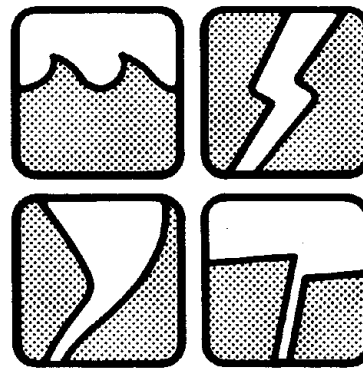


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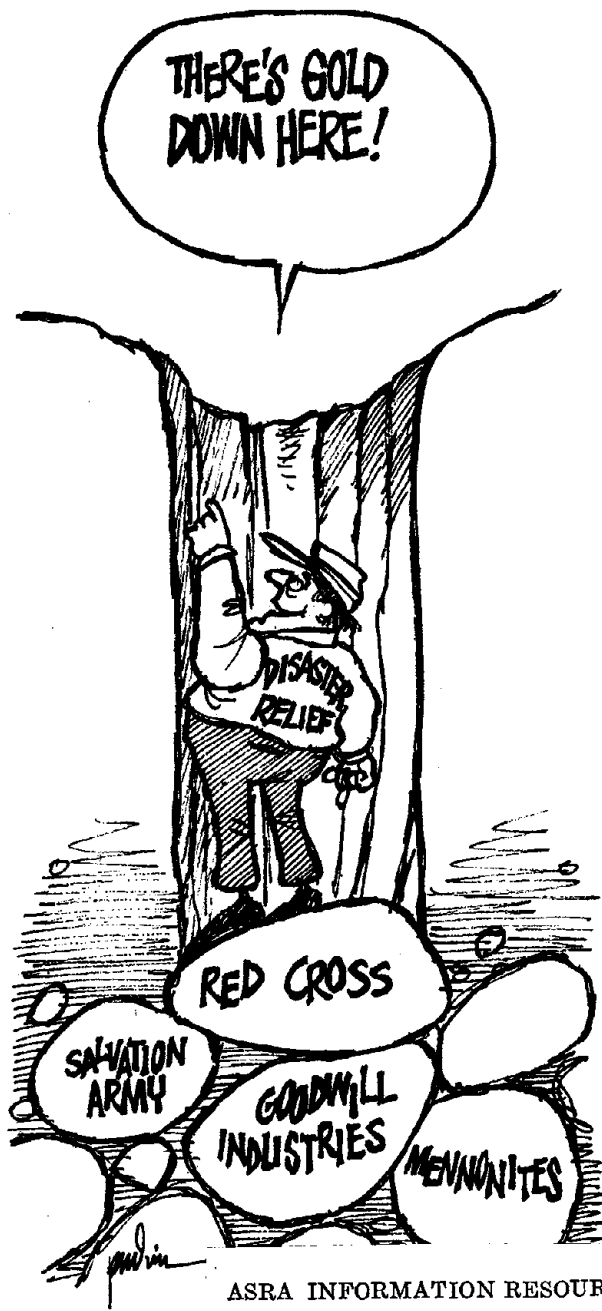
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Volume II

Number 3

March, 1978



ASRA INFORMATION RESOURCES
NATIONAL SCIENCE FOUNDATION

A NEW ROLE FOR VOLUNTARY AGENCIES --an invited comment

The role of voluntary agencies as providers of emergency and additional assistance to disaster victims in disaster response and relief is well-established.

But their role in advancing hazard mitigation methods is just beginning to emerge.

In a new disaster policy statement adopted by the American National Red Cross Board of Governors last year, the organization's Board says, "the Red Cross will seek to promote and enhance the role of the federal, state and local governments in providing extended recovery programs adequate to meet the needs of disaster victims and will encourage participation in the National Flood Insurance Program as well as the adoption of state and local hazard mitigation programs such as land use regulations, improved building codes and adequate construction standards."

The Red Cross, joining with conservation groups, the League of Women Voters and other voluntary agencies actively supported the National Flood Insurance Program since its inception; special leaflets and posters developed by the Red Cross were reprinted by HUD for mass distribution through voluntary agency channels. And these same groups worked actively in support of those opposed to the recent congressional amendments which weakened the mandatory aspects of the flood insurance program. The Red Cross has also produced a film, "Disaster Before It Hits Home," which emphasizes hazard mitigation and which is being widely used.

But beyond such steps, the potential role of voluntary agencies as hazard mitigation missionaries was graphically spelled out at a recent meeting of the Voluntary Agencies in Disaster called to provide input to the task force planning implementation of the Earthquake Hazard Reduction Act of 1977. As the group's discussions proceeded, the following concepts emerged:

The voluntary agencies--the Red Cross, the major religious groups, Good Will Industries,

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A New Role (cont.)

etc.--all own and operate physical facilities ranging from headquarters buildings to hospitals, schools, churches, welfare centers and blood banks. Many of them have architectural and planning departments at the national level, or have prominent architects, builders, etc. on their national and local boards or in their membership. By taking steps to plan for hazard resistance in new buildings or upgrade others, they can serve as bellwethers for local communities, setting a positive example.

Voluntary agency leadership and members can be ardent advocates of hazard mitigation methods conducting active educational campaigns through their own organizations, which may involve well over 100,000,000 Americans. To church leaders in particular, hazard mitigation emerged as a moral issue--the right of people to live in a safe community.

If the enthusiasm and organization which voluntary agencies now put into disaster response can be harnessed to promote hazard mitigation, they might add a vast impetus to the efforts now limited in large measure to smaller conservation and environmental groups and isolated citizens associations.

The hazard mitigation community should look to this "new constituency" and involve it wherever possible.

--Roy S. Popkin
Assistant National Director
Disaster Services
The American National Red Cross



HURRICANE AWARENESS

EVALUATION OF TEXAS PROGRAM

In the State of Texas a joint effort of the Texas Coastal and Marine Council, the Texas Catastrophe Property Insurance Association and more recently the Governor's Division of Disaster Emergency Services has sought for the past 5 seasons to alert Texas coastal residents to the dangers of hurricanes and to encourage individual preparedness activities. Their Hurricane Awareness Program for 1977 included the distribution of 750,000 brochures titled "Hurricane Survival Checklist and Flooding Map", and the production of radio and television public service spots which were made available to coastal stations. The radio presentations included interviews with the director of the National Hurricane Center, local preparedness officials, and survivors of past storms. The TV spots illustrated various physical aspects of a hurricane.

In an evaluation of this program, questionnaires returned by 1,100 residents of 22 coastal cities indicate that the brochure containing the Hurricane Survival Checklist and Map significantly increased the subject's knowledge about hurricanes, while television public service spots significantly increased their belief in the destructiveness of these storms. Radio spots, not organized around a single theme, but conveying many different items about hurricanes, were found to be ineffective in increasing the respondents' information.

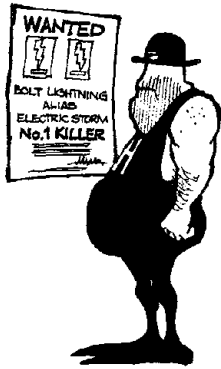
According to the investigators, L. Christensen and C. Ruch of Texas A&M University, "Any Hurricane Awareness Program has as its goal the generation of a variety of specific responses. The results of the present study reveal that, to be effective, these specific responses must be identified and then the material and information presented to the public must directly bear on these responses. If one wants to increase the accuracy of information about hurricanes then one must focus on defining terms and telling residents explicitly what they should know about hurricanes. If the goal is to generate a given type of behavior when a hurricane is approaching then one must tell residents what they are to do during a hurricane watch and warning."

The study was undertaken with support from the Insurance Information Institute, Austin, Texas, and the Sea Grant program of NOAA, Department of Commerce. For further information, contact *Larry Christensen or Carlton E. Ruch, Texas A&M University, College Station, TX, 77840, (713) 845-5711.*

THE COSMIC CONNECTION

Scientists have long understood that a sudden and violent discharge occurs in the form of a lightning stroke when the difference in electric charge between two charge centers in a thunderstorm grows high enough to overcome the resistance of the intervening air. However, they have been at a loss to point to any mechanism that can generate the energy (about 100 million volts) necessary to initiate lightning or to explain why the bolt follows a jagged path.

A new theory proposed by James W. Follin, Jr., of Johns Hopkins University's Applied Physics Laboratory suggests that cosmic rays could provide the necessary energy and might explain lightning's path. He observes that the typical rate at which lightning flashes dart from a storm cloud roughly matches the rate at which cosmic ray showers of the required energy would penetrate such a cloud. The electrical charge emitted travels the path of least electric resistance to the earth, following segments in which the air has been ionized by the passage of secondary cosmic ray particles, producing a zig-zag path. Follin expects that further research of the interaction of cosmic rays with earth's atmosphere will yield not only a better understanding of lightning, but also increased knowledge of earth's wet and dry cycles.



LIGHTNING--NATION'S #1 WEATHER KILLER

A report presented at the 10th Severe Local Storms Conference October 18-21, 1977, emphasizes that lightning continues to be the nation's number one weather killer, just ahead of tornadoes. During 1968-76 there were 908 lightning caused deaths and 2,402 injuries reported.

In this attempt to update the previous inventories of lightning-related deaths and injuries, the authors found many problems with existing data bases. No single source, or combination of sources, has a complete listing of lightning events. Of the sources examined, NOAA's Storm Data had the most complete information; but, because of its heavy reliance on news clippings, some lightning events were lost and often important information about reported events could not be determined. The report recommends that the quality of Storm Data be improved and that a clearinghouse for all weather-related deaths, injuries, and property losses be set up with the cooperation of the National Weather Service, insurance companies, the National Park Service, the National Center for Health Statistics and others.

Preliminary findings suggest that there are still several lightning related deaths annually from the use of the telephone during storms, and that the number of casualties related to CB and other radio equipment is rapidly increasing. There is evidence that prompt first aid does save lives.

The data will be further analyzed in an effort to correlate individual activities at the time that lightning strikes with death and injuries and to find an explanation for the continuing decline of reported lightning deaths which began in the 1940's.

For copies of the paper, "Lightning--An Update," by H. Michael Mogil, National Weather Service, NOAA, and Marjorie Rush and Mary Kutka, University of Texas, please contact: *National Weather Service, Disaster Preparedness Staff, Wx5, 8060 13th Street, Silver Spring, MD 20910.*

The International Geographical Union's Commission on Mountain Geocology has recently begun a project on natural hazard mapping and research. A questionnaire has been distributed in English, French, German, and Russian languages to countries with mountain regions to elicit responses about actual mapping methods, cartographic and reproductive procedures, mapping scales used, and experience on degree of success obtained. The hazards considered include snow avalanche, ice and rock falls, debris flows, landslides, mountain torrents and floods. The questionnaire will also try to identify the different legal, economic, and general land-use conditions in the various countries where such mapping is underway or contemplated. It is hoped that this initiative will also assist with the identification of the magnitude of the problem facing mountainous regions in those of the developing countries which so far have not had the opportunity to undertake active research and mapping of natural hazards.

A further issue to be addressed by the Commission is an analysis of the problem of human response to the natural hazard phenomenon, and the seeking of ways, through public education, to minimize human and material losses, and to maximize use of available land in mountainous regions.

Interested persons are invited to become corresponding members. *Jack D. Ives, Director, Institute of Arctic and Alpine Research, University of Colorado, Boulder, CO 80309, (303) 492-7909.*



NEW HAZARD MONOGRAPHS

The Institute of Behavioral Science announces two new monographs in its Program on Technology, Environment and Man series.

Hail Suppression: Society and Environment, 1977, 293 pp., is a collection of working papers prepared for the Technology Assessment of the Suppression of Hail carried out at the University of Illinois with support of the National Science Foundation. It is edited by Barbara C. Farhar who has served on the Weather Modification Advisory Commission and the Governor's Drought Council of Colorado.

Some questions addressed are: Does the public see weather modification as a solution to the hail problem? Who decides to implement weather modification programs? If anyone involved feels he has been treated unfairly, what recourse does he have? These should interest state planners and legislators, consulting engineers, and academics involved in the legal, social, political, environmental and economic aspects of weather modification.

Managing Technological Hazard: Research Needs and Opportunities, 1977, 169 pp., provides a comprehensive look at technological hazard management, and will interest those involved in the natural or technological hazard field, including planners, administrators, social scientists, insurers, engineers and other scientists.

The U.S. national committees for the International Council of Scientific Unions' Scientific Committee on Problems of the Environment (SCOPE) and the UNESCO Man and Biosphere (MAB) program sponsored three small workshops on risk assessment early in 1977 under the auspices of the National Science Foundation. In an attempt to identify critical research questions in risk management, the workshops examined the identification of hazards, the estimation and evaluation of risks, and the communication of risk assessments and related decisions. This summary of the three workshops has been assembled by Robert W. Kates, Clark University, to share the workshops' assessments of the managerial problem, of the needed research and of the more promising methodologies, and is complemented by the inclusion of three of the major background papers:

"Societal Management of Technological Hazards," Roger E. Kasperson,

"Risk Assessment: Basic Issues," Paul Slovic, Baruch Fischhoff and Sarah Lichtenstein,

"Managing the Unknown," William C. Clark.

For individual orders (@ \$5.00) or for subscription information: *Natural Hazards Research and Applications Information Center, Institute of Behavioral Science #6, University of Colorado, Boulder, CO 80309, (303) 492-6818.*

WASHINGTON UPDATE

Legislation. Recent amendments to Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) may significantly alter protection for the nation's wetlands. While sanctioning traditional Environmental Protection Agency and Corps of Engineers authority over Category I waters (navigable waters and adjacent wetlands), the new law encourages states to develop permit granting programs for dredge and fill in Category II and III waters (tributaries to navigable waters and adjacent wetlands and interstate waters and their tributaries and adjacent wetlands) with emphasis on area-wide planning and coordination. State programs must be submitted to the EPA for approval and then individual permits will be filed with the EPA which will retain authority to reject any permit application and to periodically review state programs.

In addition, Section 67 of the Clean Water Act of 1977 (PL 95-217) exempts projects specifically authorized by Congress from obtaining permits to dredge or fill wetlands if the projects comply with the National Environmental Policy Act. Permits will also no longer be required for normal agricultural and ranching activities such as cultivation and minor drainage and for maintenance of current dams, levees, etc.

The 1977 law is a complicated piece of legislation and it is unclear whether the end result will be more or less protection for our nation's delicate and valuable wetlands. Will state programs be more vulnerable to pressure for development of wetlands? Will they give more or less attention to enforcement? Will the directives to EPA to maximize utilization of other laws dealing with related areas and to enter into agreements with other agencies provide the integration of flood loss reduction, fish and wildlife protection, and recreation that is so badly needed? Will the relaxed regulations for "normal" agriculture and ranching activities create a loophole for controversial projects? Will the EPA be able effectively to review programs within the 120 days allotted with its current staff support?



PRESIDENT'S REORGANIZATION PROJECT

Two sectors of the President's Reorganization Project deal with matters of major concern to all who are involved in natural hazards research and its application. One sector deals with emergency preparedness and response, the other with the agencies in the federal government concerned primarily with natural resources and the environment.

FDAA PROPOSES NEW RULEMAKING

The general time schedule for the whole reorganization project is that option papers will be completed and presented to the President for each of 12 subject fields during February. These will then be subject to careful review preparatory to a decision by the President as to whether or not to submit a reorganization plan to the Congress. The exact timing and the content of the plans is subject to Presidential decision during February and March. It is expected that a number of plans will be submitted sometime in March or April.

Washington is alive with rumors as to what these several plans may comprise, and the Observer claims no special knowledge as to what will be the final plans. It can be inferred from public discussions to date that the reorganization plan affecting emergency preparedness and response will give serious consideration to means of consolidating the three federal agencies having principal responsibility in the field at present (DCPA, FDAA, and FPA), and that the means of developing a strong component of concern for mitigation, as well as disaster response, will play a role in the discussions.

On the natural resources front, one can expect that suggestions which have been debated for the past 30 years regarding combinations of agencies such as NOAA, Forest Service, and Corps of Engineers into one new agency, a renovated Department of the Interior, will receive careful consideration.

Congress will have 60 days in which to respond to each reorganization plan which is submitted, and it may be expected that plans will not reach the Hill unless and until they have been carefully appraised with key members of the House and Senate.



WATCH YOUR LANGUAGE, READ ON

"There'll be less prioritizing and more plain, readable English at HEW if Secretary Joseph Califano has his way. His 'Operation Common Sense' is a five-year program to translate the bureaucratise of 6,000 pages of HEW regulations. HUD Secretary Patricia Harris has instituted writing classes. The new attention to language follows President Carter's promise last winter that regulations would be both fewer and simpler." *Planning*, 44 (Jan. 1978) 1: p. 10. Reprinted with permission from *Planning*, the magazine of the American Society of Planning Officials, 1313 E. 60th Street, Chicago, Illinois 60637.

The Federal Disaster Assistance Administration has been encouraging state and local governments to develop preparedness plans and to take hazard mitigation measures to prevent the repetition of all types of natural disasters. Its next step will be an advance notice of proposed rulemaking regarding hazard evaluation and mitigation, expected as of this writing to be published in the Federal Register in mid-February.

Under the authority of the Disaster Relief Act of 1974, Section 406, state and local governments which receive federal disaster assistance are required to evaluate the natural hazards in disaster areas and to take appropriate actions to mitigate those hazards. Since some state and local governments have not established adequate programs to meet these requirements, and as there has been inadequate use and coordination of federal resources in this regard, FDAA is seeking advice and information to use in developing additional procedures and policies to promote these goals.

Some of the questions likely to be raised are:

Under Sec. 406, what should be the federal role? What is the best way to make available and coordinate federal technical resources?

How can coordination among all levels of government best be accomplished? How might FDAA ensure "adequate consultation with appropriate elected officials of general purpose local governments" as the law requires?

According to Sec. 406, the state shall furnish such evidence of compliance as the Administrator requires. Should such reports be prepared by the state in cooperation with the affected governments? If so, how could such cooperation be ensured?

What are examples of standards for safe land use and construction practices which should be given priority consideration in promoting hazard mitigation in disaster-prone areas?

Comments received within 60 days after publication in the Federal Register will be considered in the preparation of proposed rules to implement Section 406. For further information: *Federal Disaster Assistance Administration, Department of Housing and Urban Development, 451 7th Street, SW, Executive Building Annex, Washington, DC 20410.*

NEW FACES ON THE FEDERAL SCENE

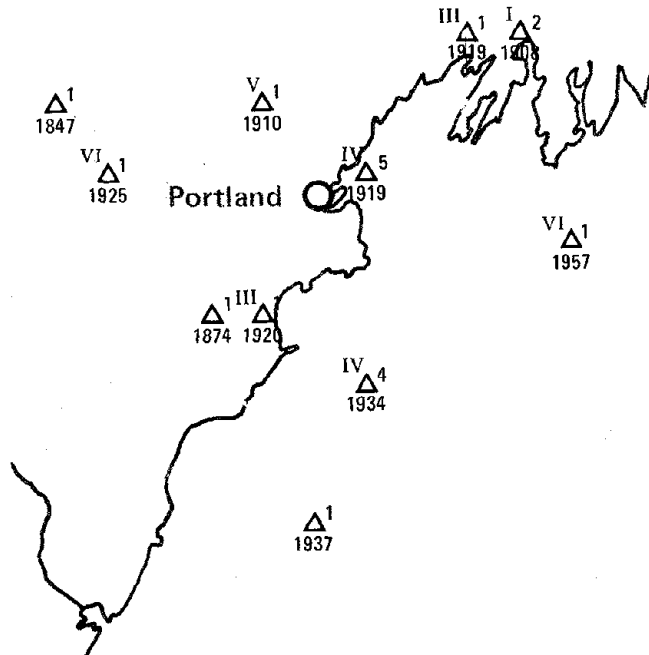
William H. Wilcox has been appointed Administrator of the Federal Disaster Assistance Administration. A native of Philadelphia, he served as Secretary of Community Affairs in the Commonwealth of Pennsylvania from 1971 until last October, when he became a consultant to Patricia Roberts Harris, Secretary of the Department of Housing and Urban Development.

Robert Engdahl has been named chief of the US Geological Survey's Branch of Global Seismology headquartered in Golden, CO, and will supervise the Survey's National Earthquake Information Service which reports on the worldwide occurrences of earthquakes. He will also oversee an earthquake research program in Golden and the Albuquerque Seismological Laboratory in New Mexico.

William A. Radlinski, Associate Director of the US Geological Survey, since December, 1969, will be acting director of the Survey until a new director is nominated by President Carter and confirmed by the Senate. Radlinski, who succeeds Vincent E. McKelvey, has been with the USGS since 1949.

STATE EARTHQUAKE MAPS

A map illustrating the earthquake history of Maine has been published by the US Geological Survey as the first in a series of similar maps to be prepared for each of the 48 coterminous states. The series will provide, in a handy visual and chart form, the location, date, time of day, latitude and longitude, severity and area over which each of the tremors was felt.



The roman numeral to the left of the triangle is the maximum intensity rating for the earthquakes located in that position, with the number of earthquakes shown by the number to the right of the triangle. The year shown below the triangle is the year that the maximum intensity was recorded.

Write for "Seismicity Map of the State of Maine", USGS Map MF-845, Branch of Distribution, US Geological Survey, 1200 S. Eads St., Arlington, VA 22202. 75¢.

CORRECTION

The December, 1977, issue of the *Observer* in an article on "Substantial Improvement" incorrectly reported that a "recent amendment to the National Flood Insurance Act (1968) has redefined substantial improvement from 50% of the market value of the structure to 80%." The amendment did not pass Congress and the substantial improvement definition remains at 50%.

The report cited is not presently available through the FIA, but is expected to be available in the near future.

Direct appropriations for research on the reduction of earthquakes total \$30 million for Fiscal Year 1978, an increase of \$18 million over last year's budget. The expanded program, aimed at the mitigation of potential losses, will focus on: the development of a capability to predict earthquakes; the evaluation of the potential of large reservoirs to trigger earthquake activity; and the evaluation of earthquake hazards and risks in earthquake-prone regions.

A three-month project underway in early 1978 will survey the southern California uplift. This project is being conducted at an unprecedented scale, costing \$1.4 million, and is aimed at capturing a static "stop-action" picture of the rapidly changing features of this huge and potentially dangerous land swell.

REMEMBER THE DROUGHT?

"A good rain is the only quick solution to the problem of drought...Unfortunately, a good rain washes away more than the drought, it washes away much of man's interest in providing for the next one, and it washes the supports from under those who know that another dry cycle is coming and who urge their fellows to make ready for it." W.P. Webb, *"More Water for Texas: the Problem and the Plan,"* U. of Texas Press, Austin, 1954, quoted in J.R. Wallis, *"Climate, Climatic Change and Water Supply,"* *EOS: Transactions, American Geophysical Union*, 58 (1977) p. 1012.

JAPAN: FLOOD HAZARD MAPS

Geomorphological survey maps of the Yahagi River Plain and the Tsugaru Plain in Japan indicate areas subject to flooding, and the relationship between flooding and geomorphological elements. Captions, keys and some discussion are provided in Japanese and English. For further information write Masahiko Oya, Department of Geography, Waseda University, 467 Totsuba-machi-I-chome, Shinjuku-ku, Tokyo, Japan.

FLOOD PLAIN MANAGEMENT

Flood-Prone Areas and Land-Use Planning: Selected examples from the San Francisco Bay Region, is a very readable guide to flood plain management and measures to prevent and reduce flood losses. Published jointly in 1977 by the US Department of Housing and Urban Development and the US Geological Survey, it uses the experience of the nine-county San Francisco region as an illustration of approaches to problems of flood loss reduction which are applicable nationally. It describes the development of governmental flood loss management policy, the responsibilities of different government agencies in this field, the kinds and sources of available flood information, including maps, and various structural and non-structural alternatives for flood loss reduction.

PUBLIC PARTICIPATION BY PUBLIC LAW

Some local government officials feel that they know quite a bit about participation by the public in decision-making, whether through a telephone call in the middle of the night, or counsel from a multitude of advisory boards at city, county or state level. Attempts to guarantee and extend the rights of the public to participation in administrative decision-making through legislation at the federal level are relatively new, and seem likely to increase in the future.

With community participation roots going back as far as the Federal Housing Act (1954), legislation such as the National Environmental Protection Act (1969) and the Coastal Management Act (1972) has sought to incorporate this principle into natural resource decisions. It may be crucial in reaching community decisions as to land-use regulations, building ordinances, and warning systems. Among individual agencies, the Corps of Engineers has probably made the most extensive effort to involve the public in its programs.

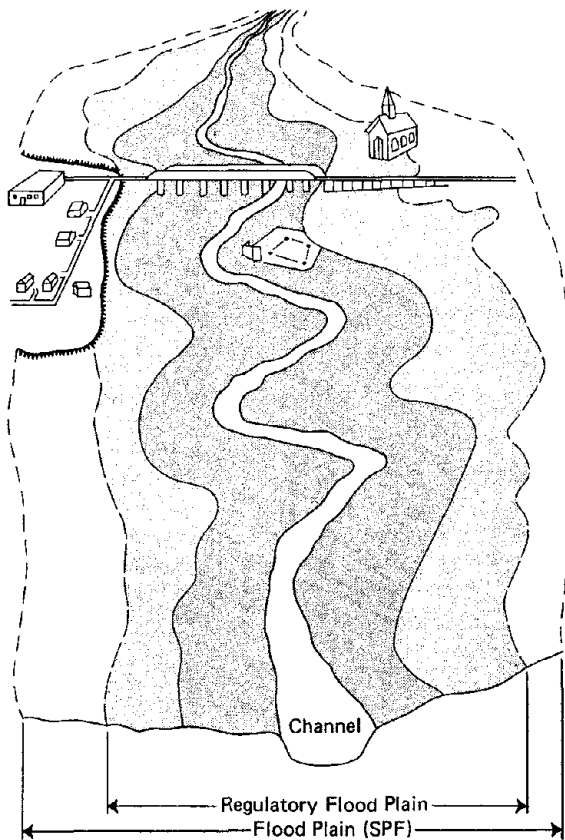
A recent example of such legislation is the Earthquake Hazards Reduction Act of 1977 (PL 95-124). In Sec. 5(h) it provides:

PARTICIPATION.--In carrying out the provisions of this section, the President shall provide an opportunity for participation by the appropriate representatives of state and local governments, and by the public, including representatives of business and industry, the design professions, and the research community, in the formulation and implementation of the program.

Such non-Federal participation shall include periodic review of the program plan, considered in its entirety, by an assembled and adequately staffed group of such representatives. Any comments on the program upon which such group agrees shall be reported to the Congress.

While such participation requirements have received general acceptance, the techniques for carrying them out are subject to much confusion and debate. The burgeoning literature on the subject seldom brings together experience from such different fields as river basin management, coastal zone, or urban land use planning. The question remains, if you genuinely wish to include the public in decision-making, how should you go about it.

Nelson M. Rosenbaum of the Urban Institute in Washington, DC, suggests the setting of goals as a good place to start. He considers that the primary purpose of citizen participation is to increase the responsiveness and accountability of government to the citizens affected by public decisions. Two benefits accrue from the process 1) a more rational decision in the sense that it includes the spelling out of citizen preferences and the reasons for their acceptance or non-acceptance by administrators who make the final decision, and 2) an increase in the citizen's fundamental trust in government, the quality which allows it to function. The costs take the form of money, which it is the responsibility of the legislators to provide, and time.



EXPLANATION

- REGULATORY FLOODWAY — Kept open to carry floodwater—no building or fill.
- REGULATORY FLOODWAY FRINGE — Use permitted if protected by fill, flood proofed, or otherwise protected.
- REGULATORY FLOOD LIMIT — Based on technical study—outer limit of the floodway fringes.
- STANDARD PROJECT FLOOD (SPF) LIMIT — Area subject to possible flooding by very large floods.

FIGURE 6.—Riverine flood-hazard areas of a regulatory flood plain. (Adapted from U.S. Water Resources Council, 1971.)

A case study of the Napa Valley describes how a community can plan for flood-prone areas using information and assistance from a variety of agencies, and outlines some of the practical benefits and difficulties of applying the information. It concludes that:

In addition to the need for coordinating the actions of numerous agencies, the Napa Valley experience indicates that factors important in flood-damage reduction include compatibility with general community objectives, land-use economics, and the objectives of other agencies; the intensity of existing development; the availability of hydrologic information; and the coordination of planning and implementation.

The guide should be useful to a wide range of officials, administrators, planners, engineers and developers concerned with the effective and wise management and use of flood plains. Write for the 75 page document to the Superintendent of Documents, US Government Printing Office, Washington, DC 20402, \$2.20. Also available at the same price from the Distribution Branch, USGS, 1200 South Eads St., Arlington, VA 22202.

Rosenbaum notes three main models of citizen involvement in use at present, the clientele model, the interest-representation model, and the community consensus model. The first of these involves identifying a specific group, those most clearly affected by the proposed action, and seeking guidance from them, as in the Model Cities program. It appears to experience severe difficulties when the clientele population is unorganized and has internal conflicts, as in some city neighborhoods, but works well with a tightly-knit community with common interests such as farmers.

The interest-representation model draws on special interest groups, on the theory that all significant interests should be considered before a decision is made, with the administrator acting as a mediator or arbitrator between conflicting interests. This approach is commonly found in regulatory programs, and seems to work best with narrow controversies and highly organized groups, but presents problems when groups are poorly organized and weak. Since as generally practiced it relies heavily on legal representation and legal remedies for perceived deficiencies in rulings, it can be a method costly both in time and money.

The community consensus model, based on the idea of achieving the greatest good for the greatest number of people, is often used in budgeting and in natural resource planning programs. Experience has shown that it is difficult to generate continuous broad-base involvement in planning, but that the method does work when the planning process addresses a crisis or controversy that has some impact on a large number of citizens. In addition, the assumption that a community can reach consensus may be mistaken. In this case it is essential that a full and honest report from the administrators on the results of community consultations be given to the participants, in order to preserve the citizen's trust in the governmental process.



None of these models or the methods involved in using them seem to be entirely satisfactory, so it is probable that there will be a good deal more trial and error in implementing legislation requiring citizen participation.

See N.M. Rosenbaum, *Citizen Involvement in Land Use Governance: Issues and Methods*, URI 11500, The Urban Institute, 2100 M Street N.W., Washington, DC 20037. 1976. 82 pp. \$3.50. Also, "The Evolution of Citizen Involvement in Governmental Decision-making," *Urban Institute Working Paper 1226-09*. September, 1977, by the same author.

A particularly valuable review and assessment of significant literature on the theory and practice of public participation in water resources planning, prepared in connection with a case study of a Citizen's Advisory Group to the Connecticut River Basin Program, can be found in *Public Participation in Water Resources Planning: A Case Study and Literature Review*, Madge O. Ertel and Stuart G. Koch. Publication #89, Water Resources Research Center, University of Massachusetts, Amherst, MA 01003. 1977. \$3.00.

For a description of the approach taken by the Corps of Engineers to citizen involvement, see *Public Involvement in the Corps of Engineers Planning Process*, James R. Hanchey. Dept. of the Army, Institute for Water Resources, Corps of Engineers, Kingman Building, Fort Belvoir, VA 22060. IWR Research Report 75-R4. 1975.



GRANTS

Post-earthquake planning. "Post-earthquake Land Use Planning," National Science Foundation, \$213,200, 20 months. Principal Investigator: George G. Mader, William Spangle and Associates, City and Regional Planners, 3240 Alpine Road, Portola Valley, CA 94025, (415) 854-6001.

An interdisciplinary team of experts in the fields of geology, structural engineering, and city and regional planning will investigate post-earthquake land use planning and reconstruction that followed three recent earthquakes--San Fernando (1971), Santa Rosa (1969), and Anchorage (1964)--to identify impediments to sound post-earthquake planning.

After evaluating the experiences of these three cities and of other communities impacted by natural disasters, the team will recommend federal, state and local planning procedures, programs and regulations designed to ensure post-earthquake rebuilding consistent with seismic safety.



Disaster vulnerability. Vulnerability to Disaster in Developing Countries. Leverhulme Trust, \$90,720. Principal Investigator: James Lewis, Senior Research Fellow, Centre for Development Studies, University of Bath, Claverton Down, Bath BA2 7AY, England.

The attempt to plan strategies against natural disasters in developing countries requires both a strategy structure related to available resources and a knowledge of localized vulnerabilities. Vulnerability to disaster has been shown by the Disaster Research Unit (University of Bradford), of which James Lewis was formerly director, to be the result of social and economic factors as well as environmental ones. This program will attempt to formulate a methodology for the field assessment of vulnerability, taking all these factors into account.

The first stage will seek to analyze actual impact of losses in natural disaster areas in retrospect. The second stage will seek to analyze vulnerability to disaster in potential disaster locations. Opportunity will be sought to test research results in cooperation with government policy makers and non-governmental administrators and organizations in developing countries.

Nonstructural flood control. "Social Considerations in Nonstructural Flood Control Planning," Corps of Engineers, General Investigations, \$23,000, 12 months. Principal Investigator: Annabelle Bender Motz, Professor of Sociology, American University, and Visiting Scholar at Department of the Army, Institute for Water Resources, Corps of Engineers, Kingman Building, Fort Belvoir, VA 22060, (202) 325-0370.

An analysis of public response to nonstructural flood control alternatives such as zoning, relocation, warning systems, floodproofing and insurance is being completed for the Corps.

Through an extensive literature review, empirical sociological studies, Corps reports, and interviews, this study is seeking to identify the social and psychological effects that the consideration or implementation of these alternatives has on individuals and community groups in terms of role adjustments, interagency cooperation and value conflicts.

Further information and copies of a paper, "Relocation as Process: A Social Psychological Perspective," may be obtained from Dr. Motz at the above address.

Cartoons for the Observer are drawn by Rob Pudim.

CONFERENCES

The 1st International Conference in Israel on Mass Casualty Management, Safad, Israel, September 17-20, 1978. How can a country or region prepare for the complex organizational, medical, sociological and ecological problems posed by disasters? Papers are called for. Deadline for submission of abstracts is: April 15, 1978. *The Secretariat, P.O.B. 16271, Tel Aviv, Israel.*

The 1978 American Society of Planning Officials National Planning Conference will be held in Indianapolis, April 29-May 4, 1978. In addition to sessions on the conference theme: "Energy: Plugging in the Planner", the conference will include two sessions on natural hazards organized by the Natural Hazards Research and Applications Information Center. "Natural Disasters: Rebuilding and Sound Planning" will include case studies of the recent Johnstown and Kansas City floods, the Omaha and Xenia tornadoes, and the San Fernando Valley earthquake. A second panel, dealing with "Flood Insurance: Effects of the 1977 Amendments", will present an overview of the flood insurance program, and a summary of the new amendments and their effects. Reports will be presented from sample communities including Tulsa, OK, Carbondale, IL, The Miami Valley in southwestern Ohio. For general information about the conference: *The American Society of Planning Officials, 1313 East 60th Street, Chicago, IL 60637.* For information about the hazards sessions contact the Information Center.

"Human Aspects of Flash Floods," May 4-5, 1978, Los Angeles, CA, is a conference sponsored by the U.S. Army Corps of Engineers (South Pacific Div.), the National Weather Service and the California State Office of Emergency Services. The conference is being held to increase flash flood knowledge of the general public and representatives of organizations charged with disaster warning and relief. The conference will be preceded by the American Meteorological Society's conference on "Hydrometeorological Aspects of Flash Floods," May 2-3, 1978. Information about the "Human Aspects of Flash Floods": *Robert Bates, Los Angeles District Corps of Engineers, P.O. Box 2711, Los Angeles, CA 90053.* For information concerning the AMS conference: *E.L. Peck, Hydrologic Research Laboratory, W23 National Weather Service, NOAA, Silver Spring, MD 20910.*

The American Water Resources Association's Fourteenth Annual Conference will be held in Lake Buena Vista, Florida, November 6-10, 1978. Papers are invited related to any aspect of water resources planning, development, management, education, and information systems, and should be received prior to March 31, 1978. Bent Christensen, Department of Civil Engineering, University of Florida, Gainesville, FL 32601, (904) 392-0952.

A special National Symposium on Wetlands will be held in conjunction with this conference. Invited papers on wetland ecology, hydrology, social and economic problems (including natural hazards), legislation, planning, and management will be presented. Phillip E. Greeson, US Geological Survey, WRD National Center, MS 412, Reston, VA 22092.

Second International Conference on Microzonation for Safer Construction Research and Application, November 26-29, 1978, San Francisco, CA. The conference is sponsored by the National Science Foundation, UNESCO, American Society of Civil Engineers, Earthquake Engineering Research Institute, Seismological Society of America and the Universities Council for Earthquake Engineering Research.

The conference will bring together persons from such diverse backgrounds as geophysics, geology, seismology, engineering, economics, sociology, architecture, urban planning, government administration and insurance. Knowledge concerning earthquake microzonation techniques will be summarized and future research needs identified. Comprehensive proceedings will be published to serve as a reference document for those faced with the responsibility of incorporating relevant ground and site characteristics into planning and location of communities and design of safe structures in seismically active regions. Contact: M.A. Sherif, Conference Chairman, 132 More Hall, FX-10, University of Washington, Seattle, WA 98195, (206) 543-6777.

The Office of Earthquake Studies of the US Geological Survey is sponsoring a workshop on Communicating Earthquake Hazard Reduction Information in Denver, CO on May 22-24, 1978. Case histories of situations in which earthquake hazard information has been used in land use planning and preparedness activities will be examined in an effort to evaluate the effectiveness of various methods of communicating such hazard information to concerned officials and to the public. The workshop will aid the Office of Earthquake Studies in its national role of communicating earthquake hazard reduction information to the public. Contact Walter Hays, Deputy for Research Applications, Office of Earthquake Studies, USGS, Box 25046, Denver Federal Center, Denver, CO 80225, (303) 234-4029.



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*.

"The Delivery of Emergency Medical Services in Disasters." Editor: Verta A. Taylor. *Mass Emergencies (Special Issue)* (1977) 3:135-204. Elsevier Scientific Publishing Company, P.O. Box 211, Amsterdam, The Netherlands.

This special issue is devoted to a discussion of problems faced by emergency medical services (EMS) in both natural and technological disasters. Practical problems confronting EMS planners and operational personnel are discussed, as well as the need to apply rigorous research methods and systematic theoretical analyses to problems of EMS delivery. Other topics include: overlapping jurisdictions; impact of federal EMS legislation; the need for, and existing lack of, adequate needs assessment studies.

Dealing with Drought: Towards Management Strategies. Anne M. Blackburn. ICFRB General Publication 77-3. Interstate Commission on the Potomac River Basin, 4350 East-West Highway, Bethesda, MD 20014. 1977. 22 pp.

The 1975-76 drought in England was the worst in 700 years. This report describes how the Thames River basin, including London, was able to cope with an extremely curtailed water supply. A comparison between London and Washington, DC illustrates that a much less severe drought would have drastic implications for our nation's capitol. Washington has less stored water supply; its available supply is not interconnected, and therefore is less flexible; and there is no central means for policy decision-making and implementation.

Commonwealth of Virginia Emergency Operations Plan. Volume IVa: Interim Plan for the Emergency Management of Energy Resources. Virginia Office of Emergency Services, 7700 Midlothian Turnpike, Richmond, VA 23235. 1977. 123 pp.

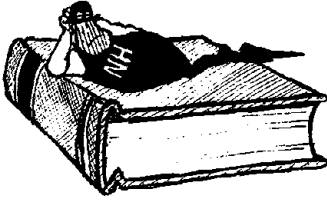
Virginia's Interim State Plan assigns responsibilities, and provides policy guidance and procedures for the allocation, conservation, and distribution of energy resources during a shortage. The Plan's general concept and detailed implementation procedures serve as a foundation for dealing with energy shortages created by all types of hazards, both natural and man-made.

User-Generated Housing in an Emergency Setting. (Thesis, Master of Architecture degree.) J. Patrick Rand. P.O. Box 1023, Raleigh, NC 27805. 1977. 174 pp.

It is desirable for disaster victims to become actively involved in recovery and reconstruction. Home-building or home repairing can serve as important vehicles for restoring vital social functions of the family, neighborhood, and town. A recovery strategy is proposed involving continual interaction between disaster victims and those officially responsible for recovery.

"NWS's Severe Local Storm Warning and Disaster Preparedness Programs." H. Michael Mogil and Herbert S. Groper. *Bulletin of the American Meteorological Society* 58 (1977) 4:318-329.

This article outlines the National Weather Service's (NWS) operational programs for local storm watch/warning and disaster preparedness. The present and future status of NOAA Weather Radio is discussed, as is the importance of hot-line telephone calls and a fan-out telephone network. Nineteen Weather Service Forecast Offices have been assigned a disaster preparedness meteorologist whose task is to provide the link between hazardous weather watches/warnings and effective citizen response. An extensive bibliography is included.



Recent Publications (cont.)

"Management of Flooding in a Fully-Developed, Low-Cost Housing Neighborhood." Jose I. Novoa and Albert H. Halff. *Water Resources Bulletin* 13 (1977) 6:1237-1252.

The recent granting of a 5-year variance for zoning ordinances designed to discourage construction in flood-prone areas substantially alters the regulations on improvements to structures in a low-cost housing area in a flood-prone section of Dallas, and forces a rethinking of flood control measures. Eight alternative remedies for flooding are proposed and evaluated, and a stream-side greenway with lakes and parks is the recommended solution. Criteria used were amount of flood protection, number of required family relocations, project costs, maintenance costs, and management problems.

Atlas of Environmental Dynamics: Assateague Island National Seashore. Robert Dolan, Bruce Hayden, and Jeffrey Heywood. *Natural Resources Report #11*, University of Virginia, Dept. of Environmental Sciences, Charlottesville, VA 22904. 1977. 40 pp.

The Atlas presents a review of the geomorphological history of these barrier islands--how they were created, how they have undergone change, and why they will continue to change. It includes data on the storm climate and shoreline erosion for Assateague Island and indicates how these data might be used to help in the management of the National Seashore. The information base is a good example of the fundamental environmental data that should be assembled and analyzed prior to the development of a management plan for an area vulnerable to storm surge and beach erosion.

The Current State of Knowledge of Lifeline Earthquake Engineering. Prepared by the American Society of Civil Engineers, 345 E. 47th Street, New York, NY 10017. 1977. 478 pp. \$20.

These proceedings of a 1977 conference sponsored by the ASCE Technical Council on Lifeline Earthquake Engineering discuss seismic effects on public utilities and transportation systems. Papers are presented on such topics as: gas and liquid fuel lifelines, water and sewage lifelines, communication lifelines, underground pipes, and transportation. Although the majority of contributions are technical in nature, there is sufficient material to be of value to planners and administrators.

Emergency Employment of Army and Other Resources: ER-500-1-1: Supplement A and B: Natural Disaster Procedures. U.S. Department of the Army, Corps of Engineers, 1776 Niagara St., Buffalo, NY 14207. 1977. 76 pp.

This outline of the CE Buffalo District plans under PL 84-99 and PL 93-288 in the event of a natural disaster includes a discussion of the primary responsibilities of the Corps: advance preparation, coordination and relationships to other agencies, operational policies and principles, public information needs, and problems of preservation of order in a disaster situation. It is an example of the type of concise statement of plans for activities in the face of natural disaster which may be expected from other field offices.

Earthquake Ordinances for the City of Los Angeles, California--a Brief Case Study. Kenneth A. Solomon, David Okrent, and Mark Rubin. *Chemical, Nuclear, and Thermal Engineering Dept.*, University of California, Los Angeles, CA 90024. 1977. 51 pp. Publication # UCLA-ENG-7765.

The Los Angeles Building Department has identified 300 "high risk" buildings within the city and estimates that 14,000 more may exist. These are primarily structures built prior to the 1933 earthquake code standards. The L.A. City Council is facing some tough policy questions about what action to take to insure the safety of its citizens. What is an acceptable level of risk from earthquakes? How can costs of repair or replacement be compared to reduced risk? How much is society willing to spend to reduce risk?

"Urban Flood Management: Problems and Research Needs." David H. Howells. *Journal of the Water Resources Planning and Management Division*, ASCE 103 (1977) WR2:193-212.

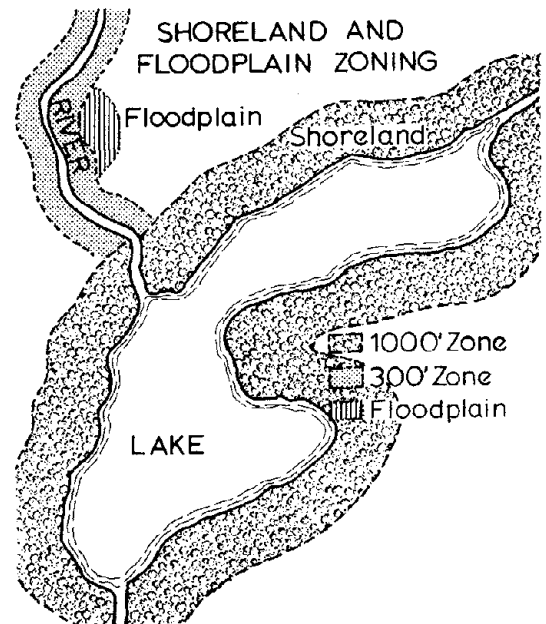
This report of a 1975 panel on urban flood management discusses current problems including the need for a restatement of national goals and objectives in terms relevant to state and local interests, more exact and reliable techniques for flood plain delineation for land use regulation and flood insurance rates, and social and economic consequences of floodway fringe development under present national policy. Forty-two problem areas are identified for research.

"Public Response to Earthquake Hazard." E.L. Jackson. *California Geology* 30 (1977) 12:278-280. Single copies available from *California Geology*, P.O. Box 2980, Sacramento, CA 95812.

A recent survey indicates that some government strategies with regard to earthquake hazard, particularly at the federal level, effectively discourage citizens from taking precautions on their own. Almost 90% of the respondents felt that preparation for future earthquakes is a government responsibility, and only 1% intentionally chose a site away from hazardous ground. The author ascribes this result to the availability of public funds for reconstructing after disaster, and to other governmental strategies which generate a public sense of security related to faith in technology. He concludes that an information program is needed to make the public aware of the limitations of current policies and of the need to assume responsibility for their own safety.

Legal Constraints on the Planning and Development of Disaster Home Warning Systems. James L. Buffman. *Natural Resources Law Institute*, Lewis and Clark Law School, Lewis and Clark College, Portland, OR 97219. 1977. 148 pp.

Disaster home warning systems raise important legal questions for government, consumers and manufacturer. This study addresses the extent of federal tort liability under the Federal Tort Claims Act for injuries resulting from the operation of the National Weather Service VHF-FM Tone Alert System. By examining similar cases, it was concluded that liability may exist for certain negligent acts in the area of maintenance and design. A wide range of policy options are explored--from doing nothing to granting a total waiver of immunity.



Wisconsin's Floodplain--Shoreland Management Programs. Wisconsin Dept. of Natural Resources, Box 7921, Madison, WI 53707. 1977. 24 pp.

This brochure offers a clear explanation of Wisconsin's Shoreland and Flood Plain Management Programs for prospective or existing property owners. A question and answer format is used to present such basic information as: Who pays for floods? How can building on the flood plain increase flood heights? What is a Flood Plain Zoning Ordinance? Who must buy flood insurance? This publication also includes discussion of the duties and responsibilities of various administrative boards, their ability to issue or deny building permits, and avenues open to citizens for appeal.

The NATURAL HAZARDS RESEARCH AND APPLICATIONS INFORMATION CENTER is intended to strengthen communication between research workers and the individuals, organizations, and agencies concerned with public action relating to natural hazards. Please let us know of any research or research needs or other information which should be brought to the attention of the Center. The Center is funded by grant No. ENV 76-05682 from the National Science Foundation. Any opinions, findings, conclusions or recommendations expressed in this newsletter are those of the authors and do not necessarily reflect the views of NSF.

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