

## FORMULATING AND IMPLEMENTING POLICIES FOR SEISMIC SAFETY<sup>1</sup>

Stanley Scott

Reducing earthquake hazards is basically an unresolved problem of politics and administration. Obviously scientific and engineering considerations must also figure in seismic safety, just as science and engineering play essential roles in most aspects of modern life. But fulfilling crucial and comparatively neglected requirements for seismic safety are fundamentally tasks of politics, administration, and implementation, i.e., getting policies formulated and adopted, and then making them work in practice.

### Sources of Policy

Recurring earthquakes affecting significant populations anywhere in the world are by far the best source of information for the sophisticated and pragmatic understanding that must underlie effective seismic safety policies. A good deal of such learning from earthquakes involves seasoned professionals observing the results of earthquakes, and interpreting their observations to draw informed conclusions on what actually happened and why it happened, especially when there are anomalous or unexpected results.

One central goal, of course, is improved understanding of the kinds of ground behavior and forces at work in earthquakes, and of the responses of different kinds of structures and materials. Shaking-table experiments and computer simulations of earthquakes and structural responses can provide extremely helpful clues, but actual behavior in damaging earthquakes--which are highly chaotic events, often with significant unanticipated effects--is the most persuasive and reliable evidence on which to build policies. In any event, experimentation and research, plus observing the results of actual earthquakes, can lead to better understanding of seismic phenomena and to improved "state-of-the-art" architectural and engineering designs. These in turn can form the basis for sound public policy.

Learning from earthquakes requires much more than simply photographing surface faulting and building damage, or recording data collected after an earthquake. Although such information is essential,