

### BOOK REVIEWS

*National Earthquake Probabilistic Hazard Mapping Program: Lessons for Knowledge Transfer.* By Elliot Mittler, Craig Taylor, and William Petak. Boulder: Natural Hazards Research Working Paper No. 92, Natural Hazards Research and Applications Information Center, Institute of Behavioral Science, University of Colorado, 1996. 98 pp.; \$9.00 (U.S.).

**Thomas A. Birkland**

Graduate School of Public Affairs  
State University of New York at Albany  
Albany, NY 12222  
USA  
birkland@csc.albany.edu

Mittler, Taylor, and Petak study the process of earthquake hazard mapping. The report defines the problem, outlines the history of earthquake zone mapping, analyzes the knowledge transfer process, and offers recommendations.

The authors consider two interpretations of the history of seismic mapping: as technical advances, and as driven by sources of funding for research. They then choose to consider this process as a product of growth in federal involvement in seismic mapping. Their chronology of seismic mapping reflects three stages of this involvement: from 1890 to 1925, when there were no maps or codes; from 1925 to 1970, characterized by private standards setting; and from 1971 to the present, marked by public and private standards-setting.

The key question is: What characterizes knowledge transfer? A rapid translation of maps into building codes indicates successful transfer. There were at least two successful transfers between 1935 and 1970. These transfers were the result of one producer of seismic maps—the United States Geological Survey (USGS)—providing this information to one consumer of this information—the International Conference of Building Officials (ICBO). The lags between the adoptions of these maps are acceptable, the authors argue, because they provide time for the building professions to adjust practices to new knowledge as explained in these codes.

Various legal and social concerns, such as those generated by the Alaska and San Fernando earthquakes, and federal anti-trust concerns about monopolies on standard-setting led to important changes in map making. By the mid 1970s, the federal government was particularly active, through the National Earthquake Hazards Reduction program (NEHRP), in addressing the earthquake hazard. At the same time, "... the number of participants in the transfer process increased significantly as the national concern over seismic codes became more prominent" (p. 17). Equally important, California engineers' monopoly on seismic zone mapping was loosening.

Greater involvement of federal and private-sector actors in map making has meant that more perspectives can be brought to bear on the mapping of this hazard, and that such maps can conflict with current engineering and building practices. Thus, the more interest and activity in mapping, the greater the possibility of conflicting interpretations of scientific information. The authors argue that including and considering additional scientific information led to greater conflict in interpretation of scientific information and its application to maps. This was exemplified by the controversy following the Building Seismic Safety Council's (BSSC) decision to include disputed material that is not recommended for inclusion in mapping and subsequent design decisions. While there is considerable pressure to create a single national building code by the end of this century, recent scientific knowledge is not being transferred from maps to building codes because of scientific and political uncertainties about this information. The authors find that the knowledge transfer process has broken down because "... participants in the knowledge transfer process are typically asked to adopt changes to design value maps without a thorough knowledge of their scientific bases, their impact on building practices, or their socioeconomic consequences" (p. 54).

Their recommendations for improving this process focus on improving the process of testing and evaluation of new information; improving consensus building among participants in knowledge transfer; improving the knowledge level of the participants, given the variability in their knowledge; and stressing differences between design value and scientific maps. At the same time, they urge that research on knowledge transfer be encouraged.

This report will be useful to professionals in other hazards fields as a guide to the knowledge transfer process. Lessons learned here might be applied to other hazard problems. It will also be of considerable value to students of political processes underlying natural disaster policy. The authors' chronology of key events in the earthquake mapping field track closely with key policy changes, such as the establishment of the NEHRP and California's Alquist-Priolo act. The authors acknowledge, however, that their study

focuses on the International Conference of Building Officials (ICBO) and the BSSC while excluding from consideration, due to resource constraints, other code-developing organizations. The authors recommend that future research on knowledge transfer in this field include these other organizations. This report provides a useful and important foundation for that research.

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*The Public Health Consequences of Disasters*. Edited by Eric K. Noji. New York: Oxford University Press, 1997. 488 pp.; \$59.95 hardback (U.S.).

**James L. Mills, Jr.**  
College of Health Sciences  
Florida International University  
Miami, Florida 33199  
USA

*The Public Health Consequences of Disasters* provides the reader with well researched and well documented information on the history, origin/cause, frequency, duration, and consequences of the world's major or most common disasters.

The book is divided into four sections: (1) general issues; (2) geophysical events; (3) weather-related problems; and (4) human-generated problems. Each section is divided into chapters with data presented in a well-organized logical format, thus allowing the reader to manage large volumes of information in an easy to comprehend manner.

In the general issues section, divided into seven chapters, a basic foundation for understanding the complex nature of disasters is provided. In these initial chapters, comprehensive guidelines are offered which enable those unfamiliar with disaster work an excellent opportunity to develop a succinct understanding of disaster-related issues. These chapters establish a primary underpinning for understanding disaster-related issues via discussions of the nature of disaster, the use of epidemiological methods in disasters, surveillance and epidemiology, managing environmental health aspects, communicable diseases in disasters, mental health consequences of disasters, and effective media relations.

Collectively the information presented in these chapters represents the outstanding efforts of seven world-renowned experts in disaster-related work. Particularly interesting is the material on myths and realities of disasters presented in chapter one. Here, ten commonly held disaster myths are reversed by well-researched facts, making the work of some disaster prevention efforts more effective. Chapter six on mental health consequences is especially noteworthy for its candid discussion of stressors, which has been absent from other disaster-related texts. In this chapter, Ellen T. Gareth and Brian W. Flynn provide a short but

effective review of problems caused by trauma and disaster-related stress on victims, volunteers, and hired rescue workers. The issues of critical incident (event) stress, post-traumatic stress disorder, and the need for mental health workers to provide preventive stress management measures are well documented.

In general, the design, organization, and event chronology provided in each chapter represent major strengths in information delivery. In section three, for example, while weather-related problems (tropical cyclones, tornadoes, hot environments, cold environments, and floods) are presented in separate chapters, paragraph headings and subheadings in all but one chapter are the same. Thus each section and chapter uses the same, or very similar, information categories. In addition to excellent (easy to read and understand) use of tables, charts, graphs, and maps, another benefit of this presentation style is that it allows the reader to easily contrast and compare information within chapters and/or across sections. For example, trends in deaths related to hurricane-caused flooding from 1932 to 1992 could be compared to deaths related to flooding worldwide created by heavy rains for the same years. The chapter subsection titled "Prevention, Control and Response Measures" is a strategic component in each chapter. It clearly demonstrates that disaster prevention and control measures are common to many disaster situations. In this regard, common to all disaster prevention, control, and response measures listed in this text are disaster preparation efforts. They include the pro-active training and cooperation of a variety of groups including public health personnel, police and fire workers, emergency medical response teams, volunteer agencies, and city and county administrative personnel, to name a few of those discussed.

Furthermore, each chapter highlights disaster-specific critical knowledge gaps (CKG) and detailed methodological problems related to epidemiological studies. Based upon the detailed review of each problem listed in each chapter's CKG components, corrective research recommendations are made. A concise summary of the most important facts is presented at the end of each chapter.

The disaster information provided in this text is broad-based, comprehensive, and current, but equally important is the presentation format. In only 440 pages of text, Noji et al. have reviewed the significant elements of disaster-related issues, provided a behavioral profile of each, listed pro-active prevention and control measures, and, based on specific disaster knowledge gaps, enumerated detailed research recommendations. In my opinion, this book would become a well-worn volume in the library of all those involved in disaster work.

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*Disasters and Mental Health: Therapeutic Principles Drawn from Disaster Studies.* By Charles E. Fritz. Newark, DE: University of Delaware, Disaster Research Center, Historical and Comparative Disasters Series No. 10, 1996. 89 pp.; \$20.00 (U.S.).

**Robert A. Stallings**

Editor, *IJMED*

Program in Public Policy

School of Policy, Planning, and Development

and

Department of Sociology

University of Southern California

Los Angeles, California 90089-0626

USA

[rstallin@usc.edu](mailto:rstallin@usc.edu)

This monograph, originally written at the beginning of the 1960s and intended as a chapter in the anthology, *Man and Society in Disaster* (Basic Books, 1962), is finally available, thanks to its publication in the Disaster Research Center's Historical and Comparative Disasters Series. The original manuscript has been left unchanged, the author opting instead to add a preface placing the text in historical and intellectual context. The monograph also contains an explanatory forward written by E. L. Quarantelli.

Without denying that disasters involve death, destruction, and privation, Fritz identifies their "... many beneficial effects on surviving personal and social systems" (p. 19). He introduces the term "community of sufferers" to synthesize observations from a variety of collective life-threatening situations. The functions of these communities of sufferers for both individuals and societies (ameliorating pre-existing conflicts, preventing individual disorganization, reducing anti-social behavior, and remotivating actors) are described in the largest portion of the report (pp. 31-53).

Fritz' propositions about the therapeutic aspects of in-group solidarity were not only ahead of their time but also provide a challenge to current and future researchers. That challenge is to explore the social boundaries of supportive relationships created by shared stress. How widespread are these relationships following disasters, especially in urban areas normally characterized by

anonymity and isolation? How long do the beneficial effects of these collective "near-miss" situations persist?

Failure to include this paper in the 1962 anthology prevented "community of sufferers" from entering the lexicon of disaster studies. It also prevented access to another work in Fritz' exemplary style, a style characterized by a willingness to transcend different types of events in pursuit of the common elements of life-threatening and system-threatening situations, a strong disciplinary orientation that brings clarity rather than jargon to the analysis, and excellent prose. While the core of Fritz' argument now is taken pretty much for granted by disaster researchers, it is still far from conventional wisdom in the behavioral and medical sciences and in the public-at-large. By publishing this paper in one of its monograph series, the Disaster Research Center has taken an important step toward correcting the historical record in the field.