Natural Hazards Observer

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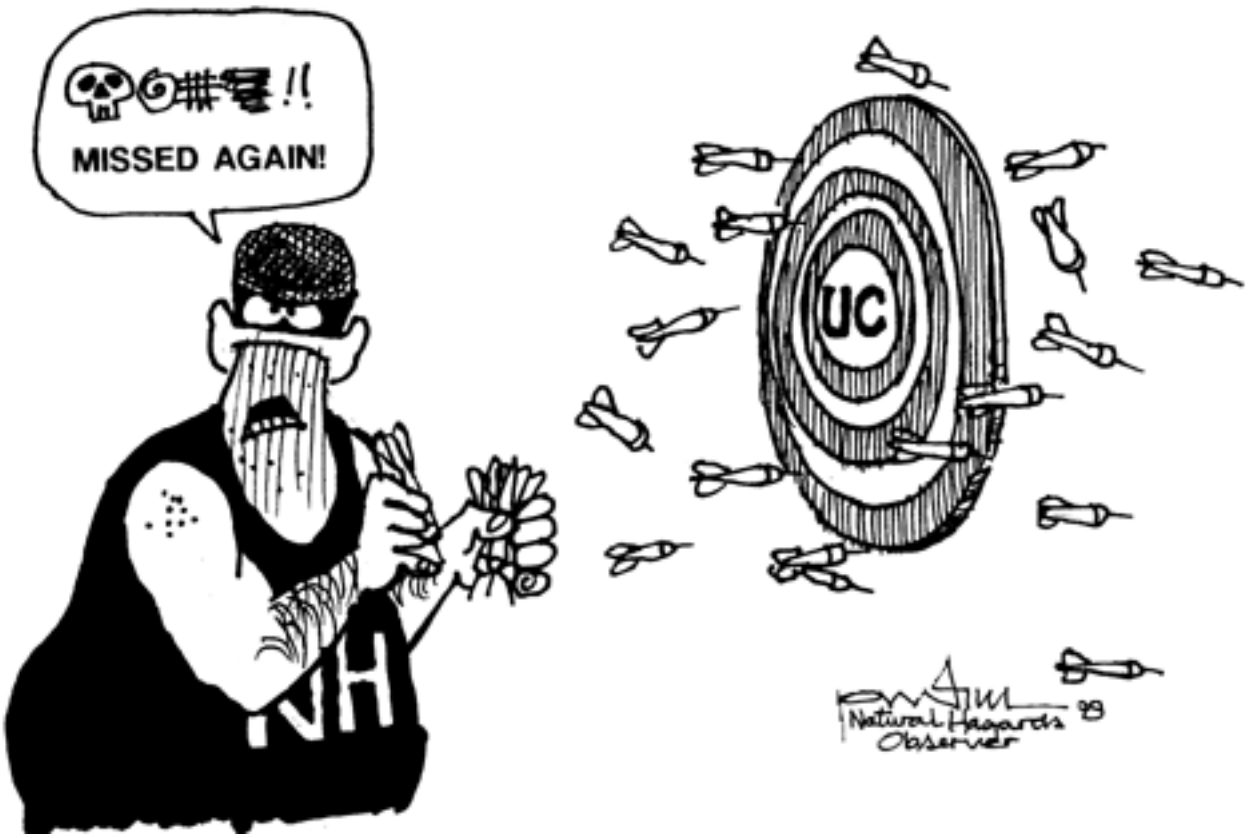


A Disaster-Resistant University: The First of Many

--an invited comment

A Campus at Risk

The University of California (UC) was chartered in 1868, the very year the Hayward fault produced its

last big earthquake. The campus was sited in Berkeley, just where the East Bay hills slope up and over the Hayward fault, at the mouth of the beautifully wooded Strawberry Canyon. That location inextricably tied the fate of UC Berkeley to the rhythms of the fault and the cycles of water and fire, but we have been fortunate with respect to disasters in the 131 years since our founding. The great urban-wildland fires of 1923 and 1991 missed the campus itself, but destroyed the homes of many faculty, staff, and students. Only the flood of 1962 did significant damage to the campus. The epicenter of the 1989 Loma Prieta earthquake was too far away to shake the campanile--the Berkeley campus landmark--very much, and thus far the Hayward fault has remained quiet.

We do know how lucky we have been. A magnitude 7.0 quake on the Hayward fault (for which seismologists offer a one-in-three chance over the next 20 years) could kill and injure many students, faculty, and staff. Damage to campus facilities may be extensive, enough to close classrooms and research facilities for a daunting period of time. Such closures could compromise our mission as a leading teaching and research institution. Beyond our campus perimeter, communities in the Bay Area rely on us as a source of both employment and employees, and for other resources such as information, cultural events, and public service programs. Our closing, even for a short time, would have extensive economic and social impacts. The growing recognition of our vulnerabilities has prompted UC Berkeley to undertake a number of loss-reduction efforts, including working with the Federal Emergency Management Agency (FEMA) on the Disaster-Resistant University (DRU) initiative.

Disaster Resistant Universities

The DRU project is intended to motivate and enable the nation's large research universities to reduce and manage their vulnerability to the hazards in their region. Disaster resistance implies that a university will be able to withstand the impacts of hazard events without excessive losses or undue interruptions to critical activities. Not only are universities unique organizations that serve their communities, states, and nation, they also represent an important federal investment. Annually, federal agencies fund about $15 billion in university research. In recognition of this investment, FEMA has begun a two-part program to support universities' attempts to reduce their potential losses in foreseeable disasters.

At UC Berkeley we are developing and implementing prototype loss estimation methods and strategic risk management plans that other universities can use in their own efforts. FEMA is working with congressional staff and a coalition of other universities to establish new federal funding that will be matched by universities committed to hazard mitigation. Next year, FEMA hopes to award DRU planning grants to a small number of universities that will test the materials UC Berkeley produces and subsequently implement a DRU process.

With about 30,000 students, 5,000 faculty, 7,000 staff, and hundreds of visitors, the population at risk at UC Berkeley on any given day is between 40,000 and 50,000. In 1997-98, the federal government awarded $362 million to researchers here, a disturbing number of them working in labs vulnerable to structural, nonstructural, and utilities infrastructure damage.

We want to avoid losses similar to those suffered by Columbia University's College of Physicians and Surgeons in early July when a power blackout in New York City destroyed research material--human tissue, blood, enzymes, and cells. Insufficient and malfunctioning back-up generators failed to keep freezers and incubators running during the extended blackout. We hope never to see articles about our campus like the one that appeared in the ***New York Post*** on July 10, 1999: A spokesperson for Columbia University said that damages to the $200 million research program had yet to be calculated, but are expected to be considerable. National Institutes of Health [NIH] spokesman Don Ralbovsky said NIH did not require that Columbia have adequate alternative power in order to qualify for its grants.

Though we have had a seismic corrections program in place since 1978 and have spent around $250 million on structural retrofit, there are still many dangerous buildings among the approximately 100 located in the core campus. In mid-1997, Chancellor Berdahl created the Seismic Action Plan for Facilities Enhancement and Renewal (SAFER) Program to re-energize our loss reduction efforts. SAFER's first undertaking was to fund a state-of-the-art structural survey that indicated 27% of usable campus space is seismically Poor or Very Poor and in need of corrective work. Under SAFER, UC Berkeley is committed to retrofitting these buildings; it will take 20-30 years and cost at least $1.2 billion (adjusting for inflation).

Faculty and administrators already seasoned by their involvement in the SAFER Program are directing the two related DRU projects now underway. Since September 1998, architecture, structural engineering, and economics faculty have been working on a loss-estimation model for three possible earthquakes on the Hayward fault (magnitudes 6.5, 7.0, and 7.25). They have relied on calculations and relations developed by the Applied Technology Council and FEMA's HAZUS Working Group in order to create a model appropriate to a university campus. They prepared a microzonation soils map of the campus and estimates of ground shaking and refined maps of campus infrastructure location and condition. They evaluated the structural and nonstructural characteristics of campus buildings, and assessed each building in terms of both its use (classrooms, labs, offices, libraries, special use, residences, and parking) and the estimated average number of annual and peak-hour occupants. The campus data were then used to calculate the cost of repairs and the downtime in the three earthquake scenarios. An earthquake's impact on various campus functions can be seen in the table below.

Campus Vulnerabilities in Three Earthquake Scenarios

		Percentage of Space Expected to Require >20 Months for Repairs		
Type of Use	**% of Campus**	**Occasional EQ[1]**	**Rare EQ[2]**	**Very Rare EQ[3]**
Classroom	6%	6%	40%	78%
Laboratory	30%	19%	49%	64%
Office	30%	9%	53%	78%
Library	16%	4%	28%	45%
Telecom Hubs	<1%	3%	63%	73%

Special Other	18%	5%	30%	50%

1. Magnitude 6.5.
2. Magnitude 7.0.
3. Magnitude 7.25.

The projected capital losses and downtime will be combined with data on capital flows (e.g., operating expenditures, salaries) in an economic impact evaluation. In addition to the traditional review of impacts on the local area, we will also evaluate the effects on significant research units and on our precious human capital--faculty, staff, and students.

UC Berkeley and DRU

At the end of March 1999, work began on the second DRU project, a strategic loss reduction and risk management plan for the Berkeley campus. At the direction of the vice provost, and with the loss estimators and their findings, a project manager is working with a campus/community steering committee to create the plan, implement it, and secure the involvement of local businesses, government, and corporations. The strategic risk management plan will provide for ongoing and expanded facilities improvements (structural and nonstructural); utilities infrastructure upgrades; creation of a strategic facilities master plan; and funding and staff time to enhance emergency management.

Improving the conditions of buildings and infrastructure is only one component of the long-range plan for sustained operations. For the campus to function after an earthquake, we must consider what is necessary for teaching, research, and business management in those straitened circumstances. Thus, the plan includes business resumption planning, improved communications systems and plans, and information and education programs for faculty, staff, and students. The planning process involves all campus and community stakeholders, including representatives of the faculty senate,

high-level administrators on both the campus and in the Office of the President, liaisons from the city government, and participants from local businesses--large and small.

The approaches and materials used successfully in the UC Berkeley project will be incorporated into generic guidelines and support materials for other universities to employ in their own planning efforts. It is up to faculty and decision makers at all universities to begin taking steps to reduce their potential losses, but one of the main lessons we have learned so far on our own campus is that we cannot do these large loss assessment and risk reduction projects on our own. We require the technical assistance of professionals in hazard mitigation and other members of our communities, funding from state and federal governments and private donors, and the enlightened backing of legislators and policy makers. FEMA has recognized its responsibility to help protect universities and their missions. Now we must work with our other patrons to gain their understanding and support.

Mary Comerio, Professor of Architecture, University of California, Berkeley

Sarah K. Nathe, DRU Project Manager, University of California, Berkeley

More information about this project can be obtained from *Sarah Nathe, UC Berkeley, Office of the Chancellor, 200 California Hall, #1500, Berkeley, CA 720-1500; (510) 642-4627; fax: (510) 642-3359; e-mail: sknathe@uclink4.berkeley.edu.*

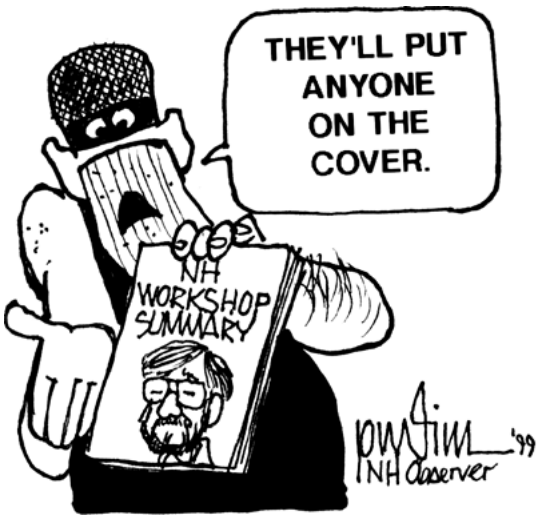
Disaster Declaration Posters Available for Public Education

Michael Baker Jr., Inc., an engineering and geographic information system consulting firm, recently announced that it is distributing its Presidential Disaster Declaration map (see the ***Observer***, Vol. XXII, No. 6, p. 6) as part of its support for the Federal Emergency Management Agency's (FEMA's) Project Impact. FEMA provided the data on historic disaster declarations needed to create this poster, which uses color to show the frequency of major disasters for each U.S. county. Since 1965, presidents have declared over 1,200 disasters, including floods, tornadoes, earthquakes, and hurricanes. Copies of the 17" by 24" poster and accompanying letter-size flyer will be sent to state emergency management agencies and floodplain coordinators. High resolution digital files, including close-ups for each FEMA region, can be downloaded from *http://www.bakerprojects.com/fema*. The media and educational, nongovernmental organizations may request printed copies by e-mailing *rtrott@mbakercorp.com* or contacting *Michael Baker Jr., Inc., 180 Admiral Cochran Drive, Suite 210, Annapolis, MD 21401; (410) 571-8706; fax: (410) 571-6400.*

Get 'em while they're hot!

1999 Session Summaries Now Available

In July, hazards professionals from around the world gathered in Boulder, Colorado, for the 24th Annual Hazards Research and Applications Workshop. There was healthy debate and lively discussion during the four days of the workshop on topics as diverse as the Second Assessment of Research and Applications on Natural Hazards, Y2K, business vulnerability, public risk information, Hurricane Mitch, the popular culture of disasters, and how and why people die in disasters. Participants even got to spend an hour in dialog with some of the leading professionals in the field. Attendees were as diverse as the program topics--federal, state, and local government officials; researchers; representatives of nonprofit organizations and private industry; and others.



To ensure that the ideas and discussions are not limited to those who attended the workshop, the Natural Hazards Center publishes brief summaries of each session, abstracts of the hazards research presented, and descriptions of the projects and programs discussed at the meeting. A set of all workshop materials, including the agenda and participant list, costs $20.00, plus $5.00 shipping. (For orders beyond North America, contact the Publications Clerk at the address below for shipping charges or access the publications ordering information on our Web site at *http://www.colorado.edu/hazards/puborder.html*).

Currently, the list of all session summary and abstract titles is available on our Web site at *http://www.colorado.edu/hazards/ss/ss.html*. In November, the complete text of all session summaries will also be available at that site, although abstracts of hazards research, programs, and projects will not.

To order these materials, send your payment (checks should be payable to the University of Colorado) to the *Publications Clerk, Natural Hazards Research and Applications Information Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482; (303) 492-6819; fax: (303) 492-2151; e-mail: janet.kroeckel@colorado.edu; WWW: http://www.colorado.edu/hazards*. Visa, Mastercard, American Express, and Diner's Club cards are also accepted.

Looking for some quick cash?

The Natural Hazards Center's Quick Response Program

The Natural Hazards Center is soliciting proposals for its fiscal year 2000 Quick Response (QR) program, which enables social scientists to conduct short-term research immediately after a disaster. Researchers interested in conducting analyses at the scene of a disaster within a few hours or days of an event should submit a brief proposal describing that research. If a proposal is approved, the researcher is then eligible to receive funding should an appropriate disaster occur in the coming 12 months. Grants average between $1,000 and $3,000 and essentially cover travel expenses only. In return, grantees must submit reports of their findings, which are published by the Natural Hazards Center both electronically and in hard copy (see page 5 of this ***Observer***).

Details about proposal submission can be obtained by requesting a 2000 QR Program Announcement from *Mary Fran Myers, Co-Director, Natural Hazards Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482; (303) 492-2150; fax: (303) 492-2151; e-mail: myersmf@colorado.edu*. The program announcement is also available from the center's World Wide Web site at the URL listed below. The deadline for proposal submission is October 15, 1999.

To obtain a list of past Quick Response reports and all our other publications, along with their prices, send $3.00 to the *Publications Clerk, Natural Hazards Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482; (303) 492-6819*. This list and full text copies of recent QR reports

are available at no charge from the center's home page on the World Wide Web: *http://www.colorado.edu/hazards*.

The Internet Page(s)

Below are a few of the more useful disaster Internet resources we've encountered recently. For a comprehensive list of selected Internet/Web sites dealing with hazards and disasters, see:

http://www.colorado.edu/hazards/sites/sites.html.

All Hazards

http://www.colorado.edu/hazards/informer/infrmr1/infrmr1a.htm
Written by practitioners and researchers, each issue of the new ***Natural Hazards Informer*** from the Hazards Center is intended to provide comprehensive, state-of-the-art information about a specific aspect of natural hazards research, policy, or management practice. For example, the inaugural issue, by floodplain management experts French Wetmore and Gil Jamieson, is entitled "Flood Mitigation Planning: The CRS Approach."

The ***Informer***, which will be published irregularly as sponsorship becomes available, is intended to be used by all persons interested in the mitigation of natural hazards and thus is being sent to all subscribers of the Hazard Center's regular printed newsletter, the ***Natural Hazards Observer***. There is no need to subscribe separately to the ***Informer***. The ***Observer*** and ***Informer*** are free to persons in the U.S. and cost $15 per year elsewhere. Subscriptions should be directed to the *Hazards Center Publications Clerk, Natural Hazards Research and Applications Information Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482, (303) 492-6819; fax: (303) 492-2151; e-mail: janet.kroeckel@spot.colorado.edu*.

Printed copies of the first ***Informer*** are no longer available, however it is available on-line. To see "Flood Mitigation Planning: The CRS Approach" go to the Hazards Center Web site on the World Wide Web, *http://www.colorado.edu/hazards*, and click on the ***Informer***, or simply go directly to the URL

above.

http://www.colorado.edu/hazards/qr/qr.html
The Natural Hazards Center's "Quick Response" reports are brief summaries of research conducted immediately following hazard events concerning the effects of and immediate responses to disasters. These studies are conducted as part of the Natural Hazard Center's Quick Response Program (see page 3 of this ***Observer***). The center has four new full-text reports available on the World Wide Web:

- **QR116: *Warning Response and Risk Behavior in the Oak Grove--Birmingham, Alabama, Tornado of 8 April 1998*,** by David R. Legates and Matthew D. Biddle
- **QR117: *Hurricane Georges: The Experience of the Media and Emergency Management on the Mississippi Gulf Coast*,** by Henry W. Fischer III
- **QR118: *Flash Flooding in Kansas: A Study of Emergency Response and Victim's Perceptions*,** by Bimal Kanti Paul
- **QR119: *Motor Vehicles in Tornadic Winds*,** by Paul King, Barbara Hammer, Yuichi Ono, and Thomas Schmidlin

The entire list of quick response reports is available at *http://www.colorado.edu/hazards/qr/qr.html*. In addition, printed copies can be purchased for $5.00 each, plus shipping charges ($3.20 for the U.S.; $4.00, Canada, Mexico, and international surface mail; and $5.00 for international air printed matter). Orders should be directed to the *Publications Clerk* at the address above. Additionally, an on-line publication order form is available from *http://www.colorado.edu/hazards/puborder.html*.

http://cindi.usgs.gov
The U.S. Geological Survey (USGS) extensively monitors and evaluates threats posed by many natural hazards. Its resources include a global seismic network, a national streamflow monitoring program, regional volcano observatories, and long-standing interagency partnerships in disaster mitigation and response. To help synthesize the vast amount of information available on hazards, the USGS has created the Center for Integration of Natural Disaster Information (CINDI), a research facility for: 1) developing and evaluating technology for information integration and dissemination; 2) performing research in data integration, analysis, modeling, and decision support; and 3) supporting the ongoing evolution of the USGS processing and delivery of hazards data. The CINDI Web site provides background information about the center and serves as "a gateway to information about natural hazards and disasters." The center itself selects individual disasters as case studies. The current focus is Hurricane Mitch, and this site incorporates much information about that disaster, including a "Central America Disaster Atlas" with multiple maps and map overlays displaying the effects of the storm.

http://www.esri.com/hazards
Through the Federal Emergency Management Agency (FEMA) Project Impact initiative, FEMA and the Environmental Systems Research Institute (ESRI) have formed a national partnership aimed in part at providing multihazard maps and information to U.S. residents, business owners, schools, community

groups, and local governments via the Internet. The information provided via the ESRI Web site is intended to assist the building of disaster-resistant communities across the country by sharing geographic knowledge about local hazards. This Web site allows users to create on-line hazard maps for which they can specify both location (by ZIP code, city, or congressional district) and the hazards to be shown. It also directs users to other sources of information, both on the Web and in the real world.

http://www.explorezone.com

This remarkable Web site seems to include all the hazard science news that's fit to print. It covers the latest meteorological, geological, hydrological, and space science news--much of it focusing on natural hazards. With sections on volcanoes, earthquakes, tornadoes, El Niño, global warming, hurricanes, and other natural phenomena, Explorezone provides both the latest news and latest scientific findings. The site includes links to information sources, numerous graphics and videos, book reviews, background information, an easily searchable index of science terms, and a special section entitled "theedge" that presents new ideas in science and technology.

http://ns.noaa.gov/NESDIS/NESDIS_Home.html

We recently received a nice 18-page booklet summarizing the considerable hazards support activities of the National Oceanic and Atmostpheric Administration's National Environmental Satellite, Data, and Information Service (NESDIS). The booklet describes NESDIS tools and assets for observing and analyzing hazards; the service's programs for detection and monitoring of hazard events; its efforts to respond to and mitigate natural hazards; and the resources it offers (primarily via the Web) to educate the general public about hazards. NESDIS also manages extensive databases concerning historical and current disasters. The URL above provides an entree to this great resource of information. For details about acquiring the NESDIS booklet, ***Hazards Support Activities***, contact the *NESDIS Public Affairs Office, Federal Building 4, Washington, DC 20233; (301) 763-8282; e-mail: neverson@nesdis.noaa.gov*.

http://www.anglia.ac.uk/geography/gdn

The Gender and Disaster Network is an educational project initiated by women and men interested in gender relations in disaster contexts. While understanding that communication technology is not fully accessible and that people interested in this issue work in many languages and contexts, this group hopes to use the Internet to support a global network of researchers and practitioners. Broadly stated, the network's goals are to study women's and men's behavior and experience before, during, and after disasters, while considering gender relations in broad political, economic, historical, and cultural contexts, and to share this information among network members. This Web site currently includes a list of members with short statements of each one's interests, papers, bibliographies, and other material outlining gender issues related to disasters. The Gender and Disaster Network is open to anyone concerned about such issues.

http://www.ibhs.org

The Institute for Business and Home Safety has remodeled its Web site. A consortium of insurance institutions, IBHS is dedicated to making natural disaster safety a core value among home and business owners. Visitors to the new site will find:

- Copies of IBHS' publications, such as the award-winning ***Is Your Home Protected Against Hurricane Damage?***, which can be downloaded from the site;
- A link to a Natural Hazards Quiz (developed in cooperation with the National Geophysical Data Center [NGDC]);
- A link to the ***Natural Hazards Resource Directory*** (originally created by the Natural Hazards Center and the NGDC and now revised with support from IBHS), a comprehensive resource providing links to data sources and information about natural and human-caused disasters for the hazard management community, research scholars, and the general public;
- The latest information on IBHS projects and programs, such as the institute's childcare center retrofit program, "Protecting Our Kids from Disasters," and its Showcase States Program (see the ***Observer***, Vol. XXIII, No. 3, p. 5; Vol. XXIII, No. 5, p. 11);
- Details on the upcoming 1999 IBHS Congress; and
- Other information pertaining to IBHS, its members, partners, and mission.
- Other Web site enhancements are planned for the coming months.

http://www.epa.gov/
http://www.epa.gov/swercepp/

As many emergency planners and managers already know, the Environmental Protection Agency's Web sites provide a wealth of information that can be useful to researchers studying community and state emergency planning and response. Starting with *http://www.epa.gov* (or, if you want to go directly to the Chemical Emergency Planning Program, *http://www.epa.gov/swercepp/*) researchers have a gateway to:

- Reports on environmental emergency spills, explosions, and hazardous chemical accidents, and related evacuations;
- Local Emergency Planning Committee (LEPC) and State Emergency Response Council (SERC) plans;
- Nationwide Toxic Release Inventory reports and the participating facilities' risk management plans;
- Information on chemical emergency prevention and anti-terrorism efforts;
- The National Response Plan and incident reports to the National Response Center;
- Information about Superfund and other cleanup efforts, which often involve relocation of families;
- Information about water and air quality in specific locations and their relation to community planning and sustainability;
- Information on local watershed management; and
- Information on the CAMEO system, designed to help local emergency managers and first responders identify the problems they will face when a fire or explosion occurs at a given site.

http://www.worldbank.org/html/fpd/urban/dis_man/dis_man.htm

Because of its increasing awareness of the effects of disasters on development (and development on disasters), in July 1998 the World Bank established a new Disaster Management Facility (DMF) to

ensure that disaster prevention and mitigation are integral parts of development programs (see the ***Observer***, Vol. XXIII, No. 4, p. 5). Key activities of the DMF include:

- The Market Incentives for Mitigation Investment (MIMI) project to establish partnerships between the insurance/reinsurance community and the world of development lending to promote market incentives for risk reduction;
- Support to member countries and to World Bank staff in operations on lending and on the preparation of Country Assistance Strategies and City Assistance Strategies to reduce risks from natural disasters;
- Partnerships with the international and scientific communities;
- Review of the World Bank's disaster assistance portfolio to extract lessons for future operations;
- Review of World Bank policy on emergency assistance;
- Identification and dissemination of World Bank and other agencies' good practices; and
- Training in the areas of disaster prevention, mitigation, and response.

For more information see the new DMF Web site above, or contact the *Disaster Management Facility, World Bank, 1818 H Street, N.W., Washington, DC 20433; (202) 473-1378; fax: (202) 522-3224 or (202) 522-2125; e-mail: DMF@worldbank.org*.

http://www.oas.org/nhp

This is the new URL for the Natural Hazards Project (NHP) of the Unit for Sustainable Development and Environment (USDE), Organization of American States (OAS) (see the ***Observer***, Vol. XXIII, No. 4, p. 16). The page contains information, in Spanish and English, about the project's various natural hazard mitigation activities, including projects in the areas of transportation vulnerability reduction, education vulnerability reduction, and floodplain management, as well as announcements about up-coming activities and the project's internship program.

http://www.gfz-potsdam.de/ewc98
http://www.idndr.org/docs

In September 1998, as a contribution to the International Decade for Natural Disaster Reduction (IDNDR), the GeoForschungsZentrum Potsdam and the German Committee for the IDNDR hosted the "International IDNDR Conference on Early Warning Systems for the Reduction of Natural Disasters." Both of the Web sites above offer the findings and conclusions from that meeting, including two full-text publications: ***Development at Risk?***, a booklet produced for the U.K. National Coordination Committee for the IDNDR, and ***Reports on Early Warning***, a report covering many aspects of effective early warning for hydrometeorological, fire, and technological hazards.

http://www.usgs.gov/network/science/earth/usgs.html

For those of you who (like ourselves) are sometimes bewildered by the labyrinthine network of USGS Web resources, we suggest this URL--an index of the more than 150 USGS Web servers.

High Winds (Tornadoes, Hurricanes, you name it . . .)

http://www.fema.gov/mit/shplans

FEMA has made plans and specifications for building a "safe room" inside a home available on-line via the Web address above. Developed in collaboration with the Wind Engineering Research Center of Texas Tech University in Lubbock, Texas, ***Taking Shelter from the Storm, Building a Safe Room Inside Your House*** and the associated construction plans draw on 25 years of field research by the Texas Tech researchers. Their work has included studies of the performance of buildings following dozens of tornadoes throughout the United States and laboratory testing of building materials and systems when impacted by airborne debris.

http://www.heinzctr.org/Update.htm

The John H. Heinz III Center for Science, Economics, and the Environment has made several publications available on-line, including ***Did Public Regulations Matter? Rebuilding the North Carolina Coast After Hurricane Fran***, by Rutherford H. Platt of the University of Massachusetts. As Platt indicates, for a quarter century, North Carolina has sought to manage new oceanfront development under its 1974 Coastal Area Management Act. The results of these planning efforts were put to the test in 1996 when the state was struck by hurricanes Bertha and Fran within a two-month period. With beaches and dunes impaired by Bertha, Fran inflicted widespread devastation along the southern half of the state's open ocean coast. The rebuilding process was fueled by federal disaster assistance of many kinds, including emergency dune replacement, flood insurance payments, and Small Business Administration loans to homeowners. Platt's study, supported by the Andrew W. Mellon Foundation, looks at the rebuilding of the North Carolina coast after Hurricane Fran and reviews the efficacy of both traditional approaches to coastal hazards management and public regulation of redevelopment in high-hazard coastal areas.

http://www.dir.ucar.edu/esig/camille

The people at the National Center for Atmospheric Research's Environmental and Societal Impacts Group (ESIG) just keep grafting more and more interesting stuff onto their Web site. Their latest addition is an entire section entitled, "Thirty Years After Hurricane Camille: Lessons Learned, Lessons Lost."

In August 1969, Camille battered the U.S. with unprecedented fury. It was the strongest storm to directly strike the United States in the 20th century, and, after wreaking havoc along the Gulf Coast, its remnants caused flooding as far north as West Virginia. Camille caused more than 200 deaths and billions of dollars in damage. Indeed, the storm was called the greatest catastrophe ever to strike the U.S. and perhaps the most significant economic weather event in world history. Recognizing that Camille is not just an historical footnote, but also a harbinger of disasters to come, ESIG has prepared a study and this Web site to inform interested persons (and those who *should* be interested) about the consequences of Camille, the increased risks that the U.S. coast now faces, and actions that can be taken now to mitigate the next great hurricane. Besides the report, the Web site includes extensive bibliographies on both Camille and hurricanes in general, well-organized Web links, data on historical hurricane damage, and

much other information. (If you doubt the power of these tropical storms, see the "Hurricane Camille Image Gallery.")

Y2K

http://www.fema.gov/Y2K/y2k701.htm

FEMA's popular Y2K course for local and state emergency managers, "Getting Ready for Y2K," can now be completed on-line. The course's goal is to provide the emergency management community with information and tools that will allow it to prepare for the Year 2000 conversion. The course consists of five lessons: "Understanding the Y2K Challenge," "Assessing Y2K Readiness," "Developing Y2K Contingency Plans," "Promoting Y2K Public Awareness," and "Exercising Y2K Plans." Also included are a toolkit containing actual documents to be used in Y2K preparedness activities, links to other Y2K resources, and a glossary of terms. The course is also available from FEMA's Publications Distribution Facility by calling *(800) 480-2520*.

http://www.compumentor.org/y2k

From this Web site, the CompuMentor Project, which provides volunteer-based computer assistance to schools and other nonprofit organizations, is offering a free manual--the ***Year 2000 Workbook for Nonprofits***--outlining a step-by-step process for creating a plan of action to identify and mitigate potential Y2K disruptions. The site also offers a thorough description of the Y2K problem, definitions of terms, references and links, and frequently asked questions (FAQs). Printed copies of the Y2K workbook are also available for $17.50 ($35 for nonprofit organizations with budgets over $500,000). To obtain a copy, contact *CompuMentor, 89 Stillman Street, San Francisco, CA 94107; fax: (415) 512-9629*.

Drought

http://www.westgov.org

On July 16, 1998, President Clinton signed the National Drought Policy Act of 1998 (Public Law 105-199), creating the National Drought Policy Commission to advise Congress "on the creation of an integrated, coordinated Federal policy designed to prepare for and respond to serious drought emergencies." The Western Governors' Association had already created the Western Drought Coordination Council (WDCC) to deal with this recurrent Western problem (see the ***Observer***, Vol. XXII, No. 2, p. 7), and the council recently prepared a report on their experiences--***The Western Drought Experience: The Western Drought Coordination Council's Report to the National Drought Policy Commission***--to assist the national effort. The WDCC concluded that all aspects of drought response needed to be evaluated and updated in order to better integrate preparedness, response, and mitigation programs at all levels of government. Their report notes that the WDCC has developed a work plan that addresses four principal activities: monitoring/assessment/prediction, preparedness and mitigation, response, and communications. Further, it describes the council's past experience in these areas and provides 12 recommendations for national drought policy. To access the report via the Internet, go to the URL above, select "WGA Publications," scroll down to the "Lands and Water"

section, and click on the link for the drought report.

Floods

http://www.fema.gov/nwz99/99159.htm
http://www.fema.gov/library/srvstrm.htm
FEMA recently issued a guide to flood preparation, available in both printed copy and on-line at the URLs above. ***Surviving the Storm: A Guide to Flood Preparedness*** outlines measures individuals and business owners can take to protect their families, property, and communities in the event of flooding. Topics addressed include steps to take before, during, and after a flood; low-cost measures to protect homes; tips for developing a family action plan; cleaning and repairing personal property; and flood insurance. Printed copies are available by calling *(800) 420-2520*. Copies of each publication in the "Surviving the Storm" series--covering floods, hurricanes, winters storms, wildfire, and El Niño--are available at *http://www.fema.gov/library/srvstrm.htm*.

http://www.idi.or.jp/river/
As one of the world's most hazard-prone countries, Japan has undertaken measures to protect against disasters for centuries. Currently, the nation spends a considerable portion of its annual budget on such activities; for example, annual expenditures against flood disasters are around $20 billion. In the course of these activities, disaster managers in Japan have accumulated much experience and knowledge concerning countermeasures against flood disasters and droughts. In order to share this information, the Infrastructure Development Institute-Japan (IDI), in collaboration with the Japanese Ministry of Construction, has prepared this Web site on "Water Policy in Japan."

http://www.fpm.water.ca.gov
Speaking of floods, the California Department of Water Resources, Floodplain Management Branch recently unveiled a nice Web site. It includes sections covering state and national (FEMA) contacts, conferences, vendors of flood fighting supplies, the agency newsletter, training schedules, an on-line training program on the National Flood Insurance Program, an extensive list of related Web links, the state model floodplain management ordinance, and state floodplain management guidelines.

Disaster Medicine and Mental Health

http://pdm.medicine.wisc.edu
The mission of the journal ***Prehospital and Disaster Medicine (PDM)*** is to distribute information relevant to the practice of out-of-hospital and in-hospital emergency medical care, disaster medicine, and public health and safety. Its major objectives are: 1) the improvement of care, including the public health and safety aspects of disasters; and 2) the prevention and/or mitigation of such events and their effects. The journal provides an international forum for the reporting and discussion of relevant scientific studies, both quantitative and qualitative. It is available in printed form and portions are available on the Internet at the URL above with translations into multiple languages. The ***PDM*** site includes recent news, a complete document entitled ***Health Disaster Management: Guidelines for Evaluation and Research***

in the Utstein Style, information about the journal and article submission, and complete access to the on-line "Fred C. Cuny Memorial Continuing Education Series" on disaster management.

http://www.usd.edu/dmhi/

The Disaster Mental Health Institute (DMHI) is a State of South Dakota Board of Regents Center of Excellence offering an undergraduate minor in disaster response and a doctoral specialty track in clinical/disaster psychology at the University of South Dakota. The institute also hosts an annual "Conference on Innovations in Disaster Mental Health" (see the conference announcements in this ***Observer***). The DMHI Web site provides in-depth information about the institute and conference, a list of available publications, as well as several on-line booklets on coping with the aftermath of disasters. For more information about this institute, contact the *Disaster Mental Health Institute, University of South Dakota--SDU 116, 414 East Clark Street, Vermillion, SD 57069-2390; (605) 677-6575 or (800) 522-9684; fax: (605) 677-6604; or see the Web site above.*

An E-Mail List for Disaster Grad Students

The "Disaster Grads" e-mail discussion list supports informal discussion and information sharing among students (both graduate and undergraduate) who conduct research in hazards and disasters. Currently, the list does not carry a large volume of messages so it can be easily monitored, but it has proven an excellent place for students to find support or locate resources. The list currently includes students from all over the U.S. in a wide variety of graduate programs, such as geography, engineering, public health, sociology, and economics. To subscribe to the "Disaster Grads" list, send an e-mail message to *listproc@lists.colorado.edu*, and in the body of the message write "subscribe disaster_grads [your first name] [your last name]" (for example: subscribe disaster_grads Mia Hamm). For more information about this service, contact *Alice Fothergill, Natural Hazards Information Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482; e-mail: alice.fothergill@colorado.edu*.

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Washington Update

FAA Issues Advisory on Helicopter and Tiltrotor Use in Emergency Response

During the last four decades, helicopters have proven valuable tools in disaster response; yet, without careful planning, these aircraft may not be available or used to their best advantage. To address this need, the Federal Aviation Administration (FAA) recently produced an Advisory Circular, AC No. 00-59, ***Integrating Helicopter and Tiltrotor Assets in Disaster Relief Planning*** (1999, 57 pp., free), which provides general guidance to state and local emergency planners.

The FAA created this advisory circular to save lives, to acquaint community leaders and emergency managers with helicopter and tiltrotor disaster relief capabilities, to provide planners with guidelines for integrating these aircraft into local disaster preparedness planning, to open or improve lines of communication between aircraft operators and the community, and to encourage the establishment of heliports and vertiports in communities.

The advisory describes the need to plan for the use of these aircraft in disasters and outlines potential disaster relief support activities, operation priorities, and plan preparation. It also covers resource inventory, communications, landing areas, activation, exercises, and analysis. The circular is based on accepted planning concepts and disaster case histories where helicopters were used.

The complete text of this circular is available at the FAA Web site: *http://www.faa.gov/and/circulars.htm*. Printed copies are also available at *your federal repository library* or can be requested from the *U. S. Department of Transportation, Subsequent Distribution Office, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785; (301) 322-4961; fax: (301) 386-5394.*

FEMA and ASCE Form Alliance

Not only do disasters affect people, their homes, and their businesses, they also test the structures and systems that glue society together. Unless appropriate risk reduction measures are implemented, natural events will continue to destroy highways, railways, ports, power lines, fuel lines, water and wastewater lines, and telecommunications systems. Thus, the Federal Emergency Management Agency (FEMA) and the American Society of Civil Engineers (ASCE) have entered into a cooperative agreement to

establish the American Lifelines Alliance (ALA): Reducing Risks to Utility and Transportation Systems from Natural Hazards.

This alliance will enhance mitigation measures by developing technical documents, implementing their recommendations, and conducting public awareness programs. Although FEMA is providing initial funding for the project, the ALA is seeking other partners to provide additional support. Funds will be used to prepare guidelines, manuals, and other instructional materials.

Initial activities will focus on converting existing, well-established practices within the utility and transportation industries into national applicable guidelines. These guidelines will then be used to develop national consensus documents. Other activities will include hosting technical workshops and training courses, and preparing information materials for infrastructure owners, engineers, emergency planners, and the general public.

More information about this project can be obtained from *Thomas R. McLane, Project Manager, ASCE, 1801 Alexander Bell Drive, Reston, VA 20191-4400; (800) 548-2723 or (703) 295-6000; fax: (703) 295-6222; e-mail: tmclane@asce.org; WWW: http://www.asce.org/aboutasce/alaoverv.html.*

FEMA Publishes Examples of Seismic Rehab

FEMA has announced the publication of ***Example Applications of the NEHRP Guidelines for the Seismic Rehabilitation of Buildings*** (FEMA 276). The ***Example Applications*** volume discusses and illustrates the process for applying the ***Guidelines for the Seismic Rehabilitation of Buildings*** (FEMA 273) using real examples from around the United States.

Organized around typical building types, the structures featured represent a wide variety of seismic risks, ages, uses, and conditions, and have been upgraded to meet a variety of different rehabilitation objectives.

For each building type, there is a description of the characteristic structural system, a list of common seismic deficiencies, a corresponding list of suggested rehabilitation measures, a table of typical costs of seismic rehabilitation, and at least two examples (one in a region of high seismicity, the other in moderate or low). These case studies include a photograph of the building, a list of deficiencies found, and a description of the rehabilitation scheme. The case studies include several historic buildings and examples of innovative technologies such as seismic isolation, energy dissipation, and seismic dampers.

In addition, for each major construction material (steel, concrete, wood, and masonry), one building is presented with example calculations from a FEMA 273 analysis. These calculations provide a detailed, step-by-step illustration of the use of all of the key procedures contained in FEMA 273.

Example Applications is the third companion document to the ***NEHRP Guidelines for the Seismic Rehabilitation of Buildings*** (FEMA 273). Other volumes in the set include the ***Commentary*** (FEMA 274) and ***Planning for Seismic Rehabilitation: Societal Issues*** (FEMA 275). All four volumes are free and can be obtained by contacting the *FEMA Publications Distribution Facility, P.O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520.*

FEMA Distributes Funds for Unmet Needs

In the last issue of the ***Observer***, we mentioned that Congress had appropriated funds for disaster assistance (see Vol. XXIII, No. 6, p. 5). On August 6, FEMA's guidelines for distributing $230 million for unmet disaster needs, part of that funding bill, appeared in the ***Federal Register***. According to FEMA, the agency will initially allocate funds to states that were affected by the January 1998 ice storms, were affected by Hurricane Georges, or had a major disaster declared between October 1, 1998, and January 1, 1999.

Funds are being made available to recipients for activities for which there is no other available funding through FEMA, the

Small Business Administration, or the U.S. Army Corps of Engineers. They can only be used for unmet needs for the purposes of mitigation, buyout assistance, disaster relief, and long-term recovery. Specifically, FEMA suggests states use the funding in a manner that will reduce future disaster related costs, and specifies that it will give priority to projects that emphasize mitigation and buyout assistance.

In addition, each state must administer any funding used for buyouts or mitigation activities in a manner consistent with the intent of FEMA's Hazard Mitigation Grant Program. Moreover, each state must contribute 25% of the funds, or equivalent value, to match unmet needs funds. The states that have been approved to receive assistance include Alabama, Florida, Kansas, Louisiana, Mississippi, Missouri, New Hampshire, New York, Puerto Rico, Texas, Vermont, and Washington. Several other states may receive assistance after FEMA completes a survey of their unmet needs.

The notice of funding can be found in the ***Federal Register*** (Vol. 64, No. 151, pp. 42948-42949). For more information on funding availability, contact *Robert F. Shea, Jr., Program Support Division, Mitigation Directorate, FEMA, 500 C Street, S.W., Washington, DC 20472; (202) 646-4621; fax: (202) 646-3104; e-mail: robert.shea@fema.gov.*

White House Creates Y2K Information Coordination Center

In June, President Clinton issued the following Executive Order to ensure the federal government's readiness for the changeover to the year 2000.

Executive Order

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Amendment to Executive Order 13073,

Year 2000 Conversion

By the authority vested in me as President by the Constitution and the laws of the United States of America, and in order to create the Information Coordination Center to assist the Chair of the President's Council on Year 2000 Conversion in addressing year 2000 conversion problems both domestically and internationally, it is hereby ordered that Executive Order 13073 is amended as follows:

Section 1. A new section 5 is added to the order and shall read Sec. 5. Information Coordination Center. (a) To assist the Chair in the Y2K response duties included under section 2(c) of this order, there shall be established the Information Coordination Center (ICC) in the General Services Administration.

(b) At the direction of the Chair, the ICC will assist in making preparations for information sharing and coordination within the Federal Government and key components of the public and private sectors, coordinating agency assessments of Y2K emergencies that could have an adverse affect

on U.S. interests at home and abroad, and, if necessary, assisting Federal agencies and the Chair in reconstitution processes where appropriate.

(c) The ICC will:

(1) consist of officials from executive agencies, designated by agency heads under subsection 3(a)(2) of this order, who have expertise in important management and technical areas, computer hardware, software or security systems, reconstitution and recovery, and of additional personnel hired directly or by contract, as required, to carry out the duties described under section 5 of this order;

(2) work with the Council and the Office of Management and Budget to assure that Federal efforts to restore critical systems are coordinated with efforts managed by Federal agencies acting under existing emergency response authorities.

(d) The Chair of the President's Council on Year 2000 Conversion shall designate a Director of the ICC.

Sec. 2. The preexisting section 5 of Executive Order 13073 shall be renumbered as section 6.

WILLIAM J. CLINTON

THE WHITE HOUSE,

June 14, 1999

As the ICC is developed, more information will become available via the President's Council on Year 2000 Conversion Web site: *http://www.Y2K.gov*.

FEMA Seeks Input for NFIP Evaluation

The National Flood Insurance Program (NFIP) began operations 30 years ago as a way to address the growing public costs of dealing with the effects of flooding. Now, the Federal Emergency Management Agency's (FEMA's) Federal Insurance Administration (FIA), which administers the program, and

FEMA's Mitigation Directorate believe that it is time to review the effects of the program, both intended and unintended, as well as the effectiveness of the program in accomplishing its goals. The results of these inquiries will be used to guide future public policy decisions relating to the NFIP and wise management and use of the nation's floodplains.

Recently, FIA produced a document that identifies six broad areas of inquiry for research. In turn, these areas suggest numerous questions relating to the overall purpose and scope of the program and to narrower inquiries relating to specific program components and activities. The broad areas of study include:

- Occupancy and Use of Floodplains
- Costs and Consequences of Flooding
- Insurance Rating and Indemnity Functions
- Floodplain Management and Enforcement
- Hazard Identification and Risk Assessment
- Communication

Again, for each of these areas, FIA has identified several initial questions. The agency is now inviting scholars and technicians in floodplain management to identify existing research, either ongoing or completed, to help answer these questions; suggest appropriate revisions or additions to these areas of inquiry; and suggest possible future research to answer the questions identified for each broad area.

To receive a copy of FIA's Areas of Inquiry Relating to a Comprehensive Evaluation of the National Flood Insurance Program, to see the specific questions identified, and/or to submit comments, contact *Laurel C. Lacy, Federal Insurance Administration, Federal Emergency Management Agency, 500 C Street, S.W., Room 435, Washington, DC 20472; (202) 646-3590; fax: (202) 646-3286; e-mail: laurel.lacy@fema.gov*.

Also Seeking Information on Flood Mitigation

The Compton Foundation is supporting an analysis of historical approaches to flood loss reduction in the U.S. over the past 150 years. The study is being conducted by Jim Wright of the Floodplain Management Group, formerly with the Tennessee Valley Authority--a person with longtime involvement in floodplain management programs at the state and federal levels. Previously Wright prepared a comprehensive account of major developments through the 1960s, and he is now surveying

the subsequent progress the nation has made in developing flood mitigation measures to reduce economic and environmental losses. The resulting document will review past approaches, present the current state of our nation's efforts to deal with flood disasters, and discuss future options to reduce flood losses.

The goal of this study is to produce a balanced and accurate account of historical approaches. Information on federal programs and their impacts is generally available; thus Wright is seeking information on contributions from nonfederal agencies, especially efforts independent of federal programs and policies. Such programs would include innovative approaches carried out by states, local jurisdictions, and the private sector that have demonstrated the effectiveness of specific loss-reduction measures. In addition, Wright seeks information on academic research that has advanced the application of various flood mitigation measures.

Persons with pertinent information should send it to *Jim Wright, FPM Group, 267 Cherokee Trail, Seymour, TN 37865-5017; (423) 579-1414; fax: (423) 579-1964; e-mail:* wrightfpmgrp@ntown.com. To be inco rporated into this study, information must be received by October 15, 1999.

[Adapted from the Association of State Floodplain Managers (ASFPM) *Insider* newsletter]

Getting to Know El Niño

UNEP/NCAR Launch Emergency Response Study

In May of this year, the United Nations Environment Program (UNEP) and the U.S. National Center for Atmospheric Research (NCAR) initiated a major project entitled "Reducing the Impact of Environmental Emergencies through Early Warning and Preparedness: The Case of the 1997-98 El Niño," and in July they convened the first meeting of the 16-country case study team leaders in Geneva, Switzerland. UNEP and NCAR were awarded a $650,000 grant from the U.N. Fund for International Partnerships to carry out this 19-month study. Their assessment will review forecasts and impacts of the 1997-98 El Niño, as well as the climate-related early warning and natural disaster preparedness systems in the selected study countries in order to help each nation improve preparedness and response planning for the next event. The participants in the project will also develop curricula for university courses on climate issues for each country. The 16 case-study countries include Bangladesh, China, Costa Rica, Cuba, Ecuador, Ethiopia, Fiji, Indonesia, Kenya, Mozambique, Panama Canal, Papua New Guinea, Paraguay, Peru, the Philippines, and Vietnam. The project's core advisors include

the World Meteorological Organization, UNEP, NCAR, the United Nations International Decade for Natural Disaster Reduction Secretariat, and the United Nations University. Persons interested in obtaining more information about this study should contact the principal investigator, *Michael Glantz, NCAR, P.O. Box 3000, Boulder, CO 80307; (303) 497-8119; fax: (303) 497-8125*; or see the project Web site, *http://www.dir.ucar.edu/esig/un*.

[Taken from *Network Newsletter*, a publication of the National Center for Atmospheric Research]

World Disasters Report Predicts Decade of Super Disasters

The explosive combination of human-driven climate change and rapidly changing socioeconomic conditions will set off chain reactions of devastation leading to "super disasters" in the years to come. Evidence of this grim prediction is contained in a report recently issued by the International Federation of Red Cross and Red Crescent Societies (IFRC). According to the ***World Disasters Report 1999***, an annual survey of humanitarian trends, last year's season of natural disasters was the worst on record, causing more damage than ever before. In 1998, natural disasters created more refugees than wars and conflict; the report indicates that declining soil fertility, drought, flooding, and deforestation drove 25 million "environmental refugees" from their land and into the already vulnerable squatter communities of fast-growing cities. They represented 58% of the total refugee population worldwide.

By analyzing the consequences of Hurricane Mitch and the deadly twins, El Niño and La Niña, the report shows compelling evidence of a trend toward weather-triggered super disasters. For example, when the El Niño struck Indonesia, causing the worst drought in 50 years, it set off a chain reaction of crises. The rice crop failed; the price of imported rice quadrupled; the currency dropped by 80%; food riots erupted in the capital, Jakarta; and in the countryside, massive forest fires burned out of control, paralyzing parts of the country with a toxic layer of smoke.

The developing world will continue to be hardest hit by the cascading effects of human-driven climate change, environmental degradation, and population pressures. Fires, droughts, and floods from last year's El Niño claimed 21,000 lives, while deforestation in China's Yangtze Basin contributed to flooding that affected 180 million people. In Russia, extreme winter weather turned into a disaster when it struck a society where 44 million people are living in poverty, one million children are homeless, and tuberculosis rates are skyrocketing.

This insidious combination is throwing millions more into the path of potential disaster. Already, 96% of all deaths from natural disasters occur in developing countries. One billion people are living in the world's unplanned shanty towns, and 40 of the 50 fastest growing cities are located in earthquake zones. Another 10 million people live under constant threat of floods.

The IFRC report exposes another disturbing trend. As the costs of natural disasters increases and losses

escalate, the amount of aid is dropping. Over the last five years, emergency aid funds have dropped by 40%, and many insurance and reinsurance companies have refused to provide coverage in the Caribbean.

There is one message of hope in ***World Disasters Report 1999***, and it lies in data showing the success of disaster preparedness. In China, a recent analysis of disaster preparedness indicated that $3.5 billion invested in flood control over the last 40 years has saved the economy $12 billion in potential losses. The report concludes that more people have to change the way they look at disasters and change the system if they want to prevent loss of life and the wasting of donor funds. Spend more money before disaster strikes and invest in disaster preparedness, the report advises.

The ***World Disasters Report 1999*** can be ordered by contacting the *Edigroup, CP393, 1225 Chêne-Bourg, Switzerland; fax: +41 22 348 4482; e-mail:* *abonne@edigroup.int.ch*. The cost is $25.00 (U.S.) per copy. Information on shipping charges and details about the ***World Disasters Report 1999*** are available from the IFRC Web site: *http://www.ifrc.org*.

A tool for hazards educators . . .

Disaster Time Line: Selected Events and Outcomes (1965-2000)

The new ***Disaster Time Line*** provides a unique, graphic depiction of major disasters, both natural and technological, that have affected emergency management policies in the U.S. Using colorful computer graphics, the ***Disaster Time Line*** chart (roughly 11" by 32") shows not only major events and the year they occurred, but also the influence each event had on major after-action reports and analyses, federal statutes, federal regulations and executive orders, federal response plans, and major federal organizational changes.

The ***Disaster Time Line*** should prove a valuable tool for both teachers and students of emergency management; consultants who must brief clients on the history or context of emergency preparedness decisions; emergency managers at all levels of government who need to educate junior staff regarding significant disasters, their outcomes, and their influence on disaster policy; and any other persons interested in the recent history of hazards and disasters in the U.S.

The ***Disaster Time Line*** costs $20.00, including postage within the U.S. Contact the address below for details about bulk purchases, international mailing costs, or other mailing arrangements. Orders must be prepaid by check or money order and should be directed to ***Disaster Time Line***, *Claire B. Rubin and Associates, P.O. Box 2208, Arlington, VA 22202; (703) 920-7176; e-mail:* *info@disaster-timeline.com* or *cbrubin@aol.com*. For more information, see *http://www.disaste r-timeline.com*.

Whither the Decade?

The closing event of the United Nations International Decade for Natural Disaster Reduction (IDNDR)--the "IDNDR Programme Forum"--was held July 5-9 in Geneva, Switzerland. Persons interested in the IDNDR, particularly its continuation into the next millennium,should consult the documents resulting from that meeting. At least three major statements were produced: ***The Geneva Mandate On Disaster Reduction***; ***General Conclusions: A Brief Summary of 40 Sessions***, prepared by Robert M. Hamilton; and ***Strategy for a Safer World in the 21st Century: Disaster and Risk Reduction***, which includes an "Introduction," "Vision," "Objectives," "Implementation," "Responsible Parties," and "Review."

These and other resulting reports are available on the IDNDR Web site: *http://www.idndr.org*. For additional information, contact the *U.N. IDNDR Secretariat, Palais Wilson, 52 rue des Paquis, CH-1201 Geneva, Switzerland; tel: (41 22) 917 9000; fax: (41 22) 917 9098; e-mail: idndr@dha.unicc.org*.

October 13, 1999

World Disaster Reduction Day

Prevention Pays

For details about opportunities and activities planned for World Disaster Reduction Day 1999, see *http://www.idndr.org/campaign/reday.htm*, or contact *Madeleine Moulin-Acevedo, Promotion and Public Awareness Unit, IDNDR Secretariat, Palais Wilson, 52 rue des Paquis, CH-1201 Geneva, Switzerland; tel: (41 22) 917 9712; fax: (41 22) 917 9098; e-mail: idndr@dha.unicc.org*.

Multihazard Mitigation Council Seeks Comments on National Mitigation Plan

The Multihazard Mitigation Council (MMC) was established by the National Institute of Building

Sciences to help reduce losses associated with natural and anthropogenic hazards by fostering consistent, effective multihazard risk mitigation strategies, guidelines, and practices (see the ***Observer***, Vol. XXIII, No. 3, p. 12). The MMC cites itself as "the first organization of its kind" to reflect the diverse concerns of the many organizations across the nation that are involved in the various aspects of emergency management--preparedness, mitigation, response, and recovery.

As a way to reduce the natural hazards vulnerability of individuals, homes, businesses, and communities, the MMC collects and shares success stories of public and private efforts that have proven valuable. Thus, the council serves as an important source of information to policy makers. In that respect, the MMC is currently conducting a nationwide peer review of the Federal Emergency Management Agency's National Pre-Disaster Mitigation Plan (see the ***Observer***, Vol. XXIII, No. 2, p. 11). Persons with questions regarding the MMC and/or wishing to participate in the review, should contact *Stephen Gates, MMC, 1090 Vermont Avenue, N.W., Suite 700, Washington, DC 20005; (202) 289-7800; e-mail: sgates@nibs.org*.

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The Earthquakes and Megacities Initiative

The Earthquakes and Megacities Initiative (EMI) is an international grassroots organization trying to reduce earthquake risk. The EMI mission is to accelerate earthquake preparedness, mitigation, and recovery among large urban areas by improving the transfer of earthquake mitigation technology to end users. These efforts are aimed at improving practical, cost-effective, and culturally appropriate solutions, particularly in developing countries.

Established in early 1998, EMI is a scientific, nongovernmental organization. Supported so far with in-kind contributions, volunteers, and small grants, EMI is preparing to incorporate as a nonprofit organization so it can receive broader funding. The organization sees research and scientific advancements as only one half of a two-pronged approach to earthquake mitigation. The second half involves capacity building among at-risk cities--focusing on specific projects and fostering strong regional and local partnerships. Regarding this latter approach, EMI supports a "twin cities" project that pairs or groups cities with differing earthquake experience so they can share knowledge and insights, development of regional centers to spread information and expertise, and a training and education program.

A major workshop to further the aims of EMI is planned for November 29-December 2, 1999 in Manila. For more information about this initiative, see http://www-megacities.physik.uni-karlsruhe.de/ or contact *Pamela Ehret, EMI Executive Secretary, Engineering Resource, Risk Management Solutions, Inc., 149 Commonwealth Drive, Menlo Park, CA 94025; (650) 617-6613; fax: (650) 617-6490; e-mail: pamelae@riskinc.com*.

[Adapted from the June 1999 *IAEM Bulletin*]

New England Reviews Coastal Programs

Connecticut, Maine, Massachusetts, New Hampshire, New York, and Rhode Island are being surveyed under a new project to assess the status of coastal hazard management and mitigation planning in the Northeast. The objective is to identify interagency working relationships and to summarize coastal hazards mitigation activities in the region. Each state emergency management director, hazard mitigation officer, floodplain coordinator, and coastal zone management program director has received a survey addressing various aspects of coastal hazard management. The project is being carried out jointly by the Coastal Resources Center, University of Rhode Island (URI), and the Coastal Services Center of the National Oceanic and Atmospheric Administration. For information, contact *Pam Pogue, Oceanography, Bay Campus, University of Rhode Island, South Ferry Road, Narragansett, RI 02882; (401) 874-6616/6224; e-mail: pogue@gsosun1.gso.uri.edu*.

[Adapted from the June 1999 issue of *News & Views*, the newsletter of the Association of State Floodplain Managers]

Proposals Sought

U.S.-Japan Urban Earthquake Research

The National Science Foundation's five-year initiative regarding U.S.-Japan Cooperative Research in Urban Earthquake Disaster Mitigation (NSF-98-36) will begin its third cycle with the upcoming October 1, 1999, proposal deadline. Information on activities supported in the first two cycles is available on the World Wide Web at http://ce.ecn.purdue.edu/~vail/jtcc/.

New proposals are welcome. It is expected that projects under this initiative will involve significant collaboration with Japanese researchers, and proposals should list, if possible, specific counterpart investigators in Japan. Projects that involve students and young researchers will be given priority. The complete program announcement is available at http://www.nsf.gov/cgi-bin/getpub?nsf9836.

[Adapted from the Earthquake Engineering Research Institute (EERI) Newsletter]

Introducing the Earthquake Disaster Mitigation Center, Japan . . .

In January 1995, the Great Hanshin-Awaji (Kobe) Earthquake resulted in over 6,000 deaths, the collapse of many buildings and much civil

infrastructure, and other devastating socioeconomic impacts. The disaster dramatically revealed the seismic vulnerability of structures in modern urban areas, and it prompted researchers in Japan to review and reorganize the entire Japanese earthquake disaster management system that hitherto relied heavily on structural earthquake-resistant technologies.

To address these issues, an Earthquake Disaster Mitigation Research Center (EDM) was established in January 1998 under Japan's Institute of Physical and Chemical Research (RIKEN). Based on lessons learned from the Kobe earthquake, the EDM carries out multidisciplinary research encompassing physical, engineering, and social sciences and includes researchers both within and outside the center. Indeed, the EDM aims to become the foremost center for earthquake disaster mitigation research in the Asia-Pacific region by exchanging information and personnel with domestic and overseas organizations.

The EDM states that its main purpose is to produce "frontier research on earthquake disaster mitigation for urban regions." Research topics will be selected with the aim of bridging the gap between fundamental research by universities and practice-oriented research by disaster management agencies. The major research activities will be performed by three research teams: the disaster process simulation team, the disaster information system team, and the structural performance team. In the future, their results will be amalgamated into a disaster management database to promote comprehensive understanding of disaster processes involving "physical, societal, and information agendas." In addition, methods will be developed for using advanced technologies to disseminate the work of the EDM.

For more information, contact the *Earthquake Disaster Mitigation Research Center, Institute of Physical and Chemical Research, 2465-1 Mikiyama, Miki, Hyogo Prefecture 673-0433, Japan; tel: +81-794-83-6651; fax: +81-794-83-6685; WWW: http://www.miki.riken.go.jp*.

[Adapted from the *INCEDE Newsletter*, the newsletter of the International Center for Disaster-Mitigation Engineering]

. . . And the Centre for Disaster and Development, India

The Centre for Disaster and Development (CDD) is a nonprofit organization in India working to create awareness at all levels about the effects of catastrophes on social and economic growth and advancement. Specifically, the centre intends to:

- Contribute toward disaster prevention, preparedness, mitigation, response, and recovery and, thereby, to sustainable development;
- Improve and conduct vulnerability analyses, hazard analyses, and risk analyses leading to improved disaster planning;
- Help improve disaster management and social development by addressing rural, urban, tribal, forest, environment, pollution, gender, child, health, education, population control, human rights, nonconventional energy, and wildlife issues;
- Conduct training and orientation for policy makers, administrators, businesses, voluntary organizations, and others;
- Collaborate with local, national, and international organizations to further these objectives.

The activities of CDD and its members have included:

- Managing a rural entrepreneurship development project at Kanpur Dehat;
- Establishing blood donation camps in Delhi;
- Contributing to regional disaster management training and distance education programs;
- Working with the World Bank on early warning and community awareness in cyclone-prone areas of Andhra Pradesh.

In the future, the CDD envisions conducting training programs in the area of disaster management at grassroots, national, regional, and international levels; establishing a documentation center on disaster and development; establishing links with other disaster management institutions in the world; and creating a forum for interaction among nongovernmental organization activists, government officials, international agency representatives, professionals, and academics.

For more information about the Centre for Disaster and Development, contact *Rajive Kohli, Centre for Disaster and Development, K-7, Jangpura Extension, New Delhi-110014; tel: (91 11) 43126221, 4311792; e-mail: kohli@del3.vsnl.net.in*.

Conferences And Training

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

Second Annual Conference on Innovations in Disaster Mental Health. Offered by: Disaster Mental Health Institute, University of South Dakota. Sioux Falls, South Dakota: September 26-28, 1999. This conference will address "Nuclear, Biological, and Chemical Incidents: Disaster Mental Health Preparation and Response." The organizers intend to gather leaders in disaster mental health to discuss strategies and recommend future policy in the discipline. The meeting will consist of keynote presentations followed by small groups in which the issues raised will be discussed in depth. More information is available from the *Disaster Mental Health Institute, University of South Dakota--SDU 116, 414 East Clark Street, Vermillion, SD 57069-2390; (605) 677-6575 or (800) 522-9684; fax: (605) 677-6604; WWW: http://www.usd.edu/dmhi/*.

Semi-Annual Conference of the Floodplain Management Association (FMA). Sacramento, California: September 28-October 1, 1999. The theme of the fall FMA meeting is "Watershed Management and Planning--A Broader Approach to Floodplain Management." For details, contact *Laura Hromadka, FMA, P.O. Box 2972, Mission Viejo, CA 92692; (949) 766-8112; fax: (949) 459-8364; e-mail: fmalaura@pacbell.net*.

Critical Incident Stress Management Workshops. Offered by: International Critical Incident Stress Foundation (ICISF).

- *Denver, Colorado: October 7-10, 1999*
- *Valley Forge, Pennsylvania: October 21-24, 1999*
- *Portland, Oregon: November 11-14, 1999*
- *San Diego, California: December 2-5, 1999*

ICISF offers a suite of workshops covering such things as basic critical incident stress management (CISM); peer support/individual crisis intervention; stress management for trauma providers; advanced CISM; CISM for children; suicide prevention and intervention; and stress management linked to disaster management. New programs are scheduled regularly; for an up-to-date calendar, or to arrange a workshop, contact *ICISF, 10176 Baltimore National Pike, Unit 201, Ellicott City, MD 21042; (410) 750-9600; fax: (410) 750-9601; WWW: http://www.icisf.org*.

World Civil Engineering Conference and Exposition. Presented by: American Society of Civil Engineers (ASCE). Charlotte, North Carolina: October 17-20, 1999. This premier World Civil Engineering Conference will include several sessions addressing natural hazards. Detailed information, including a complete program, is available from the ASCE Web site: *http://www.asce.org/conferences/99conv/index.html*. Interested persons can also contact *ASCE, Civil Engineering Conference and Exposition, 1801 Alexander Bell Drive, Reston, VA 20191-4400; (800) 548-2723 or (703) 295-6300; fax: (703) 295-6222*.

Sixth Annual Congress on Natural Hazard Loss Prevention. Sponsor: Institute for Business and Home Safety (IBHS). Memphis, Tennessee: October 27-28, 1999. IBHS is an insurance industry institution established to reduce death, injury, property damage, economic loss, and human suffering caused by natural disasters. Since its founding, the institute has hosted an annual congress focusing on various aspects of natural hazards mitigation. IBHS believes that it is essential to educate people about the natural hazards that pose a threat and to motivate people to take appropriate action. Hence, the aim of the IBHS congress is to provide new knowledge about hazard loss reduction and the tools to apply that knowledge. Details about this year's agenda are available from *IBHS, 175 Federal Street, Suite 500, Boston, MA 02110; (617) 292-2003; fax: (617) 292-2022; e-mail: info@ibhs.org; WWW: http://www.ibh s.org*.

Management in Relief and Emergencies. Offered by: Medical Emergency Relief International (MERLIN). Middlesex, U.K.: November 8-13, 1999. This six-day residential course is intended primarily for experienced relief workers who will be managing teams and/or programs, either in the field or from organization headquarters. Its goal is to improve effectiveness in all aspects of disaster management and emergency relief. More information is available from *Sarah Hall, Medical Training Officer, MERLIN, 14, David Mews, Porter Street, London W1M 1HW, U.K.; tel: 0171 487 2505; WWW: http://www.reliefweb.int/training*.

Twenty-Fifth Regional Course on Disaster Management (DMC-25). Offered by: Asian Disaster Preparedness Center (ADPC). Bangkok, Thailand: November 8-26, 1999. ADPC is a regional center that works with governments and communities of the Asia/Pacific Region to strengthen their ability to prepare for, mitigate, and respond to disasters. ADPC provides training, technical assistance, and information, and also sponsors and conducts

research. This basic disaster management course has been the cornerstone of ADPC training over the years. It is designed to provide a broad understanding of the elements of disaster management and to improve disaster management skills among individuals, at national and local levels, responsible for dealing with and formulating policies and programs concerning emergencies and disasters. For detailed information and/or an application form, contact *ADPC, AIT, P.O. Box 4, Klong Luang, Pathumthani 12120, Thailand; tel: (66 2) 524 5391, 524 5362; fax: (66 2) 524 5360; e-mail: lpdadpc@ait.ac.th; WWW: http://www.adpc.ait.ac.th*.

Fifteenth International Hazardous Material Spills Conference. Sponsors: National Response Team, National Governors' Association, U.S. Environmental Protection Agency (EPA), and others. St. Louis, Missouri: April 4-6, 2000. The International Hazardous Material Spills Conference provides all persons and organizations concerned about such hazards an opportunity to examine existing policies and practices regarding accident prevention, preparedness, and response. For the latest information about the conference, see *WWW: http://www.nrt.org/hazmat2000*, or *e-mail: hazmat2000@nrt.org*. Interested persons can also contact the *National Response Team (NRT), c/o U.S. EPA, MC 5101, 401 M Street, S.W., Washington, DC 20460; fax: (202) 260-0154*.

Eleventh Global Warming International Conference and Expo (GW11): Kyoto Compliance Review--Year 2000 Conference. Sponsors: Global Warming International Program Committee and Global Warming International Center. Boston, Massachusetts: April 25-28, 2000. This conference will include sessions on climate change and extreme events, Pacific and North Atlantic oscillations, sustainable agriculture and forestry, global warming and human health, climate change and infectious diseases, as well as a symposium on energy natural resource management. For additional information, contact *Sinyan Shen, GWIC-USA, 22W381-75th Street, Naperville IL 60565; (630) 910-1551; fax: (630) 910-1561; e-mail: syshen@megsinet.net; WWW: http://globalwarming.net*.

2000 National Disaster Medical System (NDMS) Conference. Sponsors: U.S. Department of Health and Human Services, Department of Defense, Department of Veterans Affairs, and Federal Emergency Management Agency. Las Vegas, Nevada: April 29-May 3, 2000. The 2000 NDMS conference will offer practical information on implementing interdisciplinary strategies for preventing or reducing the health and medical consequences of disasters of all kinds. The program will feature clinical updates as well as sessions on counter-terrorism, extreme environmental events, disaster team development, information management systems, mass gathering events, critical incident stress management, sheltering and mass care, health system emergency planning, mass fatality operations, veterinary services in disasters, and new standards in emergency management. For additional information, contact *NDMS, 12300 Twinbrook Parkway, Suite 360, Rockville, MD 20875; (301) 443-1167 or (800) 872-6367 (press the "star" key); fax: (301) 443-5146 or (800) 872-5945; e-mail: ndms@usa.net; WWW: http://www.oep-ndms.dhhs.gov*.

CPM 2000--Contingency Planning and Management Annual Conference: "Furthering Business Continuity in the New Millennium." Sponsor: ***Contingency Planning and Management*** *Magazine. Baltimore, Maryland: May 8-11, 2000*. CPM 2000 will feature both a conference and trade show on business continuity planning. The program includes over 50 sessions on various aspects of contingency planning. For details, contact *CPM 2000, WPC Expositions, 84 Park Avenue, Flemington, NJ 08822; (908) 788-0343, ext. 135; fax: (908) 788-9381; e-mail: CPM2000@witterpublishing.com; WWW: http://www.contingencyplanexpo.com*.

Eighth International Conference of the Natural Hazards Society. Tokushima, Shikoku, Japan: May 21-25, 2000. The International Society for the Prevention and Mitigation of Natural Hazards (the Natural Hazards Society--NHS) was formally established in August of 1988. Some of its principal objectives are:

- to promote research in all aspects of natural hazards;
- to assist in the distribution of preparedness and emergency response plans for countries around the world;
- to assist in the formation and implementation of education programs on hazards prevention and mitigation.

The NHS sponsors workshops and other training and also publishes ***Natural Hazards: An International Journal of Hazards Research and Prevention***.

The society's International Symposia on Natural and Technological Hazards, a continuing interdisciplinary series begun in 1982, are intended to promote the advancement of hazard sciences, to explore those aspects that may be similar among some of the various hazards, to review the latest developments in selected fields, and to outline new directions for future research. The theme for the eighth symposium is "Natural Disasters--How Do We Mitigate Them?" The organizing committee invites papers specifically related to the scientific, social, economic, and political aspects of this theme, with particular emphasis on case studies from recent major disasters. Other papers on natural and technological disasters will also be considered. Abstracts of up to 500 words must be submitted to the conference secretariat no later than September 30, 1999, via the conference Web page (preferred): *http://www.drs.dpri.kyoto-u.ac.jp/Hazards2000/*. Abstracts can also be submitted via fax: *+81-774-38-4336*; or e-mail: *abst-h2000@drs.dpri.kyoto-u.ac.jp*. For more information about Hazards 2000 or the NHS in general, contact *Russell Blong, Natural Hazards Society, c/o Natural Hazards Research Centre, Macquarie University, NSW 2109, Australia; fax: +61-2-9850-9394; e-mail: NHS@ocs1.ocs.mq.edu.au; WWW: http://www.es.mq.edu.au/NHRC/NHS/*.

Technology Partnership for Emergency Management Workshop and Exhibition: "Moving Preparedness, Mitigation, and Response into the Next Century." Sponsor: Federal Emergency Management Agency; organizer: National Renewable Energy Laboratory. Colorado Springs, Colorado: June

11-15, 2000. The program for this second technology in emergency management workshop (the first was held in Gatlinburg, Tennessee, in May) is currently being finalized. However, it will undoubtedly feature technology demonstrations, displays of state-of-the-art emergency systems, individual presentations, roundtable discussions, panels, and scenario analyses. A complete conference announcement will be available this fall from *Wendy Larsen, National Renewable Energy Laboratory, 1617 Cole Boulevard, Golden, CO 80401-3393; (303) 384-6497; e-mail: wendy_larsen@nrel.gov; WWW: http://www.nrel.gov/surviving_disaster*.

Watershed Management 2000 Conference: "Science and Engineering Technology for the New Millennium." Sponsors: American Society of Civil Engineers (ASCE) and others. Fort Collins, Colorado: June 21-24, 2000. ASCE's year 2000 watershed conference will focus on advancements in watershed management that can aid decision makers in the 21st century. It will take a broad perspective, examining as many issues as possible--including those concerning hydrologic hazards. For more information, contact *ASCE, 1801 Alexander Bell Drive, Reston, VA 20191-4400; (800) 548-2723 or (703) 295-6300; fax: (703) 295-6222; WWW: http://www.asce.org/conferences*.

Watershed 2000. Vancouver, British Columbia, Canada: July 9-12, 2000. Sponsors: Water Environment Federation (WEF), British Columbia Water and Waste Association, and the Western Canada Water and Wastewater Association, in conjunction with the International Joint Commission, the U.S. Environmental Protection Agency, Environment Canada, and others. Abstracts are due November 15, 1999. Details are available from *WEF Member Services Center, 601 Wythe Street, Alexandria, VA 22314-1994; (800) 666-0206 or (703) 684-2452; fax: (703) 684-2413; e-mail: msc@wef.org*.

International Public Works Congress and Exposition. Louisville, Kentucky: September 10-13, 2000. This annual conference includes sessions on emergency preparedness and response and the role of public works agencies in disaster recovery. For details, contact the *American Public Works Association, 2345 Grand Boulevard, Suite 500, Kansas City, MO 64108-2641; (816) 472-6100; fax: (816) 472-1610; e-mail: education@apwa.net; WWW: http://www.apwa.net*.

Karst 2000: International Symposium and Field Seminar on the Present State and Future Trends of Karst Studies. Sponsors: International Research and Application Center for Karst Water Resources and others. Marmaris, Turkey: September 17-21, 2000 (symposium); September 22-26, 2000 (field seminar). The aim of this conference is to bring together scientists from around the world involved in research on karst terrains. The symposium will both examine the historical development of the field and look at the current state-of-the-art and new trends in karst studies. For a conference circular, in North America, contact *A. Ivan Johnson, 7474 Upham Court, Arvada, CO 80003; (303) 425-5610; fax: (303) 425-5655*; in Europe, Asia, Africa, contact *Gultekin Gunay, International Research and Application Center for Karst Water Resources, Hacettepe University, 06532 Beytepe Ankara, Turkey; tel: +90 312 235 2543; fax: +90 312 299 2136; e-mail: karst@eti.cc.hun.edu.tr; WWW: http://www.karst.hun.edu.tr*.

Fifth Asia-Pacific Conference on Disaster Medicine (APCDM). Vancouver, British Columbia, Canada: September 27-30, 2000. The fifth APCDM will allow health professionals and disaster experts from both government and nongovernment agencies to explore disaster management techniques and discuss emergency medical methods, models, and technologies. The aim is to share ideas across disciplines and to develop new, optimal multidisciplinary approaches to disaster management and disaster medical care. Abstracts are currently being solicited and are due January 15, 2000. For a conference brochure, contact *Disaster Preparedness Resources Centre, University of British Columbia, 2206 East Mall, Fourth Floor, Vancouver, BC, Canada V6T 1Z3; (604) 822-5254; fax: (604) 822-6164; e-mail: dprc@interchange.ubc.ca; WWW: http://www.safety.ubc.ca/5APCDM*.

International Snow Science Workshop 2000. Big Sky, Montana: October 2-6, 2000. The International Snow Science Workshop includes numerous sessions on avalanches and other snow hazards. The year 2000 meeting is in the early planning stages, and the organizers welcome suggestions for presentations. To make recommendations, see the conference Web site: *WWW: http://www.coe.montana.edu/issw/*, or contact *Ed Adams, Civil Engineering, 205 Cobleigh Hall, Montana State University, Bozeman, MT 59717-3900; (406) 994-6122; fax: (406) 994-6105; e-mail: eda@ce.montana.edu*.

SARSCENE 2000: "One for All, All for One." Sponsors: National Search and Rescue Secretariat and Sauvetage Canada Rescue. Laval, Quebec, Canada: October 9-13, 2000. This conference includes search and rescue games, lectures, seminars, workshops, demonstrations, and a trade show. For details, contact *Isabelle Beaumont-Frenette, National Search and Rescue Secretariat, 275 Slater Street, 4th Floor, Ottawa, Ontario, Canada K1A 0K2; (613) 992-8215; fax: (613) 996-3746; e-mail: isabelle@nss.gc.ca*.

Hydro 2000: Third International Hydrology and Water Resources Symposium--"Interactive Hydrology: Interactions Between Hydrology and Climate, Environment, Economics, and Society." Sponsors: International Association for Hydrological Science and others. Perth, Australia: November 20-23, 2000. Increasingly, water is a matter of community concern. Issues such as the impact of dams, groundwater contamination, flooding, climate change, water quality, and algal blooms all require not just a knowledge of hydrology, but an understanding of the interactions between the hydrology of a system and the related environment, climate, economics, and society. Hydro 2000 will focus on these interactions in order to better prepare hydrologists and others to deal with these problems. Abstracts and expressions of interest are currently being solicited. For more information, contact *Congress West Pty Ltd, P.O. Box 1248, West Perth, WA 6872, Australia; tel: +61 8 9322 6906; fax: +61 8 9322 1734; e-mail: conwes@congresswest.com.au; WWW: http://www.ieaust.org.au*.

Cities on Volcanoes 2. Sponsors: Institute of Geological and Nuclear Sciences, Auckland Regional Council, International Association of Volcanology

and Chemistry of the Earth's Interior, and others. Auckland, New Zealand: February 12-16, 2001. This meeting will bring together volcanologists, sociologists, psychologists, emergency managers, economists, and city planners to evaluate volcanic crisis preparedness and management in cities and densely populated areas. The meeting will address education, emergency management, hazard and risk assessment, volcano monitoring, social impacts and public health, economic impacts and insurance, lifeline impacts, and volcanic processes. To receive a conference circular, contact the *Secretary, Cities on Volcanoes 2, Wairakei Research Centre, Private Bag 2000, Aupo, New Zealand; fax: 64-7-374 8199; e-mail: citiesonvolc2@gns.cri.nz; WWW: http://www.gns.cri.nz/news/conferences/cities.html*.

Fourth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics. San Diego, California: March 26-31, 2001. (Pre-conference short course on Soil Dynamics: March 25-26, 2001.) This conference is being held to advance the state of the art and practice in several areas of earthquake engineering and to define directions to be taken in future work. Engineers, geologists, scientists, teachers, and other professionals worldwide are invited to contribute original, unpublished papers for discussion at the conference and publication in the proceedings. Abstracts are due November 30, 1999. Details are available from *http://www.umr.e du/~conted/conf8767.html*. For information on technical issues, contact *Shamsher Prakash, Conference Chairperson, 308 Civil Engineering, University of Missouri-Rolla, Rolla, MO 65409-0030; (573) 341-4489; fax: (573) 341-6553/4729; e-mail: prakash@n ovell.civil.umr.edu*. For other information about the conference, contact *Buddy Poe, Conference Coordinator, 103 ME Annex, University of Missouri-Rolla, Rolla, MO 65409-1560; (573) 341-6061; fax: (573) 341-4992; e-mail: buddyp@umr.edu*.< /P>

PERI Internet Symposium Set for October

The Public Entity Risk Institute (see the ***Observer***, Vol. XXII, No. 2, p. 20; Vol. XXIII, No. 1, p. 8) is sponsoring an Internet symposium, Oct ober 4-8, 1999, on what communities can do to better prepare for and recover from disasters. Entitled "Dealing with Disaster," the conference is intended to inform smaller public entities, nonprofit organizations, and businesses on ways they can work together to mitigate disasters. The symposium, free and open to all interested persons, will be conducted in the "Symposium Center" on the institute's Web site: *http://www.riskinstitute.org*.

The symposium will be based, in part, on the recently released National Science Foundation study, ***Disasters by Design: A Reassessment of Natural Hazards in the United States*** (see the ***Observer***, Vol. XXIII, No. 4, p. 3), which outlines a comprehensive approach to dealing with disasters on a long-term, sustainable basis. Each day, the meeting will open with an issues paper intended to stimulate discussion. Papers will be transmitted ahead of time to persons who pre-register; registration is available at the PERI Web site listed above.

A New Independent Study Course from FEMA/EMI

The Federal Emergency Management Agency's Emergency Management Institute (EMI) has recently issued a new independent study course: "The Role of Voluntary Agencies In Emergency Management" (IS 288). For details, or to obtain a copy, see EMI's independent study Web page: *http://www.fema.gov/home/EMI/ishome.htm*, which offers numerous other independent study courses for emergency managers. The course materials can also be ordered from the *Emergency Management Institute, Independent Study Program, 16825 South Seton Avenue, Emmitsburg, MD 21727-8998*.
EMI Catalog Available

The Federal Emergency Management Agency's Emergency Management Institute (EMI) in Emmitsburg, Maryland, is a national center for the development and delivery of emergency management training. The institute creates and conducts both resident and nonresident courses for U.S. citizens (and, occasionally, non-U.S. citizens; see the ***Observer***, Vol. XXIII, No. 6, p. 19). EMI recently issued its resident course catalog for the fall 1999-summer 2000 academic year, with programs addressing a broad spectrum of emergency management skills. The catalog includes an application form. To obtain a copy, or to receive detailed information about a specific course, contact *FEMA/EMI, 16825 South Seton Avenue, Emmitsburg, MD 21727*; or see the EMI Web site: *http://www.fema.gov/EMI*.

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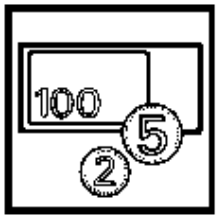

Contracts and Grants

Impacts of El Niño Flooding on Socio-Political Organization in the Moche Valley, Peru. Funding agency: National Science Foundation, $59,263, 24 months. For information, contact: *Gary A. Huckleberry, Department of Anthropology, College 150, Washington State University, Pullman, WA 99164-4910; (509) 335-4807; e-mail: ghuck@wsu.edu.*

In 1997, a geoarchaeological reconnaissance of the middle Moche Valley in Peru resulted in the discovery of a 100+ meter-long streamcut at the mouth of the Qebrada de los Chinos. The four-meter high exposure contains at least 11 flood deposits that are interspersed with organic soils and cultural materials. This project will involve profiling, photography, and laboratory analysis of sediments to construct a 2,500-year record in order to test the relationship between El Niño events and cultural change.

Archaeology of the Cascadia Subduction Zone: Cultural Responses to Coseismic Subsidence, Tsunamis, and Earthquakes on the Southern Northwest Coast. Funding agency: National Science Foundation, $11,399, 12 months. Principal Investigators: *Madonna L. Moss and Robert Losey, Department of Anthropology, University of Oregon-Eugene, Eugene, OR 97403-6076; (541) 346-6076; fax: (541) 346-0668; e-mail: mmoss@oregon.uoregon.edu.*

This grant will support doctoral dissertation research that will use archaeological data to examine cultural responses to tectonic events and the effects of such events upon the landscape of the northwest coast of North America. A growing body of evidence has documented the occurrence of large earthquakes in this region over the last several thousand years that resulted in subsidence and the generation of large tsunamis. After examining archaeological sites, data gathered related to an earthquake that occurred in the region around 1700 A.D. will be compared with Native American oral history concerning tsunamis and earthquakes to determine settlement patterns before and after the quake.

Earthquake Disasters and Policy Change: A Patterned Opportunism Model of California Seismic Safety Innovations. Funding agency: National Science Foundation, $229,260, 36 months. Principal Investigator: *Robert A. Olson, Robert Olson Associates, Inc., 100 Egloff Circle, Folsom, CA 95630.*

California is often seen as the model for seismic safety policy, both nationally and internationally. This project will develop a detailed history of 12 major pieces of California seismic safety legislation covering more than 50 years, focusing on the origins of the legislation and their progress through the legislative process. In addition, the project will test a model addressing building safety and attempt to explain policy learning and evolution, especially at the state level, by interrelating disaster events, institutional capacity building, and policy innovation.

Indirect Losses Due to Electric Power System Failure. Funding agency: National Science Foundation, $49,269, 12 months. Principal Investigator: *Frederick Krimgold, Virginia Tech Graduate Center, 2990 Telestar Court, Virginia Polytechnic Institute and State University, Falls Church, VA 22042; (703) 698-6008; fax: (703) 698-6062; e-mail: krimgold@vt.edu.*

Recently, the electrical power system of the Pacific Gas and Electric Company (PG&E) failed in the San Francisco Bay area, leaving 460,000 customers without power. The outage affected businesses, government agencies, transportation, hospitals, and individuals, potentially compromising the economy and welfare of the community for a number of hours. PG&E accepted full responsibility and solicited damage claims from affected parties. This project will examine the nearly 5,000 claims received so far, the most complete database available regarding such damage, to determine the economic and social consequences of the power failure. PG&E has agreed to provide the researcher access to the data in order to study the indirect costs of power outages due to natural disasters.

Response to an Acute Environmental Accident Across an Ethnically Diverse Community. Funding agency: National Science Foundation, $46,144, 12 months. Principal Investigator: *Elaine Vaughan, Department of Psychology and Social Behavior, University of California-Irvine, Irvine, CA 92697; (949) 824-7184 or 824-5574; fax: (949) 824-3002; e-mail: evaughan@uci.edu.*

This investigation will explore the risk perspectives, behaviors, and responses of an ethnically and socioeconomically diverse community following an explosion and fire at the Chevron oil refinery in Richmond, California, in March 1999. Several thousand nearby residents were warned to avoid contact with the resulting fumes, and more than 1,000 visited emergency rooms with varying complaints. Recent research in Richmond that examined risk perspectives and judgments prior to the Chevron incident offers the researchers an unusual opportunity to compare responses after the accident to those preceeding regarding environmental risks. Among the goals of the research is to assess how diverse social groups within this community responded over time to the accident and whether differences in pre-existing beliefs and in the framing of risk problems predicted variability in response to the explosion.

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Recent Publications

All Hazards

Development in Disaster-Prone Places: Studies of Vulnerability. *James Lewis. 1999. 224 pp. $29.95. Copies can be purchased from Intermediate Technology Publications, 103-105 Southampton Row, London WC1B 4HH, U.K.; tel: +44 (0)171 436 9761; fax: +44 (0) 171 436 2013; e-mail: orders@itpubs.org.uk.*

Lewis posits that there has been a longstanding imbalance in disaster management, with an over-emphasis on postdisaster assistance and a lack of attention to vulnerability reduction. He asks the fundamental question: How can we mold predisaster development to also be a means for vulnerability reduction? Lewis examines what he believes are the requirements for enacting long-term change by focusing on specific policies, and presents case studies from Sri Lanka, the Caribbean, and the South Pacific.

Topics: Annual Review of Natural Catastrophes 1998. *Munich Reinsurance. 1999. 24 pp. For availability, contact Gerhard Berz, Münchener Rückversicherungs-Gesellschaft, Central Division, Re-insurance/Research and Development, D-80791 Munich, Germany; tel: (0 89) 38 91-52 91; fax: (0 89) 38 91-56 96; e-mail: info@munichre. com; WWW: http://www.munichre.com.*

Every year, Munich Reinsurance, one of the world's leading reinsurance companies, releases its review of worldwide losses due to natural catastrophes. The most recent version notes that 1998 was a year with an exceptionally large number of catastrophes, with losses exceeding $90 billion, including insured losses of $15 billion. These losses constitute a further rise in the dramatic long-term loss trend. This report provides detailed loss estimates; charts the number of events, deaths, economic losses, and insured losses; provides a world map of natural catastrophes in 1998; describes the major disasters; and charts loss trends from 1960 to the present. It also contains sections on El Niño and La Niña and their potential impacts, a flood analysis of Germany, natural catastrophes in Germany, and the company's famous ***World Map of Natural Disasters*** (see the ***Observer***, Vol. XXIII, No. 5, p. 7). The ***Annual Review*** concludes with a discussion of the climate change debate.

Disasters and Democracy: The Politics of Extreme Natural Events. *Rutherford H. Platt, with contributions from Miriam Gradie Anderson, Alexandra Dawson, Jessica Spelke Jansujwics, Ute J. Dymon, K. Beth O'Donnell, Claire B. Rubin, and David Scherf. 1999. 335 pp. $35.00, plus $5.75 shipping. Copies can be purchased from Island Press, Department 5NHW, P.O. Box 7, Covelo, CA 95428; (800) 828-1302; fax: (707) 983-6414; e-mail: ipwest@igc.apc.org; WWW: http://www.islandpress.org.*

The contributors to this volume ask whether providing federal assistance is actually lessening the overall burden of disasters on Americans, or, conversely, has the availability of federal disaster assistance, flood

insurance, and other benefits inadvertently contributed to a false sense of security? Are people more likely to invest in property in hazardous areas because they believe the federal government will not hold them accountable? Are local communities, concerned with property values and tax revenue, more likely to allow or encourage building and rebuilding in unsafe locations because they expect a federal bailout when the next disaster strikes? ***Disasters and Democracy*** traces the evolution of the role of the federal government in disaster assistance; presents a spatial analysis of disaster declarations and federal assistance provided under the Stafford Act since its inception in 1988; appraises the overall concept of hazard mitigation; examines the property rights movement and the backlash against land- use regulation; and presents three regional case studies that examine the federal role in disaster recovery and the balance of federal and nonfederal loss-bearing. The volume concludes with an outline of cross-cutting issues and presents four major recommendations for improving disaster relief in the U.S.

Natural Disaster Awareness and Action Speaker's Kit*. 1999. Includes three-minute video--**10 of America's Costliest Disasters**, a nine-page outline, and 15 slides. A limited number of free copies are available and can be requested from the Institute for Business and Home Safety (IBHS), 175 Federal Street, Suite 500, Boston, MA 02110-222; (617) 292-2003; fax: (617) 292-2022; http://www.ibhs.org.*

This speaker's kit was developed by PPP 2000, a partnership of the Subcommittee on Natural Disaster Reduction and the Institute for Business and Home Safety, to provide a script and supporting materials to anyone who has the opportunity to speak on natural hazards issues. It contains a video tape of the 10 costliest disasters in the U.S., slides to reinforce the script, and six modules that discuss natural disasters in general, real-time warning, structural and nonstructural mitigation, mechanisms for financing natural disaster losses, building disaster resistant communities, and public outreach. The complete presentation runs approximately 40 to 45 minutes, including the video.

The Liaison for Civil-Military Humanitarian Relief Collaborations*. Vol. 1, No. 1. For information on how to subscribe, contact the Center of Excellence in Disaster Management and Humanitarian Assistance, c/o Tripler Army Medical Center, 1 Jarrett White Road (MCPA-DM), Tripler AMC, HI 96859-5000; (808) 433-7035; fax: (808) 433-1757; e-mail: pr@website.tamc.amedd.army.mil; WWW: http://coe.tamc.amedd.army.mil.*

This inaugural issue of ***The Liaison*** examines civil-military exercises, particularly the need to bring many individuals from widely divergent organizations--and even cultures--to the same table in order to implement humanitarian relief. It contains articles on a meeting that addressed civil-military exercises, the structure of such exercises, the Latin American Center for Disaster Management and Humanitarian Assistance, a panel discussion on the training value of exercises, response to the tsunami that struck the coast of Papua New Guinea in 1998, local corporate involvement in disaster response, and the building of a lateral organization to deal with disasters.

Crucibles of Hazard: Mega-Cities and Disasters in Transition*. James K. Mitchell, Editor. 1999. 549 pp. $34.95. To order a copy, contact the United Nations, Publications, 2 United Nations Plaza, DC2-853, New York, NY 10017; (800) 253-9646 or (212) 963-8302; fax: (212) 963-3489; e-mail: publications@un.org.*

Places like Tokyo, Mexico City, San Francisco, and Los Angeles are already identified with catastrophe

in both scientific literature and popular culture because of repeated experiences with devastating earthquakes, storms, floods, and wildfires. A similar fate faces other large urban centers--megacities such as Dhaka, Miami, London, Lima, Seoul, and Sydney. Prepared by the International Geographical Union's Study Group on the Disaster Vulnerability of Megacities, this collaborative study examines the past hazard experiences of such cities and analyzes their future risks. Not surprisingly, the authors conclude that the natural disaster potential of the biggest cities is expanding at a pace far exceeding the rate of urbanization, particularly because of the interrelationships among natural, technological, biological, and social risks. In addition to tracing hazard trends and arguing for management reforms, the authors of ***Crucibles of Hazard*** point to long-term issues of safety and security that must be resolved for urban sustainability.

The Use of Remote Sensing in Detecting and Analyzing Natural Hazards and Disasters, 1972-1998: A Partially Annotated Bibliography*. Pamela S. Showalter and Matthew Ramspott, Compilers. 1999. 102 pp. $10.00. Also available on computer disk for the same price. To order, send a check or money order to the James and Marilyn Lovell Center for Environmental Geography and Hazards Research, 601 University Drive, Department of Geography, Southwest Texas State University, San Marcos, TX 78666; fax: (512) 245-9140.*

This bibliography was created to document the extent to which satellite remote sensing has been used in disaster analysis and management. Satellite images can help detect and monitor geophysical hazards, predict or warn of impact, manage emergencies, and improve planning to reduce human vulnerability. This bibliography focuses on satellite imagery that is available from commercial, terrestrial satellite remote sensing systems. It contains 405 references, 209 of which are annotated. It also contains a glossary of acronyms and a list of the publications from which these references have been obtained.

The Essential Internet: Basics for NGOs. *1999. $25.00, plus $4.00 shipping. Washington, D.C., residents, add 5.75% sales tax. To order, contact the Publications Department, Interaction, 1717 Massachusetts Avenue, N.W., Suite 801, Washington, DC 20036; (202) 667-8227; fax: (202) 667-8236; e-mail: publications@interaction.org; WWW: http://www.interaction.org/pub/essential/ index.html.*

This fully revised and updated edition of ***The Essential Internet*** explains the different technologies available to connect nongovernmental organizations (NGOs) to the Internet, describing everything from single computer setups to entire computer networks, including associated costs. A full chapter is devoted to technologies used in disaster response, such as data transfer via ham radio and satellite communications. That chapter also contains reviews of Web sites of interest to disaster response and international development.

Risk Analsysis. *C.A. Brebbia, J.L. Rubio, and U.L. Uso, Editors. 1998. 336 pp. $159.00, plus $5.00 shipping. Available from Computational Mechanics, Inc., 25 Bridge Street, Billerica, MA 01821; (978) 667-5841; fax: (978) 667-7582; e-mail: cmina@ix.netcom.com; WWW: http://www.witpress.com.*

Effective risk management and the mitigation of potential hazards have become high priorities for many of today's organizations, due to both the complexity of modern systems and the increased potential for disasters worldwide. The ability to model these systems more precisely now enables hazards to be quantified, their effects to be simulated, and risk analysis to be pursued with greater accuracy. This

volume, which features many of the papers presented at the First International Conference on Computer Simulation in Risk Analysis and Hazard Mitigation, held in October 1998 in Valencia, Spain, features contributions on the simulation of natural hazards, human-caused hazards, hazard prevention, emergency response, policy planning, social and economic issues, and risk modeling and the estimation of risk.

Disaster Science. *1998. 82 pp. $12.95. To obtain a copy, contact Klutz, 455 Portage Avenue, Palo Alto, CA 94306; (650) 857-0888; WWW: http://www.klutz.com.*

This imaginative and colorful book, produced by the same folks that brought us ***Bubblegum Science*** and ***The Klutz Yo-Yo Book***, presents scientific information on volcanoes, tornadoes, hurricanes, earthquakes, land and snow slides, floods, waves, and asteroid impacts. It discusses such things as volcano bombs and weird volcano facts; presents before photos that can be lifted up by the reader to view the aftereffects of disasters; describes experiments young students can undertake to make their own volcanoes, tornadoes, hurricanes, etc.; and offers survivor stories. In short, it manages to teach kids about the laws of nature while entertaining them.

Owning the Future: Integrated Risk Management in Practice*. 1998. 342 pp. $70.00.*
Risks and Realities: A Multi-disciplinary Approach to the Vulnerability of Lifelines to Natural Hazards*. 1997. 312 pp. $70.00.*
The Edgecumbe Earthquake: A Review of the 2 March 1987 Eastern Bay of Plenty Earthquake*. 1998. 132 pp. $45.00.*
All three publications can be purchased from the Centre for Advanced Engineering, University of Canterbury, Private Bag 4800, Christchurch, New Zealand; tel: +64 3 364 2478; fax: +64 3 364 2069; e-mail: c.hendtlass@cae.canterbury.ac.nz; WWW: http://www.cae.canterbury.ac.nz. All prices are in American dollars.

Careful management of risk in all its forms is becoming increasingly important in today's business environment. Wrong choices can be costly, and although different risk management approaches have developed in a range of business sectors, underlying principles are often similar or complementary, and differing organizations have much to learn from each other. ***Owning the Future*** was written by authors from four countries with experience in risk management. Each chapter is based on papers presented at the Centre for Advanced Engineering's Integrated Risk Management Conferences held in 1997. They present a mix of practical approaches, principles, ideas, and examples for helping both organizations and practitioners increase their risk management skills.

Risks and Realities describes the work of the Christchurch, New Zealand, Engineering Lifelines group, which undertook a study of Christchurch to estimate the return period and annual possibility of exceedence for a number of disaster scenarios in order to estimate potential impacts on lifelines in that city. This all-hazards analysis is applicable to any city or community.

The Edgecumbe Earthquake was written by two engineers and an economist; it examines the March 1987 earthquake that struck the Eastern Bay of Plenty area of New Zealand's North Island. This magnitude 6.3 quake caused nearly $300 million damage (in U.S. 1994 dollars). The book examines

damage to domestic, commercial, and industrial buildings and infrastructure; response; recovery; and reconstruction. More information about these and other CAE products is available from the Web site above.

Record-High Losses for Weather Disasters in the United States During the 1990s: How Excessive and Why? ***Natural Hazards****, Vol. 18, pp. 287-300. Stanley A. Changnon and David Changnon. Annual subscriptions to* ***Natural Hazards: Journal of the International Society for the Prevention and Mitigation of Natural Hazards*** *cost $72.00 for society members; $431.00, all others. They are available from Kluwer Academic Publishers, P.O. Box 322, 3300 AH Dordrecht, the Netherlands, or P.O. Box 358, Accord Station, Hingham, MA 02018-0358.*

From 1990 to 1996, the U.S. experienced record insured property losses due to weather catastrophes. The total adjusted loss was almost $40 billion, with $15 billion coming from one event--Hurricane Andrew. The authors dissect these numbers, comparing both recent disaster monetary losses and actual hazard events to those in preceding years. They conclude that demographic shifts in the U.S. plus continuing population growth in storm-prone areas--*not* major weather changes--have greatly increased U.S. society's vulnerability to storm damage.

Disaster Medicine

Rapid Health Assessment Protocols for Emergencies*. 1999. 97 pp. $27.90. Available from the World Health Organization (WHO), Publications Center USA, 49 Sheridan Avenue, Albany, NY 12210; (518) 436-9686; fax: (518) 436-7433; e-mail: Qcorp@compuserve.com.*

This volume provides protocols for conducting rapid health assessments in the immediate aftermath of different types of emergencies. Noting the vital importance of rapid and accurate information in the earliest stages of an emergency, the protocols respond to the need for common standardized technical tools for assessing damage, gauging health risks, and gathering the information needed by decision makers at the national and international levels to respond to disasters. These protocols were prepared by the World Health Organization in collaboration with a large number of international agencies and experts in the field of emergency management. The book opens with an overview of rapid health assessment, then presents protocols for addressing epidemics of infectious origin, meningitis outbreaks, outbreaks of viral hemorrhagic fever, outbreaks of acute diarrheal disease, sudden-impact disasters, sudden population displacements, nutritional emergencies, chemical emergencies, and complex emergencies. It also suggests further reading and outlines survey techniques for rapid assessment.

Floods

EDA's Response to the Midwest Flood of 1993--An Evaluation*. R. Rasnake. NTIS Order No. PB98-177884INZ. 1998. 124 pp. Paper copy: $33.00 ($66.00 outside North America); microfiche: $17.00 ($34.00 outside North America); plus $5.00 shipping and handling ($10.00 outside North America).*
EDA's Response to the Midwest Flood of 1993--An Evaluation. Case Studies*. R. Rasnake. NTIS Order No. PB99-128035INZ. 1998. 332 pp. Paper copy: $60.00 ($120.00 outside North America); microfiche: $23.00 ($46.00 outside North America); plus $5.00 shipping and handling ($10.00 outside North*

America).
Both items can be ordered from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161; (800) 553-6847 or (703) 605-6000; fax: (703) 321-8547; e-mail: orders@ntis.fedworld.gov.
In order to assess its performance following disasters, the Economic Development Administration (EDA) of the U.S. Department of Commerce commissions post-event evaluations. These two volumes examine administration performance following flooding of the northern Mississippi River Valley in 1993--the most severe in this century. By late 1994, the estimated total damage for the Midwest Flood approached $18 billion. This study examined not only how EDA used its various economic development tools to support economic recovery, but also the impact of EDA-financed projects. Aguirre International, the company contracted to perform the assessment, reviewed over 60 individual projects with the implicit goal of developing a model for government agencies and others to use to support economic recovery after disasters. The report addresses such questions as: What is EDA's role in flood recovery generally and in the Midwest in 1993 specifically? Are EDA's tools adaptable to a disaster situation? Were EDA's activities conducted in a timely manner? What were the major impacts of those tools? and, What lessons can be derived from this experience?

FEMA Addresses Dam Safety

Recently, the Guidelines Development Subcommittee of the Federal Interagency Committee on Dam Safety updated three important publications that chart coordination and information exchange among federal and state agencies who work to ensure dam safety. These guidelines are now available from the *FEMA Publications Distribution Facility, P.O. Box 2012, Jessup, MD 20794-2012; (800) 480-2520.*

They include:

- ***Federal Guidelines for Dam Safety: Emergency Action Planning for Dam Owners***. FEMA 64. 1998. 34 pp. Free.
- ***Federal Guidelines for Dam Safety: Hazard Potential Classification System for Dams***. FEMA 333. 1998. 90 pp. Free.
- ***Federal Guidelines for Dam Safety: Selecting and Accomodating Inflow Design Floods for Dams***. FEMA 94. 1998. 62 pp. Free.

Floodplain Managers Highlight Mitigation Successes

Will Rogers once said that everyone talks about the weather, but no one ever does anything about it. The

cases described in the recently published report, ***Mitigation Success Stories in the United States*** (1999, 64 pp., free), would probably tempt Will to rethink that statement. Published by the Association of State Floodplain Managers (ASFPM), the report showcases natural hazard mitigation activities across the country and describes the benefits of mitigation. It was created to give decision makers information on how to formulate, undertake, and achieve hazard reduction at the local level.

The report contains 30 case studies from 13 states. For each project, it describes the project activities, the benefits of the project, a benefit-cost ratio, the project costs, and source(s) of funding. Contact and document availability information is also provided. Projects range from fairly large acquisition and relocation projects, to the installation of inlet control valves in urban storm drainage systems, to outreach and education projects for school children.

Copies can be requested from *Mark D. Matulik, Colorado Water Conservation Board, 1313 Sherman Street, Room 721, Denver, CO 80203; (303) 866-3441; e-mail: mark.matulik@state.co.us.*

Coastal Erosion Mapping and Management. ***Journal of Coastal Research*** *Special Issue No. 28. Mark Crowell and Stephen P. Leatherman, Editors. 1999. 196 pp. $45.00. To purchase a copy, contact the* ***Journal of Coastal Research****, P.O. Box 1897, Lawrence, KS 66044-8897; (785) 843-1221; fax: (785) 843-1274; e-mail: orders@allenpress.com.*

This special issue of the ***Journal of Coastal Research*** contains chapters prepared by coastal scientists, engineers, and managers who participated in the first phase of the Evaluation of Erosion Hazards study mandated by the National Flood Insurance Reform Act of 1994. That legislation required the Federal Emergency Management Agency to evaluate whether erosion hazard areas should be mapped for risk delineation, floodplain management, and establishment of flood risk classifications that more directly reflect the effects of long-term premium rates under the National Flood Insurance Program (NFIP). The papers in this journal examine coastal flood hazards and the NFIP, mapping, hazard identification and evaluation, shoreline change analysis, and specific state and local experiences with shoreline mapping. The second phase of this project, which will be completed in January 2000, involves inventorying structures located within 60-year erosion hazard areas. These data will be used to determine the economic impact of erosion on the NFIP and coastal communities.

Hurricanes

Storm Front, ***Coastal Heritage****, Vol. 14, No. 1 (Summer 1999). Subscriptions to* ***Coastal Heritage*** *are free upon request from the South Carolina Sea Grant Consortium, 287 Meeting Street, Charleston, SC 29401; (843) 727-2078; e-mail: dunmeyae@musc.edu.*

This issue of ***Coastal Heritage*** features an examination of the impacts of hurricanes Hugo and Andrew on South Carolina. Noting that hurricanes sometimes kill and injure more people in inland areas than along shorelines, Storm Front describes the harrowing experiences of residents of McClellanville, a coastal village 35 miles north of Charleston, when Hurricane Hugo struck. The article discusses how

hurricanes produce deadly storm surges; discusses why people evacuate and why they stay; outlines evacuation steps for anyone in a specified evacuation area; and presents a hurricane preparation checklist. A related article looks at South Carolina's experiences with consumer fraud when disreputable contractors swarmed into disaster areas, took money for work and materials, then failed to complete repairs and/or fled the area.

A Time to Rebuild: The Lessons of Hurricane Mitch, ***IDB America*** *(January-February 1999). Free. To subscribe, contact the Inter-American Development Bank (IDB) Bookstore, E-0105, Office of External Relations, 1300 New York Avenue, N.W., Washington, DC 20577; (202) 623-1753; fax: (202) 623-1709; e-mail: idb-books@iadb.org.*

The overwhelming loss of life and material damage caused by Hurricane Mitch in Central America produced an outpouring of international assistance. This issue of ***IDB America*** is primarily devoted to the development issues that resulted from this devastating hurricane. It's main article, The Worst in Memory, describes the difficult job facing this region in rebuilding. A second article, Lessons Learned or Lessons Lost? warns that, unless preventive measures are taken, the tragedy of Mitch is likely to be repeated. The magazine also contains brief articles on Mitch regarding the lack of drinking water, destruction of farms, the impacts of the disaster on children, and international aid.

Earthquakes

Built to Resist Earthquakes: The Path to Seismic Design and Construction for Architects, Engineers, Inspectors. *ATC/SEAOC Joint Venture Training Curriculum. 1999. $75.00. (For orders within California, please add applicable local sales tax.) To obtain copies, contact the Applied Technology Council (ATC), 555 Twin Dolphin Drive, Suite 550, Redwood City, CA 94065; (650) 595-1542; fax: (650) 593-2320; e-mail: atc@atcouncil.org; WWW: http://www.atcouncil.org.*

Seeing the need for a training curriculum to improve the quality of seismic design and the construction of buildings in earthquake-prone areas, the ATC and the Structural Engineers Association of California (SEAOC) joined together to create ***Built to Resist Earthquakes***. Developed as a resource for the continuing education of architects, engineers, building officials, and inspectors, it consists of several hundred pages of training materials pertaining to the seismic design and retrofit of wood-frame buildings, concrete and masonry construction, and proper design of nonstructural components. In addition, the curriculum contains six Briefing Papers that summarize important topics such as building safety and earthquakes; roles and responsibilities of engineers, architects, and code enforcement officials; the seismic response of specific construction techniques; and seismic code requirements for anchorage of nonstructural components. Finally, the curriculum provides job aids (checklists) for wood-frame construction, masonry construction, concrete construction, and nonstructural components.

The Northridge Earthquake: Analyzing Economic Impacts and Recovery from Urban Earthquakes--Issues for Policy Makers*. 1996. 210 pp. $25.00, plus $5.00 shipping. California residents, add 8¼% sales tax. Copies can be obtained from the Earthquake Engineering Research Institute (EERI), 499 14th Street, Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: eeri@eeri.org; WWW: http://www.eeri.org.*

Following the 1994 Northridge earthquake in the Los Angeles basin, $30 billion in federal and private funds paid for repairs. In 1996, researchers convened to examine the economic impacts associated with such losses and to discuss what might have happened if the federal contribution had been reduced and insurance had been limited. This report contains papers on such topics as direct and indirect capital losses, small business losses, housing losses, transportation and infrastructure impacts, lifeline losses, public agency losses, financial distribution of losses, insurance, banking, future economic consequences of earthquakes, and mitigation as part of recovery policy.

The USGS Closes Out Loma Prieta

The following four documents close out the 15-volume set of U.S. Geological Survey reports on the Loma Prieta Earthquake that struck the San Francisco Bay region in 1989:

- ***The Loma Prieta, California, Earthquake of October 17, 1989--Forecasts****. Ruth A. Harris. Professional Paper 1550-B. 1998. 32 pp. $2.75.*
- ***The Loma Prieta, California, Earthquake of October 17, 1989--Aftershocks and Postseismic Effects****. Paul A. Reasenberg, Editor. Professional Paper 1550-D. 315 pp. $25.00.*
- ***The Loma Prieta, California, Earthquake of October 17, 1989--Lifelines****. Anshel J. Schiff, Editor. Professional Paper 1552-A. 1997. 135 pp. $12.00.*
- ***The Loma Prieta, California, Earthquake of October 17, 1989--Earth Structures and Engineering Characterization of Ground Motion.*** *Thomas L. Holzer, Editor. Professional Paper 1552-D. 1998. 84 pp. $7.50.*

All of these items can be ordered from the *U.S. Geological Survey, Information Services, Box 25286, Denver Federal Center, Denver, CO 80225; (800) 275-8767 or (303) 202 4700; fax: (303) 202-4693; e-mail: custserv@edcmail.cr.usgs.gov.*

Lijiang, China Earthquake: February 3, 1996, Reconnaissance Report. *1998. 34 pp. $15.00, plus $5.00 shipping. Available from the Earthquake Engineering Research Institute (EERI), 499 14th Street, Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: eeri@eeri.org; WWW: http ://www.eeri.org.*

In 1996, a strong earthquake occurred north of Lijiang City in the western part of Yunnan Province, People's Republic of China. A very high percentage of the deaths, serious injuries, and homelessness were due to collapsed or damaged buildings. Of the total economic loss, estimated at $500 million, damage to buildings constituted more than 80%. As part of the EERI Learning from Earthquakes

program, an interdisciplinary EERI reconnaissance team visited the site. Lijiang had, in 1988, begun government-required hazards assessment and damage and loss estimation studies. However, information on how far along these activities were or how they might have been applied to local emergency preparedness prior to the February 3, 1996, earthquake was not available to the EERI team. Some of the engineering implications of this assessment were provided by Chinese colleagues. Areas studied include both the new and the old sections of Lijiang City, housing developments beyond the edge of the city, and villages of varying sizes that incurred varying amounts of damage throughout the Lijiang region.

Using Earthquake Hazard Maps: A Guide for Local Governments in the Portland Metropolitan Region*. 1998. 47 pp. $10.00, plus $1.00 shipping.*
Evaluation of Earthquake Hazard Maps for the Portland Metropolitan Region. *1999. 57 pp. Free via the Internet at http://storefront.metro-region.org/drc/nathaz/products.cfm?species=naturalhazards.*
To order paper copies of the first item, contact the Metro Data Resource Center, 600 N.E. Grand Avenue, Portland, OR 97232-2736; (503) 797-1742; fax: (503) 797-1909; e-mail: drc@metro.dst.or.us; WWW: http://storefront.metro.dst.or.us.
Using Earthquake Hazard Maps explores how local governments can use maps prepared for the Portland metropolitan region to reduce damage due to earthquakes. Specifically, it is directed at local government staff and elected and appointed officials who regulate the use and development of land and construction of buildings and those who prepare for and manage disaster response and mitigation. The report contains considerable detail about mitigation approaches and provides numerous examples from the region that show actual and potential uses of the earthquake hazard maps and data. It also describes the relationship of earthquake hazard mitigation to Oregon's statewide planning goals, local comprehensive planning, the Oregon structural specialty code, emergency management requirements, hazard mitigation planning, and the region's growth management planning.

The ***Evaluation of Earthquake Hazard Maps*** examines the use, quality, and accessibility of the earthquake hazards maps mentioned above, presenting the results of a user survey and interviews to determine how these maps have been used. The survey found that the maps are used for a number of purposes, including design, determination of site characteristics, general earthquake awareness, education and training, seismic retrofit projects, planning for development, and emergency management. Respondents also provided a number of reasons why the maps had not been used, such as their small scale, a lack of resources to use the maps, or lack of need to use the maps. The report provides conclusions based on the survey and offers several recommendations for improving map use.

Volcanoes

Living with the Unexpected: Linking Disaster Recovery to Sustainable Development in Montserrat*. Anja K. Possekel. 1999. 287 pp. $109.00, plus $4.00 shipping. To order a copy, contact Springer-Verlag New York, Inc., 175 Fifth Avenue, New York, NY 10010; (800) 777-4643; fax: (212) 473-6272; e-mail: orders@spring-ny.com; WWW: http://www.springer-ny.com.*
In ***Living with the Unexpected***, Possekel looks at the particular issues related to disaster vulnerability and recovery for small island communities. She notes that the urgent necessity to invest more time,

energy and resources into the hazard management of small islands is often not recognized due to acute social problems and uncertainty regarding when the next disaster will occur. She uses the eastern Caribbean island of Montserrat as a case study because of its recurrent natural disasters, including floods, hurricanes, volcanic eruptions, and earthquakes. She outlines a theory of coping with complexity and uncertainty, examines resource and hazard management, discusses strategic planning as a tool to examine and adapt to complex processes, describes the recovery processes on Montserrat following Hurricane Hugo in 1994 and during the eruptions of the Soufriere Hills volcano from 1995 to 1997, summarizes research in reconstruction from disasters, and critiques a project that used a scenario method to plan for sustainable development and recovery. She concludes with five central principles she believes to be decisive for an effective approach to coping with complexity and uncertainty.

Wildfires

Fire in the West: A Report and Analysis on the Fire Activities in the 17 Western States (1993 through 1997). *Western State Fire Managers. 1998. 82 pp. $15.00. To obtain a copy, contact Deer Valley Press, 5125 Deer Valley Road, Rescue, CA 95672; (530) 676-7401.*

This report was prepared by the Western State Fire Managers for the Council of Western State Foresters to describe how each western state deals with wildland fires. It reviews the three levels of wildland fire protection provided by western states (direct, cooperative, or coordinated), and discusses the levels of funding budgeted by these states, as well as other sources of funding. The report also provides data by year on the number of fires, the number of acres burned, the causes of the fires, and the effectiveness of initial firefighting efforts for all western states combined. It also presents the five-year averages of these data by state. Finally, it presents detailed fire statistics by year for each state, as well as data on federal land ownership by state and by federal agency. States covered in the report include Alaska, Arizona, California, Colorado, Hawaii, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.

Electronic Goodies

Moving Water: Adventure or Danger? *1999. VHS. 18 minutes. $3.50. To order, send a check payable to NOAA/National Weather Service to the NWS Office of Hydrology, SSMC-2, Room 8115, 1325 East-West Highway, Silver Spring, MD 20910; (301) 713-0006; http://www.nws.noaa.gov/oh/tt/xwater/index.shtml.*

Any area that channels rapidly moving water presents a potential drowning hazard, whether it is the site of an afternoon of fishing or whitewater rafting. This video addresses the hazards in such locations, including canyons, arroyos, caves, and storm drains. It also provides six public service announcements that highlight the power of moving water to kill. The Office of Hydrology also has plenty of copies of its 1996 video, ***The Hidden Danger: Low Water Crossings***, available for $3.50 at the address above. This video shows how as little as six inches of water can cause a driver to lose control of the vehicle, while two feet of water can carry most vehicles away.

New Stuff for Tornado Junkies

For those of you who are fascinated by swirling vortices, the Tornado Project, those folks who brought us ***Tornado Video Classics***, recently released a new video, ***Secrets of the Tornado***, that shows you how to make tornado models of any size out of ordinary household items. It also compares these models to real tornadoes and super-computer simulations. It comes with a viewer's guide that includes instructions and drawings to explain these models, which are the result of two year's work with the country's leading tornado modeling experts. To top it off, the project has thrown in a special video for free, ***Supplement One: Tornado Video Classics and Secrets of the Tornado***, which contains additional tornado footage, as well as three full-length historic films in the tradition of the ***Tornado Video Classics*** series. To purchase both items, send $29.95 to *the Tornado Project, P.O. Box 302, St. Johnsbury, VT 05819; (802) 748-2505; fax: (802) 748-2543; WWW: http://www.tornadoproject.com*

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 Weather Service, U.S. Geological Survey, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Department of Transportation, National Aeronautics and Space Administration, the Institute for Business and Home Safety, and the Public Entity Risk Institute. Please send information of potential interest to the center or the readers of this newsletter to the address below. The deadline for the next ***Observer*** is *September 22, 1999.*

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Other issues of the ***Observer*** and the Hazards Center's electronic newsletter, Disaster Research, are also available from the Natural Hazards Center's World Wide Web site: *http://www.colorado.edu/hazards*.

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