

Catastrophe Reserving Challenges

Casualty Loss Reserve Seminar

Denver, Colorado

September 2012

Chandrakant C. Patel, FCAS, MAAA

Chief Reserving Actuary , Endurance Services Limited



Antitrust Notice

The Casualty Actuarial Society is committed to adhering strictly to the letter and spirit of the antitrust laws. Seminars conducted under the auspices of the CAS are designed solely to provide a forum for the expression of various points of view on topics described in the programs or agendas for such meetings.

Under no circumstances shall CAS seminars be used as a means for competing companies or firms to reach any understanding – expressed or implied – that restricts competition or in any way impairs the ability of members to exercise independent business judgment regarding matters affecting competition.

It is the responsibility of all seminar participants to be aware of antitrust regulations, to prevent any written or verbal discussions that appear to violate these laws, and to adhere in every respect to the CAS antitrust compliance policy.

Catastrophe Reserving Challenges - Agenda

- Catastrophe claims process
- Financial reporting
- Thailand tsunami (2004)
- Japanese EQ (2011)
- Thailand floods (2011)
- NZ EQ (2010/2011)
- Midwest tornados (2011)

Challenges with Catastrophe Estimation Process

Geographic, intensity, legal and currency issues make for a challenging environment

1. Location and access – based on the location and the scale of a catastrophe, the speed at which information can be gathered and communicated can be severely limited;
2. Length of the event can lead to a great deal of uncertainty, particularly for estimating business interruption claims;
3. Legal – If a claim settlement is disputed, where a trial takes place can vary. Based on the legal environment of the country that the claim is tried in, outcomes may be unexpected;
4. Currency – If there is a considerable gap between the accident date and the date at which the loss is paid/settled, changes in F/X rates can have a significant impact on the amount of loss in corporate currency.

Challenges with Financial Reporting

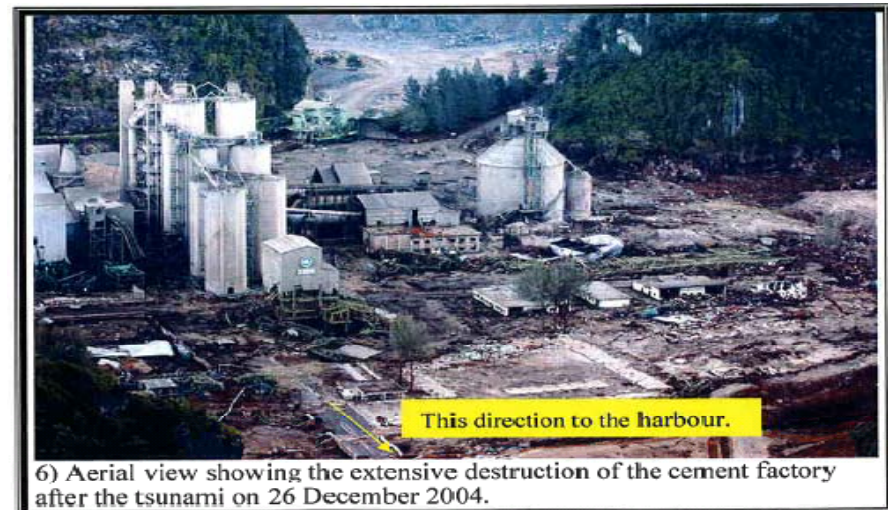
- Financial reporting can be challenging, particularly if the cat activity is on the cusp of a quarter or year end;

- What is the best approach to the initial estimate?
 - Best estimate, including an estimate of unallocated IBNR;
 - High estimate, so no further re-estimation.

- Implications on surplus, company perceptions
 - Need to balance known information with requirements for appropriate disclosure.

EQ/Tsunami 2004

- Massive EQ in the Indian Ocean triggered an extensive Tsunami along the Asian coastline on December 26, 2004.
- As one example of the extensive damage caused by the tsunami, a large cement plant located in Banda Aceh, Indonesia was completely destroyed. The plant was owned by a French conglomerate.



6) Aerial view showing the extensive destruction of the cement factory after the tsunami on 26 December 2004.

History of loss estimate for cement factory claim

Date of Loss – Dec 26, 2004

- Initial Loss Estimate based on available policy limits for EQ events = 50M Euro;
- F/X Rates on Dec 31, 2004 1 Euro = 1.36 USD;
- Initial Loss Estimate based on original F/X rate = 68M USD;
- First payment made in July 2005; F/X rate 1 Euro = 1.22 USD;
- Second payment made in April 2006; F/X rate 1 Euro = 1.26 USD;
- The insured went to court in France in 2007;
- In January 2008, the court found that the EQ sub-limit (or any other sub-limit such as Flood) does not apply;
- New total compensable amount = 88M Euro plus interest and costs (50M Euro was already paid as of this point in time); F/X rate 1 Euro = 1.49 USD;
- New total loss = 131M USD
- Total increase in loss due to legal proceedings = 76%
- Total increase in loss due to F/X = 9%

Japanese EQ - 2011

A massive EQ off the coast of Honshu, Japan spawned a 33 feet high tsunami that swept and devastated cities and farmland along its path.

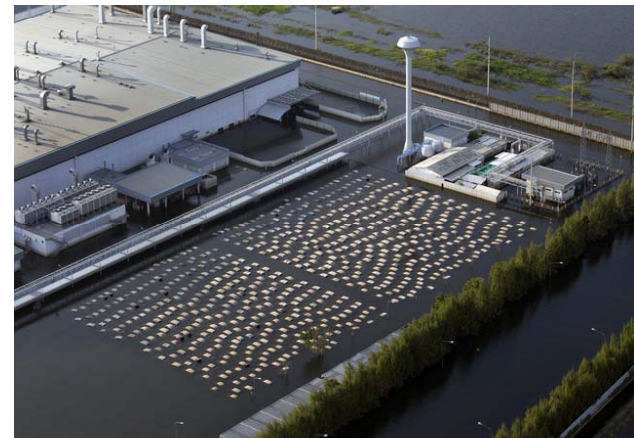


Observations from estimating losses for Japanese EQ

- Loss adjustment was faster than expected;
- Losses were paid out faster than expected;
- Extensive nature of the disaster made it easier to declare “total loss”;
- Access not much of an issue since everything beyond a certain area was declared a total loss;
- Nuclear contamination was not covered.

Thailand floods - 2011

- Severe flooding occurred during the 2011 monsoon season in Thailand.
- At the end of July, triggered by the landfall of Tropical Storm Nock-ten, flooding soon spread through the provinces of Northern, North-eastern and Central Thailand along the Mekong and Chao Phraya river basins. In October floodwaters reached the Chao Phraya and inundated parts of Bangkok.
- The floods, which lasted from July to December 2011, and covered more than 20,000 km², may result in one of the largest freshwater flooding losses in insurance history – causing over 800 deaths and damage to approximately 4 million properties.



Observations from estimating losses for Thai floods

- Difficult to assess extent of property damage due to lack of access; it was months before adjusters could get to the damaged properties;
- Since the flood occurred over a period of time, it was characterized as multiple events;
- Due to multiple event scenario, policy limits were re-instated several times leading to estimate creep;
- Geographic location of risks was a bit of a surprise given the original policies (most of the insured were Japanese clients).

New Zealand Earthquakes – 2010/2011

➤ A series of earthquakes occurred in NZ starting 2010. Initial EQ was followed by a series of aftershocks in 2011, some of which were large earthquakes as well.



Observations from estimating losses for NZ EQ

- Interaction between NZ EQC and the voluntary market slowed adjustment process down;
- Rebuilding to code...issues were similar to Northridge EQ;
- Allocation of damages to particular earthquakes....there were a series of earthquakes – how do we allocate damages to particular earthquake(s)?
- Assessing damages took a lot of time due to aftershocks;
- Issues related to settlements....settle claims quickly or buy back policies. Do this to avoid demand surge inflation or wait for proper evaluation?

US Tornadoes

- On 27 April 2011, 316 tornadoes were reported across the US of which 117 occurred in Alabama;
- May saw a further 362 tornadoes, the majority of which occurred on 25 May (city of Joplin was devastated as a result)
- Two storm systems developed between February 28, 2012 and March 3, 2012 that spawned numerous tornadoes that killed at least 52 people. This outbreak of deadly tornadoes will likely become the first billion-dollar disaster for the United States in 2012.



Observations from estimating losses for US Tornadoes

- Level of tornado activity was beyond anything observed in history leading to an unanticipated breach of aggregate covers;
- Clients did not tally and report loss amounts below the aggregate very well;
- When the number of tornadoes increased and the total loss reached a tipping point, aggregate covers were triggered;
- Any loss after this point was ceded, leading to unanticipated loss activity for the covers;
- Based on difficult reporting issues in 2011, clients were very conservative in their estimates for 2012;
- Difficult to parse thru these dynamics of cedant reporting, but it was necessary to do so.