

## Loss-reduction measures in federal earthquake insurance initiatives

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**ABSTRACT:** In this paper we trace the progress in including earthquake mitigation in federal earthquake insurance initiatives. Anticipating these initiatives in 1988, the Federal Emergency Management Agency awarded a contract to Dames & Moore to examine the feasibility of incorporating loss-reduction measures into a federal earthquake insurance program. Insurance industry deliberations, headed by the Earthquake Project, had at that time addressed this issue only with an implied system of voluntary mitigation incentives. In April, 1990, two initiatives were placed before Congress. One, based on an early draft of the Dames & Moore report, emphasized earthquake mitigation whereas the other, based on Earthquake Project developments, emphasized protection of financial institutions. Controversies over these two bills along with completion of the Dames & Moore final report led the Earthquake Project to develop a Mitigation Committee and to announce revised legislative proposals in early 1991. These legislative proposals (H.R. 2806) are as of this writing under discussion by Congress.

### INTRODUCTION

For decades the topic of a federal earthquake insurance and/or reinsurance has received much discussion (for developments up to 1990, see Mittler, 1990). Early in 1989, the property/casualty insurance industry consortium "Earthquake Project," under the aegis of the National Committee on Property (NCP) Insurance, designed a proposal to forge a partnership between the federal government and the private insurance industry. To initiate discussions, the Project produced and published a document titled Catastrophic Earthquakes: The Need to Insure Against Economic Disaster. This document outlined an insurance industry consensus position on the federal earthquake insurance/reinsurance initiatives needed.

Anticipating future legislative efforts, the Federal Emergency Management Agency (FEMA) awarded in September 1988 a contract to Dames & Moore in order to evaluate the role of loss-reduction measures in a federal earthquake insurance and/or reinsurance context. The Project had not initially addressed this issue systematically. Some distinguished members of Congress such as Congressman George Brown from California were likely to focus on "mitigation" in the discussion of a federal earthquake insurance/reinsurance

program. The Project revisited this topic.

This paper discusses the progress made in addressing the "mitigation" issue in terms of two time periods: September 1988 to September 1990 and July 1990 to February 1992.

### PROGRESS IN INCORPORATING LOSS-REDUCTION MEASURES: 1988-1990

As the Dames & Moore project began, several polarized positions were already present. In summary, these included the positions that

(a) Insurance industry legislative efforts were then complete, even though loss-prevention measures were limited to pre-sale inspections of residences in high risk seismic zones. That position was buttressed by the contentions that the earthquake peril is uninsurable because it is catastrophic, that risk methods cannot provide a basis for rating and that from a private sector (property owner and insurer) standpoint benefits of loss-prevention measures are too small and risky to be viable investments. Even if cost-effective loss-reduction measures were found, it was further maintained, there is no way in which an insurance entity could effectively enforce them. Discussions disclosed that a system of voluntary incentives for mitigation was satisfactory when accompanied by

a widespread affordable earthquake insurance. The deliberations revealed that this should be the dominant goal of legislative efforts.

(b) That any federal program should involve infusion of large sums of money into federal programs for science and education and into programs that provide significantly expanded opportunities for earthquake hazard mitigators, and

(c) Discussion of federal earthquake insurance programs should preclude sensitive issues of existing federal earthquake hazard mitigation programs and the large emphasis within these programs on emergency response and recovery as opposed to loss prevention.

Given these conflicting positions and agendas, the Dames & Moore project proceeded to examine the cost-effectiveness of earthquake loss reduction measures, the feasibility of their incorporation into a federal earthquake insurance/reinsurance program, and the adequacy of earthquake risk methods for the evaluation of loss-prevention measures and the development of rates (and secondary insurance prices). In order to insure the broadest possible stakeholder input, a nationally recognized Advisory Panel was formed, co-chaired by Delbert Ward, Architect, and former Director, Utah Seismic Safety Advisory Council, and Richard Roth, Jr., Assistant Insurance Commissioner, State of California. In the course of the two-year project, three Advisory Panel meetings were held, along with a workshop involving not only Advisory Panel members but also knowledgeable representatives of diverse disciplines, interests, and geographic regions of the United States.

Some highlights of this project were

- Delivery of a report on earthquake risk analysis methods

- Discussions during the third advisory panel meeting in January 1991 which led one advisory panel member, George Bernstein, Esq., to believe that a federal earthquake insurance program was feasible. (The first administrator of the National Flood Insurance Program, Mr. Bernstein was later the author of a Congressional bill sponsored in April 1990 by Congressmen George Brown and Sherwood Boehlert; the substance of this bill was based in part on a January 1990 draft of the Dames & Moore final report.

At about the same time a bill drafted by the Earthquake Project and sponsored by Congressman Al Swift and David Dreier was introduced into Congress. Testimony by F. Reilly (1990) of the Federal Insurance Administration made it clear that the Administration found both bills wanting.)

The final report provided affirmative answers to the following questions

- Are there cost-effective and technically

feasible loss-prevention measures?

- Are current earthquake risk methods adequate for the evaluation of these loss-prevention measures and for the determination of rates and secondary insurance prices?

- Are there ways of incorporating these cost-effective loss-prevention measures into a federal earthquake insurance and/or reinsurance program?

Although highly qualified, the affirmative answers to these questions implied that mitigation and rating were not major obstacles -- at least theoretically -- to the formation of a federal earthquake insurance and/or reinsurance program. (see Taylor et al., 1990)

#### FURTHER DEVELOPMENTS: 1990-1992

In March 1990, one month before the introduction of the two competing bills before Congress, George Bernstein (1990a; see also 1990b) testified that federal earthquake insurance is important, but only if such an insurance program can be used as a force to cause communities to adhere to and implement seismic building codes. In response to many such developments (including discussions with members of Congress) indicating that loss-reduction would become a central issue in coming legislative debates, the NCPI and the Earthquake Project formed a committee of 17 experts to examine the feasibility of incorporating and give advice regarding more specific earthquake insurance mitigation and loss reduction measures into any earthquake insurance developments. This Mitigation Committee consisted of individuals recognized as authorities in insurance and earthquake loss mitigation, including recognized seismic experts, structural engineers, and building officials. The committee held four meetings. May 1990 was the organizing meeting that occurred after the competing bills were introduced. October 1990 was the working section that included discussion of the Dames & Moore final report. The October working section led to the development of a new draft of an earthquake insurance bill which contained a significantly improved mitigation section. This draft bill was reviewed during the January 1991 Mitigation Committee working session. Further revisions were made which resulted in the final draft bill introduced to the Congress as HR 2806 on June 27, 1991. During November 1991, the Mitigation Committee met to provide a final review of HR 2806 and made additional recommended changes. The changes can only be made during the regular mark-up process by the Congress.

The primary charge of the Mitigation Committee was to provide the Earthquake Project and others with technical advice and to assist in the identification of earthquake hazard reduction measures which could be incorporated into federal earthquake legislation pending in Congress. At the time of its formation, the official position of the Earthquake Project was expressed by Franklin Nutter (1990) in testimony before Congress. The Earthquake Project would not endorse federal earthquake insurance legislation unless it contained strong mitigation efforts. The April 1990 bill supported by the Earthquake Project supported "a model mitigation plan which local communities were encouraged to adopt and reward-based financial incentives to encourage loss mitigation."

To achieve its goals of advising the Earthquake Project on what is feasible in incorporating loss reduction measures for new and existing buildings into a federal earthquake insurance program, the Mitigation Committee had to review many of the issues previously addressed in the Dames & Moore report, the issues raised by the Earthquake Project, and the mitigation criteria presented in the two competing bills. Topics to be considered ranged from the applicability of national standards (a notion later rejected as in the Dames & Moore report) to the feasibility of providing institutional and professional support, including licensing programs, and staff, to ensure compliance with adequate seismic building codes. Chief tasks involved

(1) review, revise, prioritize, and reformulate mitigation criteria and measures as found in the previous insurance industry bill

(2) evaluate how best to implement and enforce these mitigation measures.

(3) recommend a plan to require participating states to develop and adopt a model mitigation plan. This plan was to include at a minimum

- community based building codes--for both residential and commercial construction--that met or exceeded the most recent edition of one of the three major model building codes used in the United States; prescriptive seismic requirements for residential construction in seismic zones not covered by any of these building codes were to be considered;

- seismic building standards commensurate with the risks of earthquakes (restrictions on unreinforced masonry construction was to be one major consideration in seismic zones; another was the near-term retrofit of hazardous critical buildings in seismic zones).

The Committee also proposed several insurance incentives for loss-reduction, including

- lower deductibles for residential construction

that meets the recognized building codes

- requirements that homeowners who receive federal earthquake insurance monies should

- (a) as appropriate seismically anchor the dwelling to the foundation or add bracing to cripple walls and (b) rebuild to current standards if the loss exceeds 50 percent of the building replacement value.

Although the approach was regarded as being heavy-handed by some, for non-compliant states, the Committee agreed that an acceptable approach was the loss of federally secured mortgages.

Following the January 1991 meeting, the changes recommended by the committee were incorporated into the new draft legislation, H.R. 2806, sponsored by Congressmen Swift, Brown, Dreier, and Boehlert and introduced on June 27, 1991. The new legislation thus embraced most of the loss-reduction measures in the Dames & Moore report. Also, a percentage of the premium income was to be designated to assist state and local governments to implement these measures and provide for federal research entities to improve the cost-effectiveness and scientific and engineering basis for loss-reduction measures. In the November 1991 meeting, the Committee reviewed and approved a request that the percentage of premium income devoted to such assistance programs should come from the secondary as well as the primary program. This suggested modification was also welcomed by Congressional sponsors.

## SUMMARY

Beginning with polarized positions in 1988, the Dames & Moore project team undertook to define the feasibility of including loss-reduction measures into a federal earthquake insurance program. In the final report, after addressing numerous issues and considering a wide variety of firmly held positions, the project team defined feasible mitigation measures and ways to incorporate them into a federal earthquake insurance program. Congressional testimony demonstrated the need for a strong earthquake mitigation program and the Earthquake Project formed a Mitigation Committee. This committee reviewed the many issues and mitigation approaches. The committee worked with the Earthquake Project to draft the mitigation section of HR 2806, which includes in addition to specific loss reduction measures a state-oriented approach to the adoption of a model mitigation program as a means to implement these measures. HR 2806 is currently under discussion in Congress.

END NOTE

Dr. Taylor was the project director/principal investigator of the Dames & Moore project and De. Petak was the Chair of the Mitigation Committee of the Earthquake Project. This paper reflects personal experience but not the views of any public agencies or private organizations.

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