

State of California
Alfred E. Alquist Seismic Safety Commission

Memo

To: Commissioners
Mr. Richard J. McCarthy, Executive Director

From: Robert Anderson, P.G., C.E.G.
Seismic Safety Commission
1755 Creekside Oaks Drive, Suite 100
Sacramento, CA 95833
(916) 263-5506

Date: April 29, 2011

Subject: Update on the Tohoku, Japan earthquake of March 11, 2011

Background:

On March 11, 2011, Japan experienced a M_w 9.0 earthquake which was followed by a tsunami. The size of the earthquake and tsunami were not anticipated even though a potentially comparable earthquake and tsunami struck Japan in 869 A.D and 1896 respectively. To date over 26,000 persons have been reported killed or are missing. Initial damage observations indicate that the majority of observable damage was caused by the tsunami which varied from 3 meters to over 35 meters in height.

Loss estimates from this event are larger than those of Hurricanes Katrina and the Kobe earthquake *combined*. Damage estimates are estimated at a loss of \$200 to 300 billion USD and a recovery cost of up to \$600 billion USD. Issues of note from the earthquake important to California include:

- Responding to catastrophes larger than imagined by emergency managers;
- Problems and vulnerabilities of just in time manufacturing and limited vendors producing key components of manufactured goods;
- Impact of critical infrastructure on emergency response and recovery operations;
- Impact on economy ; and,
- Nuclear power issues related to very large earthquakes, tsunamis and aftershocks with respect to relicensing of California's nuclear power stations.

Dr. Stephen Mahin from the Pacific Earthquake Engineering Research Center will

discuss the earthquake and tsunami.

Recommendation: This is an informational item only. Commissioners are invited to ask questions.