

**WESTERN STATES SEISMIC POLICY COUNCIL
POLICY RECOMMENDATION 19-3**

Post-Earthquake Technical Clearinghouses

Policy Recommendation 19-3

WSSPC recommends that each member state, province, and territory establish a plan for a post-earthquake technical clearinghouse to be activated if possible within 24 hours after each major earthquake within its jurisdiction. WSSPC also recommends that multi-jurisdictional agreements between and among WSSPC members, Federal agencies and appropriate partners be established to enable development of a single comprehensive technical clearinghouse in the event of a large earthquake, preferably driven by the states, territories and provinces involved.

Executive Summary

Post-earthquake technical clearinghouses for earthquake and related hazards (tsunamis, landslides, etc.) have been an important component of emergency response, recovery, and mitigation following large earthquakes. A technical clearinghouse, either established in a virtual or physical location, can serve to coordinate real-time and post-earthquake hazard investigations to provide timely hazards observations for use by local, state, and federal emergency managers, scientific communities, and the public. This information is then used to improve assessments of earthquake hazards, earthquake engineering, mitigation strategies, economic losses, and emergency response to damaging earthquakes. The clearinghouse also serves to integrate, manage, disseminate and archive information so that it is available to emergency management, policy, and earthquake science and engineering practitioners.

Multi-jurisdictional cooperation is especially important in the event of a large earthquake that affects multiple states. Pre-event Memoranda of Agreements (MOA) between and among WSSPC members, Federal agencies, and appropriate partners would allow for the establishment of a single comprehensive technical clearinghouse for such an event.

Background

Post-earthquake technical clearinghouses have been an important component of emergency response, recovery, and mitigation following large earthquakes. Seismologists deploy instruments that measure aftershocks and investigate the mechanics of earthquakes. Geologists and geotechnical engineers document ground failures, including fault displacements, fissures, landslides, rock falls, and liquefaction. Geodesists investigate ground deformation and related strain. Structural engineers evaluate the effects of the earthquake on various types of buildings, bridges, dams, utilities, and other structures. Social scientists study direct and indirect impacts to people and businesses. Scientists and engineers also collect inundation and damage information if a tsunami is generated. This information is then used to improve our assessments of earthquake hazards, earthquake engineering, mitigation strategies for nonstructural hazards, and emergency response to damaging earthquakes.

The data collected in the days immediately following a major earthquake can be critical during emergency response and recovery. Scientists and engineers can determine the likelihood that landslides will move (from rain or aftershocks), and can assess the susceptibility of structures to collapse. Some data are perishable and must be collected as soon as possible, before erosion or recovery/rebuilding efforts eliminate the evidence and before aftershocks die out.

Data collected through clearinghouses help us to be better prepared for future large earthquakes or other events. In addition, data on strong ground motion and damage to buildings helps to calibrate loss-estimation models, such as the Federal Emergency Management Agency's (FEMA) HAZUS program, and can be an important component of a Governor's or the President's disaster declaration as well as provide useful information for response, recovery and hazard mitigation.

A technical clearinghouse, either virtual or physical, can serve to coordinate post-earthquake investigations and to share resources and information among investigators. The clearinghouse also serves to integrate and disseminate information so that it is available to decision makers and the media.

Post-earthquake technical clearinghouses were successfully implemented following the Landers, California (1992); Northridge, California (1994); Nisqually, Washington (2001); Wells, Nevada (2008); Napa, California (2014); and Anchorage, Alaska (2018); earthquakes. Additionally, clearinghouses have been established for other major international earthquake events and have been archived at the Earthquake Engineering Research Institute (<http://www.eqclearinghouse.org/>). A

clearinghouse provides a reliable place for scientists and engineers to report on their findings each day. In some post-earthquake situations, a clearinghouse may serve as one of the chief mechanisms for relaying critical information from scientists and engineers investigating the earthquake to emergency managers.

Only California, Utah, and Idaho have developed plans for post-earthquake technical clearinghouses; California and Hawaii have created clearinghouses for real-time tsunami observation and post-event information collection. Few WSSPC members have the resources to fully staff and operate a clearinghouse. Opportunities exist for members to collaborate with one another and to coordinate with the U. S. Geological Survey (USGS), FEMA, Earthquake Engineering Research Institute (EERI), university researchers, and other groups. The National Earthquake Hazards Reduction Program (NEHRP) agencies (USGS, FEMA, National Institute for Standards and Technology, and National Science Foundation) developed *The Plan to Coordinate Post-Earthquake Investigations* in 2003 (Holzer et al., 2003) that includes provisions for cooperating with states to establish post-earthquake technical clearinghouses. Under this plan, the NEHRP agencies can step in and take the lead if WSSPC members are not prepared to establish a clearinghouse. A response and recovery plan developed for Utah (Solomon, 2001) may provide valuable information for other WSSPC states as they plan to integrate response and recovery with technical clearinghouse plans. The California Post-Earthquake Information Clearinghouse Draft Operation Plan (California Geological Survey, 2009) and an 'After Action Report' for the 2014 South Napa earthquake describes successes, lessons and recommendations from the activation of the California Earthquake Clearinghouse and serve as valuable resources for WSSPC member states considering clearinghouse plans (Rosinski et al., 2015).

State and federal partners through the National Tsunami Hazard Mitigation Program have also developed post-tsunami protocols to guide post-tsunami science surveys (Wilson et al., 2015). These include pre- and post-field coordination recommendations which could also be applied to earthquake clearinghouses.

Multijurisdictional cooperation is especially important in the event of a large earthquake that affects multiple WSSPC members. Pre-event Memoranda of Agreements (MOA) between and among WSSPC members, Federal agencies and appropriate partners would allow for the establishment of a single comprehensive technical clearinghouse for such an event.

References

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