

HOLISTIC DISASTER RECOVERY

Sources of Information

produced by the



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Preface

This annotated bibliography assembles all the sources of information listed in the handbook, *Holistic Disaster Recovery: Ideas for Building Local Sustainability after a Natural Disaster*. Readers who have a printed copy or downloaded version of that handbook already have the information contained in this bibliography. This document is intended rather for the person who wants lists of or links to information about disaster recovery and the principles of sustainability without the explanatory material that appears in the main handbook.

The bibliography is organized by topics that correspond to the chapters in the handbook. Each section can be downloaded separately.

- Section 1. Introduction to Sustainability
- Section 2. The Disaster Recovery Process
- Section 3. Participatory Processes in Disaster Recovery
- Section 4. Using Disaster Recovery to Maintain and Enhance Quality of Life
- Section 5. Building Economic Vitality into Recovery
- Section 6. Promoting Social and Intergenerational Equity during Disaster Recovery
- Section 7. Protecting Environmental Quality during Disaster Recovery
- Section 8. Incorporating Disaster Resilience into Disaster Recovery

This bibliography was produced under a 20-month project funded by the Public Entity Risk Institute entitled “A Project to Develop Guidance and Expertise on Sustainable Recovery from Disaster for Communities.” The project developed out of a recognition that small- and medium-sized towns can have difficulty figuring what to do, or how to do it, when they are confronted with the need to recover from a disaster. The intent of the project was to try to consolidate what is known about sustainable recovery at the local level and to fill in the gaps by suggesting ways to do things in innovative ways. The handbook on holistic recovery produced during the project describes a new approach to disaster recovery at the local level that incorporates the principles of sustainability into the recovery process. It explains the concept and procedures of holistic recovery, gives examples, and lists places to get more information. This bibliography reprints in a concise format the sources of information listed in the handbook.

SUSTAINABILITY

— WHERE TO FIND INFORMATION —

Training Courses and Workshops

Federal Emergency Management Agency, Emergency Management Institute, Higher Education Project Courses. Emmitsburg, Maryland. http://www.fema.gov/emi/edu/aem_courses.htm [accessed June 15, 2001] (301) 447-1233 or email Barbara Johnson: barbara.l.johnson@fema.gov

- “Building Disaster Resilient and Sustainable Communities.” Course developed by Raymond Burby. <http://www.fema.gov/emi/edu/bldcomm.htm> [accessed June 15, 2001] This course introduces the concepts of sustainable development, resilient communities, and smart growth. Public and private sector planning are discussed. The last quarter of the class focuses on resilience, including financing resilience projects, creating resilience among vulnerable populations, and creating resilience for specific hazards.

Organizations

American Planning Association

The APA is a non-profit organization representing “30,000 practicing planners, officials, and citizens involved with urban and rural planning issues. Sixty-five percent of APA’s members are employed by state and local government agencies.” APA’s mission is to “encourage planning that will contribute to public well-being by developing communities and environments that meet the needs of people and society more effectively.” The website is an excellent source of books about community planning that incorporate the principles of sustainable development. See <http://www.planning.org> [accessed June 15, 2001]

Center of Excellence for Sustainable Development

The CESD website is a project of the Denver Regional Office of Department of Energy’s Office of Energy Efficiency and Renewable Energy. Since 1995, the CESD website has offered users access to comprehensive resources on community sustainability. It is an excellent source for resources on sustainable development. See <http://www.sustainable.doe.gov> [accessed June 29, 2001]

Minnesota Sustainable Communities Network (MnSCN)

MnSCN, sponsored by the Minnesota Office of Environmental Assistance, seeks to “encourage networking, information exchange, and better access to assistance.” The network contains over 1500 individuals, businesses, local governments, educational institutions, and organizations who are interested in promoting sustainability in Minnesota. See <http://www.nextstep.state.mn.us/index.cfm> [accessed June 22, 2001]

Redefining Progress

Redefining Progress is an organization that “seeks to ensure a more sustainable and socially equitable world for our children and our children’s children.” Information about the group’s sustainability program is available on its website.

See <http://www.rprogress.org> [accessed June 15, 2001]

Sustainable Development Communications Network

In addition to over 1,200 documents about sustainable development, this website has a calendar of events, a job bank, the Sustainability Web Ring, a roster of mailing lists (listservs) and news sites dealing with sustainable development.

See <http://sdgateway.net> [accessed September 21, 2001]

Videos, CD-ROMs, and DVDs

Quality Redevelopment of Eastern North Carolina. Horizon Video Productions. 2000. Durham, NC. This 20-minute video was produced by the state in the aftermath of Hurricane Floyd to introduce and educate local and state officials about the “better ways” available to recover from the disaster and at the same time address other local concerns such as environmental quality, economic vitality, housing, sense of community, business and job opportunities, and disaster mitigation. It introduced a framework espoused by the state for sustainable community action and features the governor explaining the tenets of “quality redevelopment” and how it can—and did—benefit North Carolina communities and help ensure a better future for the state’s citizens. Available from North Carolina Department of Emergency Management, 1830-B Tillery Place, Raleigh, NC 27699; (919) 751-8000; fax: (919) 715-9763.

Planning for Natural Hazards: Oregon Technical Resource Guide. Oregon Natural Hazards Workshop. 2000. University of Oregon: Oregon Natural Hazard Workshop.

The purpose of the project leading to this resource guide was to “develop...technical resource guides for Oregon cities and counties to plan for, and limit the effects of, threats posed by natural hazards.” More information about the guide is available on-line at

<http://www.uoregon.edu/~onhw/text/projects/tfeatured.html> [accessed June 22, 2001]

The Link Between Sustainability & Disaster Resistant Communities. Slide show produced by the U.S. Department of Energy and the Federal Emergency Management Agency.

<http://www.sustainable.doe.gov/disaster/impact> [accessed July 23, 2001]

This slide show explains the concept of sustainable redevelopment and gives examples of redevelopment in three communities: Soldiers Grove, Wisconsin; Valmeyer, Illinois; and Arkadelphia, Arkansas.

Mitigation Revitalizes a Floodplain Community: The Darlington Story. Wisconsin Department of Natural Resources. 1997. Madison, WI.

This is a splendidly produced videotape about the efforts of a small rural Wisconsin community to reverse the effects of neglect and disinvestment in its historic downtown area caused by repeated flooding and economic change. Using a multi-objective planning and management strategy, officials and citizens, in partnership with government agencies and private entities,

identified six goals: 1) preserve the historic character of the downtown; 2) restore community pride; 3) acquire and relocate commercial properties at risk; 4) elevate and flood proof commercial and residential structures; 5) stimulate investment downtown; and 6) pursue tourism as an economic strategy. The video follows the mitigation process from early meetings through floodproofing and relocation. Produced by the Wisconsin Department of Natural Resources. 27 minutes. 1997. Available free from Wisconsin DNR, P.O. Box 7921, Madison, WI 53707-7921; (608) 264-9200.

Books, Articles, and Papers

Arnold, Matthew B. and Robert M. Day. 1998. *The Next Bottom Line: Making Sustainable Development Tangible*. Washington, D.C.: WRI Publications. 64 pp.

This report tries to bring sustainable development down to earth for a business audience. Its authors seek to break down the abstract ideals of sustainable development into ideas small enough to grasp and powerful enough to lead to new business opportunities. The authors offer a road map for businesses to find financial success in the solutions to our environmental and social challenges.

Becker, William S. and Roberta F. Stauffer. 1994. *Rebuilding the Future—A Guide to Sustainable Redevelopment for Disaster-Affected Communities*. Golden, CO: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Center of Excellence for Sustainable Development. 18 pp.

This document summarizes why sustainability is important and gives an example of sustainable development in one community, Soldiers Grove, Wisconsin. The reader is walked step-by-step through the sustainable recovery process. The last chapter discusses real-life problems the planner may encounter, and an appendix contains a comprehensive list of resources. This document is available online at <http://www.sustainable.doe.gov/articles/RFTF1.shtml> [accessed June 15, 2001]

Berke, Philip R. and Jack Kartez. 1994. *Sustainable Development as a Guide to Community Land Use Policy: A Conceptual Framework*. HRRC Publication 37P. College Station, TX: Texas A&M University, College of Architecture, Hazard Reduction & Recovery Center. 25 pp.

The authors explore how “sustainable development” can be used to describe the common good in land use and development and present a set of principles for land use policy formation. Principles for land use policy that the report identifies are: 1) include public participation in the decisionmaking process; 2) build consensus through conflict resolution mechanisms; 3) build local decisionmaking on a realistic capacity to carry out policies; 4) recognize local rights to devise rules for guiding human settlement patterns; 5) land use policy must work in harmony with nature and recognize the limits of ecosystems; 6) the built environment should be in harmony with people’s needs and aspirations; 7) realistic land use policy must be able to alleviate local poverty and account for the least advantaged; 8) polluters, or culpable parties/corporations, must pay for the adverse affects they have imposed on ecosystems; and 9) responsible regional planning needs to be promoted.

Berke, Philip and Maria Manta. 1999. *Planning for Sustainable Development: Measuring Progress in Plans*. Lincoln Institute of Land Policy Working Paper. Lincoln, NE: Lincoln Institute of Land Policy. 23 pp.

Using six principles that define and operationalize the concept of sustainable development, the authors evaluated 30 comprehensive plans to determine how well the policies of these plans supported sustainable development. Findings indicate no significant differences in how extensively sustainability principles were supported between plans that state an intention to integrate sustainable development and those that did not. In addition, plans did not provide balanced support of all six sustainability principles; they supported one—the livable built environment principle—significantly more than the others.

Burby, Raymond J., ed. 1998. *Cooperating with Nature: Confronting Natural Hazards with Land-Use Planning for Sustainable Communities*. Washington, D.C.: The Joseph Henry Press. 356 pp. Available at <http://www.nap.edu/catalog/5785.html>. [accessed September 21, 2001]

This book focuses on the breakdown in sustainability that follows disaster. The authors follow the history of land use planning and identify key components of sustainable planning for hazards. The authors explain why sustainability and land use have not been taken into account in the formulation of public policy. They also lay out a vision of sustainability, concrete suggestions for policy reform, and procedures for planning. The volume has an excellent bibliography on local land use planning and management for natural hazard mitigation.

Burby, Raymond J., Timothy Beatley, Philip R. Berke, Robert E. Deyle, Steven P. French, David R. Godschalk, Edward J. Kaiser, Jack D. Kartez, Peter J. May, Robert Olshansky, Robert G. Paterson, and Rutherford H. Platt. 1999. “Unleashing the Power of Planning to Create Disaster-Resistant Communities.” *Journal of the American Planning Association* 65 (Summer).

Human suffering and loss of lives and property in natural disasters can be reduced with appropriate planning for hazardous areas. However, the authors of this paper assert that federal policies addressing these problems have yet to recognize the importance of planning as the cornerstone of effective local hazard mitigation. In fact, federal programs make planning more difficult, the authors suggest, because they encourage the intensive use of hazardous land and shield local governments and private decisionmakers from financial losses in the disasters that inevitably follow. To use planning for hazard mitigation, federal policies must be revised so that they help build local understanding of risk, commitment to hazard mitigation, and support for planning.

Casey-Lefkowitz. 1999. *Smart Growth in the Southeast: New Approaches for Guiding Development*. Washington, D.C.: Environmental Law Institute Research Publications.

The southeastern United States has been trying to find ways to continue to reap the benefits of the region’s bustling economy without the mounting fiscal, health, and environmental costs of poorly planned development. This report provides an overview of land use and transportation trends in seven states—Alabama, Georgia, Florida, North Carolina, South Carolina, Tennessee, and Virginia—and shows how these states are beginning to shape the pace and location of development by promoting community revitalization, conservation, and transportation alternatives.

Civil Engineering 63(10)(October 1993): 39-76.

This topical journal issue begins with an essay by John Prendergast titled, "Engineering Sustainable Development." Following this are nine articles that describe projects that incorporate principles and current practices used by the civil engineering profession in its efforts to achieve sustainable development. Topics explored include reusing stormwater runoff, geogrid reinforcement to solve hillside erosion, and solving local wastewater treatment problems.

Darmstadter, Joel. 1994. *Global Development and the Environment: Perspectives on Sustainability*. Washington, D.C.: Resources for the Future.

The first two essays in this volume set the stage for considering requirements to develop sustainably by, first, explaining the problem of global population growth, and second, discussing how to move from sustainability as a concept to a reality. The remainder of the essays in the book discuss individual issues such as fairness; practical difficulties; the future of specific natural resources such as water, agriculture, and energy; climate variability and its effect on agriculture; climate change and carrying capacity; and biodiversity and carrying capacity.

Federal Emergency Management Agency. 1997. *Project Impact Guidebook. Building a Disaster Resistant Community*. Washington, D.C.: U.S. Government Printing Office.

This handbook is designed to help communities protect residents, organizations, businesses, infrastructure, and stability and growth of the economy as much as possible against the impact of natural disasters before they happen.

Federal Emergency Management Agency. 2000. *Planning for a Sustainable Future: The Link Between Hazard Mitigation and Livability*. FEMA Report 364. Washington, D.C.: Federal Emergency Management Agency. 40 pp. Available at http://www.fema.gov/mit/planning_toc.htm [accessed September 21, 2001]

This booklet is about hazard mitigation, disaster resilience, sustainable development and livability, and describes the linkages among these concepts. It shows how communities that undertake hazard mitigation planning become more disaster resilient and reap further benefits. Hazard mitigation links disaster resilience to broad community objectives of economic health, social well-being, and environmental protection.

Federal Emergency Management Agency. 2000. *Rebuilding for a More Sustainable Future: An Operational Framework*. FEMA Report 365. Washington, D.C.: Federal Emergency Management Agency. Available at http://www.fema.gov/mit/planning_toc2.htm. [accessed September 21, 2001]

This document provides guidance to the Federal Emergency Management Agency (FEMA) Sustainability Planner in the post-disaster response and recovery process. State emergency management officials, local jurisdictions, and other FEMA staff may also use it as a reference during non-disaster time.

Hart, Maureen. 1999. *Guide to Sustainable Community Indicators*. 2nd edition. North Andover, MA: Hart Environmental Data. 202 pp.

The document identifies indicators of sustainable community: ways to measure how well a community is meeting the needs and expectations of its present and future members. The author explains what indicators are, how indicators relate to sustainability, how to identify good

indicators of sustainability, and how indicators can be used to measure progress toward building a sustainable community. A website contains the information in the document, plus links and contact information for sources of assistance and advice, along with a list of communities in the United States that are developing indicators of sustainability:

<http://www.sustainablemeasures.com> [accessed June 15, 2001]

Krizek, Kevin J. and Joe Power. 1996. *Planners Guide to Sustainable Development*. Chicago, IL and Washington, D.C.: APA Planning Advisory Service. 66 pp.

This report urges planners to incorporate sustainable development objectives into their everyday work. It describes the history, concepts, and theories behind sustainable development; evaluates progress at the global, national, and state levels; and proposes strategies to help planners become more actively involved in local sustainable development programs. The book includes case studies of sustainable development initiatives in five communities.

May, Peter J., Raymond J. Burby, Neil J. Erickson, John W. Handmer, Jennifer E. Dixon, Sarah Michaels, and D. Ingle Smith. *Environmental Management and Governance: Intergovernmental Approaches to Hazards and Sustainability*. New York: Routledge. 254 pp.

The book addresses aspects of environmental management that raise fundamental questions about human actions and government roles. The authors examine “cooperative” and “coercive” governments by comparing policies in New Zealand and Australia with the more coercive and prescriptive approaches used in the U.S. They also focus on how the different regimes influence choices by local governments about land use and development in areas subject to natural hazards. Separate chapters are devoted to growth management in Florida, resource management in New Zealand, and flood management in New South Wales. Other chapters describe how policy design is implemented, the role of regional governments, policy compliance and innovation at the local planning level, strategies for sustainable development, and examine the outcomes of cooperative policies.

Mazmanian, Daniel A. and Michael E. Kraft, eds. 1999. *Toward Sustainable Communities: Transition and Transformations in Environmental Policy*. Cambridge, MA: The MIT Press. 322 pp.

This book reviews and assesses environmental policy over the past three decades, primarily in the United States but with implications for other nations. The editors place U.S. environmental policy within the framework of the transition from 1970s-era policies that emphasized federally controlled regulation, through a period of criticism and efficiency-based reform efforts, to an emerging era of sustainability in which decisionmaking takes place increasingly at the local and regional levels. The book looks at what does and does not work and how social, economic, and environmental goals can be integrated through policy strategies ground in the concept of sustainability.

McElfish. 1999. *Sustainability in Practice*. Washington, D.C.: Environmental Law Institute Research Publications.

As sustainable development becomes one of our nation’s top priorities, how are U.S. communities envisioning and implementing their sustainability goals? This report identifies trends in community sustainable development efforts based on nearly 600 applications for the U.S. Environmental Protection Agency’s Sustainable Development Challenge Grant Program. It

features a variety of charts and graphs that identify popular subject areas, partnerships, the urban and rural breakdown, tools, and goals of these projects. It also includes descriptions of funded projects.

Mileti, Dennis S. 1999. *Disasters by Design*. Washington, D.C.: The Joseph Henry Press. 351 pp. Available at <http://books.nap.edu/catalog/5782.html>. [accessed September 21, 2001]

This book is a summary volume of the Second National Assessment of Research on Natural Hazards with the formal mission of summarizing what is known in the various fields of science and engineering that is applicable to natural and related technological hazards in the United States, and making some research and policy recommendations for the future. It summarizes the hazards research findings from the last two decades, synthesizes what has been learned, and outlines a proposed shift in direction in research and policy for natural and related technological hazards in the United States. *Disasters by Design* is intended for a general audience, including policy makers and practitioners.

National Research Council. 1999. *Our Common Journey: A Transition toward Sustainability*. Washington, D.C.: National Academy Press. 363 pp.

This report of the National Academy of Sciences' three-year Global Commons Project documents large-scale historical currents of social and environmental change and reviews methods for "what if" analysis of possible future development pathways and their implications for sustainability. The book also identifies the greatest threats to sustainability—in areas such as human settlements, agriculture, industry, and energy—and explores what the Board perceives to be the most promising opportunities for circumventing or mitigating these threats. It goes on to discuss what indicators of change, from childrens' birth-weights to atmospheric chemistry, will be most useful in monitoring a transition to sustainability.

North Carolina Emergency Management Division and Federal Emergency Management Agency. 2000. *Hazard Mitigation in North Carolina: Measuring Success*. Raleigh, NC.

To accelerate the institutionalization of hazard mitigation in North Carolina, the North Carolina Emergency Management Division established the Hazard Mitigation Planning Initiative, a long-term program to build local capacity to implement mitigation policies and programs in communities across the state. Through a series of case studies, this study documents losses avoided as a result of the implementation of a wide range of mitigation measures, including elevations and the acquisition and relocation or demolition of floodprone properties.

Schwab, Jim; Kenneth C. Topping, Charles C. Eadie, Robert E. Deyle, and Richard A. Smith. 1998. *Planning for Post-Disaster Recovery and Reconstruction*. PAS Report No. 483/484. Chicago, IL: American Planning Association. 346 pp. Abstract available at <http://www.planning.org/apapubs/details.asp?Num=1178>. [accessed September 21, 2001]

This document helps community leaders and planners educate their constituents on how informed decisions and choices can affect the rebuilding process and yield a safer, more sustainable community. This report introduces planners to their roles in post-disaster reconstruction and recovery, and provides guidance on how to plan for post-disaster reconstruction side by side with all other players involved. A key theme throughout this report is to rebuild to create a more disaster-resilient community. The report contains many references to technical resources.

U.S. National Science and Technology Council. 1994. *Technology for a Sustainable Future: A Framework for Action*. Washington, D.C.: U.S. National Science and Technology Council. 154 pp.

This report summarizes the Clinton White House's plan for developing a comprehensive environmental technology strategy. It examines the use of environmental technologies to facilitate long-term environmental, energy, and economic goals and asks for suggestions for improving federal policies related to advancing environmental technologies. It includes a section on technology needs for natural disaster reduction. The document also provides examples of avoidance, monitoring and assessment, and remediation and restoration. Appendices contain lists of federal sources for agency offices (names, contact information) and online data resources.

U.S. President's Council on Sustainable Development. 1997. *Sustainable Communities Task Force Report*. Washington, D.C.: U.S. Government Printing Office. 186 pp.

This report and its companion volume, *Sustainable America: A New Consensus for Prosperity, Opportunity, and a Healthy Environment for the Future*, published in 1996, lay out a set of policy recommendations for planning for sustainable communities. One of the recommendations is to "shift the focus of the federal disaster relief system from cure to prevention." The appendix contains case studies of communities that have set forth sustainability principles, profiles of communities in the 50 states, state-led sustainability initiatives and organizations, and a list of resources for sustainable communities.

Wilhite, Donald, Deborah A. Wood, and Kelly Helm Smith. n.d. *Planning for a Sustainable Future: The Case of the North American Great Plains*. IDIC Technical Report Series 95-1. Lincoln, Nebraska: International Drought Information Center.

The participants at this symposium addressed the complex economic, social, and environmental issues facing the Great Plains region in anticipation of climate change in the years to come. In addition to essays on sustainable development and global change policies, the volume contains four case studies that deal with sustainable land use, education and research agendas, the Groundwater Guardian Program, and the use of reverse engineering to enhance the lessons learned over the past eight decades. Also included are focus group reports on agricultural production, land and water resources, human and community resources, biological resources and biodiversity, and integrated resource management.

World Bank. 1994. *Making Development Sustainable*. Environmentally Sustainable Development Occasional Papers Series. Washington, D.C.: The World Bank: The International Bank for Reconstruction and Development. 270 pp.

Eight essays attempt to capture current thought on a number of key conceptual, methodological, and practical issues. The authors cover poverty and the environment; gender and ecosystem management; the sociologist's, economist's, and ecologist's approaches to sustainable development; the integration of environmental concerns into development policy making; the World Bank's agenda for the environment; and an epilogue regarding the expansion of capital stock.

World Commission on Environment and Development. 1987. *Our Common Future*. Oxford, UK: Oxford University Press.

In 1983, the World Commission on Environment and Development was asked by the United Nations General Assembly to formulate “a global agenda for change.” This document, also known as the Brundtland Report, is the report of the Committee chaired by Gro Harlem Brundtland. The Committee undertook to: 1) propose long-term environmental strategies for achieving sustainable development by the year 2000 and beyond; 2) recommend ways concern for the environment may be translated into greater cooperation among developing countries and between countries at different stages of economic and social development and lead to the achievement of common and mutually supportive objectives that take account of the interrelationships between people, resources, environment, and development; 3) consider ways and means by which the international community can deal more effectively with environmental concerns; and 4) help define shared perceptions of long-term environmental issues and the appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment, a long-term agenda for action during the coming decades, and aspirational goals for the world community.

Additional Reading

Beatley, Timothy. 1995. *Planning and Sustainability: The Elements of a New (Improved?) Paradigm*. HRRC Publication No. 132A. College Station, TX: Texas A&M University, College of Architecture, Hazard Reduction & Recovery Center. 13 pp.

Berke, Philip R., Jack D. Kartez, and Dennis E. Wenger. 1993. “Recovery after Disaster: Achieving Sustainable Development, Mitigation and Equity.” *Disasters* 17(2):93-109.

Clark, William C. 2001. “America’s National Interests in Promoting a Transition to Sustainability: Issues for the New U.S. Administration.” *Environment* 43(1)(January/February):18-27.

Reid, David. 1995. *Sustainable Development: An Introductory Guide*. London: Earthscan Publications. 261 pp.

World Commission on Environment and Development. 1987. *Our Common Future*. New York: Oxford University Press. (The Brundtland report.) Abstract available at <http://www.oup.co.uk/isbn/0-19-282080-X#desc>.

THE DISASTER RECOVERY PROCESS

— WHERE TO FIND INFORMATION —

Training Courses and Workshops

DRI International Education Program. (703) 538-1792; email driinfo@drii or <http://www.dr.org/01sched2us.htm> [accessed June 29, 2001]

- “Introduction to Business Continuity Planning.” DRP-111.
- “Managing and Developing the Business Continuity Plan.” DRP-112.
- “Implementing and Testing the Business Continuity Plan.” DRP-113.
- “Crisis Communication, Coordination, Data Communications.” DRP-114.

Federal Emergency Management Agency, Emergency Management Institute, National Emergency Training Center. Emmitsburg, MD. (301) 447-1035; <http://www.fema.gov/emi> [accessed June 15, 2001]

- “Introduction to Mitigation.” Independent Study Course. Federal Emergency Management Course IS393.
At the end of the course, the student should be able to: explain the rationale for mitigation and its function as a component of emergency management; define the principles, purposes, and priorities of mitigation; describe mitigation measures that are applicable to local hazard risk problems; summarize responsibilities and resources for mitigation; and outline mitigation planning considerations.
- “Integrated Emergency Management Courses for Specific Communities.” Federal Emergency Management Agency Courses E930/S390, E931/S391, E932/S932.
These courses place emphasis on community response and short-term recovery issues. They are tailored to fit the community and are based on a selected hazard type. The courses use classroom instruction, planning sessions, and exercises to allow for structured decisionmaking in a learning, yet realistic, environment. A key outcome is to assist with making the transition from response to short-term recovery. The three classes offered are: E930/S390 IEMC/Community Specific/All Hazards: Response and Recovery; E931/S931 IEMC/Community Specific/Hurricane: Response and Recovery; and E932/S932 IEMC/Earthquake: Response and Recovery.
- “IEMC/All Hazards: Recovery and Mitigation.” Federal Emergency Management Agency Course E901/S901.
This course emphasizes recovery and mitigation and is conducted for two types of audiences. The course places public officials and other key community leaders in a simulation that begins after a disaster has affected the community.

Federal Emergency Management Agency, Emergency Management Institute, National Emergency Training Center. Emmitsburg, Maryland. <http://www.fema.gov/emi> [accessed June 15, 2001] (301) 447-1035.

- “Mitigation and Recovery Exercises.” Federal Emergency Management Agency Courses G398.1, G398.2, and G398.3.
These are 1-day exercises for local building officials, zoning officers, commissioners,

councils, and chief executive officers. The exercises provide a series of challenges to a local government that could face a threat from earthquake, flood, or hurricane. The local government will have to solve how it intends to deal with temporary housing issues, building permits, and temporary business locations as well as long-term recovery issues. Courses include: G398.1, Earthquake; G398.2, Flood; and G398.3, Hurricane.

- “Recovery From Disaster.” Federal Emergency Management Agency Course E210. The resident version of this course is designed for local disaster recovery teams. These teams, consisting of emergency managers, elected city/county/parish administrators, public works directors, building inspectors, and community planners, are taught how to develop a disaster recovery plan. Participants are given the opportunity to develop their own recovery plan outline during the course.

Organizations

American Planning Association

The APA is a non-profit organization representing “30,000 practicing planners, officials, and citizens involved with urban and rural planning issues. Sixty-five percent of APA's members are employed by state and local government agencies.” APA's mission is to “encourage planning that will contribute to public well-being by developing communities and environments that meet the needs of people and society more effectively.” The website is an excellent source of books about community planning that incorporate the principles of sustainable development.

Through its *Growing Smart Legislative Handbook: Model Statutes for Planning and the Management of Change*, the APA promotes the solution to overcoming the barriers of successful hazard mitigation and holistic disaster recovery. APA has developed a model “Natural Hazards Element” for local comprehensive plans. The model incorporates practices taken from numerous state statutes, combining them to create a mechanism whereby hazard mitigation, a stepping-stone for holistic disaster recovery, may be institutionalized.

See <http://www.planning.org> [accessed June 15, 2001]

Federal Emergency Management Agency

See “Response and Recovery” at <http://www.fema.gov/r-n-r/> [accessed June 29, 2001] and “After a Flood: The First Steps” at <http://www.fema.gov/DIZAS/aftrfld.htm> [accessed June 29, 2001]

Institute for Business and Home Safety. “Showcase Community Program.”

The Institute for Business and Home Safety’s Showcase Community Program has three objectives: 1) help a community help itself by reducing its vulnerability to hurricanes, earthquakes, tornadoes, wildfires, floods or whatever natural disasters threaten it; 2) generate a “me too” attitude among other communities by showcasing the successful efforts of particular jurisdictions; and 3) learn what works and what does not work to reduce the emotional and financial devastation caused by natural disasters.

See http://www.ibhs.org/ibhs2/html/ibhs_projects/projects_showcase.htm [accessed September 21, 2001]

Rothstein Catalog on Disaster Recovery.

This is a catalog of books, software, videos, and research reports that date to 1989.

See <http://www.rothstein.com/catalog.html> [accessed June 29, 2001]

Books, Articles, and Papers

Arnold, Christopher. 1993. *Reconstruction After Earthquakes: Issues, Urban Design, and Case Studies*. Palo Alto, CA: Building Systems Development, Inc. 170 pp.

After a major earthquake (1976) devastated the Chinese city of Tangshan, planners decided to build a new reinforced concrete city in a western style that was completely different from the masonry construction of the destroyed city. A visit to Tangshan five years after the quake provided an opportunity for the author to raise questions about the reconstruction process. What are the aspirations of those most closely connected to reconstruction planning? Can planners grasp and realize the opportunities for urban renewal presented by a seismic disaster? To what extent does the threat of future earthquakes dictate the urban design and construction of the new city? Why were cities in earthquake-prone areas so often repaired and rebuilt, when rational planning considerations might suggest that they be abandoned and rebuilt elsewhere? This study explores these questions and attempts to examine the reconstruction process from a qualitative rather than an administrative viewpoint. Most of the study is about city planning and urban design, utilizing five case studies to illustrate the author's perspective: Tokyo (1923 & 1945); Tangshan (1976); Spitak, Armenia (1988); and Santa Cruz, California (1989).

Association of State Floodplain Managers (ASFPM). 1996. *Using Multi-Objective Management to Reduce Flood Losses in Your Watershed*. Madison, WI: Association of State Floodplain Managers. 72 pp. Abstract available at <http://www.floods.org/PDF%20files/PUBSLIST.pdf>. [accessed September 21, 2001]

This publication explores planning and implementation techniques for multi-objective watershed management. It provides a general introduction to multi-objective management and the planning process that helps a community select the flood-loss reduction measures most suitable to its situation. It explains how to define problems and goals, build partnerships, combine needs and solutions creatively, and begin formal implementation procedures. Both riverine and coastal flood watersheds are examined. Much of the document focuses on multi-objective management planning details, involving subjects such as fish and wildlife issues, water supply, housing improvement, transportation, and lifelines. Preparation of a multi-objective management plan involves problem definition, involvement of non-local groups, and public and official acceptance of the plan.

Bay Area Regional Earthquake Preparedness Project. 1990. *Putting the Pieces Together: The Loma Prieta Earthquake One Year Later*. Oakland, CA: Bay Area Regional Earthquake Preparedness Project. 253 pp.

This report grew out of a conference held to determine the lessons learned from the Loma Prieta earthquake and its aftermath. The conference examined preparedness and mitigation efforts before the quake, political and management issues of disaster response, recovery and reconstruction programs, and mitigation activities since the event. Among the numerous topics addressed in the volume, separate chapters are given to seismological and geological considerations, geotechnical aspects, the performance of lifelines, buildings, and transportation

systems and the implications for future design of these elements, effective emergency management, emotional and psychological aftereffects, economic impacts, emergency public information and the media, the restoration of lifelines, emergency medical services, business recovery, and housing reconstruction.

Becker, William S. and Roberta F. Stauffer. 1994. *Rebuilding the Future—A Guide to Sustainable Redevelopment for Disaster-Affected Communities*. Golden, CO: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Center of Excellence for Sustainable Development. 18 pp.

This document summarizes why sustainability is important and gives an example of sustainable development in one community, Soldiers Grove, Wisconsin. The reader is walked step-by-step through the holistic recovery process. The last chapter discusses real-life problems that the planner may encounter. There is an appendix to the report with a comprehensive list of resources. This document is available online at <http://www.sustainable.doe.gov/articles/RFTF1.shtml> [accessed June 15, 2001]

Berke, Philip and David Godschalk. 1996. *Hazard Mitigation in California following the Loma Prieta and Northridge Earthquakes*. Natural Hazard Working Paper No. 14. Chapel Hill, NC: University of North Carolina, Center for Urban and Regional Studies. 59 pp.

This report documents a case study conducted almost six years after the Loma Prieta quake and one and one-half years after Northridge. The strengths and weaknesses of the California 409 Plans are identified, state and federal mitigation planning and implementation processes are reviewed, and local mitigation examples are drawn from San Francisco, Berkeley, Watsonville, and Los Angeles and Ventura counties. One finding was the present mitigation systems (policies and institutions) will not be adequate to mitigate the impacts of a future major earthquake catastrophe. Two recommendations were that California should pursue a coordinated, interdisciplinary effort to further the understanding of earthquake prediction and of earthquake impacts and should reinvigorate efforts to mandate local multi-hazard mitigation planning before and after a disaster.

Comerio, Mary C., John D. Landis, Catherine J. Firpo, and Juan Pablo Monzon. 1996.

“Residential Earthquake Recovery: Improving California’s Post-Disaster Rebuilding Policies and Programs.” *California Policy Seminar* 8(7) 11 pp.

Between 1989 and 1994, California suffered 13 presidentially declared disasters, including the Loma Prieta and Northridge earthquakes, leading to major concerns about the disaster recovery process. This report examines the current state of earthquake recovery practice in California, particularly as it relates to housing. The authors examine the complementary and overlapping roles of different federal, state, private, and nonprofit recovery and rebuilding institutions, as well as the distribution of post-Northridge rebuilding funds. They conclude that relatively little preparation has gone into coordinating and paying for postdisaster rebuilding, and that victims cannot expect private insurers or the federal government to compensate them at a level of assistance comparable to that following the Northridge quake. In particular, the authors conclude that linking earthquake mitigation, particularly residential retrofitting, to assistance holds significant potential for reducing rebuilding costs.

Federal Emergency Management Agency. 1997. *Framework for Federal Action to Help Build a Healthy Recovery and Safer Future in Minnesota, North Dakota, and South Dakota*. Washington, D.C.: Federal Emergency Management Agency.

This document identifies and explains the wide range of grants, loans, and technical assistance that the federal government can offer to ensure the recovery needs of people and communities. Although the document summarizes these programs for the states of Minnesota, North Dakota, and South Dakota, the descriptions are applicable to other areas recovering from flooding. Programs summarized include: comprehensive flood hazard mitigation; housing repairs, rehabilitation, reconstruction, and replacement financing; the National Flood Insurance Program; economic recovery programs; agriculture programs, infrastructure programs; health and mental health programs; and programs for special needs populations.

Federal Emergency Management Agency. 1999. *Federal Response Plan*. Washington, D.C.: Federal Emergency Management Agency.

This document is the principal organizational guide for defining the roles and responsibilities of the 26 federal member agencies and the American Red Cross that are engaged to deliver a broad range of emergency aid during a major crisis.

Federal Emergency Management Agency. 2000. *Rebuilding for a More Sustainable Future: An Operational Framework*. FEMA Report 365. Washington, D.C.: Federal Emergency Management Agency. Available at http://www.fema.gov/mit/planning_toc2.htm. [accessed September 21, 2001]

This document provides guidance to the Federal Emergency Management Agency (FEMA) Sustainability Planner in the post-disaster response and recovery process. State emergency management officials, local jurisdictions, and other FEMA staff may also use it as a reference during non-disaster time.

French and Associates, Ltd. and The Mitigation Assistance Corporation. 1994. *Post-Flood Recovery Assistance Plan. A Plan to Help Residents Recover from a Flood and Protect Themselves from Future Floods*. Arvada, CO: City of Arvada, Colorado, Department of Public Works, Engineering Division.

This plan was developed to guide the City of Arvada's actions to help residents after a flood, to assist them in both recovering from the damage and taking steps to protect themselves from future floods. It is based on successful strategies undertaken by other communities that have had similar flooding experiences.

Godschalk, David and Timothy Beatley. 1996. *Hazard Mitigation in Iowa Following the Great Midwest Floods of 1993*. Natural Hazard Working Paper No. 10. Chapel Hill, NC: University of North Carolina-Chapel Hill, Center for Urban and Regional Studies. 31 pp.

The report examines how the Stafford Act influenced recovery in eight localities in Iowa. Questions explored include: What constitutes mitigation? Who is in charge after a disaster occurs? What good is the 409 (Stafford) Plan? Who pays for disasters? Other topics considered include grant administration accountability, equity issues, the promotion of sustainable communities, and problems caused by confusing rules and guidance.

Mileti, Dennis S. 1999. *Disasters by Design*. Washington, D.C.: The Joseph Henry Press. 351 pp. Available at <http://books.nap.edu/catalog/5782.html>. [accessed September 21, 2001] This book is a summary volume of the Second National Assessment of Research on Natural Hazards with the formal mission of summarizing what is known in the various fields of science and engineering that is applicable to natural and related technological hazards in the United States, and making some research and policy recommendations for the future. It summarizes the hazards research findings from the last two decades, synthesizes what has been learned, and outlines a proposed shift in direction in research and policy for natural and related technological hazards in the United States. *Disasters by Design* is intended for a general audience, including policy makers and practitioners.

Minnesota Department of Public Safety. *Recovery From Disaster Handbook*. St. Paul, MN: State of Minnesota. Available at http://www.dem.state.mn.us/publications/Recovery_Handbook/index.html [accessed July 23, 2001]

This handbook provides local units of government with guidance in long-term recovery after a disaster. The restoration process places great demands on government and the private sector. This manual will lessen the stress by providing answers and advice to many questions that arise from those who have dealt with recovery from disasters. Tool kits at the end of each chapter provide additional information specific to individual topics, some forms, and information to share with the victims of the disaster as they recover.

Mittler, Elliott. 1997. *An Assessment of Floodplain Management in Georgia's Flint River Basin*. Boulder, CO: University of Colorado, Institute of Behavioral Science, Natural Hazards Research and Applications Information Center. 190 pp.

On July 3, 1994, Tropical Storm Alberto struck the Florida panhandle and proceeded northeast before stalling just south of Atlanta, Georgia, inflicting over \$1 billion in damage. The flood provided an opportunity to identify and document the successes and failures of state and local floodplain management programs and activities. The author assessed the impact of federal, state, and local floodplain management activities on losses in the Flint River Basin, paying particular attention to the impact of the National Flood Insurance Program (NFIP) and local floodplain management efforts. He examines previous floodplain studies; evaluates the political situation affecting flood recovery in each community; examines federal, state, and local responses to the disaster, concentrating on recovery plans and the use of hazard mitigation programs to reduce future flood losses; analyzes the effectiveness of the NFIP; and offers a series of findings and recommendations based on the relatively successful recovery programs he found.

Reddy, Swaroop. 1992. *A Study of Long Term Recovery of Three Communities in the Aftermath of Hurricane Hugo*. HRRC Monograph 9B. College Station, TX: Texas A&M University, College of Architecture, Hazard Reduction Recovery Center. 171 pp.

The objectives of this report—a doctoral dissertation—included: 1) to determine the factors that explain the successful adoption of hazard mitigation measures during recovery, 2) to develop a conceptual understanding of the problems inherent in the adoption of mitigation during disaster recovery, and 3) to gain an understanding about the influence of pre-storm institutional regulations on mitigation during the recovery period. The major findings were: the stronger and greater the presence of eight implementation factors in a community, the greater the successful adoption of mitigation measures; local institutional involvement is essential in the successful

adoption of mitigation; there is a strong linkage between development management and hazard mitigation; a strong linkage also exists between the protection of coastal resources and coastal hazard mitigation; and the existence of strong pre-storm institutional regulations help local jurisdictions promote the adoption of mitigation during recovery.

Rubin, Claire B. Martin D. Saperstein, and Daniel G. Barbee. 1985. *Community Recovery from a Major Natural Disaster*. Monograph No. 41. Boulder, CO: Natural Hazards Research and Applications Information Center. 295 pp.

The publication describes what was learned by a team that spent four years observing how 14 communities coped with the deleterious effects of disasters. The focus of the research was on the ways in which the local government's activities, as well as its interactions with other levels of government, affected the speed and/or efficiency of recovery. The role of community officials in recovery and post-disaster mitigation, the kind of disaster agent involved, the level of emergency planning and preparedness, the community's sense of itself and its future are all analyzed. Part I of the monograph discusses previous research, describes the design of the study, presents a framework for thinking about recovery, and explains how various elements of that framework affected the actual recovery processes of the communities studied. Part II of the monograph presents case studies.

Schwab, Jim, Kenneth C. Topping, Charles C. Eadie, Robert E. Deyle, and Richard A. Smith. 1998. *Planning for Post-Disaster Recovery and Reconstruction*. PAS Report No. 483/484. Chicago, IL: American Planning Association. 346 pp. Abstract available at <http://www.planning.org/apapubs/details.asp?Num=1178>. [accessed September 21, 2001]

This document helps community leaders and planners educate their constituents on how informed decisions and choices can affect the rebuilding process and yield a safer, more sustainable community. This report introduces planners to their roles in post-disaster reconstruction and recovery, and provides guidance on how to plan for post-disaster reconstruction side by side with all other players involved. A key theme throughout this report is to rebuild to create a more disaster-resilient community. The report contains many references to technical resources.

Southern California Earthquake Preparedness Project. 1991. *Earthquake Recovery and Reconstruction Planning Guidelines for Local Governments*. Sacramento, CA: Southern California Earthquake Preparedness Project (SCEPP) and California Governor's Office of Emergency Preparedness. 75 pp.

This document recommends that local governments adopt a planning team approach to anticipate problems associated with community recovery from an earthquake. Following an introductory discussion of earthquake recovery concepts, the guidelines present separate sections dealing with the planning process, rehabilitation and rebuilding, local business recovery, housing displaced persons and families, the restoration of public facilities and services, and financing the recovery process. Recommended actions for local governments are provided for preparedness and mitigation, emergency relief, short-term recovery, and long-term reconstruction phases. Appendices list a set of lessons learned from previous earthquake recovery efforts and reprint California's Disaster Recovery Reconstruction Act of 1986.

Wetmore, French and Gil Jamieson.. 1999. "Flood Mitigation Planning: The CRS Approach." *Natural Hazards Informer* 1 (July). Boulder, CO: Natural Hazards Research and Applications Information Center. Available at <http://www.colorado.edu/hazards/informer/index.htm>. [accessed September 21, 2001]

Under the National Flood Insurance Program's Community Rating System, flood insurance premiums are reduced based on a community's floodplain management activities. This issue of *Natural Hazards Informer* reviews the CRS planning criteria and offers some suggestions for implementing a plan locally. It is based on the authors' 40 years of combined experience in flood mitigation planning and the lessons learned by others who have helped refine the CRS criteria.

Additional Reading

American Planning Association, 1994. *Growing Smart Legislative Handbook: Model Statutes for Planning and the Management of Change*. Chicago, IL: APA.

Berke, Philip R. Timothy Beatley, and Clarence Feagin. 1993. *Hurricane Gilbert Strikes Jamaica: Linking Disaster Recovery to Development*. HRRC Article 89A. College Station, TX: Texas A&M University, College of Architecture, Hazard Reduction and Recovery Center. 23 pp.

Berke, Philip R. Jack D. Kartez, and Dennis E. Wenger. 1993. "Recovery after Disaster: Achieving Sustainable Development, Mitigation and Equity." *Disasters* 17(2):93-109.

Eadie, Charles. 1991. *Phases of Earthquake Response and Recovery Planning*. Santa Cruz: CA: Santa Cruz Redevelopment Agency.

Emmer, R. E. 1994. *Flood Damage Reduction and Wetland Conservation. Three Successful Projects in Louisiana have Common Characteristics*. Topical Paper #6. Madison, WI: Association of State Floodplain Managers, Inc. (September.) 23 pp.

Executive Office of the President. 1998. *Federal Programs Offering Non-Structural Flood Recovery and Floodplain Management Alternatives*. A Federal Interagency Publication. Washington, D.C. 90 pp.

National Academy of Sciences. 1990. *Practical Lessons from the Loma Prieta Earthquake*. Washington, D.C.: National Academy Press.

Nigg, Joanne M. 1995. *Disaster Recovery as a Social Process*. Article No. 284. Newark, DE: University of Delaware, Disaster Research Center. 13 pp.

Plafker, George and John P. Galloway, eds. 1989. *Lessons Learned from the Loma Prieta, California, Earthquake of October 17, 1989*. Washington, D.C.: U.S. Department of the Interior, Geological Survey.

Spangle, William & Associates, Inc. 1991. *Rebuilding After Earthquakes: Lessons from Planners*. Portola Valley, California: William Spangle & Associates, Inc.

Spangle, William E., ed. 1987. *Pre-Earthquake Planning for Post-Earthquake Rebuilding (PEPPER)*. Los Angeles, California: Southern California Earthquake Preparedness Project.

Wilson, Richard C. 1991. *The Loma Prieta Quake: What One City Learned*. Washington, D.C.: International City Management Association.

PARTICIPATORY PROCESSES IN DISASTER RECOVERY — WHERE TO FIND INFORMATION —

Training Courses and Workshops

Federal Emergency Management Agency, Emergency Management Institute, National Emergency Training Center. Emmitsburg, Maryland. <http://www.fema.gov/emi> [accessed June 15, 2001] (301) 447-1035.

- “Project Impact: Building Consensus in Disaster-Resistant Communities.” Federal Emergency Management Agency Course E380.
This course is for the person(s) in an organization with responsibility for coordinating and implementing the Project Impact initiative in their jurisdiction. Participants will learn and practice the facilitation skills necessary to work with officials and stakeholders in a community to promote the development of a disaster-resilient community.

Organizations

Many private consulting firms offer expertise in facilitation and consensus-building in a post-disaster or planning situation. A community’s federal agency contacts—at the Corps of Engineers, the Bureau of Reclamation, the Environmental Protection Agency, the National Park Service, or the Federal Emergency Management Agency—would be the best source for specific referrals to an area company.

City of Denton.

The public involvement section of the Denton Comprehensive Plan lays out fundamentals of public participation.

See http://www.cityofdenton.com/planning/tdp_intro.html [accessed July 20, 2001]

Creighton and Creighton.

The Creighton and Creighton website provides an annotated list of links about public involvement.

See <http://www.creightonandcreighton.com/> [accessed July 20, 2001]

Community Development Society.

See the publication, “What is Participatory Research?” for a discussion of public participation and some guiding principles.

See <http://www.comm-dev.org/par-is.htm> [accessed July 20, 2001]

Disaster Resistant Neighborhoods. “Building Disaster Resistant Neighborhoods Handbook.”

This handbook outlines a step-by-step action plan, with examples, to assist planners in working with neighborhood associations to help them become better prepared for the next disaster. Posted

on the link along with the handbook are a variety of marketing tools to help promote the program.

See <http://www.tallytown.com/redcross> [accessed September 21, 2001]

Highlander Education and Research Center.

This group specializes in participatory education and action research and involving stakeholders.

See <http://www.hrec.org> [accessed July 20, 2001]

National Park Service.

The National Park Service through its Rivers, Trails and Conservation Assistance Program helps local coalitions develop strategic plans, identify potential sources of funding and builds partnerships to achieve goals determined by the community. The National Park Service becomes involved in a project only at the request of citizen groups or governmental agencies. The lead project partner(s) must write a letter of request to the Rivers and Trails Program. Send applications to the Manager of Rivers, Trails and Conservation Assistance Program of your National Park Service Regional Office.

See <http://www.nps.gov/legacy/regions.html> [accessed September 21, 2001]

Partnerships Online. "Participation Guide."

This online guide, "The Guide to Effective Participation," was designed for community activists and professionals in the U.K. but has many useful resources for those in the United States interested in fostering community participation as well.

See <http://www.partnerships.org.uk/guide/index.htm> [accessed June 15, 2001]

Videos, CD-ROMs, and DVDs

Taking the Initiative. Federal Emergency Management Agency, Emergency Management Institute. 2000. Emmitsburg, MD.

This 20-minute video shows how a neighborhood, two small towns, and a business owner took responsibility for and got organized to adopt sustainability principles and techniques in coping with hazards. The three separate instances, all in California, illustrate participatory processes, taking initiative, looking at the economic benefits of hazard mitigation (in one case, elevating a restaurant), incorporating livability components into a flood protection measure, and protecting the local environment and habitat. This video is available from the Emergency Management Institute at 1-800-238-3358. Ask for the "Disaster-Resistant Jobs" video.

Multi-objective Mitigation Planning. National Park Service and FEMA. 1995. Denver, CO.

The National Park Service and FEMA produced this 18-minute video of the Vermillion Basin, South Dakota, participatory planning process that discusses the experience from the perspective of both agency and community participants. The video is available from FEMA Region VIII, P.O. Box 25267, Bldg. 710, Denver Federal Center, Denver CO 80225-0267.

Books, Articles, and Papers

Association of State Floodplain Managers (ASFPM). 1996. *Using Multi-Objective Management to Reduce Flood Losses in Your Watershed*. Madison, WI: Association of State Floodplain Managers. 72 pp. Abstract available at <http://www.floods.org/PDF%20files/PUBSLIST.pdf>.

This publication explores planning and implementation techniques for multi-objective watershed management. It provides a general introduction to multi-objective management and the planning process that helps a community select the flood-loss reduction measures most suitable to its situation. It explains how to define problems and goals, build partnerships, combine needs and solutions creatively, and begin formal implementation procedures. Both riverine and coastal flood watersheds are examined, involving subjects such as fish and wildlife issues, water supply, housing improvement, transportation, and lifelines.

North Carolina Emergency Management Division and Federal Emergency Management Agency. 2000. *Hazard Mitigation in North Carolina: Measuring Success*. Raleigh, NC.

To accelerate the institutionalization of hazard mitigation in North Carolina, the North Carolina Emergency Management Division established the Hazard Mitigation Planning Initiative, a long-term program to build local capacity to implement mitigation policies and programs in communities across the state. Through a series of case studies, this study documents losses avoided as a result of the implementation of a wide range of mitigation measures, including elevations and the acquisition and relocation or demolition of floodprone properties.

Picou, J. Steven. 2000. "The 'Talking Circle' as Sociological Practice: Cultural Transformation of Chronic Disaster Impacts." *Sociological Practice: A Journal of Clinical and Applied Sociology* 2(2):66-76.

This article presents a description of a culturally sensitive mitigation strategy, the "Talking Circle," and its application to Alaska Natives negatively impacted by the 1989 Exxon Valdez oil spill. Talking Circles are a traditional social activity for Alaska Natives and this activity was organized and implemented by members of the Village of Eyak in Prince William Sound, Alaska. The two-day event resulted in many testimonies about personal experiences with the oil spill. Post-Talking Circle activities by Eyak Village members indicate increased cultural awareness and political mobilization. These findings suggest that this mitigation strategy promoted cultural consciousness among victims experiencing chronic disaster impacts and resulting in a "transforming activity" for the Native Village of Eyak.

Schwab, Jim, Kenneth C. Topping, Charles C. Eadie, Robert E. Deyle, and Richard A. Smith. 1998. *Planning for Post-Disaster Recovery and Reconstruction*. PAS Report No. 483/484. Chicago, IL: American Planning Association. 346 pp.

This document helps community leaders and planners educate their constituents on how informed decisions and choices can affect the rebuilding process and yield a safer, more sustainable community. This report introduces planners to their roles in post-disaster reconstruction and recovery, and provides guidance on how to plan for post-disaster reconstruction side by side with all other players involved. A key theme throughout this report is to rebuild to create a more disaster-resilient community. The report contains many references to technical resources.

Federal Emergency Management Agency. 1994. *Multi-Objective Flood Mitigation Plan Vermillion River Basin South Dakota*. Denver: Federal Emergency Management Agency, State of South Dakota, U.S. National Park Service.

The 1993 Midwest floods renewed interest on the part of government agencies, private groups, and individuals in finding ways to avoid or reduce the impacts of future disasters through permanent, low-cost solutions. This approach requires an examination of the relationships between natural systems (precipitation, drainage, sedimentation, vegetation, etc.) and human systems (water control structures, public policies and funding, agriculture, transportation, etc.) in order to make them more compatible. This document describes a multi-objective planning workshop held in Parker, South Dakota, in June 1994 to address flood mitigation. It describes the Vermillion River Basin and its flood history; the workshop; flood hazard management, drainage, and transportation in the area; economic development and sustainability, cultural and historic resources, and housing; fish and wildlife populations and habitat; outdoor recreation and open space; water quality and erosion; and implementation of the plan.

Additional Reading

Birkland, T.A. 1997. *After Disaster*. Washington, D.C.: Georgetown University Press.

City of Denton, Planning and Development Department, Comprehensive Planning Section. 1999. *The Denton Plan 1999-2020*. Denton, TX: City of Denton.

Community Development Society. *What Is Participatory Research?* <http://www.comm-dev.org/par-is.htm>

Cornwall, A. and R. Jewkes. 1995. "What Is Participatory Research?" *Soc. Sci. Med.* 41:1667-1676.

Cox, Bob, Sherryl Zahn, and Duane Holmes. 1995. "A Multiobjective Flood Hazard Mitigation Planning Process for the Vermillion River Basin, South Dakota." Pp. 132-135 in *From the Mountains to the Sea--Developing Local Capability*. Proceedings of the 19th annual conference of the Association of State Floodplain Managers. Special Publication 31. Boulder, CO: Natural Hazards Research and Applications Information Center.

Creighton, J.L. 1983. "Identifying Publics/staff Identification Techniques." In Creighton, J.L., Delli Priscoli, J. and Dunning, C.M., eds., IWR Research Report 82-R1. Fort Belvoir, VA: Institute for Water Resources, U.S. Army Corps of Engineers:199-206.

Daniels, S.E. and G.B. Walker. 1996. "Collaborative Learning: Improving Public Deliberations in Ecosystem-based Management." *Environmental Impact Assessment Review* 16:71-102.

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Environmental Protection Agency. 1997. *People, Places, and Partnerships. A Progress Report*

on Community-Based Environmental Protection. EPA-100-R-97-003. Washington, D.C.: Office of the Administrator.

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Hoff, Marie D. 1998. *Sustainable Community Development. Studies in Economic, Environmental, and Cultural Revitalization*. Boca Raton, FL: Lewis Publishers.

Holmes, D. n.d. *A Multi-Objective Workshop Planning Process*. Denver, CO: Stewardship and Partnership Team, Rocky Mountain Support Office, Intermountain Region, National Park Service.

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Kaner, S. et al. 1996. *The Facilitator's Guide to Participatory Decision-Making*. Gabriola Island, B.C.: New Society Publishers.

Kiser, L.L. and E. Ostrom. 1982. "The Three Worlds of Action; a Metatheoretical Synthesis of Institutional Approaches." In Ostrom, E., ed. *Strategies of political inquiry*. Beverly Hills, CA: Sage Publications: 179-222.

Krajeski, Richard L. and Kristina J. Peterson. 1999. "'But She Is a Woman and This Is a Man's Job': Lessons for Participatory Research and Participatory Recovery." *International Journal of Mass Emergencies and Disasters* 17(1): 123-130.

McShane, John H. 1992. "Integrating Provisions of the National Flood Insurance Program with Multi-objective River Corridor Management." Pp. 200-203 in *Multi-Objective Approaches to Floodplain Management*. Special Publication No. 26. Boulder, CO: Natural Hazards Research and Applications Information Center.

North Carolina Department of Crime Control and Public Safety. 1999. *Hazard Mitigation Successes*. Raleigh, NC: North Carolina Emergency Management Division.

Oleari, Kenoli. 2000. "Making Your Job Easier: Using Whole System Approaches to Involve the Community in Sustainable Planning and Development." *Public Management* (December):4-10.

Platt, R.H. 1999. "Natural Hazards of the San Francisco Bay Mega-city: Trial by Earthquake, Wind, and Fire." In Mitchell, J.K., ed. *Crucibles of Hazard*. Tokyo: United Nations University Press: 335-374.

Plein, L.C., K. Green, and D.G. William. 1998. "Organic Planning: a New Approach to Public Participation in Local Governance." *The Social Science Journal* 35:509-523.

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USING DISASTER RECOVERY TO MAINTAIN AND ENHANCE QUALITY OF LIFE — WHERE TO FIND INFORMATION —

Organizations

Boulder Area Sustainability Information Network (BASIN).

BASIN is a pilot project designed to help deliver a variety of environmental information about the Boulder area to its inhabitants. BASIN desires to 1) improve environmental monitoring to provide credible, timely, and usable information about the watershed; 2) create a state-of-the-art information management and public access infrastructure using advanced, web-based computer technologies; 3) build strong partnerships and an ongoing alliance of governmental, educational, non-profit and private entities involved in watershed monitoring, management and education; and 4) develop education and communication programs to effectively utilize watershed information in the public media and schools and facilitate greater public involvement in public policy formation.

See <http://bcn.boulder.co.us/basin/main/about.html> [accessed July 23, 2001]

Disaster Resistant Neighborhoods. “Building Disaster Resistant Neighborhoods Handbook.”

This handbook outlines a step-by-step action plan, with examples, to assist planners in working with neighborhood associations to help them become better prepared for disaster. Posted on the link along with the handbook are a variety of tools to assist in promoting the program.

See <http://www.tallytown.com/redcross> [accessed September 21, 2001]

Joint Center for Sustainable Communities.

The advisory committee includes Wellington Webb, Mayor of Denver and President, the U.S. Conference of Mayors and C. Vernon Gray, President, National Association of Counties.

See http://www.naco.org/programs/comm_dev/center or <http://www.usmayors.org/sustainable> [accessed August 3, 2001]

Local Government Commission.

The LGC is a non-profit organization “working to build livable communities” in California. LGC organizes a variety of conferences, workshops, and training sessions on land use and transportation-related issues. The organization also publishes a monthly newsletter and has a resources library with a catalog of videos and slides.

See <http://www.lgc.org/center> [accessed June 15, 2001]

National Arbor Day Foundation

This group sponsors programs that encourage communities to plant trees.

See <http://www.arborday.org> [accessed June 15, 2001]

Videos, CD-ROMs, and DVDs

The Link Between Sustainability & Disaster Resistant Communities. Slide show produced by the U.S. Department of Energy and the Federal Emergency Management Agency.

<http://www.sustainable.doe.gov/disaster/impact>

This slide show explains the concept of sustainable redevelopment and gives examples of redevelopment in three communities: Soldiers Grove, Wisconsin; Valmeyer, Illinois; and Arkadelphia, Arkansas.

Mitigation Revitalizes a Floodplain Community: The Darlington Story. Wisconsin Department of Natural Resources. 1997. Madison, WI.

This is a splendidly produced videotape about the efforts of a small rural Wisconsin community to reverse the effects of neglect and disinvestment in its historic downtown area caused by repeated flooding and economic change. Using a multi-objective planning and management strategy, officials and citizens, in partnership with government agencies and private entities, identified six goals: 1) preserve the historic character of the downtown; 2) restore community pride; 3) acquire and relocate commercial properties at risk; 4) elevate and flood proof commercial and residential structures; 5) stimulate investment downtown; and 6) pursue tourism as an economic strategy. The video follows the mitigation process from early meetings through floodproofing and relocation. Produced by the Wisconsin Department of Natural Resources. 27 minutes. 1997. Available free from Wisconsin DNR, P.O. Box 7921, Madison, WI 53707-7921; (608) 264-9200.

Quality Redevelopment of Eastern North Carolina. Horizon Video Productions. 2000. Durham, NC.

This 20-minute video was produced by the state in the aftermath of Hurricane Floyd to introduce and educate local and state officials about the “better ways” available to recover from the disaster and at the same time address other local concerns such as environmental quality, economic vitality, housing, sense of community, business and job opportunities, and disaster mitigation. It introduced a framework espoused by the state for sustainable community action and features the governor explaining the tenets of “quality redevelopment” and how it can—and did—benefit North Carolina communities and help ensure a better future for the state’s citizens. Available from North Carolina Department of Emergency Management, 1830-B Tillery Place, Raleigh, NC 27699; (919) 751-8000; fax: (919) 715-9763.

Taking the Initiative. Federal Emergency Management Agency, Emergency Management Institute. 2000. Emmitsburg, MD.

This 20-minute video shows how a neighborhood, two small towns, and a business owner took responsibility for and got organized to adopt sustainability principles and techniques in coping with hazards. The three separate instances, all in California, illustrate participatory processes, taking initiative, looking at the economic benefits of hazard mitigation (in one case, elevating a restaurant), incorporating livability components into a flood protection measure, and protecting the local environment and habitat. This video is available from the Emergency Management Institute at 1-800-238-3358. Ask for the “Disaster-Resistant Jobs” video.

Books, Articles, and Chapters

Berke, Philip and Maria Manta. 1999. *Planning for Sustainable Development: Measuring Progress in Plans*. Lincoln Institute of Land Policy Working Paper. Lincoln, NE: Lincoln Institute of Land Policy. 23 pp.

Using six principles that define and operationalize the concept of sustainable development, the authors evaluated 30 comprehensive plans to determine how well the policies of these plans supported sustainable development. Findings indicate no significant differences in how extensively sustainability principles were supported between plans that state an intention to integrate sustainable development and those that did not. In addition, plans did not provide balanced support of all six sustainability principles; they supported one—the livable built environment principle—significantly more than the others.

Casey-Lefkowitz. 1999. *Smart Growth in the Southeast: New Approaches for Guiding Development*. Washington, D.C.: Environmental Law Institute Research Publications.

The southeastern United States has been trying to find ways to continue to reap the benefits of the region's bustling economy without the mounting fiscal, health, and environmental costs of poorly planned development. This report provides an overview of land use and transportation trends in seven states—Alabama, Georgia, Florida, North Carolina, South Carolina, Tennessee, and Virginia—and shows how these states are beginning to shape the pace and location of development by promoting community revitalization, conservation, and transportation alternatives.

Clinton-Gore Administration. 2000. *Building Livable Communities: Sustaining Prosperity, Improving Quality of Life, Building a Sense of Community*.

This report identifies steps that the Clinton-Gore Administration took to help communities grow in ways that ensure a high quality of life and strong, sustainable economic prosperity. It includes a brief description of challenges faced by urban, suburban, and rural communities, the innovative ways that some are meeting them, and the Livable Communities Initiative—a package of 30 policy actions and voluntary partnerships that support local efforts to build livable communities.

CUSEC Journal 7(1).

This special issue focused on the economic vulnerability of rural communities and on disaster recovery for small businesses. The journal is produced by the Central U.S. Earthquake Consortium. For more information contact the CUSEC Office at (901) 544-3570 or see <http://www.cusec.org> [accessed September 21, 2001]

Department of Energy. 1994. *Rebuilding Your Flooded Home: Guidelines for Incorporating Energy Efficiency*. DOE-EE-0019. Washington, D.C.: U.S. Department of Energy, Office of Building Technologies, 36 pp.

After disasters, the natural tendency is to return to one's home and restore it to the way one left it. Due largely to recent advances in building technologies, it is possible to rebuild a residence with a little extra care—and not much more time and cost—and have a home that is much more energy efficient than it was before the disaster. Because many house components will have to be replaced, i.e., insulation, it makes sense to purchase the most energy-efficient equipment and materials available. Following sections about drying out a flooded house and on personal safety

when cleaning up, the document explains how to analyze the property for building shell problems (air leakages, foundations, flooring, etc.), then considers building systems and equipment issues (electric motors, air conditioning, and appliances). Suggestions are presented and tips are provided for financing energy-efficient solutions, such as buying materials in bulk if many properties are affected.

Federal Emergency Management Agency. n.d. *Safeguarding Your Historic Site: Basic Preparedness and Recovery Measures for Natural Disasters*. Boston, MA: U.S. Federal Emergency Management Agency, Region I. 55 pp.

Drawing upon experience gained through disasters in Nantucket, Massachusetts, and Montpelier, Vermont, this document helps stewards of historic sites—including historic buildings, landscapes, districts, and museums—prepare their sites to withstand and recover from a natural disaster. The handbook can also be used by public officials, planners, community development professionals, and emergency management professionals as a general step-by-step guide to emergency planning for such facilities. Before a disaster strikes, the handbook provides information about identifying and assessing the risks to a facility, describes preventive measures for historic sites, and presents emergency planning guidelines. During the disaster itself, the handbook describes what can be done in the time available. After the disaster, guidelines are given for stabilizing the situation and recovering from the impacts. Preventive measures and preservation considerations are provided for four disaster agents: wildfire, hurricanes, riverine floods, and earthquakes.

Federal Emergency Management Agency. 2000. *Planning for a Sustainable Future: The Link Between Hazard Mitigation and Livability*. FEMA Report 364. Washington, D.C.: Federal Emergency Management Agency. 40 pp. Available at http://www.fema.gov/mit/planning_toc.htm.

This booklet is about hazard mitigation, disaster resistance, sustainable development and livability, and describes the linkages among these concepts. It shows how communities that undertake hazard mitigation planning become more disaster resilient and reap further benefits. Hazard mitigation links disaster resistance to broad community objectives of economic health, social well-being, and environmental protection.

Federal Emergency Management Agency. 2000. *Rebuilding for a More Sustainable Future: An Operational Framework*. FEMA Report 365. Washington, D.C.: Federal Emergency Management Agency. Available at http://www.fema.gov/mit/planning_toc2.htm.

This document provides guidance to the Federal Emergency Management Agency (FEMA) Sustainability Planner in the post-disaster response and recovery process. State emergency management officials, local jurisdictions, and other FEMA staff may also use it as a reference during non-disaster time.

Flink, Charles A. and Robert M. Searns. 1993. *Greenways: A Guide to Planning, Design, and Development*. Washington, D.C.: Island Press. 351 pp.

Within the developed landscape, greenways serve a dual function: they provide open space for human access and recreational use, and they serve to protect and enhance remaining natural and cultural resources. This manual provides interested organizations and concerned individuals with background information about planning a greenway project, how to enlist local assistance in organizing project support, funding the project, related water recreation, greenway safety and

liability, management, and planning for the care of rivers, streams, and wetlands. Information is provided on preserving stream and river functions, the impacts of urbanization on riparian regimes, and the establishment of organizational partnerships to plan, realize, and preserve greenway arrangements.

Geis, D.E. 2000. "By Design: The Disaster Resistant and Quality of Life Community." *Natural Hazards Review* 1(3):151-160.

According to Geis, the present approach to designing and building communities is inadequate and is inflicting great and growing harm—physically, environmentally, socially, economically, and emotionally—that we can no longer tolerate. The disaster resilient community concept, the first step toward creating quality-of-life communities, was created specifically to provide a new way of thinking. A number of basic questions need to be addressed. What are Disaster Resistant Communities? Why are they important? What are the benefits? What is the relationship between a Disaster Resistant Community and a sustainable quality-of-life community? And, most importantly, how do we go about creating them? This article provides the answers to these questions so that the concept can be better understood and used to its fullest potential.

Kline, Elizabeth. 1997. *Sustainable Community: Topics and Indicators*. Available at <http://ase.tufts.edu/gdae/modules/modinstruct.html> [accessed June 22, 2001]

These narratives about sustainable community indicators were developed under a contract with the U.S. Environmental Protection Agency. The primary audiences are community practitioners and technical resource people.

Mileti, Dennis S. 1999. *Disasters by Design*. Washington, D.C.: The Joseph Henry Press. 351 pp. Available at <http://books.nap.edu/catalog/5782.html>. [accessed September 21, 2001]

This book is a summary volume of the Second National Assessment of Research on Natural Hazards with the formal mission of summarizing what is known in the various fields of science and engineering that is applicable to natural and related technological hazards in the United States, and making some research and policy recommendations for the future. It summarizes the hazards research findings from the last two decades, synthesizes what has been learned, and outlines a proposed shift in direction in research and policy for natural and related technological hazards in the United States. *Disasters by Design* is intended for a general audience, including policymakers and practitioners.

North Carolina Emergency Management Division and Federal Emergency Management Agency. 2000. *Hazard Mitigation in North Carolina: Measuring Success*. Raleigh, NC.

To accelerate the institutionalization of hazard mitigation in North Carolina, the North Carolina Emergency Management Division established the Hazard Mitigation Planning Initiative, a long-term program to build local capacity to implement mitigation policies and programs in communities across the state. Through a series of case studies, this study documents losses avoided as a result of the implementation of a wide range of mitigation measures, including elevations and the acquisition and relocation or demolition of floodprone properties.

Rueter, Patty. 1998. *Town Centers: Why? What? How?* Portland, OR: Portland State University, School of Urban and Public Affairs, Institute of Metropolitan Studies, Community Fellowship Program.

This report is a study of Portland's growth management challenge including reviews of history, standards, and societal needs as they related to recent community involvement in Portland's town center planning process.

Rural Voices 5 (Fall)

This special issue of the magazine, produced in 2000 by the Housing Assistance Council, featured several stories on the "Lessons from Disaster." The Housing Resource Council has also written a guide that explains resources available from federal and state governments for rebuilding housing after a disaster, on a temporary basis or long-term. Contact the national office at (202) 842-8600 or hac@ruralhome.org

Schwab, Jim; Kenneth C. Topping, Charles C. Eadie, Robert E. Deyle, and Richard A. Smith. 1998. *Planning for Post-Disaster Recovery and Reconstruction*. PAS Report No. 483/484. Chicago, IL: American Planning Association. 346 pp. Abstract available at <http://www.planning.org/apapubs/details.asp?Num=1178>. [accessed September 21, 2001]

This document helps community leaders and planners educate their constituents on how informed decisions and choices can affect the rebuilding process and yield a safer, more sustainable community. This report introduces planners to their roles in post-disaster reconstruction and recovery, and provides guidance on how to plan for post-disaster reconstruction side by side with all other players involved. A key theme throughout this report is to rebuild to create a more disaster-resilient community. The report contains many references to technical resources.

U.S. President's Council on Sustainable Development. 1997. *Sustainable Communities Task Force Report*. Washington, D.C.: U.S. Government Printing Office. 186 pp.

This report, and its companion volume, *Sustainable America: A New Consensus for Prosperity, Opportunity, and a Healthy Environment for the Future*, published in 1996, lay out a set of policy recommendations for planning for sustainable communities. One of the recommendations is to "shift the focus of the federal disaster relief system from cure to prevention." The appendix contains case studies of communities that have set forth sustainability principles, profiles of communities in the 50 states, state-led sustainability initiatives and organizations, and a list of resources for sustainable communities.

Additional Reading

Baruch, S. and M. Baruch. 2000. "The Economic Vulnerability of Rural Businesses to Disasters." *CUSEC Journal* 7(21):8-9.

Department of Housing and Urban Development. 1998. *Building Communities and New Markets for the New Century*. Washington, D.C.: U.S. Department of Housing and Urban Development. 78 pp. plus second volume of appendices.

- Hanson, Kate and Ursula Lemanski. 1995. "Converting flood 'buyout' areas to public open space: Case studies from Iowa." Pp. 95-100 in *From the Mountains to the Sea--Developing Local Capability*. Proceedings of the Nineteenth Annual Conference of the Association of State Floodplain Managers. Special Publication 31. Boulder, CO: Natural Hazards Research and Applications Information Center.
- Harper, C. 2000. "Design and Construction Can Help Rural Homes Avoid Wind Damage." *Rural Voices* 5(4):5-7.
- Hauer, Andrea. 1996. "The Power of Water in Des Moines, Iowa." *Forum for Applied Research and Public Policy* 11(3):131-33.
- Moran, E.F. 2000. "North Carolina Disaster Recovery: Lessons Learned." *Rural Voices* 5(4):12-15.
- New York Times*. 1999. "Suburbia Learns It Has Paved Over the Natural Defenses to Flooding" Wednesday, September 29: B1&B8.
- Tibbetts, John. 1998. *Open Space Conservation: Investing in Your Community's Economic Health*. Cambridge, MA: Lincoln Institute of Land Policy.
- Shookner, Malcolm. 1997. *Quality of Life Summary Report*. Toronto, Ontario, Canada: Social Development Council and Social Planning Network of Ontario. <http://www.qli-ont.org/report.html>
- Watson, B. 1996. *A Town Makes History Rising to New Heights*. <http://www.sustainable.doe.gov/articles/smithsonian/index.shtml> and <http://www.sustainable.gov/success/Valmeyer.shtml>

BUILDING ECONOMIC VITALITY INTO DISASTER RECOVERY — WHERE TO FIND INFORMATION —

Training Courses and Workshops

Federal Emergency Management Agency, Emergency Management Institute, National Emergency Training Center. Emmitsburg, Maryland. <http://www.fema.gov/emi> [accessed June 15, 2001] (301) 447-1035.

- “Disaster Resistant Jobs Training Course: Train-the-Trainer.” Course materials include videotape and hard-copy training materials.
The U.S. has experienced multiple major catastrophic natural disasters in recent years, causing severe physical and economic damage to states and local communities. This experience demonstrates that disasters have long-term impacts on the nation’s economy. It is in the best interest of government to help accelerate a community’s postdisaster economic recovery and to safeguard its jobs by insulating the local economy from the impact of future disasters. Building partnerships among individuals, businesses, and government is the most effective way to achieve this goal. This course teaches participants to: 1) understand what the term “disaster-resistant community” means; 2) be able to use a disaster “Tool-Kit;” 3) understand the importance of creating disaster-resistant jobs; 4) understand the role of integrating disaster-resilient economic development planning in a community; 5) understand the components of the disaster-resilient economic development planning process; and 6) identify a key audience to target and develop a brief presentation that conveys the importance of organizing efforts to build disaster resistant communities.
- “Disaster-Resistant Jobs Training.” Federal Emergency Management Agency Course G246.
This 2-day course is designed to highlight the need for the local business community to mitigate and prepare for disasters. Communities must protect their economic base in order to survive and thrive in the wake of a disaster. This course will help local leaders recognize the impact of disasters on business and industry and what steps need to be taken to lessen the impact of disaster on local jobs.

University of Vermont, Applied Curriculum for Community Economic Sustainability (ACCESS). Burlington, Vermont. <http://www.uvm.edu/~jkolodin/access/> [accessed August 3, 2001]

The ACCESS program has three specific objectives: 1) to introduce “real” problems of rural enterprise/local government into three capstone courses; 2) to develop case studies and integrate them into the required introductory course for all majors; and 3) to give students the experience to utilize knowledge gained in the classroom, using Vermont as their laboratory, through internship opportunities across the state.

Organizations

Federal Emergency Management Agency. “Assessment of the Economic Impact of Hurricane Floyd on North Carolina Communities.” FEMA Virtual Library and Reading Room.

This contains a “Resource Guide for Business Recovery.”

See http://www.fema.gov/library/a_dr1292nc.htm [accessed August 3, 2001]

Minnesota Sustainable Communities Network (MnSCN).

MnSCN is sponsored by the Minnesota Office of Environmental Assistance. The goal of MnSCN is to “encourage networking, information exchange, and better access to assistance.” The network contains over 1500 individuals, businesses, local governments, educational institutions, and organizations who are interested in promoting sustainability in Minnesota.

See <http://www.nextstep.state.mn.us/index.cfm> [accessed June 22, 2001]

W.K. Kellogg Collection of Rural Community Development Resources.

This collection, housed in Lincoln, Nebraska, contains community development materials funded by the Kellogg Foundation and other selected sponsors of recognized rural programs.

Guidebooks, manuals, workshop materials, reports, books, and videos are included. The collection is searchable via the internet, although the collection itself is non-circulating.

See <http://www.unl.edu/kellogg/main.html> [accessed June 15, 2001]

Videos, CD-ROMs, and DVDs

Taking the Initiative. Federal Emergency Management Agency, Emergency Management Institute. 2000. Emmitsburg, MD.

This 20-minute video shows how a neighborhood, two small towns, and a business owner took responsibility for and got organized to adopt sustainability principles and techniques in coping with hazards. The three separate instances, all in California, illustrate participatory processes, taking initiative, looking at the economic benefits of hazard mitigation (in one case, elevating a restaurant), incorporating livability components into a flood protection measure, and protecting the local environment and habitat. The video is available from the Emergency Management Institute at 1-800-238-3358. Ask for the “Disaster-Resistant Jobs” video.

Quality Redevelopment of Eastern North Carolina. Horizon Video Productions. 2000. Durham, NC.

This 20-minute video was produced by the state in the aftermath of Hurricane Floyd to introduce and educate local and state officials about the “better ways” available to recover from the disaster and at the same time address other local concerns such as environmental quality, economic vitality, housing, sense of community, business and job opportunities, and disaster mitigation. It introduced a framework espoused by the state for sustainable community action and features the governor explaining the tenets of “quality redevelopment” and how it can—and did—benefit North Carolina communities and help ensure a better future for the state’s citizens. Available from North Carolina Department of Emergency Management, 1830-B Tillery Place, Raleigh, NC 27699; (919) 751-8000; fax: (919) 715-9763.

Mitigation Revitalizes a Floodplain Community: The Darlington Story. Wisconsin Department of Natural Resources. 1997. Madison, WI.

This is a splendidly produced videotape about the efforts of a small rural Wisconsin community to reverse the effects of neglect and disinvestment in its historic downtown area caused by repeated flooding and economic change. Using a multi-objective planning and management strategy, officials and citizens, in partnership with government agencies and private entities, identified six goals: 1) preserve the historic character of the downtown; 2) restore community pride; 3) acquire and relocate commercial properties at risk; 4) elevate and flood proof commercial and residential structures; 5) stimulate investment downtown; and 6) pursue tourism as an economic strategy. The video follows the mitigation process from early meetings through floodproofing and relocation. Produced by the Wisconsin Department of Natural Resources. 27 minutes. 1997. Available free from Wisconsin DNR, P.O. Box 7921, Madison, WI 53707-7921; (608) 264-9200.

Books, Articles, and Papers

Aguirre International. 1996. *EDA's Post-Disaster Assistance Program After Hurricane Andrew: Final Report.* Washington, D.C.: U.S. Dept. of Commerce, Technical Assistance and Research Division, Economic Development Administration. 128 pp.

After Hurricane Andrew in south Florida in 1992, the Economic Development Administration (EDA) helped communities and organizations by providing over \$50 million in planning grants and revolving loans; infrastructure projects and building renovations and improvements; and training and technical assistance programs. This report evaluates the effectiveness of these programs, asking: Can appropriate economic assistance help communities regain their former condition and even enhance their quality of life? and, Does such assistance have implications beyond the immediate disaster area? Researchers examined the effectiveness of projects in attaining specified goals, the appropriateness of each project to the needs created by the disaster, the economic impacts of the projects, and the social impacts on and benefits to target populations. They discovered that EDA projects have a regional impact, projects do stimulate economic growth, and EDA was generally effective in maintaining an ongoing relationship with local officials and potential grantees.

Arnold, Matthew B. and Robert M. Day. 1998. *The Next Bottom Line: Making Sustainable Development Tangible.* Washington, D.C.: WRI Publications. 64 pp.

This report tries to bring sustainable development down to earth for a business audience. Its authors break down the abstract ideals of sustainable development into ideas small enough to grasp and powerful enough to lead to new business opportunities. The authors offer a road map for businesses to find financial success in the solutions to environmental and social challenges.

Becker, William S. and Roberta F. Stauffer. 1994. *Rebuilding the Future—A Guide to Sustainable Redevelopment for Disaster-Affected Communities.* Golden, CO: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Center of Excellence for Sustainable Development. 18 pp.

This document summarizes why sustainability is important and gives an example of sustainable development in one community, Soldiers Grove, Wisconsin. The reader is walked step-by-step

through the holistic recovery process. The last chapter discusses real-life problems that the planner may encounter. There is an appendix to the report with a comprehensive list of resources. This document is available online at <http://www.sustainable.doe.gov/articles/RFTF1.shtml> [accessed June 15, 2001]

Berry, Wendell. 2000. "A Return to the Local: You Stay Home Too." *Worldwatch* (September/October):29-33.

Berry argues that the basis of a sustainable economy is vitality of local economies, which are fundamentally different from the global system.

Casey-Lefkowitz. 1999. *Smart Growth in the Southeast: New Approaches for Guiding Development*. Washington, D.C.: Environmental Law Institute Research Publications.

The southeastern United States has been trying to find ways to continue to reap the benefits of the region's bustling economy without the mounting fiscal, health, and environmental costs of poorly planned development. This report provides an overview of land use and transportation trends in seven states—Alabama, Georgia, Florida, North Carolina, South Carolina, Tennessee, and Virginia—and shows how these states are beginning to shape the pace and location of development by promoting community revitalization, conservation, and transportation alternatives.

Childers, Cheryl and Brenda Phillips. 1998. *Sustainable Development or Transformative Development? Arkadelphia, Arkansas After the Tornado*. Quick Response Research Report #109. Boulder, CO: Natural Hazards Research and Applications Information Center. 12 pp.

The authors visited the small town of Arkadelphia, Arkansas after an F-4 tornado had destroyed much of its downtown and three residential neighborhoods. Leaders of this town characterized the rebuilding effort as "sustainable." The researchers interviewed 31 individuals representing organizations from the national level to the local level and ranging from paid staff to volunteers. They determined, as an initial finding, that residents of impacted communities apply "sustainable development" as it fits their understanding, needs, and interests. Also, the term began to mean different things to different people as recovery ensued.

Federal Emergency Management Agency. 1997. *Report on Costs and Benefits of Natural Hazard Mitigation*. Washington, D.C.: Federal Emergency Management Agency. 52 pp.

Are the costs to reduce or eliminate the impacts of natural hazards substantially less than the benefits they provide? This report reviews the benefits that can accrue to different segments of society from mitigation, the costs that can be incurred by undertaking mitigation, and the analyses needed to evaluate the cost-effectiveness of the measures. It has 16 case studies across the United States and demonstrates their efficiency against several types of natural hazards, as well as the effectiveness of other mitigation tools. The studies include seismic retrofitting of lifelines in Tennessee, reinforcement of highway bridges in California, historic preservation and community development in Wisconsin, mitigation in hospitals in California, reduction of business interruption costs in Iowa, seismic retrofitting in Los Angeles public schools, wind shutter protection in Florida, acquisition and relocation of floodplain structures in Missouri, regulation of unreinforced masonry buildings in Los Angeles, land use and building regulation

along the coasts of Florida, land-use and building requirements in floodplains, and seismic retrofitting to avoid business disruption. The cases include both public- and private-sector initiatives.

Institute for Business and Home Safety (IBHS). 1999. *Open for Business: A Disaster Planning Tool Kit for the Small Business Owner*. Institute for Business and Home Safety.

This tool-kit is designed to help small business owners identify the hazards they may face, plan for and reduce the impact of disasters, keep their business open when disaster hits, and advise on insurance, disaster supplies, and other things the business owner can do to make his/her business more disaster resistant.

Kline, Elizabeth. 1997. *Sustainable Community: Topics and Indicators*. Available online at <http://ase.tufts.edu/gdae/modules/modinstruct.html> [accessed June 22, 2001]

These narratives about sustainable community indicators were developed under a contract with the U.S. Environmental Protection Agency. The primary audiences are community practitioners and technical resource people.

Louisiana Governor's Office of Rural Development. n.d. *Louisiana Small Towns Program*. Baton Rouge, LA: Louisiana Governor's Office of Rural Development.

The Louisiana Governor's Office of Rural Development, under a grant from the U.S. Economic Development Administration, conducted the Louisiana Small Towns Program to help communities plan for a successful future. This is a grant report with findings from the program.

Minnesota Department of Public Safety. *Recovery From Disaster Handbook*. St. Paul, MN: State of Minnesota. Available at http://www.dem.state.mn.us/publications/Recovery_Handbook/index.html [accessed July 23, 2001]

This handbook provides local units of government with guidance in long-term recovery after a disaster. The restoration process places great demands on government and the private sector. This manual will lessen the stress by providing answers and advice to many questions that arise from those who have dealt with recovery from disasters. Tool kits give information specific to each topic, some forms, and information to share with the victims of the disaster as they recover.

Philippi, Nancy S. 1996. *Floodplain Management: Ecologic and Economic Perspectives*. San Diego, CA: Academic Press. 225 pp.

When economic and ecological concerns conflict, effective floodplain management often suffers. The author examines the reasons behind these conflicts and points to solutions. She discusses the challenge of managing floodplains, the need for floodplain management, the public interest and how to define it, governments and their roles, harmful effects of floodplain management, case studies of the Mississippi and American Rivers, and scenarios for effective management. Appendices reprint several important documents useful for the understanding of floodplain management in the United States.

Public Works and Economic Development Association. 1999. *Economic Development Directory*. Prepared for the Economic Development Administration, U.S. Department of Commerce. Washington, D.C.: Public Works and Economic Development Association. 153 pp. This directory is a convenient and functional information tool to facilitate communication between the various elements of EDA's program components. It is meant to serve economic development practitioners, EDA grantees, associations, and others who are seeking information on EDA's economic development activities in all 50 states and territories.

San Francisco City Planning Department. 1987. *Earthquake Hazards and Housing—Summary Report*. San Francisco, CA: San Francisco City Planning Dept. 26 pp.

With a vacancy rate of less than 1%, San Francisco has virtually no low-rent replacement housing. A large portion of the existing low-rent housing stock is located in areas built of unreinforced brick—a structure type particularly vulnerable to earthquakes. To help maintain a safe low-income housing stock in the vulnerable unreinforced masonry (URM) buildings, this study was commissioned to examine the range of seismic retrofitting measures available for prototypical residential buildings in the city, and the financial profiles of owners and tenants in URM buildings. Using the experiences of other cities that have adopted retroactive URM building codes, the researchers applied the specifications of their seismic strengthening requirements to the masonry building stock in San Francisco.

Tierney, Kathleen J. 1995. *Impacts of Recent U.S. Disasters on Businesses: The 1993 Midwest Floods and the 1994 Northridge Earthquake*. Preliminary Paper No. 230. Newark, DE: University of Delaware, Disaster Research Center. 53 pp.

This report utilizes a methodological approach first applied to the Des Moines area to try to ascertain how the 1994 Northridge earthquake affected businesses in Los Angeles and Santa Monica. Both studies survey both large and small enterprises and a range of business types. Topics discussed in the paper include physical damage to business properties; lifeline service interruption; rates of and reasons for business closure and relocation; use of insurance, Small Business Administration loans, and other sources of recovery assistance; and proprietor's assessments of business recovery and well-being at the time the surveys were conducted.

Additional Reading

Alesch, Daniel J., James N. Holly, Elliott Mittler, and Robert Nagy. 2001. *Organizations at Risk: What Happens when Small Businesses and Not-for-Profits Encounter Natural Disasters*. First Year Technical Report of the Small Organizations Natural Hazards Project, Center for Organizational Studies, University of Wisconsin—Green Bay. Fairfax, VA: Public Entity Risk Institute. Available at <http://www.riskinstitute.org/ptrdocs/OrganizationsatRisk.pdf>.

Chang, Stephanie. 1997. "Reconstruction and Recovery in Urban Earthquake Disasters." Proceedings of the 5th US/Japan Workshop on Urban Earthquake Hazard Reduction. Oakland, CA: Earthquake Engineering Research Institute.

Department of Commerce. 2000. *Out of Harm's Way*. (Pamphlet.) Washington, D.C.: U.S. Department of Commerce, Economic Development Administration.

Federal Emergency Management Agency. 1998. *Protecting Business Operations: Second Report on Costs and Benefits of Natural Hazard Mitigation*. Washington, D.C.: Federal Emergency Management Agency. 41 pp.

International Red River Basin Task Force, 1999. *An Assessment of Recovery Assistance provided after the 1997 Floods in the Red River Basin: Impacts on Basin-wide Resilience*. Report prepared by the Natural Hazards Center, University of Colorado and the Disaster Research Institute, University of Manitoba for the International Joint Commission's Red River Basin Task Force. Ottawa, Ontario, Canada: International Joint Commission. Available at <http://www.ijc.org/boards/rrb/Recovery%20Assistance.pdf>. [accessed September 21, 2001]

PROMOTING SOCIAL & INTERGENERATIONAL EQUITY DURING DISASTER RECOVERY — WHERE TO FIND INFORMATION —

Training Courses and Workshops

Federal Emergency Management Agency, Emergency Management Institute, Higher Education Project Courses. Emmitsburg, Maryland. http://www.fema.gov/emi/edu/aem_courses.htm Phone: (301) 447-1233 or email Barbara Johnson: barbara.l.johnson@fema.gov [accessed June 15, 2001]

- “Social Dimensions of Disaster.”
- “Sociology of Disaster.”

Federal Emergency Management Agency, Emergency Management Institute, National Emergency Training Center. Emmitsburg, Maryland. <http://www.fema.gov/emi> [accessed June 15, 2001] (301) 447-1035.

- “FEMA Program Responsibilities: Coordinating Environmental and Historical Compliance. Federal Emergency Management Agency Course G253.
This 3-day course is an introduction to environmental and historic compliance. It examines the importance of fully integrating the compliance steps stipulated by the National Environmental Policy Act and the National Historic Preservation Act into the administration of the Public Assistance and Hazard Mitigation Grant Programs. This course is directed to those at environmental/historic entry levels, and others whose primary function is not environmental/historic.

Organizations

Disaster Child Care, Adventist Community Services

The Adventists and the Church of the Brethren have developed model programs for child care and donations management.

See <http://www.nvoad.org/acs.htm> [accessed August 3, 2001]

American Red Cross

Among the topics covered are “Dealing with the Elderly and Disasters” and “Masters of Disasters Curriculum for Children.”

See <http://www.redcross.org> [accessed August 3, 2001]

Center for Health, Environment and Justice

See <http://www.chej.org> [accessed August 3, 2001]

Center for Third World Organizing

See <http://www.ctwo.org> [accessed August 3, 2001]

Environmental Justice Resource Center, Clark Atlanta University
See <http://www.ejrc.cau.edu> [accessed August 3, 2001]

Federal Emergency Management Agency
“FEMA for Kids” has excellent resources in English and Spanish, with stories for all children, including Native Americans.
See <http://www.fema.gov/kids/> [accessed August 3, 2001]

Gender and Disaster Network
Use this network to find experts on women’s issues around the world.
See <http://www.anglia.ac.uk/geography/gdn> [accessed August 3, 2001]

Highlander Education and Research Center (HREC)
HREC specializes in participatory education and action research and involving stakeholders.
See <http://www.hrec.org> [accessed August 3, 2001]

League of United Latin American Citizens
Mountain Association for Community Economic development, 433 Chestnut Street, Berea, KY 40403; (606) 986-2373; fax 606-986-1299; email info@maced.org
See <http://www.lulac.org> [accessed August 3, 2001]

Mennonite Disaster Services
The Mennonites will appear quietly in a community, assist the low-income, elderly and/or persons with disabilities with post-disaster cleanup and building repair, and then quietly leave.
See <http://www.nvoad.org/mds.htm>

Mid-Florida Area Agency on Aging Emergency Preparedness.
<http://www.mfaaa.org/emergency/plan/disaster/1.html> [accessed August 3, 2001]

National Association for the Advancement of Colored People
See <http://www.naacp.org> [accessed August 3, 2001]

National Voluntary Organizations Active in Disaster.
At <http://www.nvoad.org/aboutnv.htm>, you will find a network of voluntary organizations, many of them faith-based.

Pacific Institute. “Environmental Justice Resources on the Internet.”
This page has extensive lists of resources at the local, national, and international level, including institutional sites, reports, and relevant legal texts.
See <http://www.pacinst.org/ej.html> [accessed August 3, 2001]

Prepare Now
This site is an excellent source for information on vulnerable populations and disasters.
See <http://www.preparenow.org> [accessed August 3, 2001]

Sustainable Measures.
See <http://www.sustainablemeasures.com> [accessed August 3, 2001]

United Nations Development Programme, Gender in Development
See <http://www.undp.org/gender/> [accessed August 3, 2001]

United Farm Workers of America, AFL-CIO
Use this site for connections and networks to local migrant and stationary farm workers and organizations.
See <http://www.ufw.org> [accessed August 3, 2001]

Videos, CD-ROMs, and DVDs

Mitigation Revitalizes a Floodplain Community: The Darlington Story. Madison, WI: Wisconsin Department of Natural Resources. 1997.

This is a well-produced videotape about the efforts of a small rural Wisconsin community to reverse the effects of neglect and disinvestment in its historic downtown area caused by repeated flooding and economic change. Using a multi-objective planning and management strategy, officials and citizens, in partnership with government agencies and private entities, identified six goals: 1) preserve the historic character of the downtown; 2) restore community pride; 3) acquire and relocate commercial properties at risk; 4) elevate and flood proof commercial and residential structures; 5) stimulate investment downtown; and 6) pursue tourism as an economic strategy. The video follows the mitigation process from early meetings through floodproofing and relocation. Produced by the Wisconsin Department of Natural Resources. 27 minutes. 1997. Available free from Wisconsin DNR, P.O. Box 7921, Madison, WI 53707-7921; (608) 264-9200.

Quality Redevelopment of Eastern North Carolina. Horizon Video Productions. 2000. Durham, NC.

This 20-minute video was produced by the state in the aftermath of Hurricane Floyd to introduce and educate local and state officials about the “better ways” available to recover from the disaster and at the same time address other local concerns such as environmental quality, economic vitality, housing, sense of community, business and job opportunities, and disaster mitigation. It introduced a framework espoused by the state for sustainable community action and features the governor explaining the tenets of “quality redevelopment” and how it can—and did—benefit North Carolina communities and help ensure a better future for the state’s citizens. Available from North Carolina Department of Emergency Management, 1830-B Tillery Place, Raleigh, NC 27699; (919) 751-8000; fax: (919) 715-9763.

The Unexpected Catastrophe: 1989 Newcastle Earthquake Information Resources. Newcastle, Australia: Newcastle Regional Library. 1999.

The Newcastle Earthquake Database is a multimedia CD-ROM database that contains a record of the events of, the response to, and the renewal since the 1989 Newcastle earthquake. Subjects covered in the database include: disaster management, earthquake engineering, economic impact, geological issues, health issues, heritage issues, insurance, lifeline services, psychological impact, recovery and renewal, seismology, and social and welfare services.

Books, Articles, and Papers

California Environmental Protection Agency. 1994. *Toward the 21st Century: Planning for the Protection of California's Environment*. Sacramento, CA: California Environmental Protection Agency, California Comparative Risk Project, 642 pp.

California's unique blend of population density, government, economy, natural resources, beauty, industry, agriculture, and recreational potential, combined with its size, diversity, and social awareness makes the job of protecting public health and the environment particularly challenging. To help identify environmental priorities for the future, the California Comparative Risk Project was charged with identifying environmental threats of the greatest ecological, human health, and societal concern using the risk-ranking model. This report presents the findings of committees dealing with human health, ecological health, social welfare, environmental justice, education, and economic perspectives. Also in the document are an extensive summary report, an interagency management cooperative case study review, and four appendices which present summary sheets for human health, ecological health, social welfare, and education.

California Governor's Office of Emergency Services. 2000. *Meeting the Needs of Vulnerable People in Times of Disaster: A Guide for Emergency Managers*. Sacramento, CA: California Governor's Office of Emergency Services. 62 pp.

This handbook is a useful guide to the special situations faced by marginalized groups in the wake of hazardous events. Its premise is that a cooperative relationship between government and community-based organizations provides the best assurance that the needs of under-served people and the needs of the community for long-term recovery will be fully addressed. It then proceeds to outline steps for building that relationship, outlining the capabilities, strengths, and weaknesses of both community-based organizations and governments in handling a variety of situations. Extensive appendixes give sample memoranda of understanding, lists of community-based organizations, tips for getting started on a comprehensive approach, and sources of more information.

Federal Emergency Management Agency. n.d. *Safeguarding Your Historic Site: Basic Preparedness and Recovery Measures for Natural Disasters*. Boston, MA: FEMA Region I. 55 pp.

Drawing upon experience gained through disasters in Nantucket, Massachusetts, and Montpelier, Vermont, this document helps stewards of historic sites—including historic buildings, landscapes, districts, and museums—prepare their sites to withstand and recover from a natural disaster. The handbook can also be used by public officials, planners, community development professionals, and emergency management professionals as a general step-by-step guide to emergency planning for such facilities. Before a disaster strikes, the handbook provides information about identifying and assessing the risks to a facility, describes preventive measures for historic sites, and presents emergency planning guidelines. During the disaster itself, the handbook describes what can be done in the time available. After the disaster, guidelines are given for stabilizing the situation and recovering from the impacts. Preventive measures and preservation considerations are provided for four disaster agents: wildfire, hurricanes, riverine floods, and earthquakes.

Jones, Barclay G. 1986. *Protecting Historic Architecture and Museum Collections from Natural Disasters*. Stoneham, MA: Butterworths Publishers. 576 pp.

This handbook is a guide for professionals engaged in the preservation of valuable objects or structures. The book contains 27 papers, scores of illustrations and photographs, and an extensive list of useful references. The papers are grouped into six categories: a general overview of cultural loss caused by earthquakes and other natural disasters; a summary of policy issues for those involved with disaster preparedness; an assessment of hazards and structural vulnerability to them; a description of preventive measures to mitigate losses; listings of emergency and rescue measures for structures and artifacts; and discussions of public and private response measures.

Merritt, John F. 1990. *History at Risk: Loma Prieta—Seismic Safety and Historic Buildings*. Oakland, CA: California Preservation Foundation. 100 pp.

This book was written to serve two functions: to tell others in California what the California Preservation Foundation learned in the aftermath of the Loma Prieta earthquake and to help local officials and state agencies reassess seismic mitigation policies and programs that directly affect the conservation of historic buildings. The book discusses the need to survey buildings at risk, the human and financial resources available to mitigate future losses, and the policies and laws in California that affect preservation before and after a disaster. It then describes how to develop a program to reduce future earthquake risks and lists the financial resources that will be available when an earthquake strikes. The document concludes with recommendations for changes in state policy that will support the preservation and protection of historic buildings from earthquakes. Appendices contain a study that compares different damage assessments of the same building in Santa Cruz, and reprinted ordinances from the town of Los Gatos dealing with the repair, restoration, and reconstruction of buildings damaged during the Loma Prieta quake.

Morris, Marya. 1992. *Innovative Tools for Historic Preservation*. Chicago, IL: American Planning Association Planning Advisory Service. 40 pp.

This report describes the results of a survey of more than 300 planning directors and preservationists to identify innovative techniques that offer the greatest protection to historic resources. It shows how communities have used non-traditional techniques such as conservation districts, down-zoning, and tax and financial incentives to meet historic preservation objectives. The report includes case studies to illustrate each technique.

Nanita-Kennett, Milagros. 1994. *Urban Redevelopment and Earthquake Safety*. Tallahassee, FL: Florida A&M University, School of Architecture. 143 pp.

Urban renewal or redevelopment has been employed by federal, state, and local governments to promote the creation of public infrastructure and regulate the development process. However, earthquake safety programs have never been a part of this process, despite evidence that many cities are broadly vulnerable to the hazard. If these programs could be successfully integrated, seismic safety and protection could be greatly increased with reasonable effort and cost. The author examines this topic by addressing urban decay and earthquake risk; the redevelopment process; the urban environment, including building codes, land use, and infrastructure; federal earthquake programs; local government programs; and the integration of various aspects of redevelopment. She provides case studies of Charleston, South Carolina; Memphis, Tennessee; Salt Lake City, Utah; and Santa Rosa and Santa Cruz, California.

Nelson, Carl L. 1991. *Protecting the Past from Natural Disasters*. Washington, D.C.: The Preservation Press, National Trust for Historic Preservation. 192 pp.

This book issues a clear call to cultural preservation professionals, planners, and emergency management personnel to begin preparations for protecting America's cultural heritage from natural disasters. Following a photo essay on historic buildings damaged by Hurricane Hugo and the Loma Prieta earthquake, the manual lists lessons learned from both of these disasters, describes the types of damage caused by various disaster agents, and offers advice about how to plan protective measures for historic properties. Emergency postdisaster activities also are described, including stabilization of structures, artifact restoration, damage assessment, restoration standards, security, and other recovery and reconstruction actions. Legal precautions, landscape restoration, and insurance needs are a few of the topics about which information is presented. Numerous checklists, bibliographic references, and an extensive list of resource groups complete the volume.

O'Brien, Matthew Kendall. 1993. *A Survey of Damage to Historic Buildings and an Evaluation of Disaster Response Procedures Following the Cape Mendocino Earthquakes of April 1992*. Disasters and Cultural Property series. Ithaca, NY: Cornell University, Institute for Social and Economic Research, Program in Urban and Regional Studies. 198 pp.

This case study investigates the impact on historic structures of the Cape Mendocino, California, earthquakes of April 1992 and how the disaster recovery process that followed affected historic architecture in the area. The estimated damage rate attributed to the earthquakes (1.5 to 2.5% of the building stock) is not only high compared to other recent earthquakes but also demonstrates the susceptibility of older construction to seismic damage. Separate chapters deal with seismic retrofitting for historic residential buildings; the disaster recovery process in Humboldt County; the role of federal agencies in disaster response and the role of the State of California in disaster response. Topics addressed in the thesis include preservation legislation, California's policy toward historic properties, and the role of the insurance industry in encouraging the preservation of older residential structures.

Phillips, Brenda D. and Mindy Ephraim. 1992. *Living in the Aftermath: Blaming Processes in the Loma Prieta Earthquake*. Working Paper No. 80. Boulder, CO: Natural Hazards Research and Applications Information Center. 15 pp.

This report examines group behavior and attitudes in the aftermath of the 1989 Loma Prieta earthquake. Following the quake, widespread and diverse sheltering needs arose because of the mixed Bay Area population. The groups involved included non-English speakers, physically and mentally disabled individuals, "pre-quake" homeless, and others. Long accustomed to responding to sheltering, the American Red Cross stepped in to help; yet in some locales, complaints were lodged against Red Cross sheltering efforts (or lack thereof) as well as against local government efforts. Shelter problems in Watsonville, California, received heavy media attention when allegations of cultural insensitivity and discrimination against the community's large Latino population arose. This paper examines the evolution of these problems and offers suggestions for avoiding such difficulties in the future.

Picou, J. Steven. 2000. "The 'Talking Circle' as Sociological Practice: Cultural Transformation of Chronic Disaster Impacts." *Sociological Practice: A Journal of Clinical and Applied Sociology* 2(2):66-76.

This article presents a description of a culturally sensitive mitigation strategy, the "Talking Circle," and its application to Alaska Natives negatively impacted by the 1989 Exxon Valdez oil spill. Talking Circles are a traditional social activity for Alaska Natives and this activity was organized and implemented by members of the Village of Eyak in Prince William Sound, Alaska. The two-day event resulted in many testimonies about personal experiences with the oil spill. Post-Talking Circle activities by Eyak Village members indicate increased cultural awareness and political mobilization. These findings suggest that this mitigation strategy promoted cultural consciousness among victims experiencing chronic disaster impacts and resulting in a "transforming activity" for the Native Village of Eyak.

Simile, Catherine M. 1995. *Disaster Settings and Mobilization for Contentious Collective Action: Case Studies of Hurricane Hugo and the Loma Prieta Earthquake*. Newark, DE: University of Delaware, Disaster Research Center. 238 pp.

In 1989 two large-scale natural disasters affected two communities in the U.S. Hurricane Hugo affected the Sea Islands of South Carolina and the Loma Prieta earthquake, Watsonville, California. In both cases, pre-existing social organizations mobilized their resources to address disaster impacts experienced by marginalized populations, specifically, damage to housing. In the Sea Islands of South Carolina, white church groups addressed the housing problems of the rural black poor as ones of misfortune and provided charity to those people. In Watsonville, on the other hand, Latinos mounted contentious collective campaigns against what they claimed to be unjust actions on the part of the local white power structure. The differences in the actions undertaken by the two groups can be explained by the differential access each had to the features necessary for contentious collective action: political opportunity, resources, pre-existing social organization, and frames of injustice. The study concludes that, although disaster settings heighten the potential for contentious collective action, only groups who engaged in such behavior in pre-disaster settings are likely to engage in such action in post-disaster settings.

Thiel, Charles C., Jr., E. Leroy Tolles, Edna E. Kimbro, Fredrick A. Webster, and William S. Ginell. *Guidelines for Seismic Strengthening of Adobe Project—Report of first year activities*. Getty Conservation Institute. 250 pp.

The Getty Conservation Institute's interest in the areas of seismic damage mitigation studies and the stabilization of deteriorating adobe structures led to the establishment in November 1990 of the Guidelines for Seismic Strengthening of Adobe Project (GSAP). The goal of GSAP was to develop technical procedures for improving the seismic performance of existing monumental adobe structures consistent with maintaining architectural, historic, and cultural conservation values. California's seismic vulnerability is particularly hazardous to the state's Spanish Colonial adobe architectural heritage, which includes missions, presidios, and residences. Also included in the report is a glossary of Spanish Colonial architectural terminology, 451 general references plus chapter references, and a census of historic adobe buildings in California. The report is generously supplied with floor-plans, detail drawings, and photographs.

Tolles, E. Leroy, Edna E. Kimbro, Charles C. Thiel, Frederick A. Webster, and William S. Ginell. 1993. *Guidelines for the Seismic Retrofitting of Adobe Project—report of second year activities*. Getty Conservation Institute. 166 pp.

This second report of the Guidelines for Seismic Strengthening of Adobe Project activities offers: 1) a planning guide that provides information and advice about seismic cultural preservation goals, objectives, conservation principles, essential information required, and practical application of the information; and 2) a description of a seismic testing program, which contains information about test procedures, material and wall tests, and the results of the testing program on building models. Other features of the report include sources of information and assistance available from agencies and non-profit organizations, and a reprint of “Working with Architects and Other Consultants,” a chapter appearing in the Historic Property Owner’s Handbook (1977), which was prepared for the National Trust for Historic Preservation.

U.S. National Task Force on Emergency Response. 1997. *Emergency Response and Salvage Wheel*. Washington, D.C.: National Task Force on Emergency Response. 4 pp.

Much of America’s cultural heritage is in the care of museums, libraries, art institutions, and other organizations, and protecting these valuable resources can be difficult under the best of conditions. In a disaster, collections that have been carefully built over many years can be damaged, endangering national treasures. The National Task Force on Emergency Response recently created a useful tool to guide caretakers in protecting and salvaging their collections—the Emergency Response and Salvage Wheel—which outlines steps to take in preparing for, responding to, and recovering from disasters. It discusses creating disaster plans, working with emergency management agencies in the community, and obtaining assistance from national conservation organizations. The wheel also provides information on responding to a disaster warning; taking protective action during a disaster; initiating recovery activities away from the site; stabilizing a building and its environment; handling documentation; retrieving and protecting artifacts; assessing damage; prioritizing salvage activities; revitalizing historic buildings; and restoring photographs, books and papers, electronic records, textiles, furniture, ceramic, stone, metal organic materials, natural history specimens, and framed artwork.

U.S. National Trust for Historic Preservation. 1990. *An Assessment of Damage Caused to Historic Resources by the Loma Prieta Earthquake*. Publication No. NT-RS-10570-90. Washington, D.C.: National Trust for Historic Preservation. 114 pp.

This report assesses the damage and impacts to historic buildings caused by the Loma Prieta quake, analyzes the financial needs and funding available for restoring the buildings, and recommends actions to be taken by both federal and state governments. At the federal level, the report recommends that legislative procedures should be instituted immediately to retrofit historic buildings. The California State Office of Historic Preservation performed very well in dealing with the quake’s aftermath. Small scale methods for seismically upgrading buildings are known; what is needed is implementation, not necessarily more research. The report offers numerous suggestions, recommends implementation strategies, lists many California resources, and outlines state legislation aimed at retrofitting historical structures.

U.S. National Trust for Historic Preservation. 1993. *Treatment of Flood-Damaged Older and Historic Buildings*. Washington, D.C.: National Trust for Historic Preservation (NTHP). 12 pp.

Prompted by the massive flooding in the Midwest, the NTHP has prepared an informative booklet to assist building owners in minimizing structural and cosmetic damage caused by riverine flood waters. Construction detail drawings and checklists provide guidelines for dealing with problems caused by hydrostatic pressure (basement slab heaving, foundation collapse, loss of mortar); erosion (foundation erosion, soil erosion, sidewalk and slab heaving); saturated insulation; wood rot; masonry and concrete (soluble salt damage, freezing and thawing damage); exposed and imbedded metals; exterior paint; and interior finishes (drywall, wood floors and trim, paint, wallpaper, and floor coverings). The publication also suggests safety precautions for workers to take during the restoration process. In addition to providing advice on specific restoration details, these offices administer the historic rehabilitation tax credit program for owners of income-producing properties certified as historic rehabilitation projects.

Additional Reading

Aguirre International. 1996. *EDA's Post-Disaster Assistance Program After Hurricane Andrew: Final Report*. Washington, D.C.: U.S. Dept. of Commerce, Technical Assistance and Research Division, Economic Development Administration. 128 pp.

Bailey, Conner, Kelly D. Alley, Charles E. Faupel, and Cathy Solheim. 1993. *Environmental Justice and the Professional*. HRRC Publication No.125A. College Station, TX: Texas A&M University, College of Architecture, Hazard Reduction & Recovery Center. 10 pp.

Bailey, Conner, Charles E. Faupel, and Kelly D. Alley. 1994. *Environmental Justice: Mobilization of a Grassroots Social Movement*. HRRC Publication 126A. College Station, TX: Texas A&M University, College of Architecture, Hazard Reduction & Recovery Center. 21 pp.

Berke, Philip R., Jack D. Kartez, and Dennis E. Wenger. 1993. "Recovery after Disaster: Achieving Sustainable Development, Mitigation and Equity." *Disasters* 17(2):93-109.

Bolin, Robert and Lois Stanford. "Constructing Vulnerability in the First World: the Northridge Earthquake in Southern California, 1994." In Oliver-Smith, Anthony and Hoffman, Susanna M., eds. *The Angry Earth*. New York: Routledge: 89-112.

Boyce, James K. 2000. "Let Them Eat Risk? Wealth, Rights and Disaster Vulnerability." *Disasters* 24(3):254-261.

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- Harker, Donald F. and Elizabeth Ungar Natter. 1995. *Where We Live: A Citizen's Guide to Conducting a Community Environmental Inventory*. Covelo, CA: Island Press. 319 pp.
- Henderson, H. 1996. *Building a Win-win World: Life Beyond Global Economic Warfare*. San Francisco: Berrett-Koehler Publishers.
- Krajeski, Richard L. and Kristina J. Peterson. 1999. "'But She Is a Woman and This Is a Man's Job': Lessons for Participatory Research and Participatory Recovery." *International Journal of Mass Emergencies and Disasters* 17(1): 123-130.
- Martin, Christopher T. 1995. "Historic Resources Compliance and Mitigation in Missouri's Floodplains." Pp. 169-173 in *From the Mountains to the Sea--Developing Local Capability: Proceedings of the Nineteenth Annual Conference of the Association of State Floodplain Managers*. Special Publication 31. Boulder, CO: Natural Hazards Research and Applications Information Center.
- McDonnell, Sharon et al. 1995. "Evaluation of Long-term Community Recovery from Hurricane Andrew: Sources of Assistance Received by Population Sub-groups." *Disasters* 19(4): 338-347.
- Mileti, Dennis. 1999. *Disasters by Design: A Reassessment of Natural Hazards in the United States*. Washington, D.C.: Joseph Henry Press. Available at <http://books.nap.edu/catalog/5782.html>. [accessed September 21, 2001]
- Morrow, Betty Hearn and Elaine Enarson. 1996. "Hurricane Andrew Through Women's Eyes: Issues and Recommendations." *International Journal of Mass Emergencies and Disasters* 14(1): 5-22.
- Phillips, Brenda D. 2000 "Environmental Hazards, Sustainability and Social Justice: Making a Difference." In Dunn, Dana and Waller, David V., eds. *Analyzing Social Problems: essays and exercises*, second edition. Upper Saddle River, NJ: Prentice Hall.
- Rogers, George O. 1995. *Environmental Racism or Inequity: Comparative Study of Four Ethnic Groups*. HRRC Publication 131A. College Station, TX: University of Texas, College of Architecture, Hazard Reduction & Recovery Center. 18 pp.

Roseland, Mark. 1998. *Toward Sustainable Communities: Resources for Citizens and Their Governments*. Stony Creek, CT: New Society Publishers.

Weaver, James H., Michael T. Rock, and Kenneth Kusterer. 1997. *Achieving Broad-Based Sustainable Development: Governance, Environment, and Growth with Equity*. West Hartford, CT: Kumarian Press.

PROTECTING ENVIRONMENTAL QUALITY DURING DISASTER RECOVERY — WHERE TO FIND INFORMATION —

Training Courses and Workshops

Federal Emergency Management Agency, Emergency Management Institute, National Emergency Training Center. Emmitsburg, Maryland. (301) 447-1035; <http://www.fema.gov/emi> [accessed June 15, 2001]

- FEMA Program Responsibilities: Coordinating Environmental and Historical Compliance.” Federal Emergency Management Agency Course G253.
This 3-day course is an introduction to environmental and historic compliance. It examines the importance of fully integrating the compliance steps stipulated by the National Environmental Policy Act and the National Historic Preservation Act into the administration of the Public Assistance and Hazard Mitigation Grant Programs. This course is directed to those at environmental/historic entry levels, and others whose primary function is not environmental/historic.

Organizations

Columbia University, Center for International Earth Science Information Network (CIESIN). The findings at this site were jointly developed by CIESIN, the Yale University Center for Environmental Law and Policy, and the Global Leaders for Tomorrow Environment Task Force of the World Economic Forum. The Environmental Sustainability Index (ESI) identifies 22 major factors such as urban air quality, overall public health, and environmental regulation, and measures these factors using 67 different variables, such as levels of sulfur dioxide in urban air, deaths from diseases associated with poor sanitation, and percentage of land protected from development.

See “Environmental Sustainability Index” at <http://www.ciesin.columbia.edu> [accessed August 3, 2001]

Environmental Finance Center, The University System of Maryland.

According to its mission and purpose statement, the Environmental Finance Center was created to assist local communities in finding creative ways to pay for environmental projects. The Center promotes alternative and innovative ways to manage the cost of environmental activities, provides training and development opportunities in environmental management, and works to increase the public and private sector’s awareness of the benefits associated with sound environmental management policies.

See: <http://www.mdsg.umd.edu/EFU/index.html>; efc@mdsg.umces.edu. or (301) 314-6383.

Environmental Protection Agency.

Water: <http://www.epa.gov/OWOW> [accessed August 3, 2001]

“Green Communities:” <http://www.epa.gov/greenkit/sitedex.htm> [accessed August 3, 2001]

EPA Wetlands Information Hotline Publication List: e-mail: wetlands-hotline@epa.gov

The Rivers, Trails, and Conservation Assistance Program in the National Park Service.

The RTC has information on funding sources. Its website The site provides a list of organizations that offer financial support for locally lead conservation projects. You must contact each organization directly for more information.

See: <http://www.ncrc.nps.gov/rtca/funding>.

Federal and state government agencies.

Up-to-date government information is available via the Internet at: <http://www.searchgov.com>.

The screen gives links to all the federal departments, independent agencies, and each state. Click on the agency or state and work through their website. Most materials can be ordered from the website with a credit card.

- Agency documents may be obtained by writing the agency or going to the website and ordering a publication. Many federal documents are also available at university libraries that serve as Federal Depositories. Contact a local university for assistance.
- Maps, satellite images, aerial photographs, technical reports, and related hazard information are available from the federal agencies or their representative in each state: U.S. Geological Survey, U.S. Fish and Wildlife Service, the Federal Emergency Management Agency, the U.S. Department of Agriculture, Environmental Protection Agency, and the U.S. Army Corps of Engineers.
- State agencies that may have information relevant to environmental projects include the geological survey, departments of public works, emergency preparedness, environmental quality, natural resources, wildlife and fisheries, and agriculture and forestry.
- For information on Congressional activities, go to the Library of Congress website: loc.gov. The link to THOMAS allows for bill tracking and other activities.

Natural Resources Conservation Service.

See: <http://www.nhq.nrcs.usda.gov> [accessed August 3, 2001]

Also check out NRCS’s “Wildlife Habitat Incentives Program.” at

<http://www.nhq.nrcs.usda.gov/PROGRAMS/wwd/whipindex.htm> [accessed August 3, 2001]

New England Grassroots Environment Fund.

This organization provides grants to communities working on local environmental protection and restoration projects.

See: <http://www.grassrootsfund.org/index.html> [accessed August 3, 2001]

The Trust for Public Land.

This site has information on financing alternatives—state funding for parks and open space, conservation, the Trust for Public Land Public Finance Program, Public Finance Case Studies,

and more. It also references materials on building green infrastructure, with examples. The Toolbox includes discussions on local park financing techniques, a matrix of financing options, examples of funding, and community profiles. The matrix for local finance is definitely worth studying.

See: <http://www.tpl.org> [accessed August 3, 2001]

United Nations.

This UN document, “Natural Resource Aspects of Sustainable Development in the United States of America” gives an overview of U.S. policy and law associated with environmental sustainability in the United States.

See: <http://www.un.org/esa/agenda21/natinfo/countr/usa/natur.htm> [accessed June 15, 2001]

Books, Articles, and Papers

Association of State Floodplain Managers. 1996. *Using Multi-Objective Management to Reduce Flood Losses in Your Watershed*. Madison, WI: Association of State Floodplain Managers. 72 pp. Abstract available at <http://www.floods.org/PDF%20files/PUBSLIST.pdf>.

This publication documents the results of a multi-year project, funded by the Environmental Protection Agency and conducted by ASFPM, to explore planning and implementation techniques for multi-objective watershed management. It provides a general introduction to multi-objective management and the planning process that helps a community select the flood-loss reduction measures most suitable to its situation. It explains how to define problems and goals, build partnerships, combine needs and solutions creatively, and begin formal implementation procedures. Both riverine and coastal flood watersheds are examined. Much of the document focuses on multi-objective management planning details, involving subjects such as fish and wildlife issues, water supply, housing improvement, transportation and lifelines. Preparation of a M-O-M plan involves problem definition, involvement of non-local groups, and public and official acceptance of the plan.

Association of State Floodplain Managers, Inc. 2000. *National Flood Programs in Review—2000*. Madison, WI: Association of State Floodplain Managers, Inc. 47 pp.

This conceptual paper explains how many environmental protection measures support flood mitigation and vice-versa.

Burban, Lisa L. and John W. Andresen. 1994. *Storms Over the Urban Forest: Planning, Responding, and Regreening—A Community Guide to Natural Disaster Relief*. St. Paul, MN: U.S. Department of Agriculture, Forest Service, Northeastern Area. 154 pp.

When severe wind or ice storms strike a community, downed trees, power lines, and damaged property are major hindrances to response and recovery. Severely damaged trees often must be removed in a hurry to allow passage of emergency response vehicles, and sometimes only several weeks or months following a storm does the amount of damage and loss of trees become apparent. This is a guidebook for local governments in coping with such events. It discusses mitigation, preparing for and responding to natural disasters; cleaning up and “regreening” a community; working with disaster relief organizations; and experiences of Midwest communities in recovering from tornado damage, community experiences with Hurricane Andrew, and

technical resources and information. Additional resources are listed and numerous references accompany each chapter. The manual also contains reprints of relevant journal articles, educational blurbs from environmental organizations, and checklists.

Bush, David M., Rodney Prado, Kathie Dixon, and Orrin H. Pilkey. 1991. *Principles of Property Damage Mitigation and the Impact of Hurricane Hugo*. Durham, NC: Duke University, Department of Geology, Program for the Study of Developed Shorelines. 167 pp.

Prepared as a field-trip guide for the study of damage caused by Hurricane Hugo along the Carolina coast, this report shows that simply cleaning up and rebuilding should make way for more active steps to enhance and preserve the protective capabilities of the natural setting. It also suggests principles of reducing hurricane-caused property damage given expected sea-level rise, barrier island migration, and increased storm severity, and encourages environmentally sensitive approaches to hurricane mitigation. The document contains an account of pertinent hazard mitigation legislation and hazards research, a matrix of mitigation options, a general description of the shoreline affected by Hugo, and detailed descriptions of various sites included in the field trip.

Clayton, Tonya D., Lewis A. Taylor, Jr., William J. Cleary, Paul E. Hosier, Peter H.F. Graber, William J. Neal, and Orrin H. Pilkey, Sr. *Living with the Georgia Shore*. Durham, NC: Duke University Press. 200 pp.

This latest addition to Duke University's highly regarded "Living with the Shore" series, is a guide for residents, visitors, developers, planners, and others concerned with the condition and future of the Georgia coast. The authors recount both the human and natural history of the region's barrier islands, particularly examining coastal erosion and the implications of various human responses to this process. They also discuss the pressures created by rapid recreational and residential development. The book includes an introduction to each of the Georgia barrier isles, an overview of federal and state coastal land- use regulations, pointers on buying and building at the shore, a hurricane preparation checklist, a history of recent hurricanes in Georgia, an extensive annotated bibliography, and a guide to government agencies and private groups involved in issues concerning coastal development.

Department of Energy. 1994. *Rebuilding Your Flooded Home: Guidelines for Incorporating Energy Efficiency*. DOE-EE-0019. Washington, D.C.: U.S. Department of Energy, Office of Building Technologies, 36 pp.

After disasters, the natural tendency is to return to one's home and restore it to the way one left it. Due largely to recent advances in building technologies, it is possible to rebuild a residence with a little extra care—and not much more time and cost—and have a home that is much more energy efficient than it was prior to the disaster. By doing this, family comfort will be improved, energy consumption and utility bills can be reduced, property value can be enhanced, and money and energy can be saved for years to come. Because many house components will have to be replaced, i.e., insulation, it makes sense to purchase the most energy-efficient equipment and materials available. Following sections about drying out a flooded house and on personal safety when cleaning up, the document explains how to analyze the property for building shell problems (air leakages, foundations, flooring, etc.), then considers building systems and equipment issues (electric motors, air conditioning, and appliances). Suggestions are presented and tips are provided for financing energy-efficient solutions, such as buying materials in bulk if many properties are affected.

Eleff, Bob. 1999. *Minnesota's Flood Recovery Efforts: Good for the Environment?* St. Paul, MN: Minnesota Center for Environmental Advocacy. 41 pp.

In this report, the Minnesota Center for Environmental Advocacy (MCEA) examines the state's recovery efforts after the devastating floods of 1997. Figures that MCEA has collected from various sources indicate that at least \$740 million was spent on emergency operations, rebuilding damaged infrastructure, and on preventive measures aimed at reducing the risks and potential damage from future flood events. This report seeks to determine the extent to which Minnesota's decisionmaking process following the 1997 floods reflected this policy.

Federal Interagency Floodplain Management Task Force. 1992. *Floodplain Management in the United States: An Assessment Report*. Volume 1: Summary. Boulder, CO: Natural Hazards Research and Applications Information Center. 69 pp.

This assessment of floodplain management in the United States was commissioned in 1987 by the Federal Interagency Floodplain Management Task Force. Its purpose was to provide an evaluation of floodplain management activities in order to report to the public and to the Congress on progress toward implementation of "A Unified National Program for Floodplain Management." Thus, it is a compilation of available information concerning the nation's floodplains, experience with tools and strategies to reduce loss of life, property, and environmental resources, and a perspective of what has been accomplished.

Federal Interagency Floodplain Management Task Force. 1994. *A Unified National Program for Floodplain Management*. Washington, D.C.: Federal Emergency Management Agency. 43 pp.

This version of *A Unified National Program for Floodplain Management* responds to the directive in Section 1302(c) of the National Flood Insurance Act of 1968 that the President transmit to Congress any further proposals needed for a unified national program. Prior reports in response to this directive were submitted in 1976, 1979, and 1986. This report: 1) takes account of changes in economic, environmental, and social trends; 2) responds to a number of concerns raised during the nationwide assessment of the status of floodplain management completed in 1992; and 3) addresses the criticism leveled at the Unified National Program by the National Review Committee. The conceptual framework of this report focuses on the need to 1) reduce the loss of life, disruption, and damage caused by floods; and 2) preserve and restore the natural resources and functions of floodplains.

Federal Interagency Floodplain Management Task Force. 1995. *Protecting Floodplain Resources. A Guidebook for Communities*. Washington, D.C.: Federal Emergency Management Agency. 41 pp.

This guidebook provides information for local officials, citizens, landowners, and groups interested in protecting and restoring the natural resources and functions of floodplains. The guidebook focuses on local "grassroots" efforts needed to effectively manage and protect the resources of the floodplain environment including wetlands, riparian habitats, historic sites, and aesthetic amenities. The guidebook introduces a conceptual framework for floodplain management and provides a planning process that can be used in virtually any of the some 20,000 floodprone communities in the United States.

Flink, Charles A. and Robert M. Searns. 1993. *Greenways: A Guide to Planning, Design, and Development*. Washington, D.C.: Island Press. 351 pp.

Within the developed landscape, greenways serve a dual function: they provide open space for human access and recreational use, and they serve to protect and enhance remaining natural and cultural resources. This manual provides interested organizations and concerned individuals with background information about planning a greenway project, how to enlist local assistance in organizing project support, funding the project, related water recreation, greenway safety and liability, management, and planning for the care of rivers, streams, and wetlands. Information is provided on preserving stream and river functions, the impacts of urbanization on riparian regimes, and the establishment of organizational partnerships to plan, realize, and preserve greenway arrangements.

Godschalk, D.R., T. Beatley, P. Berke, D.J. Brower, and E.J. Kaiser. 1999. *Natural Hazards Mitigation. Recasting Disaster Policy and Planning*. Washington, D.C.: Island Press. 575 pp.

This book describes and analyzes the way that hazard mitigation has been carried out in the United States under the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The authors determine how the requirements of this law, establishing a national system for hazard mitigation, have worked in practice and how they might be made to work better.

Kline, Elizabeth. 1997. *Sustainable Community: Topics and Indicators*. Available online at <http://ase.tufts.edu/gdae/modules/modinstruct.html> [accessed June 22, 2001]

These narratives about sustainable community indicators were developed under a contract with the U.S. Environmental Protection Agency. The primary audiences are community practitioners and technical resource people.

May, Peter J., Raymond J. Burby, Neil J. Ericksen, John W. Handmer, Jennifer E. Dixon, Sarah Michaels, and D. Ingle Smith. *Environmental Management and Governance: Intergovernmental Approaches to Hazards and Sustainability*. New York, Routledge. 254 pp.

The book addresses aspects of environmental management that raise fundamental questions about human actions and government roles. The authors examine “cooperative” and “coercive” governments by comparing polices in New Zealand and Australia with the more coercive and prescriptive approaches used in the U.S. They also focus on how the different regimes influence choices by local governments about land use and development in areas subject to natural hazards. Separate chapters are devoted to growth management in Florida, resource management in New Zealand, and flood management in New South Wales. Other chapters describe how policy design is implemented, the role of regional governments, policy compliance and innovation at the local planning level, strategies for sustainable development, and examine the outcomes of cooperative policies.

Mazmanian, Daniel A. and Michael E. Kraft, eds. 1999. *Toward Sustainable Communities: Transition and Transformations in Environmental Policy*. Cambridge, MA: The MIT Press. 322 pp.

This book reviews and assesses environmental policy over the past three decades, primarily in the United States but with implications for other nations. The editors place U.S. environmental policy within the framework of the transition from 1970s-era policies that emphasized federally controlled regulation, through a period of criticism and efficiency-based reform efforts, to an emerging era of sustainability in which decisionmaking takes place increasingly at the local and

regional levels. The book looks at what does and does not work and how social, economic, and environmental goals can be integrated through policy strategies ground in the concept of sustainability.

Philippi, Nancy S. 1996. *Floodplain Management: Ecologic and Economic Perspectives*. San Diego, CA: Academic Press. 225 pp.

When economic and ecological concerns conflict, effective floodplain management often suffers. The author examines the reasons behind these conflicts and points to solutions. She discusses the challenge of managing floodplains, the need for floodplain management, the public interest and how to define it, governments and their roles, harmful effects of floodplain management, case studies of the Mississippi and American Rivers, and scenarios for effective management. Appendices reprint several important documents useful for the understanding of floodplain management in the United States.

Schwab, Jim, Kenneth C. Topping, Charles C. Eadie, Robert E. Deyle, and Richard A. Smith. 1998. *Planning for Post-Disaster Recovery and Reconstruction*. PAS Report No. 483/484. Chicago, IL: American Planning Association. 346 pp. Abstract available at <http://www.planning.org/apapubs/details.asp?Num=1178>.

This document helps community leaders and planners educate their constituents on how informed decisions and choices can affect the rebuilding process and yield a safer, more sustainable community. This report introduces planners to their roles in post-disaster reconstruction and recovery, and provides guidance on how to plan for post-disaster reconstruction side by side with all other players involved. A key theme throughout this report is to rebuild to create a more disaster-resistant community. The report contains many references to technical resources.

U.S. National Science and Technology Council. 1994. *Technology for a Sustainable Future: A Framework for Action*. Washington, D.C.: U.S. National Science and Technology Council. 154 pp.

This report summarizes the Clinton White House's plan for developing a comprehensive environmental technology strategy. It examines the use of environmental technologies to facilitate long-term environmental, energy, and economic goals and asks for suggestions for improving federal policies related to advancing environmental technologies. It includes a section on technology needs for natural disaster reduction. The document also provides examples of avoidance, monitoring and assessment, and remediation and restoration. Appendices contain lists of federal sources for agency offices (names, contact information) and online data resources.

U.S. President's Council on Sustainable Development. 1997. *Sustainable Communities Task Force Report*. Washington, D.C.: U.S. Government Printing Office. 186 pp.

This report and its companion volume, *Sustainable America: A New Consensus for Prosperity, Opportunity, and a Healthy Environment for the Future*, published in 1996, lay out a set of policy recommendations for planning for sustainable communities. One of the recommendations is to "shift the focus of the federal disaster relief system from cure to prevention." The appendix contains case studies of communities that have set forth sustainability principles, profiles of communities in the 50 states, state-led sustainability initiatives and organizations, and a list of resources for sustainable communities.

World Commission on Environment and Development. 1987. *Our Common Future*. Oxford, UK: Oxford University Press. Abstract available at <http://www.oup.co.uk/isbn/0-19-282080-X#desc>. [accessed September 21, 2001]

In 1983, the World Commission on Environment and Development was asked by the United Nations General Assembly to formulate “a global agenda for change.” This document, also known as the Brundtland Report, is the report of the Committee chaired by Gro Harlem Brundtland. The Committee undertook to: 1) propose long-term environmental strategies for achieving sustainable development by the year 2000 and beyond; 2) recommend ways concern for the environment may be translated into greater cooperation among developing countries and between countries at different stages of economic and social development and lead to the achievement of common and mutually supportive objectives that take account of the interrelationships between people, resources, environment, and development; 3) consider ways and means by which the international community can deal more effectively with environmental concerns; and 4) help define shared perceptions of long-term environmental issues and the appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment, a long-term agenda for action during the coming decades, and aspirational goals for the world community.

Additional Reading

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- Harker, Donald F. and Elizabeth Ungar Natter. 1995. *Where We Live: A Citizen's Guide to Conducting a Community Environmental Inventory*. Covelo, CA: Island Press. 319 pp.
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INCORPORATING DISASTER RESILIENCE INTO DISASTER RECOVERY — WHERE TO FIND INFORMATION —

Training Courses and Workshops

Federal Emergency Management Agency, Emergency Management Institute, Higher Education Project Courses. Emmitsburg, MD. http://www.fema.gov/emi/edu/aem_courses.htm [accessed June 15, 2001] Contact: (301) 447-1233 or email Barbara Johnson: barbara.l.johnson@fema.gov

- “Building Disaster Resistant and Sustainable Communities.” Course developed by Raymond Burby. <http://www.fema.gov/emi/edu/bldcomm.htm>, [accessed June 15, 2001] This course introduces the concepts of sustainable development, resilient communities, and smart growth. Public and private sector planning are discussed. The last quarter of the class focuses on topics of resilience, including financing resilience projects, creating resilience among vulnerable populations, and creating resilience for specific hazards.

Federal Emergency Management Agency, Emergency Management Institute, National Emergency Training Center. Emmitsburg, MD. <http://www.fema.gov/emi> [accessed June 15, 2001] (301) 447-1035.

- “Introduction to Mitigation.” Independent Study Course. Federal Emergency Management Course IS393.
At the end of the course, the student should be able to: explain the rationale for mitigation and its function as a component of emergency management; define the principles, purposes, and priorities of mitigation; describe mitigation measures that are applicable to local hazard risk problems; summarize responsibilities and resources for mitigation; and outline mitigation planning considerations.
- “Integrated Emergency Management Courses for Specific Communities.” Federal Emergency Management Agency Courses E930/S390, E931/S391, E932/S932.
These courses place emphasis on community response and short-term recovery issues. They are tailored to fit the community and are based on a selected hazard type. The courses use classroom instruction, planning sessions, and exercises to allow for structured decisionmaking in a learning, yet realistic, environment. A key outcome is to assist with making the transition from response to short-term recovery. The three classes offered are: E930/S390 IEMC/Community Specific/All Hazards: Response and Recovery; E931/S931 IEMC/Community Specific/Hurricane: Response and Recovery; and E932/S932 IEMC/Earthquake: Response and Recovery.
- “IEMC/All Hazards: Recovery and Mitigation.” Federal Emergency Management Agency Course E901/S901.
This course emphasizes recovery and mitigation and is conducted for two types of audiences. The course places public officials and other key community leaders in a simulation that begins after a disaster has affected the community.

- IEMC/Earthquake: Recovery and Mitigation.” Federal Emergency Management Agency Course E911/S911.
This course is similar to the above “All Hazards” in its format, but focuses specifically on earthquakes.
- “IEMC/Hurricane: Recovery and Mitigation.” Federal Emergency Management Agency Course E906/S906.
This course is similar to the above “All Hazards” in its format, but focuses specifically on hurricanes.
- “Multi-Hazard Building Design Summer Institute.” Federal Emergency Management Agency Courses E329, E330, E331, and E333.
These courses are intended to provide up-to-date technical information on building design for the faculty of engineering or architectural colleges. It is intended that faculty members incorporate this information into their curriculum in order to train the architects and engineers of the future in the proper approaches to mitigating natural hazards. Four courses include: Flood Protective Design (E329), Earthquake Protective Design (E330), Wind Protective Design (E331), and Fire Safety Design (E333).
- “Retrofitting Flood-Prone Residential Buildings.” Federal Emergency Management Agency Course E279/G279.
This 2-day course is designed to provide engineering and economic guidance on retrofitting existing one- to four-family residential structures situated in floodprone areas. Subjects covered include an introduction to retrofitting, regulatory framework, controlling parameters, building assessment, and design practices. There is also a 1-hour unit on economics and a final exam.
- “Seismic Retrofit Training for Building Contractors and Inspectors.” Federal Emergency Management Agency Course G225.
This 8-hour course demonstrates methods to retrofit residential structures to reduce seismic damage. Students are shown methods of properly tying a structure to a foundation and using connectors to strengthen its frame. Topics covered include earthquake basics, shear walls, foundations, connections, and miscellaneous elements in construction. In addition, liability issues for contractors are discussed throughout the course. The manual is designed to be an on-site reference tool for contractors.

Organizations

Association of State Floodplain Managers.

The Association of State Floodplain Managers is an organization of professionals involved in floodplain management, flood hazard mitigation, the National Flood Insurance Program, and preparedness, warning and recovery. The ASFPM represents the flood hazard specialists of local,

state, and federal government, the research community, the insurance industry, and the fields of engineering, hydrologic forecasting, emergency response, water resources, and others.
See <http://www.floods.org> [accessed July 23, 2001]

Center of Excellence for Sustainable Development.

The CESD website is a project of the Denver Regional Office of Department of Energy's Office of Energy Efficiency and Renewable Energy. Since 1995, the CESD website has offered users access to comprehensive resources on community sustainability. It is an excellent source for resources on sustainable development.

See <http://www.sustainable.doe.gov> [accessed June 29, 2001]

Disaster Resistant Communities Association.

This web site includes recent news stories about communities that have implemented pre-disaster mitigation plans and Project Impact.

See <http://www.hazmit.net/PIAssoc/PIHome.htm> [accessed June 15, 2001]

Federal Emergency Management Agency (FEMA).

FEMA is the federal agency responsible for preparing for and responding to disasters in the United States.

See <http://www.fema.gov> [accessed July 23, 2001]

Institute for Sustainability and Technology Policy. *Directory of Policy Journals in Transport, Urban Planning and Sustainability.*

Over 50 journals are described to help academics, professionals, and students research many topics related to this field. Each journal is described including a link to the site where the journal may be found on the internet. Some journals have access to online articles.

See: <http://www.wistp.murdoch.edu.au/research/journal/> [accessed July 13, 2001]

Network of State Hazard Mitigation Officers.

This web site is a link to state hazard mitigation officers and an online source of information for hazard mitigation officers.

See: <http://www.hazmit.net/index.htm> [accessed June 15, 2001]

Videos, CD-ROMs, and DVDs

Stand Up to the Flood: Get Your Home in Shape. Association of Bay Area Governments. 1999. Contact the Association of Bay Area Governments at: P.O. Box 2050, Oakland, CA 94604-2050. Phone: (510) 464-7900; fax: (510) 464-7970; or see <http://www.abag.ca.gov> [accessed September 14, 2001]

Flood Mitigation Planning: The First Steps. Association of State Floodplain Managers (ASFPM). 2000.

Contact ASFPM at asfpm@floods.org or see <http://www.floods.org> [accessed September 14, 2001]

Mitigation Revitalizes a Floodplain Community: The Darlington Story. Wisconsin Department of Natural Resources. 1997. Madison, WI.

This is a splendidly produced videotape about the efforts of a small rural Wisconsin community to reverse the effects of neglect and disinvestment in its historic downtown area caused by repeated flooding and economic change. Using a multi-objective planning and management strategy, officials and citizens, in partnership with government agencies and private entities, identified six goals: 1) preserve the historic character of the downtown; 2) restore community pride; 3) acquire and relocate commercial properties at risk; 4) elevate and flood proof commercial and residential structures; 5) stimulate investment downtown; and 6) pursue tourism as an economic strategy. The video follows the mitigation process from early meetings through floodproofing and relocation. Produced by the Wisconsin Department of Natural Resources. 27 minutes. 1997. Available free from Wisconsin DNR, P.O. Box 7921, Madison, WI 53707-7921; (608) 264-9200.

Rhineland Relocation Project. Booneslick Regional Planning Commission. n.d. Produced by Video Production Company for the Booneslick Regional Planning Commission and others. For availability, contact the Booneslick Regional Planning Commission at (314) 456-3473 or the Economic Development Administration in Jefferson City, Missouri at (314) 751-4146.

Quality Redevelopment of Eastern North Carolina. Horizon Video Productions. 2000. Durham, NC.

This 20-minute video was produced by the state in the aftermath of Hurricane Floyd to introduce and educate local and state officials about the “better ways” available to recover from the disaster and at the same time address other local concerns such as environmental quality, economic vitality, housing, sense of community, business and job opportunities, and disaster mitigation. It introduced a framework espoused by the state for sustainable community action and features the governor explaining the tenets of “quality redevelopment” and how it can—and did—benefit North Carolina communities and help ensure a better future for the state’s citizens. Available from North Carolina Department of Emergency Management, 1830-B Tillery Place, Raleigh, NC 27699; (919) 751-8000; fax: (919) 715-9763.

Taking the Initiative. Federal Emergency Management Agency, Emergency Management Institute. 2000. Emmitsburg, MD.

This 20-minute video shows how a neighborhood, two small towns, and a business owner took responsibility for and got organized to adopt sustainability principles and techniques in coping with hazards. The three separate instances, all in California, illustrate participatory processes, taking initiative, looking at the economic benefits of hazard mitigation (in one case, elevating a restaurant), incorporating livability components into a flood protection measure, and protecting the local environment and habitat. This video is available from the Emergency Management Institute at 1-800-238-3358. Ask for the “Disaster-Resistant Jobs” video.

The Link Between Sustainability & Disaster Resistant Communities. Slide show produced by the U.S. Department of Energy and the Federal Emergency Management Agency.

<http://www.sustainable.doe.gov/disaster/impact> [accessed July 23, 2001]

This slide show explains the concept of sustainable redevelopment and gives examples of redevelopment in three communities: Soldiers Grove, Wisconsin; Valmeyer, Illinois; and Arkadelphia, Arkansas.

Community Vulnerability Assessment Tool. New Hanover County, North Carolina. NOAA Coastal Services Center.

Before communities can develop effective hazard mitigation strategies, they must first identify their hazard risks and assess their vulnerability to the impacts of those hazards. This CD-ROM includes a method for conducting a community-wide vulnerability assessment. A tutorial steps the user through a process of analyzing physical, social, economic, and environmental vulnerability at the community level. The foundation for the method was established by the Heinz Center Panel on Risk, Vulnerability, and the True Cost of Hazards.

Planning for Natural Hazards: Oregon Technical Resource Guide. Oregon Natural Hazards Workshop. 2000. University of Oregon: Oregon Natural Hazard Workshop.

The purpose of the guide is to help Oregon cities and counties plan for and limit the effects of threats posed by natural hazards.” More information is available on-line at <http://www.uoregon.edu/~onhw/text/projects/tfeatured.html> [accessed June 22, 2001]

Books, Articles, and Papers

Association of State Floodplain Managers. 1996. *Using Multi-Objective Management to Reduce Flood Losses in Your Watershed.* Madison, WI: Association of State Floodplain Managers. 72 pp. Abstract available at <http://www.floods.org/PDF%20files/PUBSLIST.pdf>. [accessed September 21, 2001]

This publication documents the results of a multi-year project, funded by the Environmental Protection Agency and conducted by ASFPM, to explore planning and implementation techniques for multi-objective watershed management. It provides a general introduction to multi-objective management and the planning process that helps a community select the flood-loss reduction measures most suitable to its situation. It explains how to define problems and goals, build partnerships, combine needs and solutions creatively, and begin formal implementation procedures. Both riverine and coastal flood watersheds are examined. Much of the document focuses on multi-objective management planning details, involving subjects such as fish and wildlife issues, water supply, housing improvement, transportation and lifelines. Preparation of a M-O-M plan involves problem definition, involvement of non-local groups, and public and official acceptance of the plan.

Bay Area Regional Earthquake Preparedness Project. 1990. *Putting the Pieces Together: The Loma Prieta Earthquake One Year Later.* Oakland, CA: Bay Area Regional Earthquake Preparedness Project. 253 pp.

This report grew out of a conference held to determine the lessons learned from the Loma Prieta earthquake and its aftermath. The conference examined preparedness and mitigation efforts before the quake, political and management issues of disaster response, recovery and reconstruction programs, and mitigation activities since the event. Among the numerous topics addressed in the volume, separate chapters are given to seismological and geological considerations, geotechnical aspects, the performance of lifelines, buildings, and transportation systems and the implications for future design of these elements, effective emergency

management, emotional and psychological aftereffects, economic impacts, emergency public information and the media, the restoration of lifelines, emergency medical services, business recovery, and housing reconstruction.

Beatley, Timothy and David Brower. 1997. *Hazard Mitigation in Florida Following Hurricane Andrew*. Natural Hazard Working Paper No. 13. Chapel Hill, NC: University of North Carolina, Center for Urban and Regional Studies. 61 pp.

This case study examines the impacts, activities, and lessons learned from Hurricane Andrew. The report describes the extent and nature of the damage the storm caused, along with Florida's susceptibility to hurricanes. It describes the pre-storm status of the region's planning and mitigation framework, then documents the major recovery and reconstruction activities that have transpired since the storm, including the post-storm mitigation projects and expenditures, changes to building codes, and design charrettes that examined alternative rebuilding strategies. Among the major policy issues that emerged from the study are: the appropriate role of the state mitigation plan, the appropriateness of mitigation choices made following Andrew, the limited mitigation options in South Florida, and the benefits and limitations of Florida's system of comprehensive planning and growth management.

Berke, Philip R. and Timothy Beatley. 1992. *Planning for Earthquakes: Risk, Politics, and Policy*. Baltimore, MD: John Hopkins University Press. 228 pp.

The authors examine the experiences of 260 earthquake-prone communities across the U.S., paying particular attention to three areas of especially high risk: Palo Alto, California; Salt Lake City, Utah; and the lowlands of South Carolina, including Charleston. They address issues that include citizen safety, determining and maintaining the structural integrity of old and new buildings, mapping, and land use, and also discuss alternative seismic hazard reduction measures and local earthquake mitigation programs. They conclude with a set of recommended activities for implementing local programs and building public support while involving federal and state governments. It is recommended that major stakeholders in the development of mitigation strategies should be involved with the planning process from the beginning.

Berke, Philip R. and Jack Kartez. 1994. *Sustainable Development as a Guide to Community Land Use Policy: A Conceptual Framework*. HRRC Publication 37P. College Station, TX: Texas A&M University, College of Architecture, Hazard Reduction & Recovery Center. 25 pp.

This paper provides a conceptual definition of "sustainable development," which many have argued is a vague phrase that threatens to become an unmanageable cliché. The authors explore how "sustainable development" can be used to describe the common good in land use and development and present a set of principles for land use policy formation. Principles for land use policy that the report identifies are: 1) include public participation in the decisionmaking process; 2) build consensus through conflict resolution mechanisms; 3) build local decisionmaking on a realistic capacity to carry out policies; 4) recognize local rights to devise rules for guiding human settlement patterns; 5) land use policy must work in harmony with nature and recognize the limits of ecosystems; 6) the built environment should be in harmony with people's needs and aspirations; 7) realistic land use policy must be able to alleviate local poverty and account for the least advantaged; 8) polluters, or culpable parties/corporations, must pay for the adverse affects they have imposed on ecosystems; and 9) responsible regional planning needs to be promoted.

Berke, Philip and David Godschalk. 1996. *Hazard Mitigation in California following the Loma Prieta and Northridge Earthquakes*. Natural Hazard Working Paper No. 14. Chapel Hill, NC: University of North Carolina, Center for Urban and Regional Studies. 59 pp.

This report documents a case study conducted almost six years after the Loma Prieta quake and one and one-half years after Northridge. The strengths and weaknesses of the California 409 Plans are identified, state and federal mitigation planning and implementation processes are reviewed, and local mitigation examples are drawn from San Francisco, Berkeley, Watsonville, and Los Angeles and Ventura counties. One finding was that present mitigation systems (policies and institutions) will not be adequate to mitigate the impacts of a future major earthquake catastrophe. Two recommendations were that California should pursue a coordinated, interdisciplinary effort to further the understanding of earthquake prediction and of earthquake impacts and should reinvigorate efforts to mandate local multi-hazard mitigation planning before and after a disaster.

Burby, Raymond J., ed. 1998. *Cooperating with Nature: Confronting Natural Hazards with Land-Use Planning for Sustainable Communities*. Washington, D.C.: Joseph Henry Press. 356 pp. Available at <http://www.nap.edu/catalog/5785.html>.

This volume focuses on the breakdown in sustainability—the capacity of the planet to provide quality of life now and in the future—that is signaled by disaster. The book takes a historical approach to the explain why land use and sustainability have been ignored in devising public policies for natural hazards. The authors provide suggestions and a blueprint for the future.

Burby, Raymond J., Timothy Beatley, Philip R. Berke, Robert E. Deyle, Steven French, David R. Godschalk, Edward J. Kaiser, Jack D. Kartez, Peter J. May, Robert Olshansky, Robert G. Paterson, and Rutherford H. Platt. 1999. “Unleashing the Power of Planning to Create Disaster-Resistant Communities.” *Journal of the American Planning Association* 65 (Summer).

Human suffering and losses of lives and property in natural disasters can be reduced with appropriate planning for hazardous areas. However, the authors of this paper assert that federal policies addressing these problems have yet to recognize the importance of planning as the cornerstone of effective local hazard mitigation. In fact, federal programs make planning more difficult, the authors suggest, because they encourage the intensive use of hazardous land and shield local governments and private decisionmakers from financial losses in the disasters that inevitably follow. To unleash the power of planning for hazard mitigation, federal policies must be revised so that they help build local understanding of risk, commitment to hazard mitigation, and support for planning.

Bush, David M., Rodney Priddy, Kathie Dixon, and Orrin H. Pilkey. 1991. *Principles of Property Damage Mitigation and the Impact of Hurricane Hugo*. Durham, NC: Duke University, Department of Geology, Program for the Study of Developed Shorelines. 167 pp. Prepared as a field-trip guide for the study of damage caused by Hurricane Hugo along the Carolina coast, this report is designed to educate readers about the many effects of hurricanes on seashores and to encourage a new way of thinking about hurricane recovery. It tries to show that simply cleaning up and rebuilding should make way for more active steps to enhance and preserve the protective capabilities of the natural setting. It also suggests principles of reducing

hurricane-caused property damage given expected sea-level rise, barrier island migration, and increased storm severity, and encourages environmentally sensitive approaches to hurricane mitigation. The document contains an account of pertinent hazard mitigation legislation and hazards research, a matrix of mitigation options, a general description of the shoreline affected by Hugo, and detailed descriptions of various sites included in the field trip.

Federal Emergency Management Agency. 1997. *Project Impact Guidebook. Building a Disaster Resistant Community*. Washington, D.C.: U.S. Government Printing Office.

This guidebook is designed to help communities protect residents, organizations, businesses, infrastructure, and stability and growth of the economy as much as possible against the impact of natural disasters before they happen.

Federal Emergency Management Agency. 1997. *Report on Costs and Benefits of Natural Hazard Mitigation*. Washington, D.C.: Federal Emergency Management Agency. 52 pp.

A long-standing question for those who work to reduce the impacts of natural hazards is whether mitigation is worth the time and expense. Specifically, are the costs required to reduce or eliminate the impacts of natural hazards substantially less than the benefits they provide? This report reviews the benefits that can accrue to different segments of society from mitigative measures, the costs that can be incurred by undertaking mitigation activities, and the analyses needed to evaluate the cost-effectiveness of these measures. The document has 16 case studies across the United States and demonstrates their efficiency against several types of natural hazards, as well as the effectiveness of other mitigation tools. The studies include seismic retrofitting of lifelines in Tennessee, reinforcement of highway bridges in California, historic preservation and community development in Wisconsin, mitigation in hospitals in California, reduction of business interruption costs in Iowa, seismic retrofitting in Los Angeles public schools, wind shutter protection in Florida, acquisition and relocation of floodplain structures in Missouri, regulation of unreinforced masonry buildings in Los Angeles, land-use and building regulation along the coasts of Florida, land-use and building requirements in floodplains, and seismic retrofitting to avoid business disruption. The cases include both public- and private-sector initiatives.

Federal Emergency Management Agency. 2000. *Planning for a Sustainable Future: The Link Between Hazard Mitigation and Livability*. FEMA Report 364. Washington, D.C.: Federal Emergency Management Agency. 40 pp. Available at http://www.fema.gov/mit/planning_toc2.htm. [accessed September 21, 2001]

This booklet is about hazard mitigation, disaster resilience, sustainable development and livability, and describes the linkages among these concepts. It shows how communities that undertake hazard mitigation planning become more disaster resistant and reap further benefits. Hazard mitigation links disaster resilience to broad community objectives of economic health, social well-being, and environmental protection.

French, Steven P., Arthur C. Nelson, S. Muthukumar, and Maureen M. Holland. 1996. *The Northridge Earthquake: Land Use Planning for Hazard Mitigation*. NSF Grant Number CMS-9416458. Atlanta, GA: Georgia Institute of Technology, College of Architecture, City Planning Program. 160 pp.

Land use planning for seismic safety has been mandated in California for more than 20 years. The 1994 Northridge earthquake, which significantly impacted 19 local jurisdictions, provided a

unique opportunity to assess the effectiveness of this planning as a mitigation strategy. The authors found that planning had a small but measurable effect in reducing earthquake damage. In particular, the hazard delineation and public awareness components of the plans were the most strongly related to lower damage levels. Additionally, a disproportionate amount of damage occurred in areas that were previously identified as likely to experience liquefaction, and communities that had undertaken detailed mapping of these areas experienced less damage than those that did not. The report initially discusses the role of land use planning in natural hazard mitigation, then provides a setting for the Northridge quake. The pre-earthquake policy framework is reviewed, and local land use plans in effect are overviewed. The final chapter suggests ways to improve the effectiveness of land use planning for hazard mitigation.

Geis, D.E. 2000. "By Design: The Disaster Resistant and Quality of Life Community." *Natural Hazards Review* 1(3):151-160.

According to Geis, the present approach to designing and building communities is inadequate and is inflicting great and growing harm—physically, environmentally, socially, economically, and emotionally—that we can no longer tolerate. The disaster resistant community concept, the first step toward creating quality-of-life communities, was created specifically to provide a new way of thinking. A number of basic questions need to be addressed. What are disaster-resistant communities? Why are they important? What are the benefits? What is the relationship between a disaster-resistant community and a sustainable quality-of-life community? And, most importantly, how do we go about creating them? This article provides the answers to these questions so that the concept can be better understood and used to its fullest potential.

Godschalk, David and Timothy Beatley. 1996. *Hazard Mitigation in Iowa Following the Great Midwest Floods of 1993*. Natural Hazard Working Paper No. 10. Chapel Hill, NC: University of North Carolina-Chapel Hill, Center for Urban and Regional Studies. 31 pp.

The report examines how the Stafford Act influenced recovery in eight localities in Iowa. Questions explored include: What constitutes mitigation? Who is in charge after a disaster occurs? What good is the 409 (Stafford) Plan? Who pays for disasters? Other topics considered include grant administration accountability, equity issues, the promotion of sustainable communities, and problems caused by confusing rules and guidance.

Godschalk, D.R., T. Beatley, P. Berke, D.J. Brower, and E.J. Kaiser. 1999. *Natural Hazards Mitigation. Recasting Disaster Policy and Planning*. Washington, D.C.: Island Press. 575 pp.

This book describes and analyzes the way that hazard mitigation has been carried out in the United States under the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The authors determine how the requirements of this law, establishing a national system for hazard mitigation, have worked in practice and how they might be made to work better.

Kundzewicz, Zbigniew W. 1999. "Flood Protection—Sustainability Issues." *Hydrological Sciences—Journal—des Sciences Hydrologiques* 44(4): 559–571.

Several types of technical infrastructure used globally for flood protection have been criticized in the context of sustainable development because they close off options for future generations and introduce unacceptable disturbances in ecosystems. Large structural flood defenses like dams, levees, storage reservoirs, and embankments are often listed in this category. This article examines the means of coping with floods in the sustainability context. The premise is that,

although some flood protection is necessary to the present generation to attain a fair degree of freedom from disastrous events, it must be done in such a way that future generations are not adversely affected. Various measures, or tests, of the sustainability of structural and nonstructural flood mitigation approaches are reviewed. Among them are questions about the fairness, reversibility, potential for landscape rehabilitation, and risk of various approaches; the extent to which consensus and/or participatory decisionmaking was incorporated into the planning; the magnitude of the marginal environmental impact; and the efficiency of existing and proposed projects. The author concludes that a change in paradigm is needed because a flood protection system guaranteeing complete safety is an illusion; an attitude of “living with floods” is more sustainable than a hopeless striving to combat floods.

Mileti, Dennis S. 1999. *Disasters by Design*. Washington, D.C.: The Joseph Henry Press. 351 pp. Available at <http://books.nap.edu/catalog/5782.html>. [accessed September 21, 2001]

This book is a summary volume of the Second National Assessment of Research on Natural Hazards with the formal mission of summarizing what is known in the various fields of science and engineering that is applicable to natural and related technological hazards in the United States, and making some research and policy recommendations for the future. It summarizes the hazards research findings from the last two decades, synthesizes what has been learned, and outlines a proposed shift in direction in research and policy for natural and related technological hazards in the United States. *Disasters by Design* is intended for a general audience, including policymakers and practitioners.

Mittler, Elliott. 1997. *An Assessment of Floodplain Management in Georgia's Flint River Basin*. Boulder, CO: University of Colorado, Institute of Behavioral Science, Natural Hazards Research and Applications Information Center. 190 pp.

On July 3, 1994, Tropical Storm Alberto struck the Florida panhandle and proceeded northeast before stalling just south of Atlanta, Georgia, inflicting over \$1 billion in damage. The flood provided an opportunity to identify and document the successes and failures of state and local floodplain management programs and activities. The author assessed the impact of federal, state, and local floodplain management activities on losses in the Flint River Basin, paying particular attention to the impact of the National Flood Insurance Program (NFIP) and local floodplain management efforts. He examines previous floodplain studies; evaluates the political situation affecting flood recovery in each community; examines federal, state, and local responses to the disaster, concentrating on recovery plans and the use of hazard mitigation programs to reduce future flood losses; analyzes the effectiveness of the NFIP; and offers a series of findings and recommendations based on the relatively successful recovery programs he found.

Nanita-Kennett, Milagros. 1994. *Urban Redevelopment and Earthquake Safety*. Tallahassee, FL: Florida A&M University, School of Architecture. 143 pp.

Urban renewal or redevelopment has been employed by federal, state, and local governments to promote the creation of public infrastructure and regulate the development process. However, earthquake safety programs have never been a part of this process, despite evidence that many cities are broadly vulnerable to the hazard. If these programs could be successfully integrated, seismic safety and protection could be greatly increased with reasonable effort and cost. The author examines this topic by addressing urban decay and earthquake risk; the redevelopment

process; the urban environment, including building codes, land use, and infrastructure; federal earthquake programs; local government programs; and the integration of various aspects of redevelopment. In addition, she provides case studies of Charleston, South Carolina; Memphis, Tennessee; Salt Lake City, Utah; and Santa Rosa and Santa Cruz, California.

National Wildlife Federation. 1998. *Higher Ground: A Report on Voluntary Property Buyouts in the Nation's Floodplains*. Washington, D.C.: National Wildlife Federation.

The National Wildlife Federation is dedicated to restoring landscapes, including natural wetlands, floodplains, and habitat of species that thrive along rivers and streams. *Higher Ground* focuses on efforts to restore floodplains through voluntary property buyouts and relocations of homes and other structures from high-risk flood zones and presents a detailed analysis of National Flood Insurance Program (NFIP) data. It includes sections on the history of buyout programs in the U.S. and the 1993 Midwest floods, an analysis of repetitive losses in the NFIP, and conclusions and recommendations.

North Carolina Emergency Management Division and Federal Emergency Management Agency. 2000. *Hazard Mitigation in North Carolina: Measuring Success*. Raleigh, NC: DEM.

To accelerate the institutionalization of hazard mitigation in North Carolina, the North Carolina Emergency Management Division established the Hazard Mitigation Planning Initiative, a long-term program to build local capacity to implement mitigation policies and programs in communities across the state. Through a series of case studies, this study documents losses avoided as a result of the implementation of a wide range of mitigation measures, including elevations and the acquisition and relocation or demolition of floodprone properties.

Reddy, Swaroop. 1992. *A Study of Long Term Recovery of Three Communities in the Aftermath of Hurricane Hugo*. HRRC Monograph 9B. College Station, TX: Texas A&M University, College of Architecture, Hazard Reduction Recovery Center. 171 pp.

The objectives of this report—a doctoral dissertation—included: 1) to determine the factors that explain the successful adoption of hazard mitigation measures during recovery, 2) to develop a conceptual understanding of the problems inherent in the adoption of mitigation during disaster recovery, and 3) to gain an understanding about the influence of pre-storm institutional regulations on mitigation during the recovery period. The major findings were: the stronger and greater the presence of eight implementation factors in a community, the greater the successful adoption of mitigation measures; local institutional involvement is essential in the successful adoption of mitigation; there is a strong link between development management and hazard mitigation; a strong link also exists between the protection of coastal resources and coastal hazard mitigation; and the existence of strong pre-storm institutional regulations help local jurisdictions promote the adoption of mitigation during recovery.

Schwab, Jim, Kenneth C. Topping, Charles C. Eadie, Robert E. Deyle, and Richard A. Smith. 1998. *Planning for Post-Disaster Recovery and Reconstruction*. PAS Report No. 483/484. Chicago, IL: American Planning Association. 346 pp. Abstract available at

<http://www.planning.org/apapubs/details.asp?Num=1178>. [accessed September 21, 2001]

This document helps community leaders and planners educate their constituents on how informed decisions and choices can affect the rebuilding process and yield a safer, more sustainable community. This report introduces planners to their roles in post-disaster

reconstruction and recovery, and provides guidance on how to plan for post-disaster reconstruction side by side with all other players involved. A key theme throughout this report is to rebuild to create a more disaster-resilient community. The report contains many references to technical resources.

U.S. Department of Agriculture and U.S. Department of the Interior. 1996. *Federal Wildland Fire Management Policy and Program Review Implementation Action Plan Report–May 23, 1996*. Washington, D.C.: U.S. Dept. of Agriculture. 33 pp.

This report describes methods for implementing the recommendations contained in a prior report on federal wildland fire policy. It outlines specific actions to be enacted immediately, such as developing fire management plans for all areas subject to wildland fires, developing research programs, and requiring appropriate treatment of fuel hazards created by resource management and land use activities. The report also discusses items that require a long-term commitment, such as the use of a planning system that recognizes both fire use and fire protection as inherent parts of natural resource management, long-range management objectives, and standard criteria to assess suppression and support requirements.

Western Governors' Association. 1996. *Wildland/Urban Interface Fire Policy Action Report*. Denver, CO: Western Governors' Association, 1996. 9 pp.

Many state governors believe that a comprehensive revision of fire policy regarding the wildland/urban interface is critical to preventing future loss of life, property, and natural resources. Hence, the members of the Western Governors' Association offer a blueprint for improved management of the wildfire hazard that plagues western states. The governors recognize that, as western populations continue to move into wildland areas, the risk increases, and that, although low-intensity fires are often beneficial to the forest environment, intense fires are destructive to plant and soil systems.

Wilhite, Donald, Deborah A. Wood, and Kelly Helm Smith. n.d. *Planning for a Sustainable Future: The Case of the North American Great Plains*. IDIC Technical Report Series 95-1. Lincoln, Nebraska: International Drought Information Center.

The participants at this symposium addressed the complex economic, social, and environmental issues facing the Great Plains region in anticipation of climate change in the years to come. In addition to essays on sustainable development and global change policies, the volume contains four case studies that deal with sustainable land use, education and research agendas, the Groundwater Guardian Program, and the use of reverse engineering to enhance the lessons learned over the past eight decades. Also included are focus group reports on agricultural production, land and water resources, human and community resources, biological resources and biodiversity, and integrated resource management.

Wright, J.M. and J.L. Monday. 1996. *Addressing Your Community's Flood Problems. A Guide for Elected Officials*. Madison, WI: Association of State Floodplain Managers, Inc. and the Federal Emergency Management Agency. 38 pp.

This document was prepared to help elected officials plan and take action to prepare their communities for floods.

Additional Reading

- Beatley, Timothy. 1995. *Promoting Sustainable Land Use: Mitigating Natural Hazards Through Land Use Planning*. HRRC Publication No. 133A. College Station, TX: Texas A&M University, College of Architecture, Hazards Reduction & Recovery Center. 6 pp.
- Beatley, Timothy. 1996. *National Trends and Future Directions in Hazard Mitigation Policy: The Elements of a New Paradigm*. Natural Hazard Working Paper No. 6. Chapel Hill, NC: University of North Carolina, Center for Urban and Regional Studies. 97 pp.
- Faber, Scott. 1996. *On Borrowed Land: Public Policies for Floodplains*. Cambridge, MA: Lincoln Institute of Land Policy.
- Federal Emergency Management Agency. 1987. *Reducing Losses in High Risk Areas: A Guidebook for Local Officials*. FEMA 116. Washington, D.C.: U.S. Government Printing Office.
- Federal Emergency Management Agency. 1995. *Mitigation. Cornerstone for Building Safer Communities*. The Report of the Mitigation Directorate for Fiscal Year 1995. Washington, D.C.: U.S. Government Printing Office. 83 pp.
- Federal Emergency Management Agency. 1997. *Multi Hazard Identification and Risk Assessment. The Cornerstone of the National Mitigation Strategy*. Washington, D.C.: U.S. Government Printing Office.
- Godschalk, David R. and Edward J. Kaiser. 1996. *Lessons from Six Mitigation Case Studies*. Natural Hazard Working Paper No. 15. Chapel Hill, NC: University of North Carolina, Center for Urban and Regional Studies. 10 pp.
- Godschalk, David; Norton, Richard; Peterson, Junko; Richardson, Craig; and Salvesen, David. 1998. *Coastal Hazards Mitigation: Public Notification, Expenditure Limitations, and Hazard Areas Acquisition*. Chapel Hill, NC: Center for Urban and Regional Studies.
- Johnston, Robert and Madison, Mary. 1997. "From Landmarks to Landscaped: A Review of Current Practices in the Transfer of Development Rights." *Journal of the American Planning Association* 63(3):369.
- Missouri State Emergency Management Agency. 1995. *Out of Harm's Way: the Missouri Buyout Program*. Springfield, Missouri: Missouri State Emergency Management Agency.
- National Park Service, 1996. *Floods, Floodplains and Folks: A Casebook for Managing Rivers for Multiple Uses*. Washington, D.C.: U.S. National Park Service.
- Platt, Rutherford. 1996. *Land Use and Society: Geography, Law, and Public Policy*. Washington, D.C.: Island Press.

Porter, Douglas. 1997. *Managing Growth in America's Communities*. Washington, D.C.: Island Press.

Working Group on Natural Disaster Information Systems, 2000. *Effective Disaster Warnings*. Washington, D.C.: National Science and Technology Council, Committee on Environment and Natural Resources.