

Rumblings

FOR THE INSURANCE INDUSTRY

After Katrina

A year and a half after Hurricane Katrina devastated New Orleans the city still has tens of thousands of damaged and unoccupied homes and a population of less than half what it was when disaster struck.

EQC's claims manager Keith Long visited the city last year for a conference called the Tenth Annual America's Claims Event.

The conference and attendant workshops focused on the insurance claims process applied to the aftermath of Katrina.

"It was no coincidence that the city of New Orleans was chosen for the event. On 29 August 2005 New Orleans was struck by Hurricane Katrina with sustained wind speeds of 225 k.p.h. and torrential rain. Coastal storm surge flooding of up to ten metres above normal tide levels occurred," Keith reported.

"In New Orleans, flood protection provided by canals with banks fortified by piled sheet iron (see photo) failed when flood waters from Lake Ponchartrain, caused by storm surge, overtopped the flood protection and caused failure of the canals. The result was a powerful release of a huge quantity of water that inundated the majority of New Orleans."

The main lessons for EQC from Katrina concern the logistical aspects of handling many thousands of claims.

The State Farm Insurance Company allocated 5,200 personnel to deal with Katrina and loss adjuster expense was \$US1.3 billion. State Farm had to create a major staging post for their response in Houston Texas and charter aircraft to transport field staff in and out of New Orleans every day. Problems dealt with included getting all staff off the streets of the affected areas by the 6 p.m. curfew or suffer detention by the authorities.

The disaster emphasises the fact that it takes a lot longer than most people realise to recover from a major disaster. Even now most of the 134,344 damaged homes (with

105,155 classified as having major or severe damage) have not been restored, repaired or rebuilt. Over 15,000 abandoned or damaged vehicles have been removed to date and in the latter half of last year alone 230,000 cubic metres of debris was collected. The clean-up will take years and the city will never be the same.

Dennis Mileti, Professor Emeritus at the University of Colorado in Boulder, member of the American Society of Civil Engineers' Hurricane Katrina review group, and a speaker at last year's hazard conference in Christchurch, said in January of this year:

"The bottom line, if you think about what is really going on in New Orleans, is that many of the human and societal impacts are permanent and a full recovery is not on the horizon. For example, the movement of people out of New Orleans can no longer be called an evacuation and is instead a migration."

A city that had a population of 440,000 immediately prior to the disaster had a population of only 191,000 by November last year. The New York Times carried a story on 20 January this year claiming that the signs are there that New Orleans may top out at around half its pre-disaster population.

In fairness, the economists and demographers quoted pointed out that the city had a high unemployment rate and a stagnant economy prior to the disaster and that many of those evacuated have found better opportunities elsewhere.

However, the lessons for New Zealand and EQC are obvious: The recovery time from major disasters should be measured in years.

It will take months and possibly years to process insurance claims let alone rebuild damaged and destroyed property and infrastructure. Adequate insurance is a critical factor. Individuals and organisations should do everything they can to be as prepared as possible.



This photo shows two homes abandoned after flooding in New Orleans from Hurricane Katrina. Note in the background the steel outer wall of the canal system. These houses were two of many built below the level of the water in the canal. Photo: Keith Long

HOWEVER, THE LESSONS FOR NEW ZEALAND AND EQC ARE OBVIOUS: THE RECOVERY TIME FROM MAJOR DISASTERS SHOULD BE MEASURED IN YEARS.

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Chinese migrants receive special attention



The establishment phase of a special communications and education programme for new-migrant Chinese has recently been completed by EQC.

Over the last decade or so there has been a significant influx of Chinese to New Zealand. Of the 105,000 ethnic Chinese in New Zealand at the 2001 Census, around 80,000 were born overseas and now count as one of the country's largest ethnic minorities.

Statistics New Zealand's projections for the growth of the Asian population overall is 145% over the period 2001-2021, mostly from migration. While the 2006 Census data is not yet available, calculations based on the projections put the current Chinese population in New Zealand at around 140,000 and the number of those born overseas at well over 100,000.

Typically, one of the first things Chinese migrants want to do after they arrive in New Zealand is buy a home. They are likely to have heard that New Zealand is prone to earthquakes and other natural disasters and they want to try and make sure as much as possible that they buy a safe home in a safe area.

Community feedback told EQC that the overall approach to take was one of reassurance. These were not people who needed to be jolted out of their complacency. They were already sensitised to the general risk; they would just want to know what decisions they could make to lessen or negate it.

Given that most new-migrant Chinese speak one of the Chinese dialects as their first language it was decided that the communications with them should as much as possible be in their own language. While they may speak different dialects, Chinese is typically read in the same traditional Chinese script. It followed that much of the communication should be in written form i.e. in that Chinese script.

Then it was a matter of devising the correct messages.

The first imperative was to explain that while natural disasters are a feature of life in New Zealand because of its geologically active nature, people have learnt to live with them. New Zealand has found ways to deal with natural disaster by being prepared for it and knowing what to do when it occurs.

The second imperative was to explain that New Zealand has good systems in place to ensure that houses are not likely to be permitted in high risk zones and that the houses are built to standards that take natural disasters into account. It was explained how building standards have improved over the years.

The new Chinese New Zealanders needed to be reassured that they could trust the system. It was therefore not a matter so much for them to work out what were the safe areas and what was a safe type of house but to be reassured that they could, with prudence, buy just about anywhere.

EQC advised that there were various services available to help prospective buyers make their decisions e.g. through city and district councils' Land Information Memoranda (LIMs), property lawyers, and accredited building advisers. EQC also advised that there were systems and services in place when disasters did take place, including those of Civil Defence and EQC itself.

EQC prepared and distributed a range of material containing these messages including a brochure, feature articles, advertisements, and web-based material.

EQC has over the years targeted other ethnic minorities including Pacific Islanders and will continue to do so as well as keeping up a level of "maintenance" activity with those like the new-migrant Chinese, who are already the subjects of special programmes.

Update from the EQC Fellow in Seismic Studies

Since taking up the EQC Fellowship at Victoria University (VUW) in February 2003, Dr John Townend's research has focussed on the physics of earthquakes – using data from New Zealand, California, and Japan – and on methods of using the continuous stream of data provided by GeoNet to study newly recognised seismic phenomena.

One such phenomenon is "slow slip", during which a fault slips by as much as several tens of centimetres over the course of a day, weeks, or months. If this slip occurred abruptly, it would constitute an earthquake; by taking place much more slowly, slow slip is thought to alleviate the stresses acting on faults in a much less conspicuous manner. Whether slow slip thereby lessens the likelihood of future damaging earthquakes, or in fact acts to trigger them, is an unresolved question.

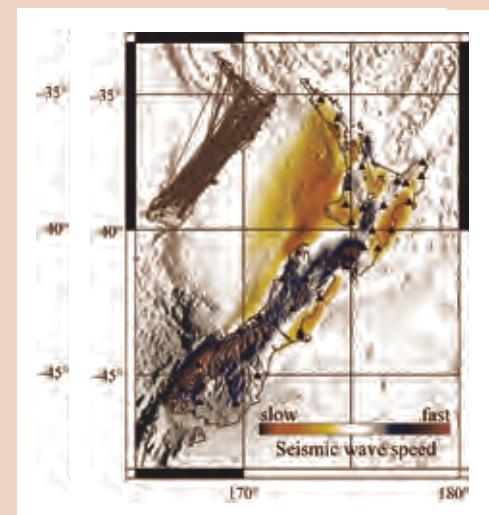
John is now leading a Marsden-funded project aimed at determining whether a low-pitched rumble known as seismic tremor, which accompanies slow slip in several locations overseas, also accompanies episodes of slow slip in the Hikurangi subduction zone beneath the eastern North Island. The results obtained to date suggest that slow slip near Gisborne in 2004 triggered very small earthquakes beneath the Mahia Peninsula, rather than the seismic tremor seen elsewhere. MSc student Emily Delahaye, Dr Martin Reyners of GNS Science, and Dr Garry Rogers of the Canadian Geological Survey, are also involved in the project. Emily is working to refine the locations of the earthquakes and presented her findings at the American Geophysical Union's Fall Meeting in San Francisco last December.

Another of John's current projects is EQC-funded MSc thesis research by Daniel Clarke into earthquakes occurring within the Rotorua and Kawerau geothermal systems. Daniel is attempting to locate these earthquakes very accurately in order to understand their relationship to geothermal fluids. Together with Assoc Prof Martha Savage (VUW) and Dr Stephen Bannister (GNS Science), Daniel and John are investigating earthquake location methods that take advantage of the full seismic waveform to obtain accurate earthquake locations and faulting parameters. Daniel's speech at December's "Geosciences '06" conference in Palmerston North earned him a New Zealand Geophysical Society student prize, and he will be presenting further results at the Seismological Society of America conference in Kona, Hawaii, in April.

John is also involved in collaborative research being undertaken by researchers at VUW, GNS Science and the University of Colorado at Boulder into a novel method of seismic tomography known as ambient noise imaging. While modern seismic networks such as GeoNet are intended primarily to record earthquakes, much of the "signal" they record is simply incoherent noise. However, by analysing sufficiently long streams of this noise, a coherent signal can be extracted and used to create seismic images of the subsurface (see figure), similar to those used in oil exploration. Results obtained last year have been submitted for publication and form the basis of a PhD project to be started by Yannik Behr later this year. Yannik has been awarded a prestigious Vice-Chancellor's Strategic Research Scholarship and will begin work at VUW in April following the completion of his diploma at Ludwig-Maximilians-Universität

Munich and an internship at Université Joseph Fourier in Grenoble.

This month, John will travel to Vancouver Island for a six month sabbatical at the Geological Survey of Canada's Pacific Geoscience Centre. During his stay, John will work with Canadian colleagues on a variety of projects including the seismic tremor research and new methods of analysing global positioning system (GPS) and seismometer data in tandem.



Map of seismic wave speeds at a depth of -15 km in the crust obtained using one year of continuous noise recorded by the national GeoNet network (triangles). The reddish colours indicate slow wave speeds (such as in the Taranaki and Hikurangi basins west and east of the North Island). The inset shows the propagation paths used in the analysis.



INTERVIEW — Dennis S. Mileti

Dennis Mileti, Professor Emeritus University of Colorado at Boulder, USA and Vice Chair, California Seismic Safety Commission, is America's pre-eminent behavioural scientist specialising in natural disaster management. His awards, commissions and memberships of boards and committees are extensive and wide ranging and included membership of an American Society of Civil Engineers' Hurricane Katrina review panel. He was last in New Zealand at a recent Natural Hazards Management conference where he was the keynote speaker. Rumblings took the opportunity to talk with him about Katrina and other matters.

(This is an edited and abridged version of the interview. For the full version go to www.eqc.govt.nz.)

What key lessons have been learned from recent disasters in America and from Hurricane Katrina in particular?

The key lessons from Katrina were clear:

Keep safety at the forefront of public priorities. No single authority ever defined what was to be expected in terms of protection performance and loss of life. Compromises in protection were made based on cost and other conflicting priorities.

Quantify the risks. We must assess and communicate to decision-makers and the public how risk and cost/benefit tradeoffs impact performance and public safety. Risk analyses must be updated since risk changes with time and changes in the natural and man-made environments.

Communicate risks to the public and decide how much risk is acceptable. Give the public a voice in decisions about the risk under which they live. Governments should create and maintain quality risk communication programmes since without them people will gradually forget.

Rethink the approach from a systems viewpoint that combines constructed protection with other loss reduction strategies. Design conditions cannot be static over time. Design must include/be part of a broader strategy that includes other tools e.g. wise land use.

Leaders should correct deficiencies in constructed protection with urgency. Establish mechanisms to incorporate changing information about risk. Make key structures survivable. Retrofit killer structures.

Put someone in charge. If complex programmes are going to work, someone needs to be in charge. Protection can be dysfunctional if it evolves over time, is from numerous agencies, if only one can adjudicate conflicting priorities.

Improve inter-agency coordination. Strong and sustainable mechanisms for inter-agency communication, cooperation, and coordination are needed.

Upgrade engineering design procedures. Engineering design practices should place greater emphasis on performance. More research is needed on the design and construction of better-performing structures.

Bring in independent experts. Independent expert review is needed for all public work projects where performance is critical to public health, safety, and welfare.

Place safety first. In the face of pressure to save money or to make up time, engineers must hold true to the

requirements of the profession's canon of ethics and never compromise public safety.

You have visited New Zealand a number of times. Do you have any observations you can make about disaster risk and management in this country.

Yes I can, and I'm quite happy to have the opportunity to speak out on this topic. New Zealand has the most appropriate approach for addressing natural hazards I have encountered anywhere in the world. The New Zealand perspective correctly links hazards mitigation to environmental management and the broad goal of sustainable development. This is exactly where natural hazards management belongs since natural disasters are the result of human development practices and not nature. Thought about how to manage human decisions in ways consistent with the risk imposed by the natural lands that your country has to occupy is perfectly placed, and excellent ideas are the result. In fact, I often point to your nation as an example of how to manage natural hazards correctly. Unfortunately, however, implementing many of the good ideas that New Zealanders have about managing risk is often thwarted by the sparse national funds. But, then, perhaps it is the latter that is at the source of the abundance of the former.

How difficult is it to educate people about hazards in this age of information overload?

It's not difficult at all, but it requires that public education efforts follow a particular format that acknowledges how human beings are wired. The social science research record on what a public education campaign should look like in order to result in actual increases in household mitigation and preparedness is clear. In short, public education that works is ongoing (not a singular or set of individual acts); it uses multiple channels of communication to reach the same people; it makes full use of a range of communication modes. The key element is, however, to target the social process that leads up to people mitigating and preparing, and that's to get them to start talking about it with others and make their own decisions about what to do.

“IF COMPLEX PROGRAMMES ARE GOING TO WORK, SOMEONE NEEDS TO BE IN CHARGE.”

Are some people more open to such education than others and if so why?

Yes, of course. But they are a rare breed and the exception rather than the rule. It takes a lot to convince human beings that they really aren't safe and that we live on an unsafe planet. The average person grabs information and even mis-information that matches their "preference" which is to believe that a natural disaster won't happen in their neighborhood, and that, if it does happen, they won't be the ones to die, be

injured, or be negatively impacted economically.

However, all human beings can be presented with information that can change their natural inclination to ignore high consequence low probability events and to take steps to mitigate and prepare.

Does disaster management tend to take a rear-view mirror approach? In other words, is there a tendency for it to focus on what has happened (and prepare for a repeat of such events) rather than to focus on what is likely to happen?

Yes it certainly does. One really must consider the broader system in which contemporary societies exist to understand this phenomenon. Most democratic western societies are victims of political economies that focus on growth and short-term profits. These goals push natural hazards and disaster to the back seat. When disasters do occur, those same systems document "lessons learned" (as if we didn't know those lessons before the event happened), and they respond by doing things to use those lessons. It is this very mechanism that has us focus on the last disaster experienced and not the ones we face. To do the latter would require that a society push rational hazards management ahead of their political economy. This would require putting long-term goals ahead of short-term profits. It's a rare society, indeed, that would take this approach; and in fact, I don't know of any that have. This could be one of the reasons that natural disasters continue to become larger and larger.

As a corollary of the above, is it likely that we will now see a focus on climate-related events (and climate change in particular) at the expense of seismic events?

I think that depends on the nation you're in. For example, the U.S. remains focused on the hazards of terrorism at the expense of natural hazards. Although Hurricane Katrina did provide a wake-up call for many, many of the practices needed to move natural hazards management forward, that the U.S. abandoned after September 11, have not yet been put back in place. Impacting or reversing, in some appreciable way, the path that at least the U.S. is on regarding climate change would require national actions that would disturb the current distribution of wealth e.g. reducing the wealth of those who own fossil fuels. Human history just isn't filled with examples of powerful people making decisions that result in their losing wealth or power.

Regarding the seismic hazard, at least in the U.S., there has been a positive impact of the federal de-emphasis of natural hazards such as earthquakes. For example, the State of California is seizing the opportunity to own and manage its own seismic risk independent of federal policies and programmes.

QuakeTrackers back on track



Emeritus seismologist with the United States Geological Survey Dr John Lahr demonstrating to American students the AS-1 seismograph to be used in the New Zealand QuakeTrackers programme.

A revitalised programme designed to educate school students about seismology and encourage further study has won EQC support.

The QuakeTrackers programme, first started in 1998, is to be re-established following a recent review and recommendations for a major overhaul.

The revised version of the programme will again centre on a network of seismographs in schools but this time using a simple, robust and reliable AS-1 instrument developed for similar purposes in the USA.

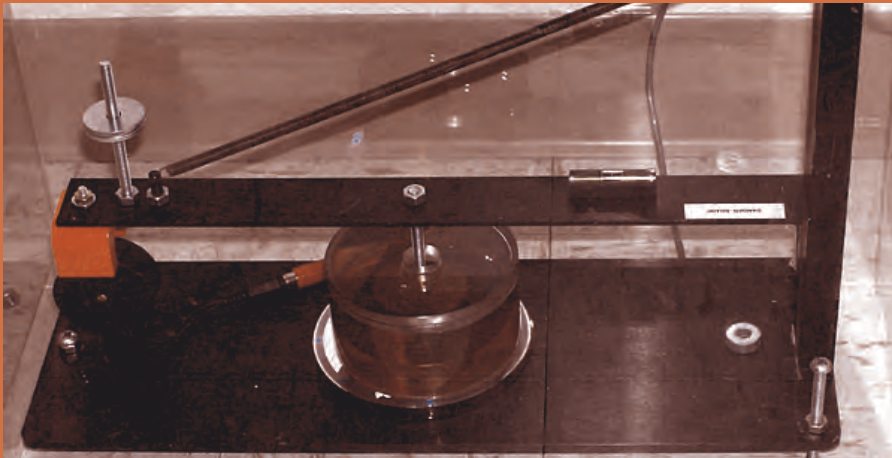
The original programme relied on the relatively expensive and more complex machine available at the time thus restricting participation.

The goals for the revised programme are to:

- develop and provide access to educational resources for teachers, students and others
- provide hands-on learning opportunities by means of school-based seismographs
- maintain a website where data from the national geophysical monitoring network GeoNet and other sources are freely available for use with teaching materials
- encourage widespread participation
- ensure the effectiveness of the programme through appropriate New Zealand Qualifications Authority assessments.

An advisory board comprising representatives from the Royal Society of New Zealand, GNS Science, Victoria University, and EQC, will provide oversight for the programme. It is also envisaged that the New Zealand Geophysical Society, the New Zealand Society for Earthquake Engineering, and the New Zealand Association of Science Educators, will have representation on the board in one form or another.

The programme will be managed on a day-to-day basis by the Royal Society.



The AS-1 seismograph.

Obituary:

Leicester Steven, EQC Commissioner



As a Commissioner from 1982 to 1997, Leicester Steven's contribution to EQC and to natural disaster preparedness in New Zealand was immense.

Leicester, who died in Christchurch during July, was a champion of the Commission's support for research and disaster response planning. This in no small way contributed and continues to contribute to New Zealand's ability to manage large scale natural disasters. A notable achievement made all the more remarkable as it was accomplished during his

unsuitably named retirement. In 1998 the Commission established the Leicester Steven EQC Lectureship in Earthquake Engineering at Canterbury University in acknowledgement of his contribution.

Before joining EQC, Leicester had a distinguished career in engineering, particularly in the area of wastewater conveyance and treatment systems. Starting work at Timaru City Council he was founding and senior partner of consulting engineers Steven Fitzmaurice & Partners, from 1961 until 1983.

Leicester's expertise saw him serve the engineering community, in both industry organisations and as a lecturer at the University of Canterbury. His interests extended beyond his own profession and from 1965 he was a director of several private and public companies. These included New Zealand News Ltd where he was a director for 23 years, serving six years as chairman.

Retaining Walls

Some companies cover retaining walls in excess of EQC's liability. We have heard of claimants receiving the wrong advice because of confusion over what EQC's liability is.

EQC's cover is in three parts – buildings, contents and land. The maximum sums insured, or caps, are:

- Building – \$100,000 + GST per dwelling;
- Contents – \$20,000 + GST per policy;
- Land – based upon the market value of the land insured and the indemnity value of some structures on the land.

Retaining walls are considered under the Earthquake Commission Act to be part of land. Therefore they do not come under the dwelling cap.

EQC is generally liable up to the indemnity value of the retaining wall and the market value of the land which has been lost, within prescribed distances from any structure on the property.

The sum insured that is used by EQC to settle claims for land and retaining walls is determined by a valuer after any loss has occurred. An insurance company may become involved if it covers the excess of indemnity on retaining walls, not the excess over \$100,000.

For further information, please look up the Earthquake Commission Act on EQC's website (www.eqc.govt.nz/abouteqc/eqcact.aspx) or contact **Derek Gibb** on 978-6410 or **Keith Long** on 978-6411.

Contents Cover

For information on EQC's cover for landlord's contents, contents in transit and contents in storage, please see page 10 of the Insurer's Guide to EQCover (<http://www.eqc.govt.nz/insurance/insurersguide.aspx>). For more information contact Derek Gibb on (04) 978-6410.