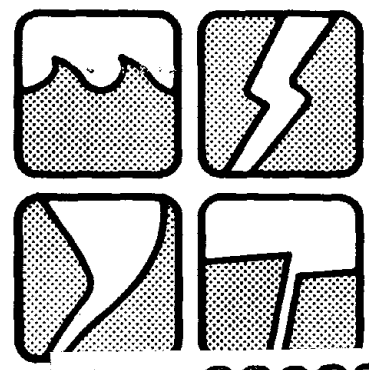


Natural Hazards OBSERVER



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REDIRECTION OF FIA

-- an invited comment

The Federal Insurance Administration is in the process of redirecting its emphasis in the National Flood Insurance Program from essentially a mapping effort to an in-depth technical assistance effort, which will concentrate on the communities that have not only a substantial flooding potential, but also considerable floodplain development or pressure for such development. A review by FIA shows that most of the severely flood-prone communities that have considerable development and population at risk have already been mapped or currently are being mapped.

The FIA worked closely with the Corps of Engineers to take over the remaining study and mapping effort. However, the Corps was not able to do this because of staffing problems. FIA is changing its study procedures to permit federal agencies to subcontract for the flood insurance study work. It is hoped that this will release the FIA staff to work with state coordinators and regional planning agencies in providing guidance and advice to community officials on the day-to-day floodplain management problems they encounter. They will help community staff to review the options that are available and help them to implement the option that the community selects. Pointing to the example of Soldiers Grove, Wisconsin and Baltimore County, Maryland and to the growing number of communities that are electing to use revenue sharing funds or even bond money to purchase property in the flood plain, the Federal Insurance Administration is convinced that if the options are carefully developed and explained, communities will invariably make the right decision.

The final product of the current mapping effort is a flood insurance rate map that is not useful for floodplain management purposes and that agents and lenders have problems reading. For the remaining mapping effort this will be changed to a map that will be an important tool in floodplain management. Instead of a system of mass-producing and mass-distributing flood insurance rate maps, the public will have access by telephone to a central facility that will provide flood zone and location determination for the purposes of loan closings and insurance applications.



FEDERAL EMERGENCY MANAGEMENT AGENCY UPDATE

After considerable foot dragging, the executive branch has taken the first steps in getting the Federal Emergency Management Agency (FEMA) underway. On March 14, 1979, Gordon Vickery was named Acting Director.

Vickery served with the Seattle Fire Department for 26 years, 10 years as its chief. For the past 6 years, he was administrator of one of the country's largest utility companies. Recently appointed administrator of the United States Fire Administration, he will retain that position while coordinating the activities of FEMA.

It is anticipated that on March 31, 1979, an Executive Order will be issued which will transfer to FEMA the functions of the Federal Insurance Administration and the United States Fire Administration. All presidential functions presently delegated to the Federal Preparedness Agency, the Federal Disaster Assistance Administration and the Defense Civil Preparedness Agency and other specific federal emergency functions are expected to be transferred to FEMA no later than October, 1979.

Communication concerning FEMA can be addressed to Gordon Vickery, U.S. Fire Administration, 2400 M Street, N.W., Washington, DC 20230, (202) 634-7654.

ASRA INFORMATION RESOURCES NATIONAL SCIENCE FOUNDATION

CONTENTS

Long Term Impacts of Disasters	2	Grants	5
Postdisaster Construction Costs	2	Building Losses from Hazards	9
Conferences	4	World Map of Hazards	10

REDIRECTION OF FIA (cont.)

Training procedures for FIA start, state coordinators and regional planning agencies will begin in February. In addition, a determined effort will be made to help other federal agencies integrate floodplain management considerations in the activities that directly or indirectly affect the flood plains.

In addition to saving a considerable amount of scarce funds, this redirection will serve not only the immediate needs of severely flood-prone communities, but also the long range hazard mitigation goals Congress established for the National Flood Insurance Program.

-- Gloria M. Jimenez
Federal Insurance Administrator
Department of Housing and Urban Development

LONG TERM IMPACTS

The primary finding of a project at Northwestern University to identify long range impacts of natural disasters is that there are no long term or permanent shifts in economic and social life following a disaster. This reinforces and complements the recent finding at the University of Massachusetts that natural disasters had no long term effect on population and housing trends (see *Natural Hazards Observer*, Vol. II, #4, p.4).

The investigators found nothing to suggest that natural disasters leave profound lingering effects on local economies or employment structures. They do note, however, that none of the four communities studied had a significant portion of their basic capital stock destroyed, and that conditions might vary considerably in communities which lose a substantial percentage of their capital stock. It appears from this study that American society has become so close knit and the economy so integrated that most of the cost of natural disasters is externalized to the larger society.

Crime rates and divorce rates were measured as surrogates for the entire set of social changes. Although there were some changes that lasted several months (divorce rates went down in two communities, for example), over the long term the social changes seem to be quite mild and beneficial. Two important areas were not investigated in this project and deserve close study: mental health impacts and the distribution of all impacts within the communities.

The utility of interrupted time series analysis in examining social and economic impacts was demonstrated and the methodology for such work refined. Discoveries of data resources made by the research team suggest that it is possible to do much longitudinal research on community change without carrying out primary data collection on one's own.

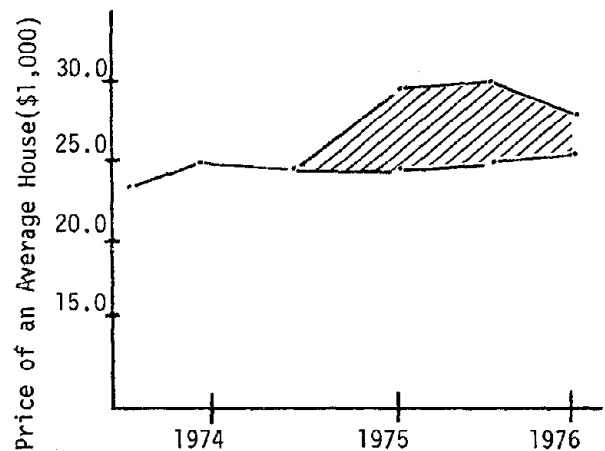
The final report of this project is published as *Aftermath: Community Impacts of Natural Disasters* by H. Paul Friesema, et al. 1979. Sage Publications, 275 South Beverly Drive, Beverly Hills, CA 90212.

POSTDISASTER CONSTRUCTION COSTS

A study to determine the potential escalation of building costs following a major disaster has been completed at the Colorado State University. Real estate market data were collected from 14 communities which sustained significant damage from flooding, tornado, fire, earthquake, or cyclone.

A 10-25% increase in the price of housing was detected in six of the 14 sites studied. In all six cases, escalation followed a similar pattern. Predisaster price trends were initially unchanged by the disaster, after three to six months prices accelerated then leveled off, and finally returned to the predisaster trend. (See figure below for an example of the increased cost of housing following the 1974 tornado in Xenia.)

PRICE PATH WITH AND WITHOUT DISASTER



Price effects were most extreme in communities, like Xenia, that sustained damage far in excess of the local construction capacity. This suggests that for such communities, if reconstruction is to proceed rapidly, local price changes may have to rise significantly to cover the cost of redirecting building materials and inflating wages to attract a work force to the stricken area.

Federal postdisaster aid might be contributing to postdisaster construction cost escalation by increasing income and demands for housing, putting additional pressure on prices and ultimately leaving the victim's financial position little changed. If communities received predisaster assistance to strengthen buildings and encourage wise land use management, damage and loss of housing would be reduced. Federal money would then be spent more efficiently and groups targeted for assistance would be better served.

For information contact *Harold C. Cochran*, Department of Economics, Colorado State University, Fort Collins, CO 80521, (303) 491-6493.

SATELLITE COMMUNICATIONS

Communication problems, which often aggravate relief efforts immediately following a disaster, should be alleviated in the future through the use of a new Emergency Satellite Communications System (ESCS). The system will include 62 portable ground stations which can be flown or trucked into afflicted areas and made operational within two hours. The ground stations will make contact with the Network Operations Control Center in Washington, D.C. through a transponder located in a satellite, bypassing conventional communications systems which may be inoperative due to the disaster. Rapidly restoring communications will enable relief forces to be alerted and deployed into needed areas quickly, saving lives and property.

The ESCS system (currently being developed through DCPA) is expected to begin operation sometime in 1980-81 under the control of the new Federal Emergency Management Agency. Since satellite communications technology is already well-developed, implementation of the system can be carried out at a relatively modest cost, projected to be about \$4 million per year for the first five years.



LOCAL RESPONSE TO EARTHQUAKE PREDICTIONS

The City of Los Angeles has recently published a report of the Mayor's Task Force on Earthquake Prediction. The study is a comprehensive examination of the necessary and appropriate response of local government to scientific earthquake predictions. It deals with such wide-ranging topics as social-psychological impacts of the prediction upon the population, economic stability of the area, safety of buildings, public information problems, emergency preparedness and legal aspects of the prediction.

The report proposes strategies to enable the city to respond appropriately whatever the characteristics of the prediction, taking into consideration such factors as the intensity of the

expected earthquake, the date of its projected occurrence, and the credibility of the source of the prediction. Specific plans are presented for coping with predictions of low probabilities or those from non-scientific sources.

Information about the report may be obtained from *Rachel Gulliver Dunne, Chairman, Mayor's Task Force on Earthquake Prediction, City of Los Angeles, City Hall, Los Angeles, CA 90012, (213) 485-3311.*

MIAMI RIVER CORRIDOR PLAN

Concerns about future flooding and about non-use of the Miami River in Ohio led the Miami and Shelby Counties River Corridor Committee to explore the potential for revitalizing the River's role in the communities adjacent to it while protecting the population from flood damage. The Committee commissioned the Institute of Environmental Studies of Miami University to develop a conceptual plan for the use of the Miami River Valley. The results of the pioneering effort were released in the Miami River Corridor Plan, a comprehensive proposal for the utilization and management of the Corridor.

The Corridor Plan makes proposals for use of the Valley based on detailed study of soil, topography, drainage, vegetation, wildlife, historical significance and existing uses of the entire 50-mile Miami/Shelby Counties River Corridor. It identifies three feasible land uses that are compatible with flooding--agriculture, open space and recreation. Accordingly, the plan identifies areas that can be modified from their existing uses to recreational use and suggests the kinds of facilities appropriate to each site, including campsites, jogging trails, community gardens, children's parks, fishing lakes, picnic areas, horseback riding trails, swimming and boating areas, as well as a series of large parks. Between the recreational sites areas have been designated to remain as open space or agricultural. Footpaths and bikeways running through the agricultural and open space lands will link recreational areas.

The Plan provides a useful inventory of sources of funding for recreational and historic projects. Eligibility guidelines for federal, state and local funds are included, in addition to a listing of private sources and possible alternative arrangements such as land exchanges and conservation easements.

Miami and Shelby counties have begun implementation of the Plan. When fully effective, it will preserve valuable agricultural land and provide needed open space. It will give residents of the area opportunities for recreational activities near their own homes and will provide a sound means of flood protection, not only now but for the future, by preventing further encroachment on the flood hazard zone.

Questions about the Corridor Plan or the initial stages of its implementation should be addressed to *John L. Thompson, Department of Geography, Miami University, Oxford, OH 45056, (513) 529-5252.*

CONFERENCES



The Boundary Waters of Canada, the Canadian Water Resources Association's 32nd Annual Conference, will be held May 30-June 1, 1979, in Ottawa. The Conference will focus on the impact of boundaries--international, interprovincial, provincial-territorial, etc.--on the management of Canada's water resources, with consideration of issues, strategies and results. Papers on any aspect of Canadian or other boundary waters throughout the world are invited. Authors should submit summaries of their papers of approximately 500 words by February 1, 1979, to Frank Quinn, Inland Waters Directorate, Environment Canada, Ottawa, Ontario, K1A 0E7, Canada. Questions concerning the Conference should be addressed to the general conference chairman: Andy Robinson, A.J. Robinson & Associates, Inc., P.O. Box 13130 Kanata Postal Station, Ottawa, Ontario, K2K 1X3, Canada, (613) 836-2960.

A conference dealing with *Environmental Forces on Engineering Structures* will be held at Imperial College, London, England, July 2-6, 1979. The gathering, which will be sponsored by the Engineering Structures Journal and the Applied Mathematical Modelling Journal, will focus on the behavior of structures under stress from earthquake, wind or wave forces. Design requirements for resistance to these environmental factors will be the topic of interdisciplinary discussion.

For information contact Dr. C. Brebbia, Southampton University, Southampton SO9 5NH, England.

The National Conference on Coastal Storms: Hurricane Evacuation and Hazard Mitigation will be held May 29-31 at the Sheraton Towers in Orlando, Florida. The meeting--a cooperative endeavor between several Florida agencies, Florida State University, Sea Grant, and the Federal Disaster Assistance Administration--will offer sessions on coastal storms research and policy issues. Papers will be presented on hurricane evaluation issues and alternatives, coastal construction and building codes, land use and growth management, the National Flood Insurance Program, hurricane awareness and perception, public participation in policy formation, and post-disaster issues and activities. Discussion groups will follow each paper session, and a bound volume of abstracts of the proceedings will be distributed. For information and preregistration forms contact Maggie Dunaway, Center for Professional Development and Public Service, Hecht House, Florida State University, Tallahassee, FL 32306, (904) 644-3801.

Conference Papers from the 11th Technical Conference on Hurricanes and Tropical Meteorology, sponsored by the American Meteorological Society and held in Miami December 13-16, 1977 are available. The papers deal with research on coastal zone management, psychology of response to hurricane warnings, and the social impact of hurricane disasters as well as a wide variety of topics on tropical meteorology.

The 695 page volume is available for \$20.00 for AMS members and \$25.00 for non-members, prepaid, from *American Meteorological Society, 45 Beacon St., Boston, MA 02108.*

The American Meteorological Society will hold its 11th Conference on Severe Local Storms, October 2-5, 1979. The meeting will be held in Kansas City, Missouri to allow participants to visit the National Weather Service Severe Storms Forecast Center. Papers are being solicited on all aspects of severe local storms. Although emphasis will be on physical understanding and prediction, papers on emergency preparedness will also be considered.

Titles, extended abstracts (200-400 words), and shorter abstracts (100 words), typed double spaced, should be sent by April 1 to *Frederick P. Ostby, National Severe Storms Forecast Center/NOAA, Room 1728, Federal Building, 601 East 12th Street, Kansas City, MO 64106, (816) 374-3426.*

The proceedings of a USGS Office of Earthquake Studies Conference, "Communicating Earthquake Hazard Reduction Information", held in May, 1978, are now available. The volume of proceedings includes evaluation of diverse experiences in using and communicating hazards information, e.g., land use planning in California communities, hazard mitigation in Colorado, development of earthquake provisions in building codes, and earthquake preparedness planning for the Puget Sound area.

Recommendations for improving communication of earthquake hazard information include:

- Package the message in a timely, useful format tailored for the particular public which is its audience.
- Establish permanent, personal lines of communication between scientists and decision-makers.
- Provide for periodic evaluations of ongoing communication efforts. Have they had the anticipated effect?
- Develop an effective educational process which utilizes various forms of communication--workshops, timely publications, and media exposure.

Copies of Proceedings of Conference V, Communicating Earthquake Hazard Reduction Information, Open File Report 78-933, 426pp., may be obtained from USGS, Open File Section, Box 25425, Federal Center, Denver, CO 80225, (303) 234-5888, \$64.00 for paper and \$3.50 for microfiche.

Conferences (cont.)

The International Civil Defense Organization will hold the Third International Conference on Disaster Medicine from April 6-9, 1979 in Monaco. The topic of the conference will be "Disaster Medicine and Water Hazards--Natural or Man-Made", and will include a technical exhibition.

For information about the conference, contact International Civil Defense Organization, 10-12 chemin de Surville, 1213 Petit-Lancy/Geneva, Switzerland, or Prof. Dr. Rudolf Frey, Director, Institute of Anaesthesiology, University, Langenbeckstrasse 1, 6500 Mainz, Federal Republic of Germany.

The National Science Foundation will sponsor a Tsunami Research Workshop on May 7-9, 1979 at Trabuco Canyon, California.

The workshop, which will consist of a series of group discussions among foreign and domestic experts in a variety of tsunami-related fields, will seek to channel research efforts toward the understanding and prediction of tsunamis. Topics to be discussed include earthquake ground motion, effects of wave forces on structures, and behavior of tsunamis. Proceedings will be published.

Information is available from: Dr. Li-San Hwang, Tetra Tech, Inc., 630 No. Rosemead Blvd., Pasadena, CA 91107, (213) 449-6400.

The Earthquake Engineering Research Institute will sponsor the U.S. National Conference on Earthquake Engineering August 22-24, 1979, at Stanford University. Technical, social and political aspects of earthquake engineering will be featured in an effort to disseminate information about earthquakes, stimulate cooperation between other disciplines in coping with earthquakes, and to spread new research and design knowledge.

Both state-of-the-art and specialized research papers are invited. The deadline for submission of abstracts for consideration is January 8, 1979. There will be a published volume of proceedings. For further information, contact Program Committee, Earthquake Engineering Conference, Department of Civil Engineering, Stanford University, Stanford, California 94305.



GRANTS

Local building stock inventory. "Methodology and Pilot Study to Inventory Local Building Stock in Regard to Seismic Hazard," National Science Foundation, \$24,673, 12 months. Principal Investigator: Kenneth I. Britz, Department of Architecture, Carnegie-Mellon University, Pittsburgh, PA 15213, (412) 621-2600.

One component necessary for comprehensive planning for seismic hazard mitigation in cities

is an inventory of existing building stock and its seismic vulnerability. This research will develop a short-term, relatively inexpensive procedure for conducting such an inventory which could be used by local planning agencies. Existing seismological information will be used to produce a relative stability map, and land use maps and other municipal records will allow an analysis of land use.

Through a stratified sampling technique, categories of building configuration and construction types will be related to certain land use classifications. A profile of conditions (age, structural and nonstructural components, and use characteristics) will be developed for each category. These profiles will be associated with land parcels defined by particular land uses so that a seismic risk perspective can be described for each planning unit. The inventory procedure will be evaluated for accuracy, reliability and cost-effectiveness through a pilot study in Buffalo, New York.

Disaster protection for cities. "Design of Specifications for Local Government Disaster Protection," Defense Civil Preparedness Agency, \$100,000, 10 months. Principal Investigator: Marie Hayman, Deputy Director, Management Research Center, International City Management Association, 1140 Connecticut Avenue, N.W., Washington, DC 20036, (202) 293-2200.

The International City Management Association has received a contract to examine disaster protection in U.S. cities. A model will be developed for the most advantageous structure and placement for fire and civil defense functions given the actual constraints affecting municipal governments. As part of this task, six or eight communities which have unique organizational structures for fire and civil defense will be studied. A process will be developed which will enable local governments to determine and implement preparedness plans.

Preparedness guidelines for cities. "Assessment of Needs of Mayors in Emergency Preparedness," Defense Civil Preparedness Agency, \$122,335, 26 months. Project Manager: Michael Clancy, U.S. Conference of Mayors, 1620 Eye Street, N.W., Washington, DC 20006, (202) 293-4911.

From the Mayor's viewpoint, a comprehensive program for response to emergencies--whether man made hazard, natural disasters, or attack and terrorism--is the most logical approach to disaster planning and certainly the easiest to present to the public. The U.S. Conference of Mayors is working with the DCPA to develop comprehensive emergency preparedness guidelines for use at the local level. During the first stage of the project officials in 10-15 cities will be contacted to determine prior experience, present preparedness interest and activities, and impacts of federal programs. The project will conclude with the publication of a manual detailing how the guidelines can be incorporated into the existing structure of city government.

Disaster reporting. "Study of the Role of the Mass Media in Disaster Reporting," National Science Foundation, \$147,549, 12 months. Principal Investigator: *Charles E. Fritz, Executive Secretary, Committee on Disasters and the Mass Media, Commission on Sociotechnical Systems, National Research Council, National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, DC 20418, (202) 389-6470.*

This study will assess the use of the media for education campaigns aimed at mitigating the potential effects of disasters, programs promoting disaster preparedness, and information programs to aid in the task of rescue, relief, recovery and rehabilitation.

The NAS Committee on Disasters and the Mass Media--chaired by Everett P. Rogers and composed of media representatives and experts in communication policy, sociology, economics, political science, psychology and disaster research--will review existing knowledge on the role of the mass media in disaster reporting, conduct a small workshop, model the structure and policies of news organizations in different media, and identify research priorities. The Committee will suggest possible changes in media strategies and operations to assist disaster-related organizations in the dissemination of information about programs for coping with various kinds of hazards both before and after the disaster.



Accessibility to earthquake victims. "An Analytical Technique for Establishing Emergency Services Planning Policy: Effects of Building Characteristics on Forecasts of Seismically-Induced Route Blockages," National Science Foundation, \$30,000, 9 months. Principal Investigator: *David E. Schwarz, Department of Geography, School of Social Sciences, San Jose State University, San Jose, CA 95192, (408) 277-3463.*

This research will develop techniques to evaluate how well existing emergency services in earthquake prone cities will serve earthquake victims. Indices of street blockage by rubble accumulation will be developed and combined with existing data, especially those of spatial variation in seismic risk, to estimate and map probable route blockages for portions of San Francisco, San Jose, and Los Angeles, California. When these maps are correlated with existing locations of emergency services, the effectiveness of such sites for serving the surrounding population following the disruption of an earthquake can be predicted. Such research can also aid contingency planning to provide optimum relocations of services and to develop policies for new urban development.

An experiment funded by the National Science Foundation to provide support for quick response studies of natural disasters is underway.

The Natural Hazards Research and Applications Information Center received 33 proposals from members of the hazards research community reflecting an array of interests and covering all major natural hazards. The proposed research tackles a number of problems which heretofore have received little attention including the role of the mass media and the nature of emergent groups.

Because the nature, timing, and location of future disasters remain unknown, numerous projects (21), covering a wide range of events, were approved for possible funding between January 1, 1979-December 31, 1979. Projects will be funded on a "first come" basis, as the specific events occur, until funds are depleted.

For information concerning the Quick Response to Natural Disasters, contact the *Natural Hazards Information Center, IBS #6, Campus Box 482, University of Colorado, Boulder, CO 80309, (303) 492-6818.*

NOAA COASTAL HAZARDS INITIATIVE

A one-year task force effort within the National Oceanic and Atmospheric Administration (NOAA) has identified opportunities for a stronger contribution to hazards mitigation through existing technical and financial assistance programs within NOAA. This new coastal hazards initiative emphasizes that the following activities should be carried out in cooperation with the new Federal Emergency Management Agency, other federal agencies, state and local governments and others:

- A risk assessment program will continue to compile meteorological and oceanographic data, develop localized storm surge models, and prepare and disseminate risk assessment information.
- Model storm evacuation plans and maps will be developed and technical assistance provided (with emphasis on high risk areas).
- To expand public awareness of hazard risks and of possible mitigation actions, public service announcements will be prepared and current information programs will be revised.
- Increased coastal hazards concern in State Coastal Zone Management Programs will be encouraged through more rigid reviews of state programs, extended technical assistance, support of workshops, etc.
- Sea Grant Institutes will become more active in coastal hazards research.
- Current post disaster survey activities will be expanded.

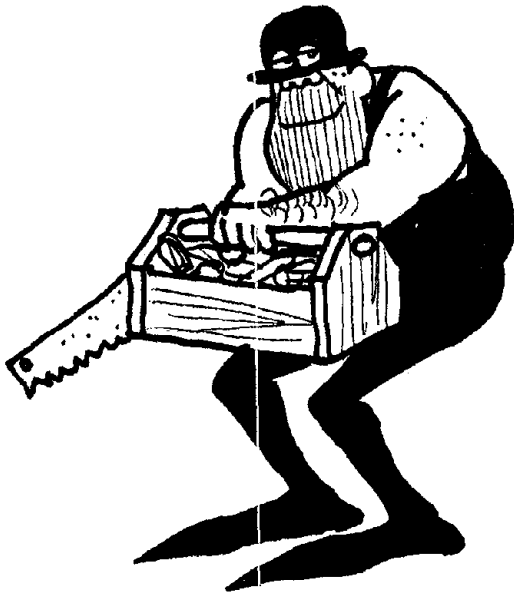
For information contact *Richard Foster, Deputy Assistant Administrator, Office of Coastal Zone Management, NOAA, Washington, DC 20235, (202) 634-4232.*

HOME REPAIRS

FDAA has published a pamphlet entitled "Tips on Repairing Your Disaster Damaged Home" which gives advice to homeowners regarding the repair and rebuilding of their residences following a disaster.

The pamphlet describes briefly the types of financial assistance available from various federal agencies. It provides general guidelines for finding a reputable contractor and obtaining adequate materials and services. Finally, the pamphlet gives reminders about filing insurance claims and obtaining insurance on the repaired building.

The pamphlet is available from the *Federal Disaster Assistance Administration, U.S. Department of Housing and Urban Development, 451 Seventh Street, S.W., Washington, DC 20036.*



DISASTER INSURANCE PLAN FOR AUSTRALIA

One of the steps in the development of a natural disaster insurance scheme for Australia (see *Natural Hazards Observer*, Vol. I, #3, p. 6) was the formation of a Technical Committee to undertake investigation of actuarial rates for the program.

The Technical Committee has now released its report, "A Natural Disaster Insurance Scheme for Australia." It describes the bases for calculation of premium rates for insuring private property against damage or loss due to earthquake, flood, or tropical cyclone. The report includes a section on each hazard which suggests a working definition of the hazard and of the property to be insured, methods for determining the amounts of coverage needed for a specific building, and examples of actuarial rates of premiums for different areas of the country.

Information on the report is available from *First Assistant Secretary, Financial Institutions Division, The Treasury, Canberra ACT 2600, Australia.*

INTERNATIONAL WORKING GROUP

An International Working Group for the Study of Social and Behavioral Aspects of Disasters was formed during an international meeting of sociologists at Uppsala, Sweden in August 1978. The Group, which consists of researchers from twelve countries, is seeking to establish better communication between persons around the world who are concerned with the sociological aspects of disasters. It is hoped that a more formal association will be created in the future.

The Group will communicate information about research, publications and meetings initially through Unscheduled Events, the quarterly newsletter of the Disaster Research Center at Ohio State University. Persons who wish to receive the newsletter or information about membership in the Group should contact the U.S. liaison, *E.L. Quarantelli, The Disaster Research Center, Derby Hall, 154 No. Oval Mall, Ohio State University, Columbus, OH 43210, (614) 422-5916.*

FLOOD PLAIN MANAGEMENT STRATEGY FOR NEW ENGLAND

The New England River Basins Commission Task Force on Flood Plain Management has developed a regional strategy for coping with flooding in the New England area. The new policy seeks to minimize flood damage and to preserve coastal and riverine flood plains by integrating a wide variety of mitigation techniques, both structural and nonstructural.

Historically, flood plain use in the region favored short term economic benefits rather than long term safety and environmental factors. The availability of federal funds for flood control structures had also reinforced New England's reliance on structural solutions to flooding problems. Recognizing the inherent insufficiencies in this approach, and in view of the gradual shifting emphasis in federal programs toward avoiding flood plain use, the NERBC has formally adopted the Policy Statement's approach to mitigating flood damage.

Some of the Task Force's recommendations include:

- Change federal funding criteria to eliminate the biases toward structural solutions to flood problems;
- Support research on use of economic incentives to stimulate wise use of flood plains;
- Reorient existing federal programs toward a uniform purpose with regard to flood plains.

The Statement of Policy takes an advocate's stance. It therefore remains to be seen if federal, state and local decision makers in the region will implement the strong recommendations set forth. If the Policy gains support, the New England area should begin to see necessary coordination between federal and state programs for flood plain management and the implementation of nonstructural protection measures.

SEEING IS BELIEVING

Professor Daniel P. Loucks, Chairman of the Department of Environmental Engineering, School of Civil and Environmental Engineering, Cornell University, is leading a research team effort to develop methods of evaluating the merits of watershed management plans with visual computer displays. Instead of long tables of numbers, the user is able to compare the expected effects of proposed water management projects by visually examining a representation of various conditions in a watershed or stream.



Visual representation of various watershed planning options speeds up consideration of possible alternatives and facilitates the participation of public officials in the interpretative process. When we consider that the trend is to shift responsibility for making choices from the engineers and planners to public officials the significance of this capability becomes even more apparent. Increasingly, it is the politicians who are responsible for decisions that involve compromises among various public interests. This new tool has the potential to become an important part of this process. For more information on this project, contact Prof. Loucks at 311 Hollister Hall, Cornell University, Ithaca, NY 14853.

Excerpted from the Synopsis series of the Center for Environmental Research/Cooperative Extension, Cornell University.

WASHINGTON UPDATE

The Reclamation Safety of Dams Act (PL 95-578) permanently authorizes the Secretary of the Interior to order repair of Bureau of Reclamation dams for safety purposes. Repair costs resulting from aging and normal deterioration will be shared with the users of the dam, but repairs that are necessary because of new hydrologic or seismic information or changes in engineering will be wholly supported by the federal government.

Although President Carter expressed concern over these blanket exemptions from normal cost-sharing requirements, he signed the bill November 2, 1978, stating that "...dam safety is a very important matter that needs attention now."

FEDERAL PROGRAMS AND FLOODPLAIN DEVELOPMENT

A project to study the relationship between federal programs and floodplain development pressures found that some federal programs do encourage urban growth and that, in some cases, this development occurred in flood plains. The highest incidence of development pressures came from the '201' Wastewater Treatment Works Program under the U.S. Environmental Protection Agency. Although no federal programs were noted to have encouraged floodplain development, several were found to have allowed development in the flood plain. Two programs were found to discourage floodplain development--the National Flood Insurance Program and the Land and Water Conservation Fund Program of the Heritage Conservation and Recreation Service.

Recommendations for reducing floodplain development pressures resulting from federal programs include:

- identification of floodplain development possibilities during early stages of the planning process and
- coordination between federal agencies planning major works and the Federal Insurance Administration.

For information about this project funded by the Environmental Protection Agency, contact Lillian Dean, The Research Group, Inc., 1230 Healey Building, 57 Forsyth Street, N.W., Atlanta, GA 30303, (404) 577-1341.

STATE FLOOD PLAIN MANAGERS

The Association of State Flood Plain Managers was organized to provide a unified expression of states' interests and concerns about federal regulatory programs affecting floodplain management. The Association meets periodically to discuss common problems and share experiences. The present membership includes Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. Membership is open to all units of state government that deal with floodplain management.

For information contact Patricia Bloomgren, Department of Natural Resources, 444 Lafayette Road, Space Center Building, St. Paul, MN 55101, (612) 296-4800.

IN CASE OF EARTHQUAKE

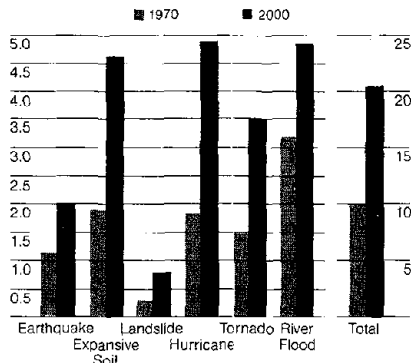
As battles are waged over the constitutionality of manger scenes on city property and the performance of Silent Night in public schools, a more pragmatic decision has been made on the West Coast:

IN CASE OF AN
EARTHQUAKE
THE SUPREME COURT
DECISION AGAINST PRAYER IN SCHOOLS
WILL BE TEMPORARILY
SUSPENDED

BUILDING LOSSES FROM NATURAL HAZARDS

Unless fundamental changes are made, research at the J.H. Wiggins Company indicates the annual cost of damage to buildings caused by the nine most destructive natural hazards will increase approximately 85% between 1970 and the year 2000.

AVERAGE TOTAL ANNUAL BUILDING LOSSES UNDER 1970 AND YEAR 2000 CONDITIONS
(1978 dollars in billions)

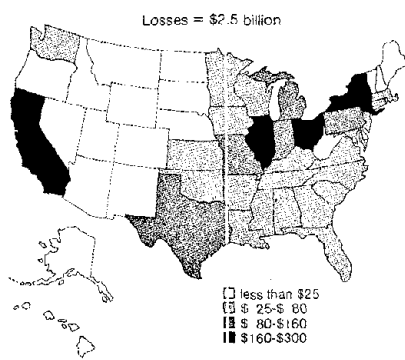


If, on the other hand, the most effective currently known mitigations were applied dollar losses from building damage alone could be reduced nearly 25%, or by 5 billion 1978 dollars, every year after the year 2000. These building cost loss estimates represent only a fraction of total loss due to hazard impact. Damage to infrastructure, such as roads and bridges, and secondary losses, such as building contents and income, compound the figure.

Impact of infrequent, but devastating sudden losses upon our building stock and economy was also taken into consideration. For example, if the 1906 San Francisco earthquake reoccurred in the year 2000, it would cause damage to buildings in excess of 36 billion 1978 dollars, as well as about 5,000 deaths and 200,000 injuries, without even taking into account possible fire damage. But if currently available mitigations were begun in 1980, a savings of nearly \$4 billion, 600 lives and 24,000 injuries would be possible.

The study has projected building loss for each of the nine hazards on a state by state basis and has identified mitigation alternatives and the loss reduction that each would engender.

PROJECTED ANNUALIZED LOSSES FROM RIVERINE FLOOD BY STATE UNDER 1980 CONDITIONS
(1978 dollars in millions)



A concise, illustrated summary, Building Losses from Natural Hazards: Yesterday, Today and Tomorrow, is available from the J.H. Wiggins Company, 1650 South Pacific Coast Highway, Redondo Beach, CA 90277, (213) 378-0257.



SEISMIC DESIGN

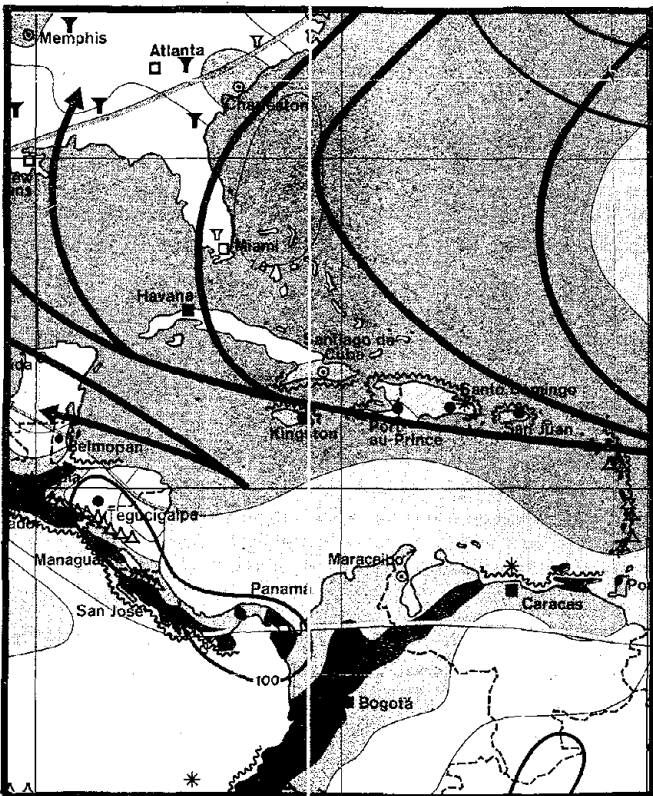
The AIA Research Corporation, assisted by Public Technology, Inc. and funded by the National Science Foundation, has developed a manual of design considerations for improving the seismic safety of police and fire stations. Assisted by a user group consisting of representatives of the police, fire, emergency medical, architecture, engineering, disaster preparedness, and building professions, AIA/RC developed guidelines that can be applied successfully in areas of high and low seismic risk, in large and small cities, and that can be implemented within a practical budget. (The estimated additional costs for seismic protection of new facilities are 2-10% of construction costs.) The report, Seismic Design for Police and Fire Stations, contains a discussion of what the architect must know about the responsibilities and needs of police and fire stations during an earthquake disaster, general seismic design considerations, seismic safety for specialized equipment, retrofitting existing facilities, and the relationship of seismic hazards to other hazards.

Copies of the report are available upon request from Earle Kennett, AIA Research Corporation, 1735 New York Avenue, N.W., Washington, DC 20006, (202) 785-7833.

DISASTER EXERCISES

Region Six of the Defense Civil Preparedness Agency has developed and distributed two simulation exercises to test the readiness of the emergency operations centers (EOCs) of the local offices. "Exercise Twister" and "Rising River" each present a series of problems that would be encountered before, during and after a tornado and a flash flood. Participants respond to the conditions as they would in a real disaster situation. A discussion and critique of the performance of the EOC in its attempts to cope with the simulated tornado or flood follows. DCPA hopes that participants will review and revise emergency procedures based on problems revealed by the exercise.

For information contact DuWayne A. Ebertowski, Defense Civil Preparedness Agency, Region Six, Denver Federal Center, Building 710, Denver, CO 80225, (303) 234-2582.



WORLD MAP OF HAZARDS

The figure above is a portion of a recently released World Map of Natural Hazards, which illustrates the world-wide distribution of exposure to extreme events in nature. The map and accompanying explanatory publication indicate vulnerability to earthquake, seismic sea waves, volcanic eruptions, tropical cyclones, tornadoes, thunderstorms, fog and iceberg drift.

Ordering information is available from *Munchener Rückversicherungs-Gesellschaft, Postfach 40 13 20, D-8000 München 40, Germany.*



HAZARDS

BIBLIOGRAPHY

AVAILABLE

The Selected, Partially Annotated Bibliography of Recent (1977-1978) Natural Hazards Publications is now available from the Natural Hazards Research and Applications Information Center, IBS #6, Campus Box 482, University of Colorado, Boulder, CO 80309. Compiled by David Morton, the bibliography contains approximately 200 citations of articles, reports, and studies that pertain to the societal aspects of natural hazards and disasters. The 90-page bibliography is indexed both by author and by subject. Price: \$3.00.

RECENT PUBLICATIONS



NOTE: The publications listed below should be obtained from the author, organization or publisher cited. They are not available through the *Natural Hazards Observer*.

"Mountain Geocology and Land-Use Implications." Jack D. Ives and Rinna P. Zimna, Editors. *Arctic and Alpine Research* 10 (May, 1978) 2.

The entire issue is devoted to the Proceedings of the Symposium of the International Geographical Union Commission on High-Altitude Geocology, Caucasus Mountains, USSR, July 1976. Three articles specifically deal with natural hazards in mountainous terrain. "Maps of Geomorphology and Natural Hazards of Grindewald, Switzerland," by Hans Kienholz, describes methods for producing multi-colored maps that indicate the nature and degree of alpine hazards. In "Natural Hazards Maps for Land-Use Planning, San Juan Mountains, Colorado, USA," Jack Ives and Michael Bovis describe map preparation for local land-use planning officers. "Natural Hazards Research and Land-Use Planning Responses in Mountainous Terrain: The Town of Vail, Colorado, Rocky Mountains, USA," by Jack Ives and Paula V. Krebs, discusses various decision-making processes either initiated or aided by local hazard evaluation in a mountain area experiencing rapid growth.

Impact of Tropical Storm Agnes on Chesapeake Bay. Jackson Davis, Editor. Prepared by the Chesapeake Research Consortium, Inc., for the U.S. Army Corps of Engineers, Baltimore District. CRC Publication #34. 1975. 637 pp.

Tropical Storm Agnes forced an exceptionally large quantity of fresh water into America's largest estuary. This report attempts to analyze the effects of this unique event on the Tidewater Region. Forty-four papers treat the effects of the influx on the hydrology, biology, geology, and water quality of the Bay while four reports deal with economic and public health impacts. Economic loss was concentrated in the shellfish and finfish industries but the recreation and tourist industries also sustained substantial losses. Public health impacts were considered minimal and no evidence of increased infection by waterborne pathogens was found as a result of Agnes.

Country Profile. U.S. Department of State, Agency for International Development, Office of Foreign Disaster Assistance. 1978. These publications are available at no cost from OFDA-AID, Main State Department, c/o Lucy Drobot, Washington, DC 20523.

Thirty-six Country Profiles are currently available from the OFDA. Specifically designed to meet the Office's needs in dealing with disasters, they contain information useful for both short and long term disaster response. Each profile contains information on current government organization and political leaders including names and phone numbers of disaster officials; airports and runway conditions; air entry details; diet; agricultural imports, exports, local crops and their growing seasons; and electricity, radio and telephone facilities. The profiles vary from 60 to 100 pages in length.

Building Technology Publications--Supplement 2; 1977. JoAnne R. Debelius, Editor. Department of Commerce, National Bureau of Standards, Center for Building Technology. 1978. 110 pp. \$3.25. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 003-003-01962-3.

In its second supplement to Special Publication 457, Building Technology Publications 1965-1975, the Center for Building Technology lists all documents it issued during calendar year 1977. Abstracts are provided for approximately 70 studies treating structural problems associated with high winds from hurricanes and tornadoes and seismic disturbances. Fifteen papers examine aspects of building codes and regulations. Key word and author indexes are provided as are instructions for ordering CBT publications.

Emergency Medical Services at Midpassage. National Academy of Sciences, National Research Council, Committee on Emergency Medical Services. 1978. 89 pp. Available at no cost from the National Academy of Sciences, Division of Medical Sciences, Room 358, 2101 Constitution Avenue, N.W., Washington, DC 20418.

There has been substantial implementation of previous National Research Council recommendations for improving EMS systems, but some issues are still being debated. EMS progress and unresolved issues are discussed in the context of system design and management, quality assurance, economics, legal aspects, communications, regionalization, manpower and training, public education and information, and transportation. It is recommended that efforts be made to update third party insurance coverage to include all the costs of EMS; that a state lead agency be designated to set standards and adopt regulations; and that a central medical emergency dispatching system be seriously considered.

"Disaster Mitigation: Challenge to Managers." Claire B. Rubin. *Public Administration Times* 2 (1979) 1:1-2.

The article overviews the recent change in perception of natural disasters and their mitigation. Managerial leadership at all levels needs to recognize that present settlement patterns and building practices are contributing to the loss of lives and property and to social disruption from natural disasters. Among the reasons cited for heightened interest in the natural disaster field are: promising new knowledge in the basic sciences and engineering; a growing body of significant studies and reports; and the emergence of newsletters and clearinghouse services that monitor and disseminate information about current developments in the hazards field.

"Economic Analysis of Structural Flood Proofing." J. Ernest Flaack. *Journal of the Water Resources Planning and Management Division, Proceedings of the American Society of Civil Engineers* 104 (1978) WR1:211-221. *Proceedings Paper* 14186.

A case study of the Boulder Creek flood plain in Boulder, Colorado shows that flood proofing is a cost-effective nonstructural flood control alternative. Nine modes of improvements were cost-appraised on seven types of buildings with results indicating that commercial structures, unlike residences, show net benefits from flood proofing, primarily because of their valuable contents.

While in most cases the cost of flood proofing residences exceeded the benefits derived from reduced losses, a comprehensive plan for flood proofing all commercial structures could be economically justified.

American Water Works Association Journal 70 (February, 1978) 2:64-68, 74-81.

Three articles in this issue discuss California's response to the 1976-1977 drought. In "The California Drought -- Out of Disaster, Better Water Management," Jerome B. Gilbert suggests that California's response holds promise for long-term benefits through wiser use and management of water resources. Evan L. Griffith's article, "Southern California's Drought Response Program," details measures instituted by a metropolitan water district to cope with drought. Ronald B. Robie, in "California's Program for Dealing with the Drought," overviews the accommodations and adjustments made by the state in the distribution of available water resources and discusses lessons learned by water managers.

Flash Flood Handbook. State Council of Civil Defense, Commonwealth of Pennsylvania, Harrisburg, PA. September, 1978. 30 pp.

This Model County Planning Guide for a Self-Help Flash Flood Forecasting and Warning System has been developed to assist county governments in establishing a voluntary system to complement the existing forecast and warning system of the National Weather Service. The forecast program outlined maximizes warning time since it is based primarily on rainfall rather than streamflow. The manual includes a discussion of the limitations of flash flood warning systems and general procedures for establishing a county system for various stages: forecasting, warning, alerting, decision-making, evacuation, and post flood evaluation.

Hill Reestablishment: Retrospective Community Study of a Relocated New England Town. Steven P. Adler and Edmund F. Jansen, Jr. U.S. Army Corps of Engineers, Institute for Water Resources, Kingman Building, Fort Belvoir, Virginia 22060. IWR Contract Report 78-4. 1978. 229 pp.

This study retrospectively analyzes the relocation of Hill, New Hampshire in 1940 to avoid recurrent flooding. The process and techniques of relocation and the social, political and economic impacts of the relocation are examined. A trend analysis of several social and economic indicators demonstrated that fluctuations in population, tax base and the number of businesses paralleled that of other small communities in the vicinity. Initial significant decreases in such indicators as population and commercial enterprises were temporary, illustrating that the impacts of town relocation were of short duration.

From Currituck to Calabash: Living with North Carolina's Barrier Islands. Orrin H. Pilkey, Jr., William J. Neal and Orrin H. Pilkey, Sr. Research Triangle Park, North Carolina 27709: North Carolina Science and Technology Center. 1978. 228 pp. \$3.95.

After a detailed presentation of the geomorphology of barrier islands, this book offers specific information about how to cope with natural hazard conditions associated with the islands. North Carolina's barrier islands are examined for storm danger zones and suggestions are made for hurricane-resistant construction. The authors stress that no locality on a barrier island is safe, and given the right conditions, hurricane, flood, wind and wave erosion, and inlet formation can attack any part of an island. Man's activities, particularly in the field of construction, almost always lessen the relative stability of the environment.

Feasibility and Cost of Using a Computer to Prepare Landslide Susceptibility Maps of the San Francisco Bay Region. Evelyn B. Newman, Arthur R. Paradis and Earl F. Erabb. U.S. Department of the Interior, Geological Survey. USGS Bulletin 1443. 1978. 27 pp. For sale from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock # 024-001-03087-5.

The USGS and the Department of Housing and Urban Development are cooperating to study the severe landslide hazard in the San Francisco Bay Region in order to improve urban planning and decision-making. A manually prepared and a computer-generated map for a given area are compared for cost and time of preparation with results indicating that computerized maps can be generated in approximately the same time and at less cost than comparable manually compiled maps. One advantage of computer compilation is that a data bank is created for use in future mapping of the same area.

Toward a Theory of Economic Disruption and Response. Adam Rose. University of California, Riverside. Department of Economics, Riverside, CA 92502. Working Paper #31. 1978. 58 pp.

This paper analyzes disruptive phenomena ranging from natural disasters to purely social events within an economic framework. A generalized and inclusive approach to disruptive event analysis is proposed, fundamental characteristics of disruptions are defined and criteria for responses to extreme events are established. The author contends that natural hazards have a common analytical base while social events, such as embargoes and epidemics, tend to cut across causal categories.

Emergency Preparedness News. Emily Kay, Editor. Published biweekly by Resources Publishing Company, 1010 Vermont Avenue, N.W., Suite 715, Washington, DC 20005. Telephone: (202) 638-7532. Annual subscription: \$95 for 24 issues.

This newsletter, formerly published by the International Center for Emergency Preparedness, continues to offer news of current interest to the natural hazards field together with items about man-made hazards and civil defense. The editor is soliciting information about noteworthy legislation, important but unpublicized reports, conferences, and unusual items pertinent to the emergency preparedness field.

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