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## BOOK REVIEW

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Robert Ayre, *Earthquake and Tsunami Hazards*, 150 pages;

Earl Baker and Joe McPhee, *Land Use Management and Regulation in Hazardous Areas*, 124 pages;

Don G. Freidman, *Computer Simulation in Natural Hazard Assessment*, 192 pages;

Gilbert F. White, *Flood Hazard in the United States*, 141 pages;

Boulder, Colorado: Institute of Behavioral Science, University of Colorado, 1975.

The results of a National Science Foundation sponsored multi-year study of Natural Hazards in the United States conducted at the University of Colorado's Institute of Behavioral Science is in the process of being presented in a series of 20 monographs. The remarks below pertain to the four monographs indicated above. These four are treated here collectively since they are homogeneous and complementary as regards methodologies and the reporting of results.

## **LAND USE MANAGEMENT AND REGULATION IN HAZARDOUS AREAS**

Of the six main adjustments to most natural hazards, the one receiving perhaps greatest current attention by both state and local governments is that of land management. It is fraught with both legal and political constraints, yet at first blush it appears to offer the most direct means of constraining the growth of potential threat for nearly all of the hazard types – other factors and

adjustments being equal. Unfortunately they are *not* equal. San Francisco cannot be removed from exposure to the earthquake threat along the Andreas fault. And most measures to restrict the use of high risk acreages have to be pitted against the economic losses this would entail to the community and region, not to mention the legal and political obstacles ever present. The monograph by Baker and McPhee devotes six chapters to these problems, analyzing and pointing out the main problem areas in implementing land management programs. They especially direct attention to the need for federal agencies to provide research on land management as well as the technological problems in minimizing hazard risks; also the need to develop effective incentives — tax benefits, federal aid and other ways of gaining support for land management. The need for leadership for the federal government in reviewing its own policies concerning land use is stressed, especially in regard to housing policies and support of urban renewal programs. As in the other three monographs the analyses lead to recommendations for additional research, here mainly in delimiting the hazard prone areas for which management and development constraints are needed. Hazards which need priority are listed as earthquakes, storm surge, flood, landslide, and coastal erosion in that order.

Appropriately, the most interesting and perhaps the most important part of this monograph is the chapter on legal considerations. Here the authors illustrate with pertinent legal precedents the constraints under law to programs of land management, highlighting the substantial variations that exist from state to state. Having defined the legal “bucket of

worms” to be faced in a frontal approach to land management, the authors point to more tractable approaches using construction codes, zoning, insurance, and tax measures to achieve the basic goals of protecting the public interest in hazard prone lands. Additional research recommended could cost a minimum of about \$18 million to plan a viable national program of land management.

Overall the monograph series by the Institute of Behavioral Sciences on natural hazards should have a significant impact on planning and administering programs to minimize economic and social losses if for no other reason than that it assembles a massive amount of factual information on the physical character of these hazards, and on the interaction to be expected between the various adjustments most of which are presently supported individually and independently by various government agencies.

Whether the recommendations made will effectively impact federal research policies will very likely depend more on the political expediency with which they are viewed by the incumbent and following administrations than upon the urgency with which the National Science Foundation supports the recommendations of the study it has sponsored. Experience has shown that this in turn is likely to depend upon whether one or more natural disasters of sufficient political importance to the nation occur before obsolescence overtakes these important publications.

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