II. The Earthquake Hazards Reduction Act of 1977, Public Law 95=124

INTRODUCTION

The Act is a major legislative recognition of the extensive risk to lives and property from earthquake hazards in the United States. As a result of the shift of our growing population toward high-density urban living, and as a result of population growth in regions with seismic activity in historic time, there is a prospect of catastrophic earthquakes leaving thousands dead, destroying tens of billions of dollars in property, and causing social Dislocation on a massive scale. The Earthquake Hazards Reduction Act is an attempt to coordinate existing programs and begin to allocate funds In a manner comparable with the gravity of the problem.

The purpose of the Act is to reduce the risks to life and property from earthquakes in the United States through the establishment of an effective earthquake hazards reduction program.

Scientific advance and research findings have made it possible for public policy to aim. at mitigation of hazards-related losses. Thus, it is no longer necessary for public policy to limit itself to the traditional emphasis on postdisaster relief and reconstruction. Scientific and engineering achieve ments, especially in the moderation, prevention, and prediction of seismic risks, have critical implications for the future of earthquake hazards ma management. The Act reflects the need for a coherent national framework, within which these emerging technologies can mature and be useful.

The growth in public awareness of U.S. exposure to earthquake hazards—at least 39 States face severe or moderate risks (figure 1)—has spurred engineers and social scientists to inquire about engineering and management techniques applicable to the mitigation of the effects of seismic events. This fertile research area is just beginning to receive the financial support commensurate with the importance of its mission.

For the results of this research to be effective, knowledge must be aggregated and evaluated for its applicability in hazard situations and actively disseminated to the appropriate governmental jurisdiction and to the population at largc. Any coherent nationa I planning program must frame the reduction of earthquake hazards in such a manner that fragmentation is limited and coordination enhanced. This legislation seeks to establish that framework to harness the dispersed energies of the many scientists, engineers, builders, and planners already involved in the attempt to reduce this Nation's sensitivity to earthquake hazards.

CONTENTS OF THE ACT

The Act establishes a national earthquake hazards reduction program, under the direction of the President, to minimize the loss and disruption resulting from future earthquakes. The program includes four parts.

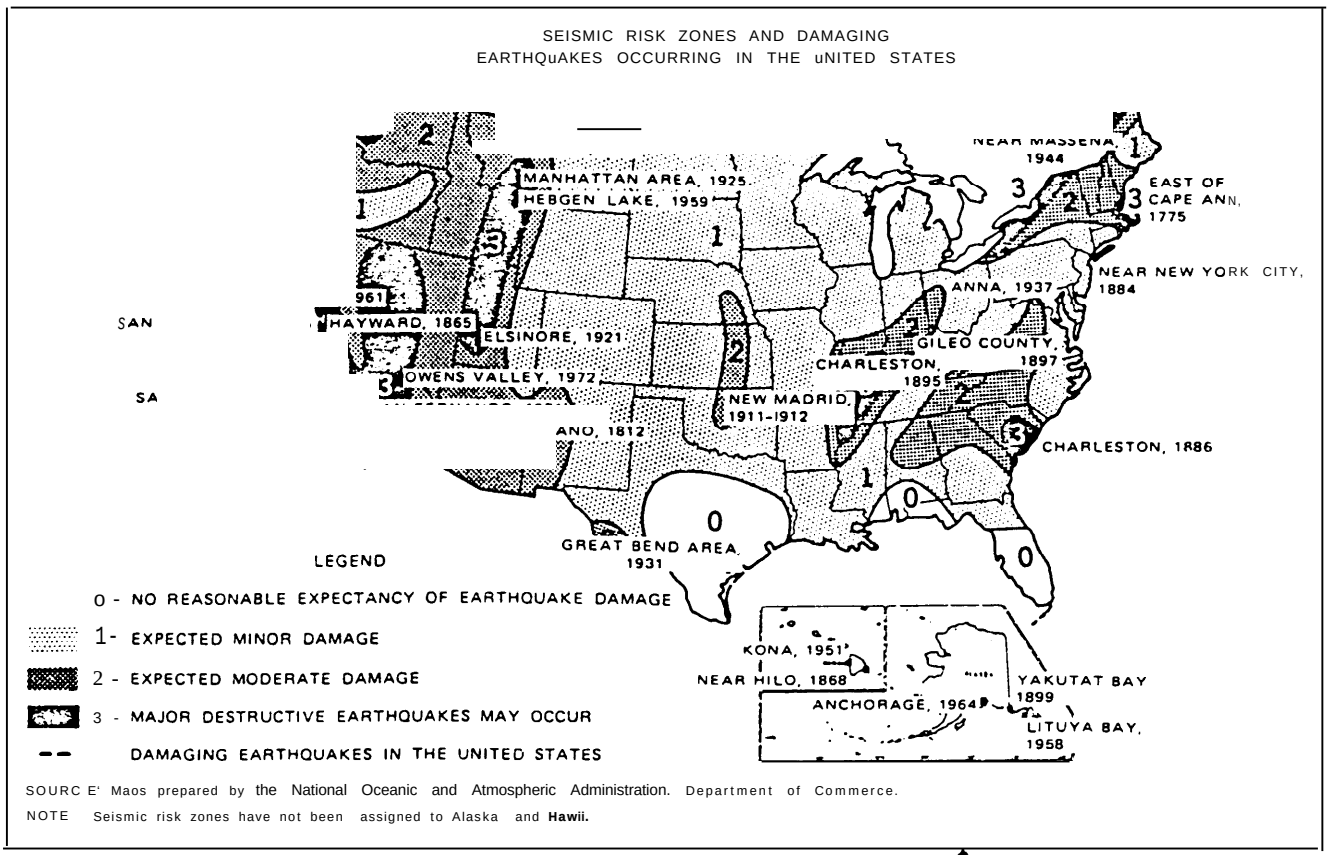
The first element includes fundamental earthquake studies, prediction, hazards assessment, and other research relating to the reduction of hazards.

Because we need more knowledge about all aspects of earthquakes, the Act requires research in nine areas:

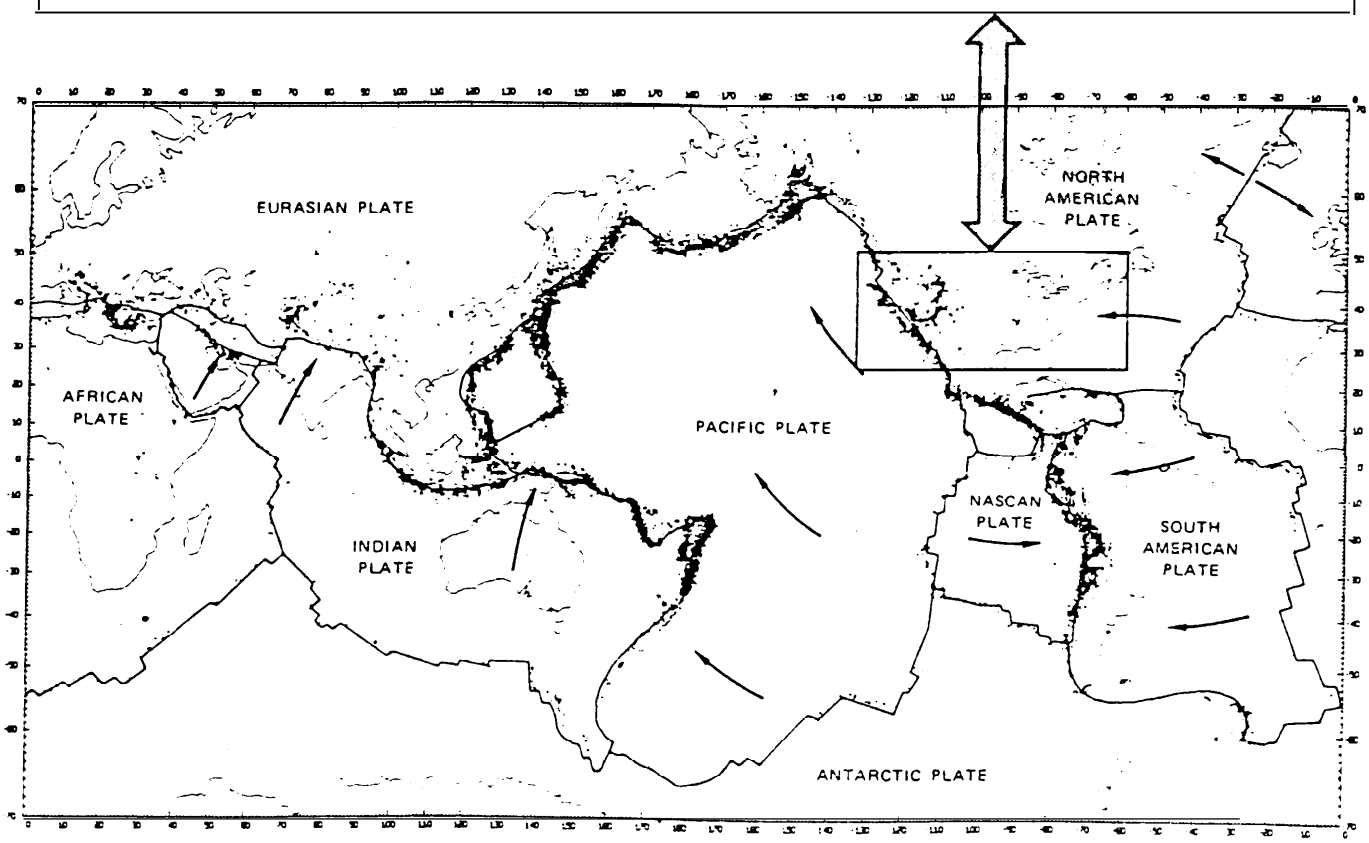
1. basic earthquake causes;
2. earthquake prediction;
3. artificial induction of earthquakes;
4. earthquake modification or control;
5. preparation of risk analyses a and land use guidelines;
6. earthquake effects;
7. methods of designing and building manmade works to resist earthquakes;
8. social and economic adjustments that would lessen the harm done by earthquakes; and
9. foreign experience with earthquakes.

A second element of the Act calls for an implementation plan for applying the existing information and new research findings to decision-making at the Federal, State, and local levels. This plan was required to be submitted to Congress

Figure 1.—Map of Worldwide Seismic Activity Showing Location and Movement of Major Plates



SOURC E' Maos prepared by the National Oceanic and Atmospheric Administration. Department of Commerce.
NOTE Seismic risk zones have not been assigned to Alaska and **Hawii.**



SOURCE *Earthquake Prediction* in *Society (SRI. Center* for Resource and Environmental Systems Studies. February 1977). p. 8.

within 210 days of enactment, and this has been done. Within 300 days of enactment, the President must designate a lead agency, assign responsibility in the program to appropriate agencies, and establish goals and target dates for the program.

A third element of the Act is a State assistance program which permits its assistance to be made availablc to the States under the Disaster Relief Act of 1974.

A fourth element is an opportunity for partic i pat ion i n the program by the appropriate representatives of State and local governments and by the public, including representatives of business and industry.

Finally, the Act requires the President to submit an annual I report on the program to Congress.

Authorizations are for three fiscal years: *1978, 1979, and 1980. The* authorizations are for general purposes, for the U.S. Geological Survey, and for the National Science Foundation. The total amounts are $56 mill ion in fiscal year 1 1978, $72 million in fiscal year 1979, and $82 million in fiscal year 1980.

THE IMPLEMENTATION PLAN

The implementation plan required by the bill provides for:

- preparations for earthquakes, including prediction, evaluation, earthquake warnings, and response planning;
- development of ways for State and local government to use information about earthquake risks in land use planning;
- development of standards and codes for earthquake-resistant construction
- examination of how earthquake hazards can be reduced through Federal construction loans and licenses;
- determination of the appropriate roles of insurance loans and relief in moderating the impact of earthquakes; and
- dissemination of information about all aspects of earthquakes.