donald Wilhite, Director of the National Drought Mitigation Center, University of Nebraska, proposes a Global Drought Preparedness Network to share experiences and lessons learned through a virtual network of regional drought networks.

We enthusiastically urge our interested readers to contact him at the *National Drought Mitigation Center and the International Drought Information Center*, 239 L.W. Chase Hall, University of Nebraska, Lincoln, NE 68583-0749; (402) 472-4270 or 472-6707; fax: (402) 472-6614; e-mail: dwilhite2@unl.edu; WWW: www.drought.unl.edu.



ON THE LINE

A Safe Place to Go

The Mississippi Safe Room–Storm Shelter Initiative

Background

Mississippi is subject to a variety of natural and human-caused hazards. The state experiences approximately 20 tornadoes per year that continue to pose a threat to life and property. The statistics of the 25 deadliest tornadoes within the U.S. (1840-present) includes five Mississippi communities. Between the years of 1950 and 1994, the “Magnolia State” ranked number 12 in the nation in regard to tornadoes reported (1,039), number two in fatalities (386), and number two in injuries (5,344). There have been two recorded F5 tornadoes since 1950, the Vicksburg tornado in 1953 and the Jackson tornado in 1966.

As a result of the tornadoes and severe weather events of February and March 2001, eight people died and another 106 people were injured. President Bush issued a major disaster declaration on February 23, 2001. This declaration made Hazard Mitigation Grant Program (HMGP) funds available to the state for the implementation of the Mississippi Safe Room Initiative.

The Mississippi Shelter Initiative

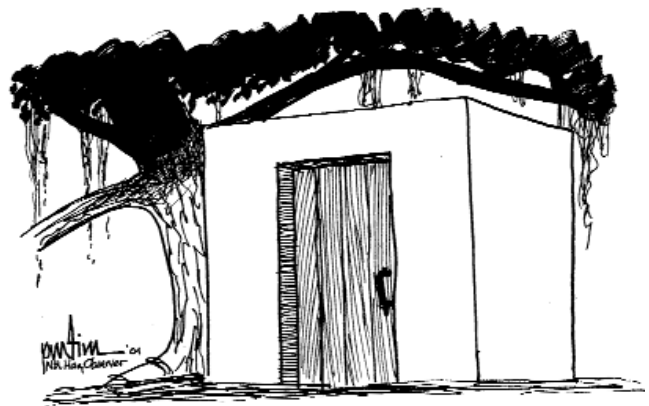
“A Safe Place to Go” is the state of Mississippi’s Shelter Initiative, administered by the Mitigation Bureau in the Mississippi Emergency Management Agency (MEMA), and it has enjoyed unqualified success. HMGP funds are used for the implementation of long-term, cost-effective measures that will significantly reduce or eliminate the loss of life and property from natural disasters. The success of the program can be attributed in large part to being developed and administered by MEMA in partnership with the Federal Emergency Management Agency (FEMA), the county emergency managers, and county grant administrators.

The state has used the HMGP federal funds to reimburse up to 75% of the eligible costs of constructing or installing safe rooms or shelters not to exceed \$3,500 for single-family shelters or in-residence safe-rooms and \$5,000 for group shelters.

The 25% non-federal share was provided by the project participants or some other non-federal source.

Funding Priorities for Eligible Recipients

Eligible recipients are individuals, private non-profit organizations, and local governments in the 50 declared counties.



The first priority of the state was to make the grant funds available to homeowners, businesses, local governments, and private non-profit organizations that sustained documented damage to their properties as a result of the declared incident period of February 16 through March 15, 2001. Over 400 applicants who sustained damage accepted the offer for single-family shelters and 55 applicants accepted the offer for group shelters. This represents an allocation of \$1,801,000.

The second priority, for the remaining money, is to offer the grants to those 3,635 applicants within the declared counties that did not sustain damage.

Specifications

The construction of a "Safe Room," which is an above ground shelter, must meet the written specifications publicized in FEMA's August 1999 Publication 320 or the National Storm Shelter Association (NSSA) standard. The installation of an "In-Ground Storm Shelter" likewise must meet the written specifications developed by FEMA or NSSA for in-ground shelters. No in-ground shelter may be installed in a floodplain or any other identified special flood hazard area. The construction of a "Community or Group Shelter" must meet the specifications in FEMA Publication 361 or NSSA standards.

The Process

In order to insure the success and integrity of the program certain steps must be followed.

The first step in the process is to execute a signed State-County Grant Agreement. Under this agreement, MEMA oversees the responsibilities of the state and the designated county grant administrator (CGA) supervises the interests and responsibilities of the County.

The CGA then sends an offer letter to the applicant, providing information about the amount of reimbursement for which she or he may be eligible to receive after meeting the documentation requirements. The offer letter must be signed within two weeks of the date of the offer.

A contractor or installer (who is licensed in the state of Mississippi) must fill out and sign the certification instructions form. Essentially, the contractor certifies that the shelter has been constructed according to the blueprints in FEMA Publication 320 or in accordance with the stamped and sealed blueprints of a professional engineer or registered architect licensed in the state of Mississippi. This form is mandatory and must notarized and submitted to MEMA to receive reimbursement.

An applicant's compliance checklist is also required to be submitted to receive reimbursement. It outlines certain forms

and documents that must be attached, including bills and invoices, receipts, cancelled checks, and a picture of the shelter.

Upon completion of each eligible project, the CGA will complete, certify, and submit a copy of the required forms and supporting documentation to MEMA. Following satisfactory review of this documentation, the state will remit a check for the requested reimbursement.

Success

On August 8, Governor Ronnie Musgrove presented over \$19,000 to eligible first priority recipients in Pontotoc. As of September 15, over 30 applicants had submitted their required paperwork and received reimbursement.

The Mississippi "A Safe Place To Go" shelter initiative is the hallmark for the rest of the country. Other states are using this as the model for their own safe room/storm shelter initiatives.

The success can be directly attributable to the synergy of all concerned parties at every adjunct of the program, incorporating lessons learned from the county, MEMA, and FEMA through face-to-face discussion or by telephone, e-mail, or fax. Congratulations should go to all contributors.

Paul Fox
Federal Emergency Management Agency
and
Al Goodman
Mississippi Emergency Management Agency

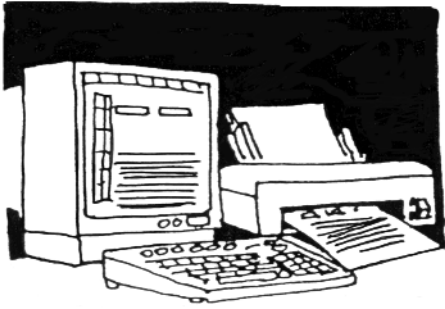
For further information on this project, contact *Paul Fox, FEMA-Mitigation, Mississippi Emergency Management Agency, P. O. Box 4501, Jackson, MS 39296-4501; (601) 360-0943; fax: (601) 360-0942; e-mail: paul.fox@fema.gov;* or *Al W. Goodman, Jr., State NFIP/Dam Safety Coordinator, Mississippi Emergency Management Agency, P. O. Box 4501, Jackson, MS 39296-4501; (601) 960-9973 fax: (601) 360-0942; e-mail: agoodman@memaorg.com; WWW: www.memaorg.com.*

Building a Safer World Foundation Established

The International Code Council (ICC), a nonprofit organization dedicated to developing a single set of national model building codes, has established the "Building a Safer World Foundation" to support its mission to protect lives and property through safer building construction. The foundation will enable the ICC to expand its charitable offerings of education, disaster relief, and research related to the building industry.

The foundation will sponsor International Building Safety Week, promote national awareness of building safety through public education, serve as a resource for building safety information, promote the use of building regulations that serve the public interest, and enhance training and education in the safe and appropriate use of building materials and methods.

For further information about this new foundation, contact *William J. Tangye, ICC, 5203 Leesburg Pike, Suite 600, Falls Church, VA 22041; (703) 931-4533; WWW: www.intlcode.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 www.colorado.edu/hazards/sites/sites.html.

September 11 and Beyond

mceer.buffalo.edu/infoservice/enews/summaries/0109a7.html

mceer.buffalo.edu/outreach/911attackLinks.asp

This excerpt from a recent issue of the MCEER (Multidisciplinary Center for Earthquake Engineering Research) Information Service electronic newsletter provides much information about the engineering community's actions in response to the World Trade Center catastrophe. Not only does it describe specific work and studies being done but also lists links to other sources of information on the web and elsewhere.

The second URL leads to a page with information to help parents and teachers work with children in coping with disasters. It has a separate section on terrorism and war and a list of books for children to read themselves or with adults. The page also has links to other sites devoted to children and disasters.

www.fema.gov/emi/edu/aem_courses.htm

Each Monday (or shortly thereafter) the current version of the document "Terrorism Bibliography-wp.doc" is updated on this web page. It can be found at the bottom of the page after the list of the "Terrorism and Emergency Management" Higher Education Project course. Virtually every listing has a URL that takes one to the item listed.

www.nap.edu/terror

This is an online collection of reports issued by the National Academies that examine anti-terrorism measures, including technologies for screening airline passengers, better designs for buildings that may be targets of terrorist attack, and preparation for the civilian medical community in responding to chemical or biological threats.

www.cdc.gov/ncidod/dbmd/diseaseinfo/anthrax_g.htm

This page is an anthrax "fact sheet" provided by the U.S. Centers for Disease Control and Prevention.

www.usfa.fema.gov/hazmat/bioagents.htm

To help America's first responders cope with the anthrax threat, the U.S. Fire Administration has posted federal guidelines and other information resources about responding to bioterrorism incidents.

www.tallytown.com/redcross

"Anthrax: What You Should Know" is a new web site developed by the Capital Area Chapter of the American Red Cross.

All Hazards

www.worldwatch.org

secure.worldwatch.org/cgi-bin/wwinst/WWP0158

More and more of the devastation wrought by "natural" disasters worldwide is unnatural in origin—caused by ecologically destructive practices and an increasing number of people living in harm's way. That was a basic finding presented in a new study, "Unnatural Disasters," by Janet Abramovitz of the Worldwatch Institute, a Washington, D.C.-based environmental research organization. "By degrading forests, engineering rivers, filling in wetlands, and destabilizing the climate, we are unraveling the strands of a complex ecological safety net," according to the report. "We have altered so many natural systems so dramatically, their ability to protect us from disturbances is greatly diminished." Also contributing to the rising toll of disasters is the enormous expansion of the human population and the built environment, which put more people and more economic activities in harm's way.

Although “unnatural disasters” occur everywhere, their impact falls disproportionately on the poor, as they are more likely to live in vulnerable areas and they have fewer resources to deal with disasters. Between 1985 and 1999, 96% of recorded disaster fatalities were in developing countries.

At the same time, economic losses from “unnatural disasters” are greater in the developed world. The earthquake that rocked Kobe, Japan, in 1995, for example, cost more than \$100 billion, making it the most expensive natural disaster in history. Still, smaller losses often hit poor countries harder, where they represent a larger share of the national economy. The damage from 1998’s Hurricane Mitch in Central America was \$8.5 billion—higher than the combined gross domestic product of Honduras and Nicaragua, the two nations most impacted by the storm.

Besides presenting these issues, Abramovitz suggests measures that could lessen disasters’ toll—from economic safety nets to ecological measures, promotion of community-based disaster planning, wise land-use planning, and hazard mapping.

Copies of “Unnatural Disasters” (61 pp., \$5.00) can be downloaded in PDF format from the second URL above. They can also be ordered from the *Worldwatch Institute, 1776 Massachusetts Ave, N.W., Washington, DC 20036; (800) 555-2028 (U.S.) or (301) 567-9522 (outside the U.S.)*.

www.un.org/womenwatch/daw/csw/env_manage/

The International Strategy for Disaster Reduction (ISDR) recently hosted a meeting titled “Environmental Management and the Mitigation of Natural Disasters: A Gender Perspective” in Ankara, Turkey. The meeting focused on women as part of the solution instead of emphasizing women’s special vulnerabilities to disaster. A web site has been set up that displays background information about the meeting and also includes downloadable PDF formats of the discussion papers. The examples and case studies cited in the papers span the globe, and their topics include women’s grassroots collectives for disaster mitigation; women’s technological innovations and adaptations for disaster mitigation; emergency management for women as a tool for change; and gender perspectives on early warning, disaster management, earthquake preparedness, environmental issues, earthquake response, and recovery initiatives.

Earthquakes

www.trinet.org

www.trinet.org/shake/archive/scenario.html

TriNet is a collaborative project of the California Institute of Technology, the California Division of Mines and Geology, and the U.S. Geological Survey (see the *Observer*, Vol. XXV, No. 6, p.1). Its aim is to create an effective real-time earthquake information system for Southern California. Now nearing completion, TriNet incorporates new technologies to provide vital information within minutes of an earthquake, thus helping to mitigate the impact of large earthquakes in the region. The system is designed to aid both scientists and emergency managers.

Through continuous monitoring of seismicity in Southern California, TriNet produces rapid estimates of earthquake times, locations, and magnitudes, enabling direct estimates of the strength of ground shaking near earthquakes. Its products include maps known as “ShakeMaps” that demonstrate ground acceleration, velocity, and other measures of intensity. The TriNet ShakeMap web pages now display not only near-real-time information, but also, at the second URL above, selected earthquake scenarios for southern California. Maps for other regions of the U.S. will be available soon. Indeed, users interested in specific scenarios not currently available can make a request to the ShakeMap Working Group via a comment form on the ShakeMap web site. The maps are already being used in emergency response planning by city, county, state, and federal agencies, by response planners and managers of utilities and other private organizations, and by engineers.

Floods

www.engga.uwo.ca/research/iclr/Post-ws/default.htm

Nonstructural flood reduction measures can be an attractive alternative and/or addition to flood control structures to reduce loss of life and property. A recent international workshop sponsored by UNESCO and others and held in Ontario, Canada, provided a forum for discussion and information-sharing on these measures. A new website at the URL above has been set up to document the meeting, “Non-structural Measures for Water Management Problems.” Notes and summaries from the discussion groups, panels, and presentations are posted there. The full presentations of over a dozen speakers can be viewed at the site as well. Their subjects include the use of nonstructural flood measures in Japan; the link between nonstructural measures and sustainability; using flood prediction in planning in Canada; different private insurance approaches to flood risk world-wide; floodplain residents’ preferences for non-structural measures in the Red River Valley of Canada; and a watershed-based approach for coping with floods in Brazil.

www.fema.gov/nfip

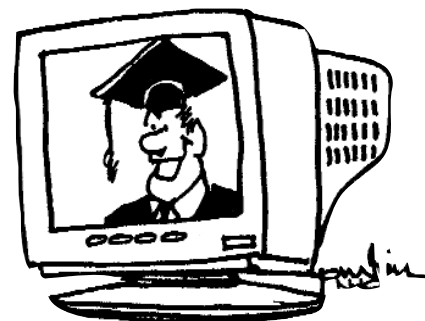
The web site of the Federal Emergency Management Agency’s National Flood Insurance Program (FEMA/NFIP) has been remodeled. Major improvements include alphabetizing the site index and including links to each web page throughout the site, posting all publications in a “Publications” section of the “Library,” streamlining the home page by reducing initial links and features and putting the links for specific audiences on that page, reorganizing the “Policies and Claims Statistics” section so more NFIP stakeholders can take advantage of this data, and combining related topics in individual links. The site managers also plan to offer a subscription service that will provide e-mail notices of updates and new information.

New On-Line Emergency Management Degree and Certificate Programs at Jacksonville State University

The Institute for Emergency Preparedness (IEP) at Jacksonville State University (JSU) in Alabama is now one of the few universities in the world to offer academic degrees in emergency management through distance learning. The university offers both a Bachelor of Science degree in Emergency Management and a Master's Degree in Public Administration with a formal concentration in Emergency Management. An Associate's Degree and Certificate in Public Safety Telecommunications (PST) and a Certificate in Emergency Management are also available.

Through its distance learning capabilities IEP is already playing an important role in connecting research and education for current and future disaster practitioners throughout the United States and other parts of the world. More information on JSU's distance learning capabilities can be found at the university's home page: www.jsu.edu. Further details about the IEP program can be obtained from *Dave Neal*: e-mail: neal@jsucc.jsu.edu.

Those interested in the MPA concentration in Emergency Management or the Emergency Management Certificate can contact *Brenda Phillips*: e-mail: Brenda@jsucc.jsu.edu; WWW: www.jsu.edu/emergencymgt.



Presenting MITCH

MITCH (MITigation of Climate Induced natural Hazards), with 13 partners across Europe, is a project striving to bring together research institutions and end users to mitigate meteorologically caused natural hazards. The aim will be to assist planning and management by:

- evaluating the state of research,
- encouraging greater use of existing research knowledge, and
- matching users perceptions and needs with what the research community can offer.

The project is conducting a series of three workshops and providing a web site for the exchange of views and evaluation of best practice. The first workshop was held in Delft in December, and its theme was "Floods, Droughts, and Landslides: Management in a Changing Climate: Translating Research Advances in to Practical Benefits."

A primary focus of the group will be flood forecasting and warning, but will include other flood-related hazards, such as landslides and debris flows. MITCH will also look at longer-term climate hazards, such as drought, and the potential impacts of climate change on the frequency and magnitude of such hazards.

For more information about MITCH, see the project web site: www.mitch-ec.net or e-mail *Bridget Woods Ballard*: baw@hrwallingford.co.uk.

Introducing the International Commission on History of Meteorology

On July 11, 2001, a group of historians, philosophers, and scientists met in Mexico City and adopted a new constitution to form the International Commission on History of Meteorology (ICHM). The new organization will work to promote the scholarly study of the history of meteorology, climatology, and related sciences, including their social and cultural aspects. It is a part of the Division of History Science in the International Union of History and Philosophy of Science, under the International Council of Scientific Unions (ICSU).

The ICHM also hopes to facilitate international cooperation and communication; organize symposia and disseminate their proceedings; promote the identification, collection, preservation, and access to historical materials; encourage the compilation of international historical bibliographies; and support the broader goals of the organizations of which ICHM is a part.

Further information about the ICHM can be found on their web site: www.colby.edu/ichm. Interested individuals can also e-mail the group's president, *James R. Fleming*: jrflemin@colby.edu.



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: www.colorado.edu/hazards/grants.html.

Building Hazard Mitigation Partnerships Between Higher Education Institutions and Communities. Funding: Federal Emergency Management Agency, \$150,000, 12 months. Principal Investigator: *Stephen Meinhold, Department of Political Science, University of North Carolina at Wilmington, Wilmington, NC 28403; (910) 962-3223; fax: (910) 962-3286; e-mail: meinholds@uncwil.edu.*

Building strong hazard mitigation partnerships between higher education institutions and communities provides research and knowledge that can be leveraged to make communities more hazard resistant. This cooperative agreement between the Federal Emergency Management Agency and the University of North Carolina at Wilmington will work to create these partnerships. The project will develop a "Partnership Database" that will include a library of all hazard mitigation partnerships between higher education institutions and selected communities; "Best Practices Models" of successful hazard mitigation from the Partnerships Database; a community toolkit, *Working with your Local College or University to Mitigate Hazards*; and a "Higher Education Institution Resource Packet."

Losses to Air Rail Networks. Project Collaboration: Airline Group of the International Federation of Operational Research Societies, Association of American Railroads, American Railway Engineering and Maintenance of Way Association, Burlington, Northern, & Santa Fe Railway, and Continental Airlines. For project information, contact: *Mid-America Earthquake Center (MAE), 1241 Newmark Lab MC-250, 205 North Matthews, Urbana, IL 61801; (217) 244-6302; fax: (217) 333-3821; WWW: mae.ce.uiuc.edu.*

Researchers in this project are analyzing the disruption of the transportation network and traffic flow patterns, as well as damage to transportation structures, in mid-America that would result from an earthquake. They will use earthquake severity scenarios that emphasize routes, terminals, and hubs with the heaviest traffic. Data from previous MAE Center Projects that inventoried transportation networks and evaluated regional economic flows for transportation networks are being used to analyze air and rail infrastructure and traffic flow patterns. These data will be inte-

grated with analyses of seismic and liquefaction damage potential at critical locations along transportation routes. Using a geographic information system, databases containing key features for airline and railroad networks will be developed, along with loss estimation and other information. The objective of the project is to develop models that help prioritize and provide cost-benefit analyses of damage prevention options and mitigation planning.

Project VOLCALERT. Funding: European Commission, 867,500 Euros, 12 months. Principal Investigator: *Chris Kilburn, Benfield Greig Hazard Research Center, Department of Geological Sciences, University College London, Gower Street, London, WC1E 6BT, U.K.; tel: +44 (0)20 7679 3637; fax: +44 (0)20 7679 2390; e-mail: c.kilburn@ucl.ac.uk; WWW: www.bghrc.com.*

Under this award, Kilburn will develop a method for forecasting volcanic eruptions.

Corporate Social Responsibility and Disaster Reduction. Funding: Department for International Development, £39,424, 12 months. Principal Investigator: *John Twigg, Benfield Greig Hazard Research Centre, Department of Geological Sciences, University College London, Gower Street, London, WC1E 6BT, U.K.; tel: 44 (0)20 7679 2436; e-mail: j.twigg@ucl.ac.uk; WWW: www.bghrc.com.*

Private sector involvement in natural disaster reduction through its social responsibility/philanthropic programs has not been researched, especially in developing countries. This project will look at the nature of such involvement and lay the foundations for further research and practical initiatives involving business entities. The project is a preliminary investigation, at a global level and in five South Asian countries (Bangladesh, India, Nepal, Pakistan, and Sri Lanka). It will concentrate on pre-disaster preparedness and mitigation. The research questions focus on the process of private sector involvement and its results. Evidence will be collected by desk research and correspondence and interviews with key informants in the private sector and partner agencies. Project outputs will be: a global overview, research reports from the five countries, a set of case studies, and a state-

ment of key issues arising from the research and their implications for future work.

Oregon Showcase State Initiative for Natural Disaster Resistance and Resilience. Funding: Public Entity Risk Institute, 12 months. Contact: *André LeDuc, Oregon Natural Hazards Workshop, Community Service Center, 1209 University of Oregon, Eugene, OR 97403-1209; (541) 346-3889; fax: (541) 346-2040; e-mail: crux@darkwing.uoregon.edu; WWW: www.uoregon.edu/~onhw.*

On December 12, 2000, Oregon Governor John Kitzhaber signed an Executive Order designating Oregon a "Showcase State for Natural Disaster Risk Reduction." The Showcase State program, a model program created by the Institute for Business and Home Safety (see the *Observer*, Vol. XXIII, No. 5, p. 11), provides a comprehensive framework for government and the private sector to prevent injuries and deaths, protect public and private property, and create a disaster-ready statewide economy through public and private partnerships. The Oregon project will work to create partnerships among communities, private businesses, state agencies, and local governments; create a directory of participants; coordinate the development of regional workshops for Oregon communities, regional organizations, and the public and private sectors; and develop a clearinghouse for dissemination of natural hazards planning, risk reduction, and sustainability information.

The Impact of the September 11, 2001, Terrorist Attacks on American Metropolitan Household Decisions to Stay in the Same Residence, to Remodel, or to Move. Funding: National Science Foundation, \$39,396, 24 months. Principal Investigators: *Hazel Morrow-Jones and Elena Irwin, Austin E. Knowlton School of Architecture and Department of Geography, Ohio State University, 105 Brown Hall, 190 West 17th Avenue, Columbus, OH 43210-1320; (614) 292-1027; fax: (614) 292-7106; e-mail: morrow-jones.1@osu.edu.*

Under normal conditions, American metropolitan areas are subject to constant changes that are the product of a complex set of interactions, among them the myriad decisions of households regarding whether to stay in their current residence or move. One conceptualization of this decision states that a threshold exists beyond which households find the strains of remaining in current housing too great, causing the occupants to move. Changes in

lifestyles and the perceived characteristics of neighborhoods, especially safety, also affect household mobility decisions. In this project, researchers will study household attitudes to determine the degree to which householder perceptions of safety and security may have altered their locational decision making following the attacks of September 11. Findings from the study will shed light on whether such events could shape the spatial structure of American cities and regions in the future.

Benfield Greig Environmental Project

This two-year project will develop a method for rapid environmental impact evaluation that is applicable over a wide range of agro-ecological, geographic, and socio-economic settings. It will enable relief workers and affected communities to identify disaster victims' unmet needs (e.g. for fuel or sanitation) that could result in negative environmental impacts. It will also assist workers in evaluating other disaster-related factors that could have a direct and immediate impact on the environment and in assessing the potential negative impacts of external assistance.

The project has three main phases: 1) researching, writing, and testing guidelines; 2) developing training packages for relief workers that can be taught as a stand-alone unit, a module in another course, or as a self-study course; and 3) publishing, promoting, and distributing the guidelines and training materials to operational agencies. The United Nations Environment Programme/Office for Co-ordination of Humanitarian Affairs is funding the preliminary research. For more information about this project, contact *Charles Kelly, Benfield Greig Hazard Research Centre, School of Geological and Geophysical Sciences, University College London, Gower Street, London WC1E 6BT, U.K.; tel: +44 (0)171 419 3449; fax: +44 (0)171 388 7614; e-mail: bghrc@ucl.ac.uk or 72734-4212@compuserve.com.*

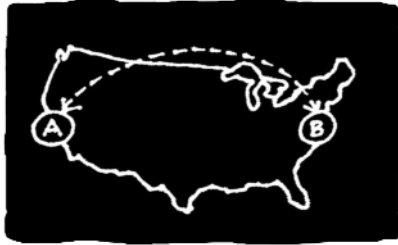
News from NSF and Request for Proposals

Dennis Wenger, formerly of the Hazard Reduction and Recovery Center at Texas A&M University, is the new Program Director for the Infrastructure Management and Hazard Response Program of the National Science Foundation. The hazard program is located within the division of Civil and Mechanical Systems of the Directorate of Engineering. Wenger joins Program Director Miriam Heller in asking interested researchers to submit spring research proposals by February 7, 2001. In addition to engineering, proposals are encouraged from the social sciences and related fields. Information about submitting proposals can be found at the NSF web site at www.nsf.gov.

Flood Insurance Program Seeks Contractors

The Federal Emergency Management Agency has contracted with the American Institutes for Research (AIR) to manage a comprehensive evaluation of the National Flood Insurance Program. The multiyear evaluation will focus on six areas: occupancy and use of floodplains, the costs and consequences of flooding, insurance rating and indemnity functions, floodplain management and enforcement, hazard identification and risk assessment, and marketing and communications.

Consultants and organizations interested in participating as subcontractors in this evaluation are asked to submit brief statements of capabilities demonstrating their relevant skills and experience in one or more of the six areas. Submitters must identify any present or potential conflicts of interest that might affect their ability to contribute to a fair and objective evaluation. Statements or requests for further information should be sent to *Rick Tobin, AIR, 1815 North Fort Myer Drive, Suite 600, Arlington, VA 22209, e-mail: rtobin@air.org.*



CONFERENCES AND TRAINING

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

Solutions to Coastal Disasters 2002. Sponsors: American Society of Civil Engineers (ASCE), American Shore & Beach Preservation Association (ASBPA), Association of State Floodplain Managers (ASFPM), Federal Emergency Management Agency (FEMA), National Oceanic and Atmospheric Administration (NOAA), The Coastal Society, U.S. Geological Survey (USGS), and more. San Diego, California: February 24-27, 2002. Coastal researchers, scientists, and managers will gather at this meeting to exchange experience and knowledge about hurricanes, coastal flooding, tsunamis, coastal landslides, rising sea level, El Niño, beach and bluff erosion, balancing economic and environmental interests in coastal development, and many other topics. For more information contact *Lesley Ewing, California Coastal Commission, 45 Fremont Street, Suite 2000, San Francisco, CA 94105; (415) 904-5291; fax: (415) 904-5400; e-mail: lewing@coastal.ca.gov; WWW: www.asce.org/conferences/cd2002/index.html.*

First Course on Earthquake Vulnerability Reduction for Cities. Sponsor: Asian Disaster Preparedness Center (ADPC) in cooperation with the National Society for Earthquake Technology of Nepal. Kathmandu, Nepal: March 2002. This course, like others offered by the ADPC, will help practitioners improve their knowledge of and skills in implementing mitigation initiatives. The course will be English-based and will cover how to organize approaches to earthquake vulnerability reduction, promote risk communication, and build partnerships for successful mitigation. Field trips to ongoing earthquake mitigation projects will round out the experience. For more details about the course, contact the ADPC, AIT, P.O. Box 4, Klong Luang, Pathumthani 12120, Thailand; (66-2) 524-5354-5; fax: (66-2) 524-5360; e-mail: adpc@ait.ac.th; WWW: www.adpc.ait.ac.th.

2002 National Hurricane Conference. Sponsors: a numerous assortment of public, private, and nonprofit entities. Orlando, Florida: April 1-5, 2002. This annual event emphasizes lessons learned from hurricane strikes; programs for preparedness, response, and mitigation; and new and ongoing assistance programs. For more information contact *National Hurricane*

Conference, 2952 Wellington Circle, Tallahassee, FL 32309; (850) 906-9224; fax: (850) 906-9228; e-mail: mail@hurricanemeeting.com; WWW: www.hurricanemeeting.com.

Contingency Planning and Management 2002. New Orleans, Louisiana: April 15-17, 2002. Sponsor: Contingency Planning and Management magazine and www.ContingencyPlanning.com. Ensuring that business operations are maintained—or at least quickly re-established—in the wake of a disaster is the focus of this sixth annual meeting. It features a series of seminars, exhibits, demonstrations, and presentations on telecommunications for business, best practices in continuity planning, employee concerns, and information technology. For more information, contact *WPC Expositions, 84 Park Avenue, Flemington, NJ 08822; (908) 788-0343, ext. 135; fax: (908) 788-9381; e-mail: PM2002@WitterPublishing.com; WWW: www.contingencyplanningexpo.com.*

International Conference on Drought Mitigation and Prevention of Land Desertification. Sponsor: Slovenian National Committee of the International Commission on Irrigation and Drainage (ICID). Bred, Slovenia: April 21-24, 2002. Among the topics in drought mitigation that will be examined are the impact of climate change on central and eastern Europe; drought as a complex, socially pervasive phenomenon; national strategies to mitigate drought; and international cooperation for solving drought-related problems. Contact *Sabina Remskar, Slovenian National Committee of ICID, c/o IZVOR, Preradoviceva 44, 1000 Ljubljana, Slovenia; tel: +386-1-2317-913; fax: +386-1-433-5104; e-mail: SDNO-SINCID@guest.arnes.si; WWW: www2.arnes.si/~si/ljsdno2eng7.htm. An English description of the meeting is available at www.unesco.org/water.*

European Geophysical Society XXVII General Assembly. Nice, France: April 22-26, 2002. A natural hazards track is one of many available to participants in this conference. Among the sessions in that track will be flood vulnerability assessment in river basins, modeling weather hazards, landslide risk mapping, using GIS for earthquake disaster management, using historical data in hazard assessment, eruptive volcanic hazards,

tsunamis and other ocean-related hazards, avalanche formation, and nonlinear studies in assessing hazard risk. Each session in the track has a separate convener; a list of the sessions and point of contact for more information about each is available at www.copernicus.org/EGS/egsga/nice02/programme/NHS.program.htm; or contact the EGS at *Max-Planck-Str. 13, 37191 Katlenburg-Lindau, Germany*; tel: +49-5556-1440; fax: +49-5556-4709; e-mail: egs@copernicus.org.

The 25th Conference on Hurricanes and Tropical Meteorology. Sponsor: American Meteorological Society. San Diego, California: April 25-May 3, 2002. Some of the topics to be covered will be hurricane impacts in the Americas, monsoons, ocean-atmosphere relationships, short-range and long-range predictions, and climate processes in tropical America and the eastern Pacific. For information contact *American Meteorological Society, 45 Beacon Street, Boston, MA 02108-3693*; (617) 227-2425; fax: (617) 742-8718; e-mail: amsinfo@ametsoc.org; WWW: www.ametsoc.org/AMS.

Fires, Floods & Faults III. Sponsor: The Collaborative for Disaster Mitigation, San Jose State University. San Jose, California: April 29, 2002. The plenary session of this meeting will feature such topics as the latest best practices in mitigation, technology for multi-hazard mitigation, and the financial impacts of the September 11 terrorist attack. A series of workshops will explore different approaches to neighborhood organization, training for chief executive officers and chief financial officers of small businesses, ways to influence the political process, and dealing with the human side of disasters. Further information can be obtained by contacting *Jessica Tran, The Collaborative for Disaster Mitigation, One Washington Square, San Jose, CA 95192-0082*; (408) 924-3596; fax: (408) 924-3857; e-mail: jessica.tran@sjsu.edu; WWW: www.sjsu.edu/cdm.

First International Symposium of the Faculty of Mines on Earthquake Sciences and Engineering. Sponsor: Faculty of Mines, Istanbul Technical University. Istanbul, Turkey: May 16-18, 2002. Earth scientists, engineers, and policy makers are invited to this forum for the exchange of research on a range of topics in the earth sciences. Sessions are planned on active and potentially active faults in the Anatolian region, seismicity in Turkey and surrounding countries, and other topics of interest to earthquake specialists. Contact *Dr. Tuncay Taymaz, Istanbul Technical University, Faculty of Mines, Department of Geophysics, Maslak 80626, Istanbul, Turkey*; e-mail: taymaz@itu.edu.tr; WWW: www.earth.itu.edu.tr.

National Flood Conference. Sponsor: Federal Emergency Management Agency, National Flood Insurance Program (FEMA/NFIP). New Orleans, Louisiana: May 19-22, 2002. This annual event is intended for all stakeholders in the National Flood Insurance Program. Its schedule includes workshops, speakers, panel presentations, and exhibits on risk management, insurance coverage, marketing, lender issues, mitigation, and other topics. To be added to the conference mailing list, contact *Catherine King, NFIP Bureau, 7700 Hubble Drive, Lanham, MD 20706*; fax: (301) 918-1471; e-mail: catherine.king@fema.gov.

World Congress on Drowning. Amsterdam, The Netherlands: June 26-29, 2002. This meeting will feature several sessions on water-related disasters such as floods and accidents involving passenger ships. Contributions are sought on the prevention, rescue, and treatment of drowning victims as a result of these disasters. The second announcement and call for abstracts can be downloaded from www.drowning.nl; or contact *Secretariat, World Congress on Drowning 2002, Mrs. Kim Postma, c/o Consumer Safety Institute, P.O. Box 75169, 1070 AD Amsterdam, The Netherlands*; tel: 31 20 511 45 14; fax: 31 20 511 45 10; e-mail: secretariat@drowning.nl.

Ground Water/Surface Water Interactions: Annual Summer Specialty Conference. Sponsor: American Water Resources Association. Keystone, Colorado: July 1-3, 2002. Technical advancements in understanding the relationship between surface water and ground water will be the major focus of this meeting, but it will also examine related topics such as drought and land subsidence. Abstracts are due January 31, 2002. For more information contact *Michael J. Kowalski, AWRA, 4 West Federal Street, P.O. Box 1626, Middleburg, VA 20118*; (540) 687-8390; fax: (540) 687-8395; e-mail: mike@awra.org; WWW: www.awra.org/meetings/Colorado2002.

12th World Conference on Disaster Management (WCDM): "The Changing Face of Disaster Management." Sponsor: Canadian Centre for Emergency Preparedness. Toronto, Ontario, Canada: July 7-10, 2002. The conference will cover many areas of disaster management: real lessons learned, technical risks and emergencies, human elements, future trends, and principles and practices. For more information contact *Melissa Smith-McGuire, Conference Coordinator, at (416) 595-1414, ext. 223*; fax: (416) 979-1819; e-mail: melissa.smithmcguire@absolutevents.com; WWW: www.wcdm.org.

Disasters and Development: Hazard, Risk, and Vulnerability Assessment. Sponsor: Overseas Development Group. Norwich, U.K.: July 8-26, 2002. Unsustainable development practices contribute to many kinds of disasters, and these disasters, in turn, increase poverty and vulnerability to future disasters. This new training course is aimed at arming development professionals and others with the knowledge and ability to plan and execute interventions in the form of disaster preparedness and mitigation planning. The course will present background information on the link between disasters and development as well as the concepts and terminology of hazards, risk management, and vulnerability. The role of risk perception in human behavior will be examined with an eye toward how it affects local decisionmaking. Finally, participants will learn about a process for assessing and managing risk and help construct a "toolbox" of techniques that can be applied to any risk or disaster scenario. The course will culminate in a disaster simulation exercise. For further information, contact *Overseas Development Group, University of East Anglia, Norwich NR4 7TJ, United Kingdom*. +44-(0)1603 456410; fax +44-(0)1603 505262; email: odg.train@uea.ac.uk; WWW: www.uea.ac.uk/dev/ODG/pages/course_disaster.html.





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: www.colorado.edu/hazards/bib/bib.html.

All Hazards

The ASPEP Journal 2001. American Society of Professional Emergency Planners. 2001. 132 pp. A limited number of copies are available by mailing a check for \$20.00 (inside the United States) to ASPEP, c/o International Association of Emergency Managers, 111 Park Place, Falls Church, VA 22046-4513. Postage and handling will be added to orders mailed outside the U.S.

This journal, which is published each fall in time for release at the annual conference of the International Association of Emergency Managers, has as its goal the sharing of ideas, research, lessons, practice, and opinion, as well as serving as a forum for all disciplines involved in emergency management. The 2001 issue features articles on tornado shelters in mobile home parks; an economic perspective on response to natural hazards; technology for hazards vulnerability and impact analysis; coordination of disaster responses; students' perceptions of hazards; an analysis of the development of Florida's emergency management system; determining when to shelter or evacuate; the integration of standards, plans, and emergency management systems; and the evolving role of the emergency manager.

ASPEP Calls for Papers

The American Society of Professional Emergency Planners (ASPEP) has issued a call for papers for the 2002 edition of the organization's journal, which will be published in November 2002.

Articles and papers that contribute to the advancement of knowledge and improvement in the practice of emergency management are welcome. Papers should be between 1,500 and 4,500 words and will be accepted until June 15, 2002. All papers will go through a peer review process before acceptance for publication.

For further information, interested authors can contact Bruce Binder; (503) 590-2953; e-mail: bbinder@myexcel.com.

The Human Element to Disasters and Their Impact: Issues Related to Response and Recovery. ICLR Research Paper Series No. 16. David Etkin, Editor. 2001. 61 pp. Available free online at www.iclr.org. Printed copies are available free from the Institute for Catastrophic Loss Reduction, 151 Yonge Street, Suite 1800, Toronto, Ontario M5C 2W7 Canada; (416) 362-2031; fax: (416) 361-5952.

The five articles collected in this paper were written under the auspices of the Canadian Natural Hazards Assessment Project, being carried out by a group of scientists, scholars, and practitioners interested in learning about and coping with natural hazards and disasters. Their purpose is to assess understanding of the causes and consequences of natural hazards and disasters in Canada, and to identify gaps in both knowledge and action. The articles in this collection address an assortment of human aspects of disasters in Canada: lessons learned and forgotten; psychosocial aspects of relief and recovery; risk assessment and management in local government emergency planning; disaster response systems; and the need for education—not just training—of emergency planners and responders.

Corporate Social Responsibility and Disaster Reduction: A Global Overview. 2001. 84 pp. Free. The paper is available from the Benfield Greig Hazard Research Centre's web site: www.bghrc.com. Click on "Disaster Management."

This paper is the first published product of a research project managed by the Benfield Greig Hazard Research Centre at the University College London (see page 16 of this *Observer*) to improve humanitarian agencies' ability to carry out environmental impact assessments in emergencies. The paper surveys the opportunities and challenges to corporate social responsibility in the international development and disaster reduction areas and discusses evidence of corporate involvement in natural disaster reduction from around the world. The appendix contains six detailed case studies.

Elder Update. "Disaster Preparedness Guide for Elders." Vol. 11, No. 3 (June 2001). Subscriptions are free. To obtain a copy, contact the Florida Department of Elder Affairs, P.O. Box 6750, Tallahassee, FL 32314-6750; e-mail: editor@elderaffairs.org. The *Elder Update* is also available on-line: www.myflorida.com/doa/healthfamily/learn/elderservices/doielderupdate.html.

The Florida Department of Elder Affairs publishes a monthly newsletter that covers topics of interest to older adults. This issue provides 24 pages of information on disaster preparedness for the older generation. Articles address such important topics as manufactured home safety, evacuation assistance, insurance, hurricanes, floods, tornadoes, safety tips for motorists in emergencies, emergency preparedness supplies, protecting valuable records, wildfire safety, pets and disasters, thunderstorms and lightning, heat stress, drought, chemical emergencies, understanding grief, and building a disaster resistant neighborhood.

Asian Disaster Management News, Vol. 7, No. 2 and 3 (April-September 2001). The newsletter is available from the Asian Disaster Preparedness Center web site: www.adpc.ait.ac.th/infores/newsletter/2001/2.html.

This issue of *Asian Disaster Management News* is devoted to tourism and disaster management. In addition to several useful articles on this topic, it presents a list of information sources. Articles discuss the Gujarat earthquake, strengthening mitigation and disaster management capacities in India, and tourism management strategies.

Small Business Administration: Current Structure Presents Challenges for Service Delivery. Report No. GAO-02-17. 2001 31 pp. Free. Copies can be requested from the 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 of the report is also available on-line at: www.gao.gov.

The Small Business Administration's mission is to maintain and strengthen the nation's economy by aiding, counseling, assisting, and protecting the interests of the nation's small businesses and by helping businesses and families recover from natural disasters. SBA provides about \$45 billion in direct and guaranteed small business loans and other guarantees and about \$7 billion in disaster loans each year. This report contains information on the agency's current organizational alignment and issues it poses in SBA's ability to meet its mission and outlines information SBA should consider in determining if and how to reorganize.

September 11

Working Together to Accelerate New York's Recovery: Economic Impact Analysis of the September 11th Attack on New York City. 2001. 132 pp. Free. The complete report is available on the New York City Partnership web site: www.nycp.org.

The study is the result of a six-week collaborative effort by the New York City Partnership, a non-profit organization created to advance the interests of businesses in New York City, and seven management consultant firms that donated their services. It assesses the economic impacts of the attacks on September 11 on the city and presents recommendations for the economic recovery of businesses in the city. The report estimates

NFPA Offers Publications Free On-Line

Due to the ongoing terrorist threats in our nation, the National Fire Protection Association (NFPA) has made several of its publications available free for download on its website: www.nfpa.org.

Developed by NFPA's Hazardous Materials Response Committee, these consensus-based standards include:

- **NFPA 471: Recommended Practice for Responding to Hazardous Materials Incidents**
- **NFPA 472: Professional Competence of Responders to Hazardous Materials Incidents**
- **NFPA 473: Professional Competence of Emergency Medical Responders to Hazardous Materials Incidents**
- **Beginning the Hazard Analysis Process**
- **Guidelines for the Decontamination of Fire Fighters and Their Equipment Following Hazardous Materials Incidents**
- **Preparing for a Hazardous Materials Accident: The Hospital Perspective**
- **Emergency Response to Incidents Involving Chemical and Biological Warfare Agents.**

Measuring the Physical and Mental Health Effects of September 11

Because studies of both physical and mental health are likely to be affected by exposure to the events of September 11, the Office of Behavioral and Social Science Research (OBSSR) at the National Institutes of Health has created a three-part tool to help researchers measure their impacts. The providers of this information believe that disaster exposure can induce health problems, psychological difficulties, troubled interpersonal relationships, psychosocial resource losses, and behavioral problems specific to youths. They assert that any study attempting to assess or change any of these outcomes should consider including a measure of the impact of the September events.

The OBSSR has also made available a 12-page report, **50,000 Disaster Victims Speak: A Review of the Empirical Literature 1981-2001**, by Fran H. Norris, Christopher M. Byrne, Eolia Diaz, and Krzysztof Kaniasty (2001), that reviews mental health research on the consequences of disasters. Both the three-part research instrument and the literature review are on-line at the OBSSR web site: obssr.od.nih.gov/activities/911/attack.htm. For an explanation of the materials or consultation, contact Fran Norris, Georgia State University, Department of Psychology, Atlanta, GA 30303; (404) 651-1607; e-mail: psyfhn@langate.gsu.edu.

the total economic impact of the attacks to be around \$83 billion. After payment of insurance claims and federal reimbursement for rescue, debris removal, and infrastructure repair, the net damage to the city's economy could total \$16 billion. And, if third-party reimbursement is delayed or inadequate, or if New York falls behind the nation in recovery from the recession, the loss could be far greater. An estimated 125,000 jobs will be lost in the fourth quarter of 2001 due to the attack, and financial services, tourism, and retail businesses suffered the greatest losses. The report recommends those affected by the attacks develop a recovery plan before the World Trade Center clean up is complete; expedite rebuilding of the downtown infrastructure (power, transportation, and communications facilities); obtain economic aid to secure the city's status as a world capital of commerce and finance; restore confidence by investing in comprehensive security measures; implement a five-borough strategy to retain and expand the financial services industry; and quickly restore Lower Manhattan as a functioning community for workers, small businesses, and residents.

Human Behavior and WMD Crisis/Risk Communication Workshop. 2001. 79 pp. Free. Copies can be downloaded from the Defense Threat Reduction Agency web site: www.dtra.mil/about/organization/finalreport.pdf.

In the United States, several agencies at the federal, state, and local levels respond to natural disasters, chemical spills, and nuclear mishaps. The Federal Response Plan, a signed agreement among 27 federal departments and agencies, including the American Red Cross, coordinates delivery of federal assistance and resources that augment state and local efforts in responding to major disasters or emergencies. This plan, however, does not describe an integrated, comprehensive blueprint for crisis/risk communications in the event of a large-scale disaster such as a terrorist attack. The Defense Threat Reduction Agency's Advanced Systems and Concepts Office is looking at ways to improve the ability of the Department of Defense (DoD) to protect U.S. and Allied forces from the threat of weapons of mass destruction (WMD). This agency held a joint workshop with the Federal Bureau of Investigation and the U.S. Joint Forces Command to develop strategies for preparedness and integration of various agencies, responders, news media, and the DoD into a consequence management team to respond to a terrorist attack. This report con-

tains the proceedings of that meeting and addresses such topics as lessening the public's fear; persuading the public to take appropriate actions and to avoid inappropriate actions; dealing with the psychological effects of such an event on responders and the general public; preventing or mitigating the likely psychological impacts from weapons of mass destruction; and recommendations for future research, analysis, and other activities.

Terrorism: Defensive Strategies for Individuals, Companies, and Governments. Lawrence J. Hogan, Editor. 2001. 472 pp. \$49.95. Copies can be purchased on-line from Amazon.com or from any bookseller.

This book presents papers that discuss the problems associated with terrorism and offers suggestions on how to deal with them and mitigate their impacts. It discusses international terrorist organizations in every part of the world and lists their terrorist acts, their estimated numbers and strength, and those countries that sponsor terrorist groups. Chapters describe terrorism and public policy, the medical aspects of terrorism, public works and terrorism, the role of local law enforcement, public information, trends, a history of terrorism, case studies, personal protection, and a chronology of significant terrorism events up to the year 2000.

Climate Change

Confronting Climate Change in the Gulf Coast Region: Prospects for Sustaining Our Ecological Heritage. Robert R. Twilley, Eric J. Barron, Henry L. Gholz, Mark A. Harwell, Richard L. Miller, Denise J. Reed,

Joan B. Rose, Evan H. Siemann, Robert G. Wetzel, and Robert J. Zimmerman. 2001. 100 pp. Free. The report can be down-loaded from the Union of Concerned Scientists web site: www.ucsusa.org/environment/gult.html.

The Gulf Coast region is rich with ecological resources, yet, over time, human activities from dam construction to shoreline development have dramatically altered the region's natural landscapes, waterways, and ecological processes. Global climate change will magnify other human stresses on Gulf Coast ecosystems and the goods and services they provide. **Confronting Climate Change** explores the potential risks, particularly as they result from development pressures. The report provides a scientific assessment of the likely impacts of these changes. Key findings include: warmer temperatures and changes in moisture availability will shift plant and animal species and alter biological communities; sea-level rise will increase coastal erosion, flooding during storms, and undermine wetlands restoration; storm damages will rise substantially due to higher sea levels and increased coastal development; the risk of wildfires will increase; and forests may become more vulnerable to pests. The authors urge policy makers to implement mitigation actions, minimize human impacts, and adapt approaches to meet the challenges of climate change.

Americans and Their Weather. William B. Meyer. 2000. 288 pp. \$39.95. Copies can be purchased from Oxford University Press, 198 Madison Avenue, New York, NY 10016; (212) 726-6000; WWW: www.oup.com.

Americans and Their Weather is a complete history of weather and climate in America from colonial times to the present. The author char-

Congress Hears GAO Testimony on Homeland Security

The events of September 11 raised awareness that the United States faces increasingly diverse threats ranging from cyber attacks on critical infrastructure to terrorist incidents involving weapons of mass destruction or infectious diseases. In an effort to address these issues, Congress recently held hearings on these threats.

The General Accounting Office (GAO) recently published congressional testimony by its officials regarding homeland security and terrorism. The first, **Homeland Security: A Framework for Addressing the Nation's Efforts** (Report No. GAO-01-1158T; 2001, 7 pp.), asserts that efforts to combat these threats will involve federal agencies as well as state and local governments, the private sector, and private citizens. GAO believes the federal government must address three fundamental needs:

- clearly defined leadership,
- comprehensive assessment of national threats and risks, and
- clearly articulated roles and responsibilities for the many organizations that will be involved.

Homeland Security: Key Elements of a Risk Management Approach (Report No. GAO-02-150T, 2001, 10 pp.), describes three key elements that all levels of government should employ to enhance their preparedness against potential threats. A threat assessment identifies and evaluates threats, including capability and intentions as well as the potential lethality of an attack. A vulnerability assessment identifies weaknesses that may be exploited by terrorists and suggests options to eliminate or mitigate such weaknesses. Finally, a criticality assessment systematically identifies and evaluates an organization's assets in relation to the organization's mission or function, the people at risk, or the significance of a structure, in order to prioritize which assets and structures require higher or special protection from an attack.

Homeland Security: A Risk Management Approach Can Guide Preparedness Efforts (Report No. GAO-02-208T, 2001, 16 pp.) describes the GAO's work over the past five years on combat-

ing terrorism as well as its recommendations for using a risk management approach for such programs (see the previous report).

Homeland Security: Need to Consider VA's Role in Strengthening Federal Preparedness (Report No. GAO-02-145T, 2001, 12 pp.) describes the role of the Veterans Administration in augmenting the efforts of state and local authorities in response to a domestic crisis, such as a disaster or terrorist incident. One of the VA's health care missions is to provide backup medical resources to the military health system and communities following major disasters and domestic terrorist incidents. Its areas of responsibility include conducting disaster simulation exercises and maintaining medical stockpiles. The report describes the activities the VA has undertaken in its emergency preparedness role and the agency's capabilities regarding the federal government's plans for strengthened homeland security.

Two reports with the same title: **Terrorism Insurance: Alternative Programs for Protecting Insurance Consumers** (Report No. GAO-02-199T and Report No. GAO-02-175T, 2001), contain testimony by officials in GAO's Financial Markets and Community Investment Division, regarding how the insurance industry should respond to risks posed by potential terrorist attacks and the extent to which the government should play a role alongside the industry to address these risks. The reports examine other insurance programs in the U.S. and overseas that help ensure insurance coverage the private sector has been unable or unwilling to provide by itself, including losses from catastrophic events such as natural disasters. It discusses, among others, the U.S. National Flood Insurance Program, Japan's Insurance Against Earthquakes program, Switzerland's Insurance Against Selected Catastrophic Events program, and California's Earthquake Authority and its earthquake insurance program.

Each of the reports is free and can be obtained from the *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 of each report is also available on-line at: www.gao.gov.

acterizes weather events as inherently neutral phenomena that can become either hazards or resources, depending on the activities with which they interact. Among the human activities whose inter-relationship with weather he documents are agriculture, warfare, transportation, construction, migration, and human health. Of special interest is a chapter on "new hazards" that sketches shifts in American perceptions of weather extremes, many of them based on technological innovations such as air conditioning, engineering methods that enable the construction of enclosed stadiums and other recreational facilities, and radar-based forecasting.

Thunderstorms Across the Nation: An Atlas of Storms, Hail, and Their Damages in the 20th Century. Stanley A. Changnon. 2001. 94 pp. \$5.00. Available from the *Midwestern Regional Climate Center*, 2204 Griffith Street, Champaign, IL 61820; e-mail: mcc@sws.uiuc.edu. Copies can also be ordered from the *National Climatic Data Center*, WWW: nadc.noaa.gov/onlinestore.html.

This first-ever atlas on thunderstorms and hail describes all aspects of the climatology of both phenomena in the United States during the 20th century. Two perspectives on storms are presented: the patterns of thunderstorms and how they have fluctuated over the past century. A special feature is information on the spatial and temporal aspects of storm losses derived from extensive insurance records collected since the 1940s. Dozens of maps depict, for the whole United States, such data as number of "thunderstorm days" per year, average annual number of thunderstorm days without rainfall, average number of years without incidence of large hailstones, and average annual duration of nighttime thunderstorms.

Floods

No Adverse Impact Status Report. 2001. 16 pp. The complete text of the report is available on-line from the *Association of State Floodplain Managers*: www.floods.org.

This report, the first in a series, begins to identify communities that are implementing some aspects of the "No Adverse Impacts Initiative" of the Association of State Floodplain Managers (see the *Observer*, Vol. XXVI, No. 1, p. 11). This initiative is based on the concept that construction anywhere in the watershed can needlessly increase the risk of flooding to properties elsewhere in a watershed, even properties that have never flooded in the past. Although current floodplain management standards have focused primarily on how to build structures in the floodplain, they have not fully considered impacts on other properties. This document lists example jurisdictions that have implemented programs and projects that work to evaluate and mitigate adverse impacts. Information is listed by jurisdiction (municipality, county, regional entity, and state level governments), and by technique (planning, standards/regulations/policies, hazard identification, mitigation, and education).

Gauging the Vulnerability of Local Water Utilities to Extreme Weather Events. Robert Hersh and Kris Wernstedt. Discussion Paper 01-33. 2001. 33 pp. Free. The complete paper is on the web site of *Resources for the Future*: www.rff.org/disc_papers/PDF_files/0133.pdf.

Water utilities that rely on surface water may be vulnerable to future droughts and floods, a vulnerability that may be magnified by climate perturbations as well as shorter-term, and, in some cases, ongoing changes in the political and regulatory environment in which utilities operate. Unfortunately, day-to-day responsibilities currently occupy most utility operators, leaving little time to plan for inherently uncertain effects. The record of actual responses to past droughts and floods can be illuminating, however, particularly when placed in the context of plausible hydrologic and institutional disruptions. This paper draws on interviews of water utility operators in the northwestern U.S. to highlight opportunities and constraints that water utilities may face concerning such disruptions. Key considerations affecting vulnerability include water rights, institutional barriers to efficient utility operations, hazards management policy, and the fiscal status of utilities.



Coastal Hazards

Coastal Defences: Processes, Problems and Solutions. Peter W. French. 2001. 366 pp. \$49.95. Available from *Routledge Inc.*, 7625 Empire Drive, Florence, KY 41041; (800) 634-7064; fax: (800) 248-4724; e-mail: cserve@routledge-ny.com; WWW: www.routledge-ny.com.

The effects of coastal erosion and the changes brought about by the action of tides and waves have typically been combated by engineering techniques featuring structures to stop the erosion or, more recently, by measures such as placement of sediment on the beach. This book argues that such methods only treat the symptoms, not the causes, and can also create additional problems that will need to be addressed in the future. The first section of the book examines "traditional" hard techniques such as seawalls and groynes, while the second looks at the trend of using measures more sympathetic to nature. The author investigates each of the main methods in detail, along with the rationale for their use and their consequent management issues. Much of the focus is on Europe, but some U.S. approaches are described, particularly those for estuarine areas, dune-building, and salt marsh protection and restoration.

Coastal Barrier Resources System: FEMA's Management Controls Governing the Prohibition of Flood Insurance. Report of the Federal Emergency Management Agency's Office of Inspector General (IG). 2001. 30 pp. Free. Copies are available from the *FEMA Office of Inspector General*: (202) 646-4166; fax: (202) 646-3901.

This report reviews the adequacy of the Federal Insurance and Mitigation Administration's (FIMA's) systems and internal controls to prevent the sale of flood insurance for parcels in 400 communities in 23 states for which such sale is prohibited under the Coastal Barrier Resources Act of 1982. FIMA processes National Flood Insurance Program policies through its Geographic Policy Edit System, which identifies the addresses of structures currently covered and then issues the list of parcels to appropriate insurance companies, agents, and associated entities for various purposes, including identifying parcels that may lie within the Coastal Barrier Resources System (CBRS). When a parcel is determined to lie within the CBRS, the flood insurance policy should be cancelled. The IG's investigation found several drawbacks to the system, including incorrect identification of some communities, the inability of the system to process some addresses to street-level accuracy, and outdated

Geological Society Seeking Contributors for Publication on Natural Hazards in El Salvador

As a small, less-developed country that faces serious risks from seismic, landslide, and volcanic hazards, El Salvador has forged a strategy to begin to cope with these challenges. The plan includes the development of a new geological agency in El Salvador, in part to address the problem of building local infrastructure that can minimize the impacts of these three natural hazards. As part of this broad effort, contributions are being solicited for a special publication on hazards mitigation in El Salvador. It is hoped that the volume, even though focused on a single country, will be useful for geoscientists working on hazard mitigation in other countries as well. Contributors signed on so far include Salvadorans and scientists from North America and Europe.

The deadline for submission of contributions is June 1, 2002. Reviews will be conducted during the summer, with revised manuscripts due at the end of October and final publication by the Geological Society of America scheduled for November 2003. For more information, contact *William I. Rose*, *Geological Engineering and Sciences*, *Michigan Technological University*, Houghton, MI 49931; (906) 487-2367; fax: (906) 487-3371; e-mail: raman@mtu.edu.

Earthquake Spectra Now On-Line

The Earthquake Engineering Research Institute (EERI) recently announced that its quarterly publication, *Earthquake Spectra*, is now available on-line at www.eeri.org/Publications/Spectra.html. The periodical is intended to serve the information needs of the diverse professions engaged in earthquake hazards reduction—civil, geotechnical, mechanical and structural engineers; geologists; seismologists; architects; city planners; public officials; social scientists; and researchers. *Earthquake Spectra* contains articles on earthquake engineering practice, codes and regulations, public policy, and investigation reports. Institutional or individual subscriptions to *Earthquake Spectra* are also available. Subscription rates include all issues in a volume, shipped surface mail. Surface subscription rates for individuals: \$120.00 per year; institutions: \$175.00 per year. Airmail is an additional \$25.00 in the U.S.; \$45.00 for international subscriptions. To order the printed version, contact EERI, 499 14th Street, Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: eeri@eeri.org; WWW: www.eeri.org.

digital map data. These typically result in a number of cases with unreliable information for policy coverage determination.

The IG's report makes recommendations for remedying each of the deficiencies. In addition, an overarching suggestion is made that FIMA explore the resolution of cases ascertained to be potentially lying in the CBRS before a flood insurance policy is issued, rather than allowing the policy to be written and then later cancelling it.

Earthquakes

NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures, Part 1: Provisions. FEMA 368. 2000. 336 pp. Free.

NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures, Part 2: Commentary. FEMA 369. 2000. Both documents can be requested from the Federal Emergency Management Agency, Document Distribution Center, P.O. Box 2012, 8231 Stayton Drive, Jessup, MD 20794-2012; (800) 480-2520; fax: (301) 362-5335.

These volumes comprise the sixth edition of the *NEHRP Recommended Provisions*. The present criteria, developed and approved by the Building Seismic Safety Council, for the design and construction of new buildings, additions and alterations to existing buildings, and non-building structures, such as silos, piers, and chimneys. The *Commentary* provide general requirements, background information, and explanations for applying the analysis and design criteria in the *Provisions*.

Living with Earthquakes in California: A Survivor's Guide. Robert S. Yeats. 2001. 416 pp. \$21.95. Copies can be purchased from Oregon State University Press, 101 Waldo Hall, Corvallis, OR 97331-6407; (800) 426-3797; fax: (541) 737-3170; e-mail: osu.press@orst.edu; WWW: www.orst.edu/dept/press.

The author, a geologist, presents in lay terms a comprehensive analysis of earthquakes in California, beginning with an overview of plate tectonics and descriptions of the region's various faults and proceeding to practical advice for homeowners and residents about ways to protect themselves and their property. Along the way he discusses the various approaches California and its localities have developed for coping with earthquakes, covering the gamut of earthquake-related topics such as tsunamis; earthquake prediction; insurance; seismic-resistant design of buildings; the programs of federal, state, and local governments; and public awareness and preparedness. Useful appendices include a glossary, a timeline of California earthquakes beginning in 1700, and a detailed index.

Proceedings of the Second MCEER Workshop on Mitigation of Earthquake Disaster by Advanced Technology. MCEER-01-0002. 2001. 314 pp. \$35.00. To order this report, contact the Multidisciplinary Center for Earthquake Engineering Research (MCEER), Publications, State University of New York at Buffalo, Red Jacket Quadrangle, Buffalo, New York 14261; (716) 645-3391, ext. 105; fax: (716) 645-3399; e-mail: mceer@acsu.buffalo.edu; WWW: mceer.buffalo.edu.

This report contains the proceedings of a workshop held in 2000 that focused on the application of advanced technologies for the seismic evaluation and retrofit of healthcare facilities. Sessions centered on mitigation techniques for soil liquefaction, structural damage, and nonstructural damage.

Electronic Fare

Preliminary Reports and Annotated Images from the El Salvador Earthquakes of January 13 and February 13, 2001. 2001. CD-ROM. \$35.00, members; \$45.00, non-members.

1999 El Quindío, Colombia Earthquake Reconnaissance Report and Separate Images. 2001. CD-ROM. \$25.00, members; \$35.00, non-members.

Order from EERI, 499 14th Street Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: eeri@eeri.org; WWW: www.eeri.org/Publications/cdroms.html.

The first CD contains over 300 images illustrating damage to such buildings as churches, hospitals, low-rise commercial, mid- and high-rise commercial, housing, and temporary shelter. It also depicts landslides, liquefaction, and areas of future risk. Included are a 12-page report on the quake in English and a 53-page report in Spanish written by the faculty of the Engineering and Architecture Departments of the Universidad de El Salvador.

The second CD contains the 73-page earthquake reconnaissance report on the Colombian quake. It covers earth science, geotechnical observations, construction, building damage, nonstructural components, lifeline performance, health impacts, emergency response, and recovery.

The Duzce, Turkey Earthquake, November 12, 1999. 1999. 20 color slides and guide. \$25.00.

Izmit (Kocaeli), Turkey Earthquake, August 17, 1999. Set 1: Coastal Effects: Subsidence, Slumping, Liquefactions, and Tsunamis. 1999. \$25.00.

Both items are available from the National Geophysical Data Center, 325 Broadway, Boulder, CO 80303; (303) 497-6826; fax: (303) 497-6513; e-mail: info@ngdc.noaa.gov; WWW: www.ngdc.noaa.gov.

Observer Now in PDF

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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, Federal Emergency Management Agency, National Oceanic and Atmospheric Administration, U.S. Geological Survey, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Department of Transportation, U.S. Bureau of Reclamation, 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 *January 18, 2002*.

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www.colorado.edu/hazards

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