Earthquakes have always been a significant aspect of the design and safety of dams. This position paper deals with the seismic safety of large dams, based on experiences with large earthquakes in Japan (Tohoku earthquake, 2011, Richter magnitude 9.0), in China (Wenchuan earthquake, 2008, Richter magnitude 8.0) and in Chile (Maule earthquake, 2010, Richter magnitude 8.8). It presents ways to prevent key aspects of large dam failure under severe seismic conditions with a focus on design instead of on earthquake prediction. This is done by considering the prevention of uncontrolled rapid release of water of a storage dam under full reservoir conditions in relation to expected seismic conditions. This position paper is composed by the Committee on Seismic Aspects of Dam Design of The International Committee of Large Dams. Les tremblements de terre ont toujours été un aspect important de la conception et de la sécurité des barrages. Ce document de synthèse traite de la sécurité sismique des grands barrages, en se fondant sur l'expérience acquise lors de grands séismes au Japon (séisme de Tohoku, 2011, magnitude 9,0 sur l'échelle de Richter), en Chine (séisme de Wenchuan, 2008, magnitude 8,0 sur l'échelle de Richter) et au Chili (séisme de Maule, 2010, magnitude 8,8 sur l'échelle de Richter). Il présente des moyens de prévenir les aspects clés de
la défaillance des grands barrages dans des conditions sismiques sévères en mettant l’accent sur la conception plutôt que sur la prévision des séismes. Pour ce faire, on examine la prévention d’une libération rapide et incontrôlée de l’eau d’un barrage de stockage dans des conditions de réservoir plein par rapport aux conditions sismiques prévues. Cet argumentaire est composé par le Comité sur les Aspects Sismiques des Projets de Barrages de la Commission Internationale des Grands Barrages.

Nepal is in one of the most active earthquake regions in the world. Nepal's current non-earthquake-resistant infrastructure, lack of sufficient modern communication networks, and limited facilities and manpower in the medical sector are the major threats to life and property during a major earthquake. On March 31, 2010, under the auspices of three leading Nepali diaspora professional organizations in the United States of America--American Society of Nepalese Engineers (ASNEgr), America Nepal Medical Foundation (ANMF), and Computer Association of Nepal-USA (CAN-USA)--a joint initiative on Earthquake Preparedness and Disaster Relief in Nepal, of which this position/concept paper is a product, was launched to help understand the current status of earthquake preparedness in Nepal. This position paper describes the challenges that Nepal will face if and when another large-magnitude earthquake strikes like the devastating January 16, 1934 Nepal-Bihar earthquake. The paper also provides a list of recommendations to be considered to minimize the loss of life and property, especially in the densely populated Kathmandu valley. The document is peer-reviewed by a group of individuals having expertise in the related areas.

"Ancient earthquakes are pre-instrumental earthquakes that can only be identified through indirect evidence in the archaeological (archaeoseismology) and geological (palaeoseismology) record. Special Paper 471 includes a selection of cases convincingly illustrating the different ways the archaeological record is used in earthquake studies. The first series of papers focuses on the relationship between human prehistory and tectonically active environments, and on the wide range of societal responses to historically known earthquakes. The bulk of papers concerns archaeoseismology, showing the diversity of approaches, the wide range of disciplines involved, and its potential to contribute to a better understanding of earthquake history. Ancient Earthquakes will be of interest to the broad community of earth scientists, seismologists, historians, and archaeologists active in and around archaeological sites in the many regions around the world threatened by seismic hazards. This Special Paper frames in the International Geoscience Programme IGCP 567 'Earthquake Archaeology: Archaeoseismology along the Alpine-Himalayan Seismic Zone.'"—Publisher's description.

This is the first of two volumes devoted to earthquakes and multi-hazards around the Pacific Rim. The circum-Pacific seismic belt is home to roughly 80% of the world’s largest earthquakes, making it the ideal location for investigating earthquakes and related hazards such as tsunamis and landslides. Gathering 16 papers that cover a range of topics related to multi-hazards, the book is divided into three sections: earthquake physics, earthquake simulation and data assimilation, and multi-hazard assessment and earthquake forecasting models. The first section includes papers on laboratory-derived rheological parameters as well as seismic studies in the Gulf of California and China. In turn, the second section includes papers on improvements in earthquake simulators as well as the statistical methods used to evaluate their performance, automated methods for determining fault slip using near-field interferometric data, variabilities in earthquake stress drops in
California, and the use of social media data to supplement physical sensor data when estimating local earthquake intensity. The final section includes a paper on probabilistic tsunami hazard assessment, several papers on time-dependent seismic hazard analysis around the Pacific Rim, and a paper on induced and triggered seismicity at the Geysers geothermal field in California. Rapid advances are being made in our understanding of multi-hazards, as well as the range of tools used to investigate them. This volume provides a representative cross-section of how state-of-the-art knowledge and tools are currently being applied to multi-hazards around the Pacific Rim. The material here should be of interest to scientists involved in all areas of multi-hazards, particularly seismic and tsunami hazards. In addition, it offers a valuable resource for students in the geosciences, covering a broad spectrum of topics related to hazard research.

The 1755 earthquake and tsunami were influential not only in Portugal but in all European and North African countries where the devastating effects were felt. The entire world was deeply impressed and the discussion of its causes generated a large amount of scientific and metaphysical speculation. It inspired philosophers, poets and writers. The socio-economic consequences of the event were great and affected the future organization and development of Portugal. The possibility of a similar occurrence urges society and the scientific community to reflect on its lessons. Audience This work is of interest to experts in seismology, earthquake engineering, civil protection, urban planning and it is a reference book for doctoral students.

When self-proclaimed climatologist Iben Browning predicted that a major earthquake would shatter the Heartland on 2 or 3 December 1990, many living within reach of the New Madrid fault zone reacted with varying combinations of preparation and panic.

A summary of what was learned from a great earthquake about the bearing of geologic and hydrologic conditions on its effects, and about the scientific investigations needed to prepare for future earthquakes.

Earthquake Resistant Design and Risk Reduction, 2nd edition is based upon global research and development work over the last 50 years or more, and follows the author's series of three books Earthquake Resistant Design, 1st and 2nd editions (1977 and 1987), and Earthquake Risk Reduction (2003). Many advances have been made since the 2003 edition of Earthquake Risk Reduction, and there is every sign that this rate of progress will continue apace in the years to come. Compiled from the author's wide design and research experience in earthquake engineering and engineering seismology, this key text provides an excellent treatment of the complex multidisciplinary process of earthquake resistant design and risk reduction. New topics include the creation of low-damage structures and the spatial distribution of
ground shaking near large fault ruptures. Sections on guidance for developing countries, response of buildings to differential settlement in liquefaction, performance-based and displacement-based design and the architectural aspects of earthquake resistant design are heavily revised. This book: Outlines individual national weaknesses that contribute to earthquake risk to people and property Calculates the seismic response of soils and structures, using the structural continuum – Subsoil – Substructure – Superstructure – Non-structure Evaluates the effectiveness of given design and construction procedures for reducing casualties and financial losses Provides guidance on the key issue of choice of structural form Presents earthquake resistant design methods for the main four structural materials – steel, concrete, reinforced masonry and timber – as well as for services equipment, plant and non-structural architectural components Contains a chapter devoted to problems involved in improving (retrofitting) the existing built environment This book is an invaluable reference and guiding tool to practising civil and structural engineers and architects, researchers and postgraduate students in earthquake engineering and engineering seismology, local governments and risk management officials.

This book provides a global view of the social effects of disaster in developed and developing countries. It focuses on the 1994 Northridge Earthquake in the US and other recent disasters to examine vulnerability and post-disaster recovery strategies. The authors also explore the ways state policy can reduce vulnerability in the future.

An introduction of the story of a great earthquake--its geologic setting and effects, the field investigations, and the public and private reconstruction efforts.

This book presents new results and data for the 1969 Saint Vincent Cape Earthquake (Mw=7.8) and tsunami. It provides key information to access the Spanish Geophysical Data National Archive Compilation and includes data-sets that range from the Azores Islands to the Iberian Peninsula. On February 28th, 1969, a large earthquake (Mw=7.8) strokes the Iberian Peninsula and northern Morocco, producing some causality and important damage and economic losses. In this Topical volume ten papers are published, which are representative of many contributions presented at a Workshop organized by the Universidad Complutense de Madrid (Spain) and the Instituto Geográfico Nacional (Madrid, Spain) on the occasion of the 50th anniversary of the 1969 earthquake. These papers cover different aspects of communications presented at the Workshop. There are two papers dedicated to tsunamis, one to Earthquake Early Warning System, one paper on lithospheric structure, three on seismicity and a data archive, three focused on the 1969 earthquake, and one of the seismic hazard. Summarizing, this topical issue present new results on the structure, seismicity, seismotectonics, seismic hazard, and geodynamics of this complex region that extends from the Azores Islands to the Iberian Peninsula.
These proceedings include most of the available information on this major seismic event and its consequences. With an estimated moment magnitude of 7.7 and a heavy toll in terms of human and economic losses, it ranks as the largest intermediate-depth earthquake in Europe in the twentieth century. Nevertheless, because of the difficult conditions in the 1940s, the lessons learnt after the Vrancea earthquake were not extensively shared with the international scientific community and thus, this book fills a gap in the literature discussing the knowledge acquired after major disasters. Past experience together with current understanding of the 1940 Vrancea earthquake are presented along with the latest information on Romanian seismicity, seismic hazard and risk assessment, and seismic evaluation and rehabilitation of buildings and structures. Moreover, it includes excerpts from Romanian post-disaster reports and textbooks concerning the earthquake.