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Special Issue on Women and Disasters

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Gender and Disasters: A Second Look

--an invited comment

In a recent article in the ***Australian Journal of Emergency Management***, I suggested we should re-

examine existing disaster research using a gender viewpoint. Drawing on an excellent paper by Joyce McCarl Neilsen, a sociologist at the University of Colorado-Boulder, I asked if there is a gender bias in the research done to date, then asked if past findings, even if they do not have a gender bias, are applicable to a changing world.

Some welcomed my piece, calling it an intriguing look at an unmined area. Others pointed out the many references to gender in the literature. They suggested newcomers to this topic tend to present their work as original rather than as an addition to a growing body of knowledge. My piece did miss things, but it raised issues that have often been ignored, because, while there is evidence gender is a factor in disasters, the findings have not been pulled together.

For years, those studying various types of emergencies have noted differences between male and female behavior. Fire researchers reported that if men and women are together when there is a threat, a man will check out the threat and a women will wait. The early National Opinion Research Center studies found that if men and women are together with children in the wake of a disaster, men will leave to help others, women will stay and look after the children. Canadian research on evacuations found that emergency personnel will pressure women and children to leave, but allow men to go and return or to stay behind. Phillips and Neal found domestic violence may increase in the wake of disaster, and Nigg and Tierney report that women may be left out when loans are being given to assist small businesses with recovery. An additional problem is the absence of women from emergency organizations, or, as Wraith found in Australia, the fact that women are a small minority of those trained in emergency colleges.

As Phillips and Neal point out, some studies have identified the broader effects of gender. Beinin showed that women and children were more likely than men to die in earthquakes in the Soviet Union. Schroeder showed that Hausa women in Africa were more likely to become victims of drought. Dufka found minority women ran into special problems after the Mexico City earthquake. Morrow and Enarson found similar problems after Hurricane Andrew. Both studies fit with earlier work by Neal and Phillips showing women have difficulty making their voices heard even if they organize. More recently, Fordham and Ketteridge reported that women often provide food and clothing to disaster victims, but men "take over the management of the provision of these basic necessities." Clearly, the way women are treated in society affects what happens to them in disaster.

At the same time, the disappearance of the extended family and the growing number of single parents in western society raises new issues, especially for emergency agencies. It is increasingly common for both spouses to work and no longer unusual for both to have emergency responsibilities. What happens to children when a single parent is needed for an emergency? What happens to children when both parents have emergency responsibilities? Such parents may have standing arrangements for child care that work in normal emergencies, but that does not mean they will work during disasters. Dobson reports that in Australia, when both spouses had emergency responsibilities, the men left the women to care for the children. Given what we know--that the bulk of initial search and rescue and transport to hospital is done by survivors, not emergency agencies--the departure of men may hinder the initial response. The men may leave where they are needed to go where their services may be less useful. That perspective forces a

new look at role abandonment: perhaps the fact that persons stay on the job even when their families are in distress has a negative impact on overall response.

If women are going to play a different role in the response to disaster, it seems clear that a number of approaches are needed. As Noel points out, they need non-traditional skills. They must also overcome prejudice even when they have those skills. In addition, ways must be found to free women from other responsibilities. Honeycombe suggests they may need access to emergency child care. Finally, as Phillips suggests, they may have to adjust their management style--the seemingly softer female approach to giving orders may be misunderstood by men.

When a munitions ship exploded in the harbor of Halifax, Nova Scotia, in 1917, with one-seventh the power of the first atomic bomb, it left 1,963 dead and 9,000 injured. The largest single group of dead were Roman Catholics, and their most common occupation was housewife. The explosion also took the lives of 366 children, 204 of them pre-school age. Those statistics are easy to explain. The explosion took place in the city's north end, where the poor lived, and most were Roman Catholic. It also took place on a weekday morning in wartime, when the older children were at school, the men were at work or at war, and the women were at home with the preschool children. As so many others have shown since then, disasters do not affect everyone equally: what you are and what you do determines your fate.

In short, the problem has been around for a long time. Let's stop asking if gender makes a difference and start asking precisely why that difference occurs, what its affects are, whether it is appropriate, and if not, what can be done about it. Let's also review existing research to see whether there is a gender bias.

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On the Line

From the Field: Gender Issues in Disaster Response and Recovery

The role of women in the U.S. is expanding and changing, but the role of women in disaster preparedness and recovery is still overlooked by most researchers and practitioners. Notable research on women and disasters has been done by Betty Morrow, Elaine Enarson, and Brenda Phillips, while notable recovery work has been done by countless women who are known only to those whom they have helped. My personal and professional experience as a disaster specialist with Church World Service[1] parallels the findings of those who are researching and writing about gender differences in disaster.

Worldwide, women and children are 14 times more likely to die in a disaster than men. And, even in the U.S., they are exposed to a higher level of poverty and live in substandard conditions more often than men, leaving them much more vulnerable to a disaster.

Compounding this problem, women are more likely to find themselves solely responsible for their family after a disaster. Often, their husband or partner "takes the money and runs." And, as more federal and state social programs are cut, the struggle of women to recover will become even more difficult.

Women, Disasters, and Poverty

Women are traditionally the caregivers for children, parents, extended family, and neighbors--limiting their options for earning income and gaining mobility. In daily life, poor women depend on either public transportation or inadequate personal transportation. A 10-minute trip for most of us may literally take most of the day for those in poverty. Following a disaster, transportation becomes even more difficult. Compounding these difficulties, women work more hours for less pay than men, thus limiting their time with family even more. The current era has been called the Information Age, but women in poverty are not participants. Information from normal channels does not always get to them due to language barriers and a lack of telephones, televisions, and newspapers. Often, warning systems are ineffective in low-income areas, particularly because warnings and other disaster information are better received by male members of the community and missed by women.

To compound these difficulties, impoverished women and children have increased health problems, primarily due to malnutrition and its impacts on both mental and physical health. These difficulties are magnified during a long disaster recovery process.

I have also found that many poor communities have a defeatist or fatalist attitude, a sort of "psychic numbing" (a term coined by Robert Lifton in his book, ***Death and Life***). And, as with drought, poverty works its damage gradually and almost invisibly.

Women have a sense of guilt that men seem to lack, believing that they are responsible for their plight.

Often, this guilt springs from an "if only" mind set. "If only I had been better to my husband, he wouldn't have beaten me." "If only I had been a better person, God would not have punished me." This ethic of responsibility, when combined with fatalism, creates a kind of helplessness and hopelessness that prevents preparation for disaster. For poor women and children, life itself is an unending series of misfortunes, thus, preparing for a disaster is pushed aside by daily emergencies. It is tough to save three day's supply of food in an emergency kit when you do not know where your next meal will come from.

The Organizing Skills of Women

All the aforementioned barriers notwithstanding, women in poverty have the courage and creativity to gather together to respond to the needs of the hour. Often, younger women look up to a "sage," an older woman in the community. I saw this in the Caribbean after Hurricane Marilyn, in Cape Mendocino after the earthquake, and in Los Angeles after the civil disturbances.

The Leadership Skills of Women

Flexibility and creativity are key to successful disaster recovery. Women in poverty live and survive in what for many of us would be overwhelming chaos. I have often seen them rely on the "coupon method" of survival. Drawing on their everyday survival skills, these women will take the little money they find, put it with the last food stamp voucher, clip coupons, and watch for a sale to get what is needed. When a disaster strikes, they use these skills to adapt and survive.

In most of the disaster recovery efforts in which I have been involved, other members of the stricken community readily respond to a female member who takes a leadership role. This seems to be the rule and not the exception. In fact, I worked with a woman who was the mother of 10 children and had no professional work experience; she is now a nationally respected response consultant. Another woman, who also had no formal training and a limited education, won a $1 million grant for her state. These two cases show that when poor women are given technical support and encouragement, they function at high levels and continue to lead their communities.

The Informal Network of Women

Women in poverty do not have access to formal organizations or officials unless it is through the welfare or court systems. These women network with others at places like the laundromat, welfare offices, senior centers, or the bus stop. Many of our disaster response organizations and agencies are more successful when they meet these women in their own environment, convince them that they have the skills and abilities to deal with recovery, and give them the tools to succeed. Similarly, working on disaster recovery gives some women the opening for the first time to work with unfamiliar business and government structures.

Many times, when I have met with low-income women after a disaster, I have asked them what they need, expecting them to request food, water, or shelter. However, the response I get most often is for a

safe place for their children to play. In one community, the women saw the disaster as an opportunity to repair broken sewer lines and clean up garbage that was never collected and resulted in a large rat population. They soon learned that the disaster was a way of clearing away the bad and building something new. When such women have access to the tools of change, those tools will not be put down until the job is done.

Reverend Kristina Peterson, Disaster Recovery Specialist, Church World Service

1. Church World Service (CWS) was formed after World War II on behalf of 51 religious bodies and organizations in the U.S. to assist in restoring and rebuilding Europe. Currently, CWS has both national and international programs that provide help to refugees, food and development aid, and disaster assistance. For further information, contact the *Church World Service Emergency Response Program, 475 Riverside Drive #606, New York, NY 10115; (212) 870-3151; fax: (212) 870-2236; WWW: http://www.ncccusa.org/CWS/emre*.

The International Decade for Natural Disaster Reducation (IDNDR)

The Role of Women in Protecting Communities from Disasters

This article is adapted from a speech given by the author as a member of a United Nations panel for International Women's Day, March 7, 1997.

Most of us are familiar with the media images of mothers with their children, standing amidst the wreckage of floods, cyclones, earthquakes, and other major disasters. These pictures reinforce a common stereotype about women and disasters: that women are, first and foremost, victims. They are vulnerable. They are poor, marginalized, or lack political influence.

But this is only half the picture. Women have an important and positive role in communities. They are the most likely to be the ones to feed and care for family and community members. They contribute financially (whether through formal or informal sectors), and they are an important force in community voluntary groups.

Given their central position in both preparing for and responding to disasters, how can women in

communities around the world be empowered to best perform this role?

The Ambiguous Role of Women in Disasters

Disasters work like a magnifying glass, showing what is good and what needs work in society. The problems before a disaster are the problems after a disaster, only worse, and this is as true of gender issues as any other issues.

As part of our decade-long program, in 1995 the United Nations International Decade for Natural Disaster Reduction (IDNDR) Secretariat chose, as its annual theme, empowering both women and children to take a stronger role in protecting their communities from disasters. As part of the process, we encouraged countries to organize national roundtables to explore the issue and make concrete recommendations. We also reviewed the literature on women and disasters, concentrating on mitigation, preparedness, and reconstruction, rather than on relief.

In a word, we found that the role of women in protecting communities from disasters is ambiguous--because the position of women in society is ambiguous, both within and across cultures. For example, at one major conference I attended, the head of the national office for earthquake protection, a male, suggested to some very influential women from leading families--women who were lawyers, government ministers, university professors, and so forth--that the best thing women could do, since they run households, is to make sure the draperies are properly fastened so that they do not fall and injure someone if the earth starts shaking. At the same time, the rapporteur at this conference, a woman, represented the other end of the spectrum regarding women's issues; she used every opportunity to insist on the empowerment of women, without dealing with any issues specific to disasters.

Beyond Ambiguity

Before looking at solutions, we have to accept that discussions about the role of women in disaster management can be polarized and exclusionary--just like discussions about the role of women in other aspects of life. Some believe that women have no special needs in disasters, while others use the issue to champion the empowerment of women generally. What we need are fact-based decisions about how to integrate women into a process that protects communities from disasters.

Challenges

I see three issues that must be addressed in this process:

1) Many of the official channels related to disaster management are male-dominated. Following floods in Australia in 1992, a female relief worker said, "The most public aspects of the cleanup were a male affair. The state emergency service, police, fire brigade, and salvation and military armies were constituted almost entirely of men, and the work they did was very public and recognized as such. On the other hand, women . . . predominantly worked in the privacy of their homes and their role in the

cleanup was less visible."

Moreover, there are simply not enough women involved in official community development work that reduces disaster risks. The IDNDR regional officer in Latin America reports that women there do not participate enough in official preparedness and mitigation work. Who decides where wells will be dug or dams will be built? Will communities protect things that are obvious to mothers, like a bridge that always floods on a route that children take home from school? Again (it cannot be overstated), to truly address hazards, we must give women a real say in community organization and development, before disasters strike.

2) As so often happens in everyday life, women stay behind the scenes during disasters, making it difficult to acknowledge either their concerns or their contributions. Obviously, this is, in part, the flip side of the first issue. When taken to an extreme, this tradition can put women at increased danger. One woman from a development nongovernmental organization (NGO) in Bangladesh noted that "a woman is under great pressure because of the practice of purdah, a traditional custom not to leave the house when the husband is away. Without her husband to escort her, she cannot go alone to the cyclone shelter . . . And many husbands work away from home . . . After a cyclone, women have often been left alone in their damaged homes, unreached by aid workers, unable to contribute to community rehabilitation decisions."

3) Women do have specific issues that make them more vulnerable, and this fact is not clearly understood or accepted. Until recently, researchers felt that natural disasters did not discriminate among their victims, but new research shows that at least for famines and earthquakes, there is a convincing case that mortality rates are higher for women than for men.

Similarly, a study of postdisaster stress shows that women and children are the first to be marginalized or abused. Stressful situations are harder for women because women lack control over the resources they need to cope with those situations, while they also have more family responsibilities.

Solutions

What can one do to empower women to better protect their communities?

1) **Build on womens' strengths in communities, channels related to primary health care, and community literacy programs**. In the Caribbean, literacy programs for women have been used as a means for conveying disaster prevention messages. In Bangladesh, one agency taught village women simple ways to protect children from disease after disasters. These women went door-to-door with their message to thousands of households.

2) **Conduct more research**. Gender research on disaster issues is scarce, but good research can point the way to practical solutions. For example, after a 1992 earthquake in Turkey, a researcher from a local university assembled a predominantly female research team to survey psychosocial attitudes after the

disaster. The teams surveyed women at home and found that they were eager to discuss their experiences, but had not done so previously because other research teams were mostly male, and the women could not invite the strange men into their home. The female researchers were welcomed, and they learned that women find it difficult to participate in local preparedness committees, because the meetings are scheduled in ways that do not take into account domestic responsibilities, and no child care arrangements are available.

3) **Make it official**. In the roundtable discussions held for World Disaster Reduction Day in 1995, across all locations, one common recommendation was to improve links between community NGOs and government officials responsible for disaster-related issues. Officially designating women's groups as focal points with local or national authorities is one way to increase their viability. It is easier to systematically receive information and be invited to participate in decision-making processes if you are previously recognized as an important participant. Indeed, this process was initiated in several countries as a result of the roundtables.

4) **Work together**. For example, specifically pursue gender balance in neighborhood committees that deal with "emergency and development" issues. In Chosica, Peru, after experiencing many landslides, this is precisely what occurred. Men and women worked together to produce risk maps, build retaining walls, and design water systems for tree plantations that would reduce the impact of landslides.

5) **Recognize the reality**. Addressing the specific needs and special contributions women can make is a process that will take time. Progress in this area will move as quickly, or as slowly, as progress regarding other gender-related issues facing our society.

Natalie Domeisen, Promotion Officer, IDNDR Secretariat, United Nations Department of Humanitarian Affairs, Geneva, Switzerland

The author invites interested persons to contact her for additional information regarding individuals or institutions studying or dealing with gender issues in disaster management. She can be contacted at the *IDNDR Secretariat, United Nations, Palais des Nations, CH-1211, Geneva 10, Switzerland; tel: (41-22) 798 68 94; fax: (41-22) 733 86 95; e-mail: natalie.domeisen@dha.unicc.org*.

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Letter to the Editor

Editor:

Thank you for another great issue of the ***Natural Hazards Observer***! As a Certified Disaster Recovery Planner (CDRP), I was happy to read James Lee Witt's invited comment ("Building a Public/Private Partnership in Emergency Management," January 1997). With all of us facing increasingly limited resources, these partnerships will become increasingly more valuable to those charged with emergency management responsibilities.

The points Director Witt makes concerning the economic reliance the business community has in the health and personal and economic security of their communities, and conversely, the economic reliance communities have on businesses are well made. For recovery to be effective and efficient in today's environment, each sector (private and public) must consider the other's response activities and potential resources in their planning.

Although not specifically referenced in Director Witt's letter, the Oklahoma City bombing recovery illustrates how successful multi-sector response and recovery efforts can be. This was an incident that required responses from federal, state, and local agencies as well as members of the private sector along with volunteer agencies. We came together and in most cases were very effective. Two examples of this cooperation include the incident command post that was established utilizing private sector resources, and a software program, developed by employees of a local company, that assisted Urban Search and Rescue teams in identifying probable locations where victims might be found. Although no recovery process is perfect, the Oklahoma City recovery set the new standard by which future recoveries will be measured.

I applaud FEMA for their efforts in developing public/private partnerships. In the private sector there are many professional organizations that have been established to allow members the opportunity to regularly meet and address emergency management/disaster recovery issues. These organizations could be used as a valuable tool in developing "partnerships" within our communities. I encourage members of both sectors to seek each other out and find areas in which we can work together.

Tim Bonno, CDRP, and Manager, National Security/Emergency Preparedness, Southwestern Bell Telephone Company

The RADIUS Project

With support from the Japanese government, the IDNDR Secretariat is carrying out a project promoting worldwide activities to reduce seismic disasters in urban areas, particularly in developing countries. The project, called Risk Assessment Tools for Diagnosis of Urban Areas against Seismic Disasters (RADIUS), will be conducted between 1997 and 1999.

RADIUS will promote dissemination of state-of-the-art studies and technologies for seismic disaster mitigation in the form of "globally applicable local tools." The development of these tools will be based on case studies that will demonstrate how existing advanced technologies for seismic risk assessment can be used in earthquake-prone cities in developing countries and how awareness of seismic risks can be raised.

For these studies, the IDNDR Secretariat will select about 10 earthquake-prone cities--again, mainly from developing countries, but also from island states or mountainous areas that are highly vulnerable to earthquakes, tsunamis, or landslides. The actual number of studies conducted will depend on the amount of support received from both major donor countries and from the study cities and countries themselves. The government of Japan has already contributed approximately $350,000 to the project.

For more information about the RADIUS Project, contact *Kenji Okazaki, IDNDR Secretariat, U.N. Department of Humanitarian Affairs, Palais des Nations, CH-1211 Geneva 10, Switzerland; tel: (41-22) 798-6894; fax: (41-22) 733-8695; e-mail: kenji.okazaki@dha.unicc.org*.

[Adapted from ***Asian Disaster Management News***--the newsletter of the Asian Disaster Preparedness Center]

EERI Seeks Graduate Fellow and Establishes Mini-Internship Program

The Earthquake Engineering Research Institute (EERI) has announced a graduate fellowship for the 1997-98 academic year to support a full-time student in a discipline contributing to the science and practice of earthquake hazard mitigation. The fellowship, underwritten by the Federal Emergency Management Agency, is designed to foster participation in the mission of the National Earthquake Hazards Reduction Program. For more information or to obtain an application, contact *EERI, 499 14th Street, Suite 320, Oakland, CA 94612-1934; (510) 451-0905; fax: (510) 451-5411; e-mail: eeri@eeri.org*. Information and forms are also available from the EERI Web site: *http://www.eeri.org*. Deadline for application is May 23.

EERI has also recently announced the creation of a "mini-internship" program intended to promote the exchange of new or cross-cutting ideas among professionals in related areas in earthquake engineering

and risk reduction. For example, the two- or three-day exchanges might place practicing engineers, earth scientists, or policy makers in academia, or they might place interns in government agencies or financial and insurance organizations. The exchanges would include both lectures and informal discussions. For more information, contact EERI at the address above.

EMA Seeks Reviewers for Risk Management/Emergency Management Guidelines

Emergency Management Australia (EMA) is helping to develop guidelines, based on Australia/New Zealand national standards, for applying risk management to emergency management. The guidelines will provide a systematic method for identifying risks to communities and their environment, analyzing and evaluating the risks, and selecting appropriate strategies to enhance public safety. When complete, the guidelines may be applied by single agencies or through multiagency partnerships. As an important part of developing the guidelines, EMA is seeking comments on this work. Anyone who would like to participate in the review and development process, should contact *John Salter, Australian Emergency Management Institute, Mt. Macedon, Victoria 3441, Australia; tel: 61-3-54-215 100; fax: 61-3-54-215 273; e-mail: jsalter@ema.gov.au*, for a copy of the draft guidelines.

The Internet Page(s)

Below are some interesting sites we've come across on the World Wide Web lately. A more extensive, annotated list of useful hazard/disaster Web pages is posted on the Hazard Center's World Wide Web page:

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

~~*http://adder.colorado.edu/~hazctr/Home.html*~~

http://www.colorado.edu/hazards

The Natural Hazards Center Web site has moved to the new address above, where we continue to update the abundant information available on a daily basis. More changes are in store. Watch these pages (or, better yet, the Web site itself) for new stuff.

http://ltpwww.gsfc.nasa.gov/ndrd/disaster/

The NASA Goddard Space Flight Center has put together this new Web site, which they describe as "a complete index to the best disaster Web sites on the Internet." Of course, many other sites provide "hot lists" and links to other information, but the "Disaster Finder" far surpasses that kind of service. It covers over 400 disaster information sites, and, using a keyword/concept search facility or category/type menu buttons, users can quickly identify specific sites providing the information they need. The sites found using the search engine are prioritized according to their probable suitability, and the Disaster Finder even provides short previews of the selections so that individuals can see what kind of information is available.

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

Considering the Federal Emergency Management Agency's increasing emphasis on mitigation and disaster prevention, it's not surprising that the FEMA mitigation page has expanded. This section of the vast FEMA Web site includes pages entitled, "About Mitigation," "What's New in Mitigation," "Mitigation News Desk," "Mitigation Room--FEMA Library," "Mitigation at Work," "Upcoming Meetings, Conferences and Seminars," "Know Your Risks," and "Map Service Center." The "Mitigation at Work" page provides an overview of the National Mitigation Strategy and specific information for homeowners, building professionals, communities, and businesses. The "Know Your Risks" page covers floods, hurricanes and tornadoes, earthquakes, dam safety, and wildfire.

http://www.adpc.ait.ac.th/Default.html

The Asian Disaster Preparedness Center (ADPC), Bangkok, is a regional center committed to the protection of life, property, and the environment in Asia and the Pacific. It assists local, regional, and national governments in developing their capabilities and policies through training, information provision, and technical assistance to mitigate the impact of disasters. The new ADPC Web site includes pages entitled "What is New?" "About ADPC," "Information and Research," "Learning and Professional Development," "Asian Urban Disaster Mitigation Program (AUDMP)," "International Consultancies and Alumni Coordination," "Our Disaster Network," and "Our Disaster Links." In addition, the new ADPC newsletter, ***Asian Disaster Management News***, is available on-line.

http://www.weather.com/safeside

The American Red Cross and The Weather Channel have launched a joint venture called Project Safeside, an effort to teach the public about the dangers of severe weather, how to prepare for it, and what to do when it occurs. Using brochures, broadcasts, lectures, and the Internet, the project will address floods, hurricanes, lightning, tornadoes, and extreme heat.

http://www.nssl.noaa.gov

The National Severe Storms Laboratory is one of the Environmental Research Laboratories of the National Oceanic and Atmospheric Administration. Headquartered in Norman, Oklahoma, the NSSL, in partnership with the National Weather Service, is dedicated to improving the nation's severe weather warnings and forecasts in order to save lives and reduce property damage. The NSSL Web site includes general information about the lab and the research it undertakes. For persons interested in severe weather (especially students), the site includes a "Weather Room" with sections on "Phenomena," "Weather Careers," "Weather Lessons," and "Interesting Weather Things" (links to other Web sites and weather data). The NSSL also maintains a large bibliographic data base on winter weather at *http://doplight.nssl.uoknor.edu/projects/nbd*.

http://www.nssl.noaa.gov/~spc/
http://www.nssl.noaa.gov/~spc/archive

Another part of the National Centers for Environmental Prediction is the Storm Prediction Center (SPC) in Norman, Oklahoma. The SPC forecasts severe and nonsevere thunderstorms, tornadoes, and other hazardous weather across the conterminous U.S. The authors of the center's home page say, "During the next several years, we plan to gradually build our array of products and services to include many forms of hazardous weather guidance, in addition to severe local storms. This web site will grow with us and with your needs." The current site pages include "What We Do," "Forecast Products," "Severe Storm Stats," "Online Archives," "SPC Software," "Staff Page," "Publications," "Latest Cool Image," "SPC/SELS History," and "Today's Users." The SPC archives (see the URL above) offer considerable historical data on such things as tornado damage, deaths, and injuries by region, and wind and hail damage by year.

http//www.nws.noaa.gov/oh/tt/xwater/index.html

Recognizing that nearly half of all flood-related deaths occur in vehicles when people drive into low-lying flooded areas, several months ago the National Weather Service Office of Hydrology released a video entitled, "The Hidden Danger, Low-Water Crossings" (see the ***Observer***, Vol. XX, No. 5, p. 23). The office has recently complemented the video with this educational home page, which includes a driving test, safety rules, videos, and photos.

http://www.netway.net/caic

The Colorado Avalanche Information Center (CAIC) has entered cyberspace, offering much information about snow avalanche hazards. The site includes daily mountain weather and avalanche reports, warnings, hotline telephone numbers, general avalanche and CAIC information, information on danger scales, avalanche education listings, awareness courses and programs, avalanche safety tips, brief reports on Colorado avalanche accidents, an index of books and videos written by the CAIC staff, U.S. and world avalanche accident statistics, avalanche photos, and, of course, links to other avalanche- and weather-related pages.

http://www.dir.ucar.edu/esig/socasp/vjournal.html

The ***Weather Impacts VJournal*** is an electronic journal that periodically presents a list of scholarly

publications (articles, books, reports, conference papers, etc.) relevant to the societal aspects of weather. ***VJournal*** attempts to look across all disciplines and publications to come up with an up-to-date listing of scholarly publications. The journal is a community effort and relies on reader contributions. Anyone knowing of good resources can submit them by e-mail to *thunder@ucar.edu* (please include full reference information) or through an on-line form at *http://www.dir.ucar.edu/esig/socasp/forms/sub.html*.

A ***VJournal*** e-mail distribution list provides periodic updates of citations and alleviates having to continuously monitor the Web page. To subscribe, send an e-mail to *majordomo@ucar.edu* and in the body of the message state: SUBSCRIBE vjournal <your e-mail address>.

gopher://gopher.ucar.edu:70/11/ncarucar/esig/
Roger Pielke of the National Center for Atmospheric Research's Environmental and Societal Impacts Group (ESIG--the outfit that publishes the journal mentioned above) has produced an extensive bibliography on Hurricane Andrew societal impacts that is available from this gopher site.

http://www.eeri.org
The ever-growing Earthquake Engineering Research Institute (EERI) Web site now includes "Seismic Legislation on the Web"--a page that provides links to various pieces of state and federal legislation addressing seismic safety. The site includes the full text of acts currently in effect; however, at this time, it does not include pending legislation.

http://www.consrv.ca.gov/dmg/
The California Department of Conservation's Division of Mines and Geology and the U.S. Geological Survey (USGS) have identified the areas of California most likely to experience damaging ground shaking due to an earthquake, and they have published their findings in a report entitled "Probabilistic Seismic Hazards Assessment for the State of California." The resulting "Probabilistic Seismic Hazard Map" is available from this Web site, as are "Preliminary Maps of Proposed Seismic Hazard Zones," "Draft Guidelines for Evaluating and Mitigating Seismic Hazards," and other information on seismic hazards in California.

http://www.salemdug.dis.anl.gov
The State and Local Emergency Management Data Users Group (SALEMDUG) is an association of state, local, and federal emergency management personnel who share an interest in the use of computers and computer networks to support emergency management. The SALEMDUG bulletin board system (BBS) was one of the first widespread systems of computer communication regarding disasters. The organization has now moved into the Web era with this new Web site, which offers SALEMDUG background information, recent news items, SALEMDUG conference information, copies of the Federal Emergency Management Agency's Preparedness, Training and Exercises (PT&E) Directorate newsletter, links to other useful Web sites, and, most importantly, access to the SALEMDUG BBS.

http://www.cswnet.com/~mariecvt/disaster.htm

This "Veterinary Medicine Disaster Area," sponsored by the American Academy of Veterinary Disaster Medicine and the Humane Society of the United States, includes sections on disaster planning, training, and response, as well as updates regarding recent disaster events.

http://www.entremkt.com/feat

The Franchise Emergency Action Team (FEAT) is a coalition of major franchise businesses that have pooled their resources to aid communities with all aspects of disasters--awareness, preparedness, response, and recovery. Much additional information about the team's project is available from this Web site.

http://www.wnylrc.org/pub/disman.htm

This is the Web site of the Western New York Library Resources Council's publication, ***Western New York Disaster Preparedness and Recovery Manual for Libraries and Archives***--a useful guide that includes *extensive* reference material as well as worksheet and planning sections.

http://www.usc.edu/dept/puad/ijmed

The ***International Journal of Mass Emergencies and Disasters***, the official journal of the International Sociological Association's Research Committee on Disasters, has long been one of the more respected and useful academic journals dealing with disaster management. The journal's Web site offers information about the journal, article submission, contents of recent issues, upcoming articles, book reviews, special issues, and subscribing to the journal.

http://www.sra.org

The Society for Risk Analysis (SRA) provides an open forum for anyone interested in the discipline, which is broadly defined to include risk assessment, characterization, communication, management, and policy. The society's interests include risks to human health and the environment, both built and natural. It considers threats from physical, chemical, and biological agents and from a variety of human activities as well as natural events. The new SRA Web site includes information about the society and its members, a schedule of coming events, news about risk analysis, a section on risk science, a list of opportunities of various kinds (job openings, fellowships, etc.), and a compendium of other risk-related sites.

http://www.riskworld.com

Another risk Web site, "RiskWorld" covers risk assessment and risk management news, abstracts, reports, Web sites and newsgroups, new publications, professional organizations, upcoming events, academic courses, grants/fellowships, software, job openings, and more. For example, the full text of Volume 2 of the final report of the Presidential/Congressional Commission on Risk Assessment and Risk Management is now available via "RiskWorld," as are links to a final report on California EPA's risk assessment practices and abstracts from the 1996 Society for Risk Analysis Annual Meeting and the SRA-Europe 1996 Annual Meeting.

Hazards Center Seeks Tolstoy

Throughout its 22-year existence, the Natural Hazards Center has published hundreds of works on hazards and disasters--many of them within the center's ongoing Natural Hazards Working Paper Series. The Working Paper Series is intended to aid the rapid distribution of research findings and other useful information to both scholars directly involved in hazard research and to the larger circle of interested persons. Publication in the series is open to all hazards researchers and other professionals, and does not preclude more formal publication elsewhere. Indeed, reader response to a publication in this series can be used to improve papers for submission to journal or book publishers.

The Working Paper Series has now migrated to the Hazards Center Web site (see *http://www.colorado.edu/hazards/wp/wp.html*), and the center is now seeking additional papers to post there. Anyone with a paper they would like to have considered for publication is encouraged to contact the *Editors, Natural Hazards Center, Campus Box 482, University of Colorado, Boulder, CO 80309-0482; (303) 492-4180; fax: (303) 492-2151; e-mail: butler@spot.colorado.edu*.

Dispensing Disaster Knowledge in Delaware

Since 1967, the Disaster Research Center (DRC), now at the University of Delaware, has studied the human and organizational aspects of disasters. The DRC engages in a variety of social science research projects on preparations for, responses to, and recovery from community-wide emergencies, particularly natural and technological disasters. We recently received some of the center's newest publications. To purchase any of the items listed below, contact the *DRC, Publications, University of Delaware, Newark, DE 19716; (302) 831-6618; fax: (302) 831-2091; e-mail: susan.castelli@mvs.udel.edu; WWW: http://www.udel.edu/DRC/*. Pre-payment is required in U.S. dollars. A proforma invoice is available upon request. All items are sent via third-class mail. For first class mail, add $1.00 per publication ordered. For orders beyond the U.S., a 20% surcharge must be added to the total cost of the order. All items are sent via third-class mail. If air mail service is desired, please add $2.00 per publication ordered.

Articles

#296 ***Social Aspects of the Northridge Earthquake,*** by Kathleen J. Tierney. 1996. 8 pp. $5.00.

#297 ***Emergency Behaviors and Groups in the Crisis Time of Disasters***, by E.L. Quarantelli. 1996. 22 pp. $5.00.

#299 ***Introduction: Special Issue on Conference of Local Authorities Confronting Disasters and***

Emergencies, by E.L Quarantelli. 1996. 6 pp. $5.00.

#302 ***Anticipated Business Disruption Effects Due to Earthquake-Induced Lifeline Interruptions***, by Joanne M. Nigg. 1996. 13 pp. $5.00.

#303 ***The Impact of the 1993 Midwest Floods: Business Vulnerability and Disruption in Des Moines***, by Kathleen J. Tierney, Joanne M. Nigg, and James M. Dahlhamer. 1996. 21 pp. $5.00.

#304 ***Basic Themes Derived from Survey Findings on Human Behavior in the Mexico City Earthquake***, by E.L. Quarantelli. 1996. 20 pp. $5.00.

#305 ***A Methodology for Estimating the Risk of Post-Earthquake Hazardous Materials Release: Pilot Application to the County of Los Angeles***, by H.A. Seligson, Ronald T. Eguchi, and Kathleen J. Tierney. 1996. 4 pp. $5.00.

#306 ***Comparing and Generalizing from Crisis Experiences: Pitfalls and Possibilities***, by Russell R. Dynes. 1996. 14 pp. $5.00.

#307 ***The Similarity of Future Disasters in Italy and the United States: The Effects of Current Social Change Trends***, by E.L. Quarantelli. 1996. 15 pp. $5.00.

#308 ***The Challenge of Mitigation for Local Government***, by Joanne M. Nigg. 1996. 9 pp. $5.00.

Preliminary Papers

#237 ***Business Impacts of the Northridge Earthquake***, by Kathleen J. Tierney. 1996. 29 pp. $5.00.

#238 ***The Social Impacts of Physical Processes: How Do We Manage What We Can't Control?***, by Joanne M. Nigg. 1996. 16 pp. $5.00.

#239 ***Earthquake Response: Intergovernmental Structure and Policy Innovation***, by Joanne M. Nigg and Richard K. Eisner. 1996. 11 pp. $5.00.

#240 ***Businesses and the 1994 Northridge Earthquake: An Analysis of Pre- and Post-Disaster Preparedness***, by James M. Dahlhamer and Lisa Reshaur. 1995. 32 pp. $5.00.

#242 ***Rebounding from Disruptive Events: Business Recovery Following the Northridge Earthquake***, by James M. Dahlhamer and Kathleen J. Tierney. 1996. 38 pp. $5.00.

#243 ***Winners and Losers: Predicting Business Disaster Recovery Outcomes Following the Northridge Earthquake***, by James M. Dahlhamer and Kathleen J. Tierney. 1996. 22 pp. $5.00.

#244 ***Policy Issues for Post-Disaster Mitigation: The Need for a Process***, by Joanne M. Nigg. 1996. 7 pp. $5.00.

#245 ***The Social Impacts of Extreme Events***, by Joanne M. Nigg. 1996. 15 pp. $5.00.

Historical and Comparative Disaster Series

#9 ***The Fire Department in Disaster Operations in the 1960s***, by George J. Warheit. 1996. 55 pp. $10.00.

#10 ***Disasters and Mental Health: Therapeutic Principles Drawn from Disaster Studies***, by Charles E. Fritz. 1996. 98 pp. $10.00.

Final Project Reports

#39 ***Utilization and Impact of Earth Science Information Among Local Governments and Business in Southern California***, by Joanne M. Nigg and Kathleen J. Tierney. 1996. 114 pp. $20.00.

A Message from EMI . . .

Higher Learning and Disasters: Announcing the FEMA Education Project

One of the goals of the Federal Emergency Management Agency (FEMA) is to encourage and support the inclusion of emergency management-related education in colleges and universities across the United States. We believe that in the future more and more emergency managers in government, as well as in business and industry, need to come to the job with a college education that includes courses in disaster- and hazard-related topics. It is also our hope that a growing number will graduate with a degree in emergency management.

To further this goal, FEMA's Emergency Management Institute (EMI) in Emmitsburg, Maryland, which focuses on skills-based training for existing emergency management personnel, has undertaken several projects to promote college-based emergency management education for future emergency managers. In 1995, EMI devoted a full-time staff officer to the task of working with academics to develop and promoting emergency management-related college courses.

As part of the effort, EMI assembled an annotated listing of colleges and universities in the United States that teach one or more emergency management courses. This 20-plus-page document describes

courses and programs offered and provides point-of-contact information for each institution listed. To ensure its comprehensiveness, an early draft of this document was mailed to over 2,000 academics who receive the ***Natural Hazards Observer***. This listing is now routinely provided to emergency management personnel interested in continuing their education, as well as to academics wishing to develop their own emergency management-related courses. The list is available via the World Wide Web at both the Natural Hazards Center's Web site: *http://www.colorado.edu/hazards/colleges/colleges.html*, and at FEMA's Web: *http://www.fema.gov/EMI/edu/col_lst.htm*.

Following the development of the college list, course syllabi and outlines of existing emergency management-related courses were collected. Over 70 course outlines or syllabi are now included in this compilation, which is available free to any academic wishing to investigate the development of emergency management-related courses.

Next, EMI developed its own outline of a potential emergency management curriculum consisting of class-room-based, upper-division (junior/senior), bacca-laureate-level courses. EMI is now working with a variety of colleges and universities to develop this curriculum over the next three years. It includes:

- Aim and Scope of Emergency Management
- Business and Industry Crisis Management
- Citizen and Community Disaster Preparedness
- Disaster Response Operations and Management
- Earthquake Hazard Management and Operations
- Economics of Hazards and Disaster
- Emergency Management Skills and Principles
- Ethics in Disaster and Emergency Management
- Hazardous Materials Management
- Issues in Emergency Management
- Law for the Emergency Manager
- Living in a Hazardous Environment
- Politics of Disaster
- Principles and Process of Disaster Planning
- Principles and Process of Disaster Relief and Recovery
- Principles and Process of Hazards Mitigation
- Public Administration, Policy, and Emergency Management
- Research Methods in Emergency Management
- Social Dimensions of Disaster (available)
- Sociology of Disaster (available)
- Technology and Emergency Management
- Terrorism and Emergency Management

Each course is being developed in the form of an instructor guide, much like existing EMI course instructor guides, in sufficient detail to enable an informed instructor to teach the course at the upper

division level with a minimum of additional work outside of becoming familiar with the recommended course materials.

As courses are developed, EMI will make them available via the Internet, announce that availability in the ***Natural Hazards Observer***, and direct mail announcements to those schools teaching emergency management courses. As a result, FEMA hopes to advance emergency management degree programs throughout the U.S., so that some level of degree program is offered in every state in the nation. These programs could follow such models as:

- The certificate program for practitioners at the University of California at Berkeley;
- The Associate Degree program offered by the Delaware Community College system or St. Petersburg Junior College in Florida;
- The Emergency Management minor being considered at Millersville University in Pennsylvania;
- The distance learning courses and degrees created from the Higher Education Project's classroom-based courses;
- Emergency management concentrations or specializations offered by several academic departments, such as urban planning or public administration; and
- The full-fledged major and bachelor degree in emergency management offered by the University of North Texas in Denton, or a related program such as the bachelor degree in Emergency Services Management recently instituted at the University of Richmond in Virginia.

While we believe that this initiative is good in and of itself, we also believe that an added benefit is its contribution to the advancement of the profession of emergency management. Imagine a future wherein a mayor, city or county manager or administrator, governor, volunteer agency staff administrator, or business/industry chief executive officer has a choice of hiring an emergency management degree-holder for a new position--a person who can be looked upon to contribute quickly to his or her organization's management team. We think that day is coming and are happy to be able to have a role in helping it become a reality.

Questions concerning the Higher Education Project can be addressed to *Wayne Blanchard, Federal Emergency Management Agency, NETC/EMI, Building N, Room 430, 16825 South Seton Avenue, Emmitsburg, MD 21727; (301) 447-1262; fax: (301) 447-1598; e-mail: wayne.blanchard@fema.gov; WWW: http://www.fema.gov/home/emi/edu/.*

Kay Goss, Director, Preparedness, Training, and Exercises Directorate, Federal Emergency Management Agency

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EMI Courses Now Available

The Emergency Management Institute is pleased to announce the first of FEMA's Higher Education Project college-level, emergency-management-related courses:

- ***The Sociology of Disaster*** (1997, 278 pp., $49.00)--an instructor guide for professors of sociology who are planning a course for undergraduates. The recommended topics and reading assignments are appropriate for juniors or seniors majoring in the social sciences. The theoretical and methodological emphases are consistent with courses typically offered within departments of sociology. Topics include major theoretical approaches to disaster research, theory of disaster response, and the sociological impact of disaster on various communities.
- ***The Social Dimensions of Disaster*** (1997, 619 pp., $60.00)--an instructor guide that focuses on the social aspects of disasters and their relevance to emergency management. The recommended topics and reading assignments are appropriate for juniors or seniors who are studying emergency management, a related field such as sociology or public admini stration, or who are enrolled in an emergency management certificate program. Topics include disaster mythology patterns, public response to disaster warnings, victim and non-victim responses to disaster, disaster stress and denial, crisis decision making, disaster recovery and community change, and community and organizational disaster response.

These two courses are the first in a series of approximately 20 classroom-based courses that will compose a suggested emergency management curriculum at the upper-division college level (see the article above). Printed copies are available from the *National Technical Information Service (NTIS), U.S. Department of Commerce, Springfield, VA 22161; (800) 553-6847.* Reference the NTIS order number PB97-115380 for ***The Sociology of Disaster***, and PB97-115372 for ***The Social Dimensions of Disaster***. These courses are also available via the Internet at the above address.

Washington Update

NFIP Increases Coverage

Following a flood, homeowners filing a claim are often surprised to discover that their flood insurance only provides enough funds to replace or repair their homes, not to elevate, relocate, or undertake other effective floodproofing measures that may be required by local ordinance for rehabilitation of flood-damaged structures. Now, however, these homeowners can get some help with these extra costs.

On March 26, 1997, the Federal Insurance Administration (FIA) of the Federal Emergency Management Agency (FEMA), which administers the National Flood Insurance Program (NFIP), announced that for an additional premium of up to $75.00, every property owner who purchases or renews a flood insurance policy after June 1, 1997, will receive $15,000 coverage for the "consequential loss brought on by a floodplain management ordinance or law affecting repair and reconstruction involving elevation, floodproofing, relocation, or demolition (or any combination thereof) of a structure, after a direct loss" caused by a flood. No separate deductible applies.

Buildings eligible for this coverage are structures that have suffered repetitive loss, that is, those that have incurred flood damage at least twice over 10 years and for which the cost of repairs exceeded 25% of the market value of the structure at the time of the flood. Also, any structure that experiences flood damage for which repairs are equal to or exceed 50% of market value are eligible. In both cases, the state or local government must have a cumulative, substantial damage provision or repetitive loss provision in its floodplain management law or ordinance.

The coverage, called Increased Cost of Compliance (ICC) and mandated by the National Flood Insurance Reform Act of 1994, must be used within two years of damage to a structure. It covers the activities mentioned above, as well as the cost of bringing a structure into compliance with state and local floodplain management laws, even if the structure has received a variance from floodplain management restrictions prior to the flood loss.

For more information on the NFIP and the ICC, contact *Charles M. Plaxico, Jr., FEMA, FIA, 500 C Street, S.W., Washington, DC ; (202) 646-3422;* or the *FEMA Emergency Information and Public Affairs Office: e-mail: eipa@fema.gov;* or see the *FEMA Website: http://www.fema.gov/library/frnfip.htm*.

FEMA Revises Map-Making Rules and Fees

As most hazard managers already know, floodplain maps are a critical land-use decision-making tool, as well as a measure of flood risk that helps determine flood insurance rates. Effective March 10, 1997, FEMA revised regulations governing identification and mapping of Special Flood Hazard Areas (SFHAs) and correction of NFIP maps by changing the fee requirements and fee schedule for processing changes to these maps.

According to FEMA, this action reduces expenses to the NFIP and contributes to maintaining the NFIP as a self-supporting program by:

- establishing flat user fees for most requests for map revisions;
- reducing the number of user fee categories;
- requiring full payment of fees before FEMA begins work on a request;
- changing the initial fee and hourly rate for revisions relating to structural measures on alluvial fans;
- limiting exemptions; and
- replacing the mechanism for recovering mapping production costs.

The rates and fees are based on prevailing private-sector rates charged to FEMA for labor and materials. The new system now also includes credit card payments. However, map revision requests to correct mapping or study analysis errors will be processed without charge. Further, officials who request a FEMA restudy of flood hazards because conditions have changed since the last NFIP map for their

community was published will not be charged. Nor will communities with a federally sponsored flood-control project, 50% or more of which is federally funded, be charged. Detailed federal, state, or local hydrologic or hydraulic studies conducted to replace approximate studies by FEMA will also not require payment.

The final rule can be found in the ***Federal Register*** 62 (25) (February 6, 1997) on pp. 5733-5738. For further information, contact *Frederick H. Sharrocks, Jr., Chief, Hazard Identification Branch, FEMA, 500 C Street, S.W., Washington, DC 20472; (202) 646-2796.* The complete text is also available via the Internet at *http://www.access.gpo.gov*.

VA Revises Loan Regulations for Flood Hazard Areas

In order to meet the requirements of the National Flood Insurance Reform Act of 1994, the Veterans Administration (VA) has amended its regulations to strengthen requirements for procuring and maintaining flood insurance on properties in special flood hazard areas that secure loans guaranteed by the VA.

Like other federal agencies that secure mortgages for homes (see the ***Observer***, Vol. XXI, No. 2, p. 10), the VA has established new escrow requirements for flood insurance premiums, a requirement to "force place" flood insurance under certain circumstances, new methods for enhancing flood hazard notice requirements, new authority for the VA to charge fees for determining whether a property is in the flood hazard area, and various other provisions.

The final rule appeared in the February 6, 1997, ***Federal Register*** on pages 5530-5534. For further information, contact *Judith Caden, Loan Guaranty Service, Veterans Benefit Administration, Department of Veterans Affairs, Washington, DC 20420; (202) 273-7368.* The complete text of the final rule is also available via the Internet at *http://www.access.gpo.gov*.

NEMA and IIPLR Join Forces

The National Emergency Management Association (NEMA) has joined forces with the Insurance Institute for Property Loss Reduction (IIPLR) to mitigate the impacts of natural disasters. NEMA is an association of 59 state and territorial emergency management directors who work directly with their governors to mitigate, plan for, respond to, and recover from disasters in their jurisdictions. IIPLR, created by the property-casualty insurance industry, works to reduce deaths, injuries, human suffering, property damage, and economic losses due to natural disasters.

Under a recent agreement, the organizations will co-sponsor the annual IIPLR Congress, participate in a

national nonstructural retrofit program, and implement comprehensive mitigation programs in select communities. The two groups hope to select six communities throughout the U.S. in the next year for pilot mitigation programs that include conducting a detailed risk analysis, enforcing more stringent building codes, and offering incentives for homeowners to reduce the risks of disasters.

For further information on this effort, contact *NEMA, Council of State Governments, 3650 Iron Works Pike, P.O. Box 11910, Lexington, KY 40578-1910; (606) 244-8000; fax: (606) 244-8239,* or *IIPLR, 73 Tremont Street, Suite 510, Boston, MA 02108-3910; (617) 722-0200; fax: (617) 722-0202; WWW: http://www.iiplr.org.*

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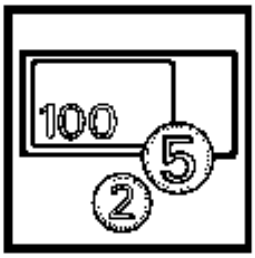

Contracts and Grants

Strategic Policy Innovation and Social Learning: Flood Hazard Mitigation, Recycling, and Air Quality in Tulsa, Oklahoma, National Science Foundation, $147,395, 24 months. Principal Investigator: *Mark Meo, Department of Science and Public Policy, University of Oklahoma, Norman, OK 73069-8813; (405) 325-2554; e-mail: mmeo@ou.edu.*

The principal investigator will study the mechanisms that led to the implementation of three environmental policies relating to flood hazard mitigation, recycling, and air quality control. He will evaluate hypotheses concerning the role of scientific and technical information, development and influence of advocacy coalitions, the effect of social learning on attainment of policy goals, and the strategic roles of policy entrepreneurs.

The Integration of Technical and Personnel Considerations for Utility Storm Management, National Science Foundation, $18,000, 18 months. Principal Investigator: *Noel N. Schulz, Michigan Technological University, Houghton, MI 49931; (906) 487-1885; e-mail: nnschulz@mtu.edu.*

One of the common victims of a severe storm is the electric power system. This project will analyze power systems data, as well as personnel and equipment needs, to create a set of outage management techniques to optimize utility restoration during and after a storm.

Worldviews, Ethnicity, and Risk Perception, National Science Foundation, $113,851, 12 months. Principal Investigators: *Christina Palmer and A.J. Woodward, Department of Psychology, 1257D FH, University of California-Los Angeles, Los Angeles, CA 90024-1301; (310) 825-2288; e-mail: cpalmer@npimain.med.ucla.edu* or *woodward@psych.ucla.edu.*

This project will study the differences in risk perception among individuals with different ethnic and cultural backgrounds. The researchers will examine the perceptions of Taiwanese, African-Americans, Hispanics of Mexican origin, and European-Americans with respect to three "worldviews": authoritarian, egalitarian, and individualistic.

Development of a Hydrometeorological Data Base for the December '96-January '97 Floods in California, National Science Foundation, $50,000, 12 months. Principal Investigator: *M. Levent Kavvas, Department of Civil and Environmental Engineering, University of California-Davis, 154*

Everson Hall, Davis, CA 95616-8671; (916) 752-2518; e-mail: mlkavvas@ucdavis.edu.

This award will support the creation of a comprehensive data base regarding the recent flooding in northern California. It will include data for watersheds draining into the San Joaquin River, the Russian River, the Sacramento River, the Feather/Yuba River, and the Truckee River. The data will be compiled in a GIS system that will be accessible to any researcher or practitioner interested in improving methods for predicting, controlling, and managing floods.

The Mexico City 1985 Disaster and Emergent Organizations: A 10-Case Study, National Science Foundation, $218,902, 24 months. Principal Investigator: *Richard S. Olson, Arizona State University, SS 404B, Mail Code 2001, Tempe, AZ 85287; (602) 965-0368; e-mail: iadrso@asuacad.edu*

The twin earthquakes of September 19 and 20, 1985, which devastated central zones of Mexico City, remain one of the great urban catastrophes of the late 20th century. This project will examine the life-cycle of emergent organizations that worked on postearthquake social problems. The researchers will investigate groups that emerged and transformed in the years after the quake and survive to this day, as well as those that were active during the emergency phase but disappeared at various points during recovery and reconstruction.

Research Opportunities

We recently received a brochure from the National Science Foundation (NSF) describing various NSF research opportunities in the fields of environmental and global change. Rather than reproduce all the information presented there, we'll just direct you to three pertinent World Wide Web pages. The URL for the Environmental and Global Change Research home page itself is *http://www.nsf.gov/stratare/egch/start.htm*. Within that section, the Natural Hazards Reduction home page is *http://www.nsf.gov/stratare/egch/nathaz.htm*, and the Human Dimensions of Global Climate Change page is *http://www.nsf.gov/stratare/egch/hdgc.htm*. Alternatively, for further information, contact *Leila Harris, Coordinator for Environment and Global Change Activities, National Science Foundation, 4201 Wilson Boulevard, Arlington, VA 22230; (703) 306-0891; e-mail: lharris@nsf.gov*.

Conferences And Training

Below are the most 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

Caribbean Tsunami Workshop. Sponsors: University of Puerto Rico Research and Development Center, Puerto Rico State Civil Defense, and others. Mayaguez, Puerto Rico: June 11-13, 1997. Although the Caribbean is well known for its hurricanes, not many people think of it as a place where tsunamis are a threat. However, as tsunami expert James Lander recently stated, "The tsunami research community, which is focused largely on the Pacific and Mediterranean should also be aware of the tsunami potential in the Caribbean, which has a history of over 50 tsunamis and hundreds of fatalities." Indeed, in 1918 Puerto Rico was the site of a tsunami that caused over 42 confirmed deaths (and possibly more than 100 unconfirmed).

Last May, the Intergovernmental Oceanographic Commission of UNESCO sponsored a Caribbean Tsunami Meeting of Experts in the Virgin Islands. On that occasion the need for the Caribbean region to advance the study of tsunamis and to establish a local tsunami warning center were discussed. Now the University of Puerto Rico Sea Grant College Program is organizing this Caribbean Tsunami Workshop, with the main objectives of pursuing the establishment of a Caribbean Tsunami Warning Center and discussing practical ways to use numerical tsunami inundation models. For program or registration information, contact *Aurelio Mercado, Department of Marine Sciences, University of Puerto Rico, P.O. Box 5000, College Station, Mayaguez, Puerto Rico 00681-5000; (787) 832-4040, ext. 3201; fax: (787) 265-5408; e-mail: a_mercado@rmocfis.upr.clu.edu* or *a_mercado@rumac.upr; WWW: http://rmocfis.upr.clu.edu/~a_mercad/workshop.html*.

Executive Development Program on Emergency/Disaster Management. Offered by: Asian Disaster Preparedness Center (ADPC). Bangkok, Thailand: June 16-27, 1997. This course is intended to enhance the disaster management and leadership capabilities of senior professionals in any organization. For more details, contact the *Senior Manager, Training and Professional Development, ADPC/AIT, P.O. Box 4 Klong Luang, Pathumthani 12120, Thailand; fax: (66 2) 524 5360; e-mail: lpdadpc@ait.ac.th*.

Seventh World Conference on Disaster Management. Sponsor: Canadian Centre for Emergency Preparedness. Hamilton, Ontario, Canada: June 22-25, 1997. This annual event will focus on emergency response, major accidents, domestic terrorism, risk and crisis management, natural disasters, business recovery, and health care disaster management. For details, contact the *Canadian Centre for Emergency Preparedness, P.O. Box 2911, Hamilton, Ontario, Canada L8N 3R5; (905) 546-3911* or *(800) 965-4608; fax: (905) 546-2340; e-mail: ccep@netaccess.on.ca; WWW: http://www.netaccess.on.ca/~ccep/wcdm/*.

Emergency Preparedness Conference for Museum Staff. Sponsor: Upper Midwest Conservation Association. Madison, Wisconsin: June 23-24, 1997. This conference will feature individual

presentations by international experts, as well as roundtable discussions on emergency preparedness, response, and recovery for museums. The conference will be followed by on-site work with participant institutions during the summer and fall of 1997. Conference brochures are available from *Pam Richardson, Elvehjem Museum of Art, University of Wisconsin, 800 University Avenue, Madison, WI 53706; (608) 263-3722; fax: (608) 263-8188; e-mail: paricha1@facstaff.wisc.edu*.

Improving Local Emergency Management. Offered by: University of Wisconsin-Madison, Department of Engineering Professional Development. Madison, Wisconsin: June 26, 1997. This one-day course will provide emergency managers from all sectors information and hands-on experience to improve their emergency preparedness and response capabilities. Participants will examine a successful local emergency management agency and then take part in exercises covering hazard analysis, vulnerability and capacity assessment, planning, and review. For more information, contact *Katie Peterson, Department of Engineering Professional Development, University of Wisconsin-Madison, 432 North Lake Street, Madison, WI 53706; (800) 462-0876; fax: (608) 263-3160; e-mail: custserv@epd.engr.wisc.edu; WWW: http://epdwww.engr.wisc.edu/*.

Mitigation--The Bottom Line. Sponsors: Cascadia Region Earthquake Workgroup (CREW) and the Portland State University Geology Department: Portland, Oregon: July 10-11, 1997. Earthquake recovery can strain corporate resources and even lead to business failure. This predicament is exacerbated by insurance industry concerns about recent losses that are forcing businesses to assume higher levels of risk. This meeting will focus on the economics of mitigation, including strategies and methods for reducing the cost of natural hazards. It is intended for financial officers, risk managers, underwriters, and emergency managers interested in learning effective ways to demonstrate to senior management the cost effectiveness of earthquake mitigation. CREW is a public-private partnership working to reduce earthquake impacts in the Pacific Northwest (see the ***Observer***, Vol. XXI, No. 3, p. 5). Registration materials are available from *Meeting Points, 5415 S.E. Milwaukie Avenue, Suite 5, Portland, OR 97202; (503) 233-1244*; additional questions can be directed to *Diane Earl; (415) 664-7532; fax: (415) 566-8906*.

Community Preparedness: Making a Safer Tomorrow. Sponsor: Disaster Emergency Response Association (DERA). Asheville, North Carolina: July 17-18, 1997. This workshop will focus on disaster preparedness in communities throughout the southeastern U.S., Gulf states, and Caribbean. It will include discussions of family preparedness, business risk management, local government emergency management, community hazard mitigation projects, FEMA roles and capabilities, military roles, public health issues, effective use of volunteers, animal care in disasters, and public-private partnerships. For more information, contact *DERA Regional Workshop, P.O. Box 6558, Asheville, NC 28816; e-mail: n3dak@ix.netcom.com; WWW: http://www.netcom.com/~n3dak/asheville.html*.

Coastal Zone '97: Charting the Future of Coastal Zone Management for the Next 25 Years. Boston, Massachusetts: July 20-26, 1997. Coastal Zone '97 is the 10th conference in this series of biennial international meetings that examine the complex, multidisciplinary problems facing the world's oceans and coastlines. CZ97 occurs at the 25th anniversary of the Coastal Zone Management Act--landmark

national legislation that promotes integrated coastal management. The conference will provide a forum for evaluating the last quarter century, examining current problems, and surveying opportunities for the future. For further information, contact *Chantal Lefebvre, Urban Harbors Institute, University of Massachusetts-Boston, 100 Morrissey Boulevard, Boston, MA 02125-3393; (617) 287-5576; fax: (617) 287-5575; e-mail: lefebvre@umbsky.cc.umb.edu*.

29th General Assembly of the International Association of Seismology and Physics of the Earth's Interior (IASPEI). Thessaloniki, Greece: August 18-28, 1997. The IASPEI assembly will examine issues in seismology, spanning problems in geophysics to obstacles in earthquake hazards education. The official language of the conference will be English. For a complete list of sessions, contact *IASPEI 97 General Assembly, Local Organizing Committee, Geophysical Laboratory, University of Thessaloniki, P. O. Box 352-1, GR-54006 Thessaloniki, Greece; tel: +30 31 998536, 998505, fax: +30 31 998528, 214553; e-mail: iaspei@lesvos.geo.auth.gr; WWW: http://www.iaspei97.auth.gr*, or *http://www.csd.net/~bergman/iaspei*.

Northridge Earthquake Research Conference. Sponsor: National Science Foundation, California Universities for Research in Earthquake Engineering (CUREe), and others. Los Angeles, California: August 20-22, 1997. This conference will highlight research from all disciplines that examined the effects of the 1994 Northridge, California, earthquake--the most damaging seismic event in U.S. history. Specially commissioned presentations will review technical findings and the implementation of research results. Submission and registration information is available from *Northridge Earthquake Research Conference, CUREe, 1301 South 46th Street, Richmond, CA 94804; (510) 231-9557; fax: (510) 231-5664; e-mail: curee@nisee.ce.berkeley.edu*.

Asia-Pacific Disaster Conference 1997. Kauai, Hawaii: September 8-12, 1997. Sponsors: Center of Excellence in Disaster Management and Humanitarian Assistance and the Pacific Disaster Center. APDC '97 will emphasize the role of technology in disaster management, mitigation, response, and relief by showcasing products, applications, hardware, systems, and techniques of information management. Presentations will also address advances in disaster management and humanitarian assistance and legal issues in disaster management and assistance. While the emphasis will be on the Asia-Pacific region, the information should be applicable to other locations. Additional details are available from the *Center of Excellence in Disaster Management, 1 Jarrett White Road (MCPA-DM), Tripler AMC, HI 96859-5000; (808) 433-7035; fax: (808) 433-1446; e-mail: kanemota@website.tamc.amedd.army.mil; WWW: http://website.tamc.amedd.army.mil*.

Fourth National Conference on Earthquake Engineering. Sponsor: Turkish National Committee for Earthquake Engineering. Ankara, Turkey: September 17-19, 1997. This conference will provide an opportunity for professionals from Turkey and abroad to share the latest knowledge, experience, and techniques in earthquake engineering and related disciplines. Topics to be addressed include seismicity, seismic hazards, regional planning, lifelines, damage assessment, analysis and design of structures, design codes, repair and retrofit of structures, physical testing of structures and components, historical structures and monuments, seismic isolation and control systems, postearthquake response,

socioeconomic issues, postearthquake investigations, and lessons learned from past earthquakes. The official language of the conference will be Turkish; simultaneous translation to English will be available. For more information, contact *Haluk Sucuoglu, Earthquake Engineering Research Center, Department of Civil Engineering, Middle East Technical University, 06531 Ankara, Turkey; tel: +90 312 210 54 80; fax: +90 312 210 13 28; e-mail: eerc@rorqual.cc.metu.edu.tr; WWW: http://www.metu.edu.tr/~wwweerc*.

Nature's Workshop: Environmental Change in Twentieth Century Southern California. Organizers: The Southern California Environment and History Conference Planning Group. Northridge, California: September 18-20, 1997. The organizers of this conference have issued a call for papers. Topics include hazards related to environmental change. Proposals should be submitted to the *Southern California Environment and History Conference, c/o Center for Southern California Studies, California State University, Northridge, CA 91330-8371, attn: Lorna Fenenbock, Conference Coordinator*. Additional information is available from *Chrys Rodrigue, Center for Hazards Research, California State University-Chico; e-mail: crodrigue@oavax.csuchico.edu*; or call: *(818) 677-6518; fax: (818) 677-7115; e-mail: scehc@csun.edu*.

Second National Conference on Integrated Catchment Management: Advancing Integrated Resource Management--Processes and Policies. Organizers: Centre for Water Policy Research, University of New England, Australia; Soil and Water Conservation Society, USA; and River Basin Management Society. Canberra, Australia: September 29-October 1, 1997. This conference will provide participants an opportunity to share their experiences, knowledge, and ideas regarding integrated catchment management. Specifically, it will try to identify effective practices, emerging issues, and priority needs. To receive a conference circular, contact *Ron Hodges, 16 Larch Crescent, Mt. Waverley, Victoria 3149, Australia; tel: +61 3 9802 4859; fax: +61 3 9802 2315; e-mail: rmbs@vicnet.net.au; WWW: http://www.vicnet.net.au/~rbms*.

Canada-U.S. Wildland Fire Safety Summit. Sponsors: International Association of Wildland Fire (IAWF) and others. Rossland, British Columbia, Canada: September 30-October 2, 1997. Abstracts due June 15. This meeting will permit a cross-cultural comparison of wildland fire safety knowledge and practice. Its goal is to promote honest discussion--both practical and philosophical--about the best and worst aspects of wildland fire safety in the U.S. and Canada. Fire professionals from all fields and levels are encouraged to participate. Further information is available from *IAWF, P.O. Box 328, Fairfield, WA 99012; (509) 283-2397; fax: (509) 283-2264; e-mail: greenlee@cet.com*.

1997 Association of Contingency Planners (ACP) Business Recovery Symposium. Salt Lake City, Utah: October 6-8, 1997. The first two days of ACP's annual business recovery symposium will involve plenary speakers and simultaneous presentations. The third day will consist of a hands-on disaster simulation exercise. To be added to the symposium mailing list, contact *Milt Maughan, Registrar, 1997 ACP Business Recovery Symposium, P.O. Box 264, Brigham City, Utah 84302-0264; (800) 753-7813; fax: (800) 753-7814; e-mail: maughma@tc.thiokol.com*.

IDER '97: International Disaster and Emergency Response Conference. The Hague, Netherlands: October 7-9, 1997. IDER '97 will cover technical, planning, and operational aspects of emergency response and will allow participants to examine both the latest equipment and the latest techniques available for disaster preparedness, response, and mitigation. For more information, contact *Andrich International Limited, 51 Market Place, Warminster, Wiltshire BA12 9AZ, U.K.; tel: +44-1985-846181; fax: +44-1985-846163; e-mail: 100522.1102@compuserve.com.*

Symposium on Climate Variability, Climate Change, and Water Resource Management. Sponsors: National Science Foundation, U.S. Geological Survey, and others. Colorado Springs, Colorado: October 26-29, 1997. This symposium will enable water resource managers to hear about the latest research and developments in water and climate forecasting and modeling and about new management techniques to cope with climate variability and change. It will allow them to explore how available information can be applied to water resource issues and to tell researchers what tools they need to cope with climate variability and change. Conversely, it will permit researchers to find out how climate research is being applied and how it can be made more useful. For a conference brochure, contact *Betty Neal, Hagler Bailly Services, Inc., P.O. Box 3524, Eagle, CO 81631; WWW: http://civil.colorado.edu/climate.*

Central Building Research Institute (CBRI) Golden Jubilee Conference: Natural Hazards in Urban Habitat. New Delhi, India: November 10-11, 1997. To improve governmental preparedness and societal awareness, this conference will highlight risks faced by cities, specifically addressing impacts of natural hazards on urban environments, hazard zonation, disaster preparedness, disaster-resistant construction, and disaster management. Additional information is available from *Sri. M.P. Jaisingh, GJC-NH, Central Building Research Institute, Roorkee--247 667 (U.P.), India; tel: 01332-72103; fax: 01332-72272, 72543; e-mail: mpjai@cscbri.ren.nic.in.*

1997 Annual Meeting of the National Association of Flood and Stormwater Management Agencies (NAFSMA). Lake Buena Vista, Florida: November 19-22, 1997. The preliminary agenda for this meeting includes sessions on stormwater management, floodplain management, water quality, flood control, and basin-wide watershed management. To receive a conference announcement, contact *NAFSMA, 1401 Eye Street, N.W., Suite 900, Washington, DC 20005; (202) 218-4122.*

Society for Risk Analysis (SRA) 1997 Annual Meeting. Washington, D.C.: December 7-10, 1997. The theme for the 1997 SRA meeting is "Improving Public Policy Through Risk Assessment and Risk Management." The organizers plan to focus on three broad areas: physical infrastructure, service systems and consumer products, and theory and methodology. The first and last areas, in particular, will include subtopics that encompass natural and anthropogenic hazards. For additional information, contact *SRA, 1313 Dolley Madison Boulevard, Suite 402, McLean, VA 22101; (703) 790-1745; WWW: http://www.sra.org.*

International Disaster Management Conference. Sponsors: Florida Emergency Medicine Foundation and others. February 18-22, 1998. Contact the *Disaster '98 Registrar, Florida Emergency Medicine*

Foundation, 3717 South Conway Road, Orlando, FL 32812-7607; (407) 281-7396 or (800) 766-6335; fax: (407) 281-4407; and *Children's Emergencies in Disasters: A National Workshop. Sponsors: Florida Emergency Medicine Foundation, Federal Emergency Management Agency, and others. Orlando, Florida: February 18-19, 1998. Presentation proposals due June 30, 1997*. The workshop, held in conjunction with the conference, will address a broad range of issues involving children and disasters, including disaster planning, medical care, mental health, access to services, children with special needs, and community recovery. The objectives are to identify and raise awareness of the unique needs of children in disasters, identify some of the resources available to address those needs, identify successful models, and develop recommendations for action. Abstract guidelines are available via the World Wide Web at *http://www.fema.gov/fema/c_chdiz.htm*; interested persons can also call *(202) 884-4927; fax: (301) 650-8045*; or *e-mail: kallen @emscnrc.com*.

Sixth Society for Earthquake and Civil Engineering Dynamics (SECED) Conference: Seismic Design Practice into the Next Century. Oxford, U.K.: March 26-27, 1998. The principle topics of this conference will be regional seismic hazards studies; design of foundations, buildings, and other structures; structure assessment, repair, and strengthening; special seismic needs of the nuclear and petrochemical industries; laboratory and field methods; earthquake reconnaissance; seismic reliability studies; international cooperation and networks; seismic codes; the International Decade for Natural Disaster Reduction (IDNDR); and new approaches for the next century. Additional information is available from *Rachel Coninx, Thomas Telford Conferences, Institution of Civil Engineers, One Great George Street, London SW1P 3AA, U.K.; tel: +44 (0) 171 665 2314; fax: +44 (0) 171 233 1743; e-mail: coninx_r@ice.org.uk*.

International Workshop on Nonstructural Flood Control in Urban Areas. Sponsor: UNESCO International Hydrological Program (IHP), and others. Sao Paulo, Brazil: April 20-22, 1998. This workshop will assess the effectiveness of nonstructural flood control measures and the associated risks, costs, and benefits. Additionally, it will assess the state of the art in integrated technologies for urban water management. The meeting will be conducted in English. For more information, contact *Benedito Braga, International Research and Training Center in Urban Drainage (IRTCUD)--Regional Center for Tropical Climates (RCTC), c/o Depto. de Engenharia Hidráulica, Escola Politécnica--USP, Av. Prof. Almeida Prado, 271, 05508-900 Sao Paulo, SP, Brazil; tel: (+55) (11) 818-5396; fax: (+55) (11) 818-5423; e-mail: benbraga@usp.br*.

Hydrology in a Changing Environment. Sponsor: British Hydrological Society. Exeter, U.K.: July 6-10, 1998. Among other topics, this meeting will address the hydrology of environmental hazards. More information is available from *B. Webb, Department of Geography, University of Exeter, Amory Building, Rennes Drive, Exeter, Devon EX4 4RJ, U.K.; fax: +44 (0) 1392 263342; e-mail: b.w. webb@exeter.ac.uk; WWW: http://www.nwl.ac.uk/ih/prototype/new/bhs.html*.

Meeting of the Research Committee on Disasters, International Sociological Association. Montreal, Canada: July 26-31, 1998. Abstracts due September 1, 1997. The Research Committee on Disasters meeting will include special sessions on mitigation, gender (see p. 1 of this ***Observer***), crowds, and

current research in Canada, Europe, and Australia. The committee will also examine advances in research in the last 12 years. Although the committee holds its meetings every four years as part of the World Congress of Sociology, it welcomes papers from all disciplines. Anyone desiring additional information should contact *Joseph Scanlon, 117 Aylmer Avenue, Ottawa, Ontario, Canada K1S 2X8; (613) 730-9239; fax: (613) 730-1696; e-mail: jscanlon@ccs.carleton.ca*.

Eleventh European Conference on Earthquake Engineering. Sponsors: European Association for Earthquake Engineering and French Association for Earthquake Engineering. Paris, France: September 6-11, 1998. Abstracts due July 31, 1997. This conference will cover engineering seismology; soil, rocks, and construction materials; modeling; active and passive isolation; industrial facilities, lifelines, and equipment; vulnerability, seismic risk, and strengthening; site effects; reliability analysis; and current practice. The meeting will also include three special theme sessions on European and national applications, seismic risk in the Mediterranean Basin, and postearthquake investigations. For details, contact the *XIth European Conference on Earthquake Engineering, AFPS Secretariat, 4, Avenue du Recteur Poincare, 75782 Paris Cedex 16, France: tel: 33-1 40-50-28-34; fax: 33-1 45-25-61-51; WWW: http://dfc2.enpc.fr/ecee11*.

Eighth Congress of the International Association of Engineering Geology. Vancouver, British Columbia, Canada: September 21-25, 1998. The congress will include sessions on engineering for earthquakes, landslides, floods, and volcanoes. To learn more, contact *Kim Meidal, 8th Congress IAEG, c/o BC Hydro, 6911 Southpoint Drive, Burnaby, British Columbia, Canada V3N 4X8; (604) 528-2421; fax: (604) 528-2558; e-mail: kim.meidal@bchydro.bc.ca; WWW: http://ewu.bchydro.bc.ca/IAEG/IAEG98.html*.

Risk '98: First International Conference on Computer Simulation in Risk Analysis and Hazard Mitigation. Organizers: Wessex Institute of Technology and Universitat Jaume 1. Palau de Pineda, Valencia, Spain: October 7-9, 1998. The organizers of this conference invite papers on all aspects of risk analysis and hazard mitigation for both natural and anthropogenic hazards, as well as papers addressing such strategic issues as sustainable development, efficient use of resources, energy economics, and education as they relate to risks and hazards. For details and a complete list of conference topics, contact *C.A. Brebbia, Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton SO40 7AA, U.K.; tel: 44 (0)1703 293223; fax: 44 (0)1703 292853; e-mail: wit@wessex.ac.uk*.

A New Series from EENET

On the third Wednesday of each month, the Federal Emergency Management Agency's Emergency Education Network (EENET) is broadcasting "National Alert," a 90-minute program comprising several segments, including a national "hot topic" of the month in emergency management; special information for first responders; training features produced by a national network of first response personnel; and the latest news from both the National Emergency Training Center (NETC) and FEMA regarding emergency management activities, problems, and issues. For more information about "National Alert,"

contact *EENET, NETC, 16825 South Seton Avenue, Emmitsburg, MD 21727; (800) 527-4893 or (301) 447-1068; fax: (301) 447-1363; e-mail: sdownin@fema.gov.*

EMI Offers School Disaster Training Courses

The Federal Emergency Management Agency's Emergency Management Institute (EMI) is offering the course, "Multi-Hazard Safety Program for Schools: Train-the-Trainer," June 2-6 and August 11-15, 1997. Intended for any interested members of a school community, the course is designed to enable participants to conduct subsequent school disaster preparedness training in their communities.

EMI also offers "Earthquakes: A Teacher's Package for K-6: Train the Trainer," July 7-11 and July 21-25, 1997; and "Seismic Sleuths: A Teacher's Package on Earthquakes for Grades 7-12: Train the Trainer," August 4-8, 1997.

For more information, contact *EMI, National Emergency Training Center, 16825 South Seton Avenue, Emmitsburg, MD 21727; (301) 447-1000.*

Recent Publications

All Hazards

The Disaster Relief Handbook. *1997. 80 pp. $14.95, plus $5.00 shipping. Available from Solano Express Printing, 1164 Solano Avenue, Albany, CA 94706; (510) 524-0235. For bulk orders, call (510) 526-9149.*
This book, written for homeowners, renters, builders, and disaster aid workers, describes how to obtain federal disaster relief. It contains sections that explain how federal disaster assistance works, eligibility requirements, covered losses for structural damage and housing assistance, personal property losses and other personal expenses, applying for assistance, assembling documentation, the inspection process, the Small Business Administration Disaster Loan Program, and special problems created by disasters.

Natural Disasters and Disaster Reduction: Contributions of the German Scientific Community to the IDNDR. *Wolfgang Kron, Erich Plate, and Sabine Vollmer. German IDNDR Series No. 1. 1996. 75 pp. For availability, contact the Deutsches IDNDR-Komitee für Katasstrophenvorbeugung e.V., Vorstand (German IDNDR Committee--Board), Postfach 1460, D-54003, Bonn, Germany; tel: (0228) 541 302; fax: (0228) 541 303.*
When the United Nations designated the 1990s as the International Decade for Natural Disaster Reduction (IDNDR), it stressed the need for raising awareness for disaster reduction, public information, and transfer of technology. As a step toward these goals, the German IDNDR Committee has launched a

series of publications that deal with natural hazards, and this is the first publication in that series. The report discusses the IDNDR in general, the program of the German Scientific Advisory Board, the psychology and sociology of disaster, earthquakes, volcanoes, landslides, floods, droughts, and severe storms. The report includes a color 16" by 9" natural hazards map of the world.

Megacities: Reducing Vulnerability to Natural Disasters. *1996. 170 pp.*
Structures to Withstand Disasters. *1995. 185 pp.*
Both volumes are free, but an invoice for overseas shipping and handling will be included. To obtain copies, contact Sharon Francis, International Affairs Section, Institution of Civil Engineers, 1 Great George Street, London SW1P 3AA, U.K.; fax: 44 171 233 1806; e-mail: francis_s@ice.org.uk.

One of the striking demographic phenomena of the 20th century has been the rise of megacities in the developing world--large population centers in which the combined forces of population growth and industrialization are at their greatest. These megacities bring increased responsibility for city government to protect those people and assets from hazards. ***Megacities*** looks at the relationship between population centers and hazards and offers suggestions for the United Nations to create an effective organizational structure to promote hazard prediction, preparedness, response, and mitigation. It includes background information on the effects of natural hazards, their impacts on megacities, and the rationale for mitigation. In addition, it explains scientific understanding of risk, the vulnerability of infrastructure, and human impacts. Finally, it offers suggestions for effective city management of hazards, for increasing public awareness, and for adopting mitigation strategies.

The second volume looks at how disasters affect buildings. It describes planning and design processes, emergency and rehabilitation measures, case studies of areas vulnerable to wind and earthquake forces, public policy issues, risk assessment, and disaster mitigation.

Cartographies of Danger: Mapping Hazards in America. *Mark Monmonier. 1997. 349 pp. $25.00, plus $3.50 shipping. (Illinois residents, add 8.75% sales tax.) Available from the University of Chicago Press, Direct Mail Department, 5801 South Ellis Avenue, Chicago, IL 60637; (773) 568-1550; fax: (773) 702-9756; WWW: http://www.press.uchicago.edu.*

Maps can tell us a lot about where we can anticipate hazards, but they can also be dangerously misleading. California, for example, takes earthquakes seriously, having instituted a comprehensive program of seismic mapping, whereas Washington has been comparatively lax about earthquakes in the Puget Sound area. However, as the Northridge earthquake in January 1994 demonstrated, even reliable seismic-hazard maps can deceive anyone who misinterprets "known fault-lines" as the only places vulnerable to earthquakes. A better goal of hazard-zone maps is to highlight more insidious hazards and raise awareness among planners, local officials, and the public. Monmonier demonstrates how hazard mapping reflects not just scientific understanding of hazards, but also perceptions of risk.

Applications of Geographic Information Systems (GIS) Technology in Environmental Risk Assessment and Management. *J. Ronald Eastman, Srinivas Emani, Stephanie Hulina, Hong Jiang, Amina Johnson, and Mahadevan Ramachandran. 1997. 117 pp. For availability information, contact the Idrisi Project, Clark Labs for Cartographic Technology and Geographic Analysis, Clark University, 950*

Main, Worcester, MA 01610-1477; (508) 793-7526; fax: (508) 793-8842; e-mail: idrisi@vax.clarku.edu; WWW: http://www.idrisi.clarku.edu.

Recognizing the growing importance of GIS technology in environmental risk assessment and management, the United Nations Environment Program (UNEP) supported a short-term exploratory research project at Clark University to identify a range of tools and methodologies and develop a set of illustrative case studies. This report contains sections on hazard assessment generally, GIS and vulnerability mapping, risk assessment in Africa relating to famine, and GIS and conflict resolution.

Climate Change

Currents of Change: El Niño's Impact on Climate and Society. *Michael H. Glantz. 1996. 207 pp. $59.95, hardback; $19.95, paperback. To order, contact the Customer Service Department, Cambridge University Press, 110 Midland Avenue, Port Chester, NY 10573; (800) 872-7423; fax (914) 937-4712; WWW: http://www.cup.org.*

From time to time, temperatures rise in the central and eastern Pacific Ocean near the equator. Folklore suggests that Peruvian fishermen dubbed the phenomenon El Niño, literally "the Christ Child," because it usually began in December. Today, scientists believe that this sea surface warming is related to anomalous weather extremes around the globe. ***Currents of Change*** discusses various definitions of El Niño, provides a brief history of scientific interest in the phenomenon, describes its characteristics and processes, and details the largest event that occurred in this century. The author also explains how El Niño events are forecast, discusses research and monitoring, and outlines major international science programs examining El Niño. Finally, he discusses in depth the related social costs and public policy issues, the perceptions of researchers regarding the phenomenon, and the concept of using science to further the public interest.

Climate Change and Human Health. *1996. 297 pp. $27.00, plus $5.00 shipping. Copies can be ordered from the World Health Organization (WHO), Publications Center, 49 Sheridan Avenue, Albany, NY 12210; (518) 436-9686; fax: (518) 436-7433.*

The extent of global climate change is controversial because scientists have limited information from which to predict its potential impacts. Similarly, forecasting the health impacts of climate change requires scenario-based risk assessment, that is, the use of limited information to predict future impacts. The potential seriousness of climate change on world health is considered in this volume, jointly produced by WHO, the World Meteorological Organization, and the United Nations Environment Program. ***Climate Change and Human Health*** describes the historical and economic contexts of climate change and reviews both greenhouse gas accumulation and ozone depletion. Experts then discuss heat, cold, and air pollution; effects on biological disease agents; climate, food production, and nutrition; extreme weather events; sea level rise; and ozone depletion as it relates to health impacts and ecosystem destruction. Finally, they provide numerous recommendations for researching, monitoring, and dealing with the projected impacts.

Climate Change and the Insurance Industry: Uncertainty Among the Risk Community. *1996. 40 pp. $10.00. Copies can be obtained from Environmental Energy Solutions, P.O. Box 101, Riverton, CT*

06065; (203) 379-2430; e-mail: jgordes@snet.net.

Although there is continuing scientific debate over whether global warming leads to a higher risk of extreme weather events, many in the insurance industry are concerned that global climate change could lead to higher insurance premiums, withdrawal of coverage, and possible insurer insolvency. This, in turn, could weaken other economic sectors, particularly banking. This report concludes that scientific uncertainty should not be used as a reason for postponing mitigative measures. Noting that there is little discussion in the United States about this problem, the report asserts that one major catastrophe, such as a direct hit by a major hurricane on a large metropolitan area, could result in an industry-wide loss of $110 billion, wiping out many national insurance firms, reducing industry surpluses by two-thirds, and severely limiting the industry's ability to provide additional coverage. ***Climate Change and the Insurance Industry*** urges discussion in the U.S. concerning both short- and long-term policy alternatives, such as creating a federal safety net for the insurance industry, increasing research, and examining the potential economic impacts of withdrawal by insurers from high-risk areas.

Hurricanes

Hurricanes: Climate and Socioeconomic Impacts. *Henry F. Diaz and Roger S. Pulwarty, Editors. 1997. 306 pp. $59.00, plus shipping (varies by destination). Copies can be purchased from Springer-Verlag New York, 175 Fifth Avenue, New York, NY 10010; (800) 777-4643; fax: (201) 348-4505; e-mail: orders@springer-ny.com; WWW: http://www.springer.de.*

This book contains the proceedings of a workshop held at the National Hurricane Center in 1995 to examine the nature, causes, and socioeconomic impacts of hurricanes. At that workshop, climate change issues were discussed along with social impacts, including potential private insurance losses and future availability of coverage. The meeting brought together experts with differing views on potential climate change and its impacts on tropical cyclone activity. One of the more important conclusions by participants was that, regardless of whether or not there is some long-term climate change taking place, a simple return to the hurricane activity level of the 1940s and 1950s will cause massive economic losses that will have large impacts on the American economy. Topics in this volume include climatological variability, impacts of hurricane variability, vulnerability and public policy issues, and hurricane risks and property loss insurance.

Floods

Living with the Floods: Survival Strategies of Char-Dwellers in Bangladesh. *Hanna Schmuck-Widmann. 1996. 228 pp. DM 9.80 (German Marks). E-mail the publisher for shipping charges. Copies can be ordered from LN-Vertrieb, Gneisenaustraße, 2a, D-10961 Berlin, Germany; tel: 030/694 61 00; fax: 030/692 65 90; e-mail: la_nachricht@link-b36.berlinet.de.*

Bangladesh lies in the largest river delta in the world. During the monsoon season, from June to September, rivers flood up to 30% of the country. In August 1988, flood waters covered two-thirds of the country's surface area for several weeks. To deal with this "problem," the world's developed nations created the Flood Action Plan (FAP), providing a multi-billion dollar structural solution to the flooding. However, for many of Bangladesh's inhabitants, floods are a normal and necessary part of their lives and

their agriculture, which supports nine out of 10 Bangladeshis. Thus, any structural attempts to control the floods will have considerable consequences, particularly since the yearly floods irrigate and fertilize fields as well as provide necessary nutrients to fisheries. In Bangladesh, chars are islands made up of sediment deposits, and a char can be washed away in less than a year or remain stable for decades. This study examines the adaptation strategies of those who dwell on chars, particularly their life experiences and their "everyday art of crisis management," and then offers a discussion and critique of the engineering approach to flooding.

Addressing Your Community's Flood Problems: A Guide for Elected Officials. *1996. 52 pp. Free. To obtain copies, contact the Association of State Floodplain Managers, 4233 West Beltline Highway, Madison, WI 53711; (608) 274-0123; e-mail: asfpm@execpc.com.*

This volume was created to help local elected officials understand their community's flood risk. It discusses why officials need to be informed of the risk, steps to take before a flood occurs, situations officials may face after a flood, and resources available to help communities cope with floods. It offers success stories from several local governments and provides a checklist for addressing community flood problems as well as an appendix of outside sources of assistance.

Wildfires

The Biswell Symposium: Fire Issues and Solutions in Urban Interface and Wildland Ecosystems. *1995. 208 pp. Free. Copies can be requested from the Pacific Southwest Research Station, P.O. Box 245, Berkeley, CA 94701, (510) 559-6300. They can also be ordered electronically via http://www.pswfs.gov/qlist.html.*

This volume presents the proceedings of a symposium held in Walnut Creek, California, in February 1994 to examine fire issues facing land managers. Its focal point was the 1991 Oakland/Berkeley Hills "Tunnel Fire," although the issues and solutions examined were regional and national in scope. Topics include prescribed burning, barriers to fuel management, wildland ecosystems, the wildland/urban interface, vegetation management, the Clean Air Act, fire prevention legislation, liability, and federal disaster assistance.

Earthquakes and Other Geologic Hazards

Preparing for the Big One in Tokyo: Urban Earthquake Risk Management. *Juha I. Uitto and Jutta Schneider, Editors. 1996. 63 pp. For availability, contact the Academic Division, United Nations University, 53-70, Jingumae 5-chome, Shibuya-ku, Tokyo 150, Japan; tel/fax: (03) 3499-2828; telex: J25422; Cable: UNATUNIV TOKYO; e-mail: mbox@hq.unu.edu.*

With the growing urbanization and complexity of modern society, vulnerability to earthquakes is increasing. Scientists predict that a major earthquake will strike the Tokyo metropolitan area sometime in the near future. This report includes papers presented at a workshop held in Tokyo in September 1995 to promote integrated risk management for that region; they cover a potential earthquake scenario, lessons learned from the Kobe earthquake about impacts on utilities and lifelines, the geography of vulnerability in the Tokyo region, Tokyo earthquake loss estimation, and recommendations for reducing

vulnerability.

The Northridge Earthquake: Land Use Planning for Hazard Mitigation. *Steven P. French, Arthur C. Nelson, S. Muthukumar, and Maureen M. Holland. 1996. 160 pp. $10.00, prepaid. To order, contact the City Planning Program, College of Architecture, Georgia Institute of Technology, Atlanta, GA 30332-0155; (404) 894-2350; fax: (404) 894-1628.*

Land-use planning for seismic safety has been mandated in California for more than 20 years. The 1994 Northridge earthquake, which significantly impacted 19 local jurisdictions, provided a unique opportunity to assess the effectiveness of this planning as a mitigation strategy. The authors found that planning had a small, but measurable, effect in reducing earthquake damage. In particular, the hazard delineation and public awareness components were most effective. Additionally, a disproportionate amount of damage occurred in areas that were previously identified as likely to experience liquefaction, and communities that had undertaken detailed mapping of these areas experienced less damage than those that did not.

The Northridge Earthquake of January 17, 1994: Small Business: A Sample of Building Damage, Business Interruption, and Recovery. *Christopher Arnold. 1996. 76 pp. $15.00. Available from Building Systems Development, Inc., P.O. Box 51950, Palo Alto, CA 94303; (415) 462-1812; fax: (415) 462-1817; e-mail: chrisarno@aol.com.*

This report presents the findings of a study of the experiences of 50 small businesses in the epicentral region of the 1994 Northridge earthquake. It provides information on the type of facility, damage, and direct and indirect dollar losses and describes the experiences of 12 tenants of the Northridge Fashion Center, a large regional shopping mall that was closed due to quake damage and reopened 20 months later. The study found that, of these businesses, 92% suffered damage with an average cost of $17,000; and business interruption costs were about equal to damage losses for extensively or moderately damaged businesses, but two to three times the loss for slightly damaged businesses. Of those that were damaged, more than half were not inspected by the Los Angeles Building Department, and most were not insured.

ATC-20-3: Case Studies in Rapid Postearthquake Safety Evaluation of Buildings. *1997. $48.00. Copies can be ordered from the Applied Technology Council, 555 Twin Dolphin Drive, Suite 550, Redwood City, CA 94065; (415) 595-1542; fax: (415) 593-2320; e-mail: atc@atcouncil.org; WWW: http://www.atcouncil.org.*

This report examines 53 cases in which the ATC-20 Rapid Evaluation procedure was used. ATC-20 is usually the first, and often the only, structure safety evaluation method used following an earthquake. Intended to be used as a training and reference manual for building officials, inspectors, engineers, architects, disaster workers, and others, this volume includes examples of the application of ATC-20 to single family dwellings, multiple units, unreinforced masonry structures, older concrete buildings, mobile homes, and buildings damaged by ground motion. The report also provides guidelines for barricading sites, retrieving possessions and salvaging, identifying damage that is difficult to inspect, and promoting uniform and efficient inspections.

Who We Are

The Natural Hazards Center

The NATURAL HAZARDS RESEARCH AND APPLICATIONS INFORMATION CENTER was founded to strengthen communication among researchers and the individuals and organizations concerned with mitigating natural disasters. The center is funded by the National Science Foundation, Federal Emergency Management Agency, National Oceanic and Atmospheric Administration, U.S. Geological Survey, U.S. Army Corps of Engineers, U.S. Forest Service, Environmental Protection Agency, U.S. Department of Transportation, the National Atmospheric and Space Administration, and the Insurance Institute for Property Loss Reduction. 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 January 15, 1997.

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http://www.colorado.edu/hazards

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