

The Sichuan Earthquake's Lessons for Dam Builders

Given their relatively short lifetimes to date, modern [dams](#) remain generally untested against real-world seismic activity. A [report](#) from the [International Commission On Large Dams](#) considers the lessons learned from the 2008 [Wenchuan earthquake](#):

“During the Richter magnitude 8 Wenchuan earthquake of 12 May 2008, 1803 concrete and embankment dams and reservoirs and 403 hydropower plants were damaged. Likewise, during the 27 February 2010 Maule earthquake in Chile of Richter magnitude 8.8, several dams were damaged. However, no large dams failed due to either of these two very large earthquakes ... It is very difficult to predict what can happen during such a rare event as very few earthquakes of this size have actually affected dams. Therefore it is important to refer to the few such observations that are available. The main lessons learnt from the large Wenchuan and Chile earthquakes will have an impact on the seismic safety assessment of existing dams and the design of new dams in the future ... At this time we are still in a learning phase as very few large modern dams have been exposed to strong earthquakes.”

The report highlights still greater uncertainty over the earthquake resistance of older dams. With the sophistication of dam design and construction advancing rapidly in recent decades, those built as recently as the late 1980s are now considered obsolete. This is particularly relevant to China, where [over twenty thousand](#) large dams (higher than 15 meters) were built in the latter half of the twentieth century.

The authors also examine the issue of “reservoir-triggered seismicity”, [inconclusively implicated](#) in the Wenchuan earthquake. Here, the focus is on the possible effects of RTS on dams themselves: modern dams should not self-destruct by triggering seismic activity severe enough to destroy them. However, other structures nearby may be more vulnerable, while landslides set off by RTS could significantly magnify the potential damage.

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