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**Planning for the Big One:  
A University's Earthquake Response**

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There are two big forces at work, external and internal. We have very little control over external forces such as tornadoes, earthquakes, floods, disasters, illness, and pain. What really matters is the internal force. How do I respond to those disasters? Over that I have complete control.

—LEO F. BUSCAGLIA (1924–1988),

ITALIAN AUTHOR AND MOTIVATIONAL SPEAKER

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# Planning for the Big One: A University's Earthquake Response

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*Abstract: On September 4, 2010, a 7.1 magnitude earthquake hit Christchurch, New Zealand, which was previously thought by most to be fairly safe from the risks associated with quakes. Due to extensive emergency response planning and recovery operations, the University of Canterbury weathered this emergency event and emerged with new lessons learned to share with the higher education community. This article provides an insider look at the earthquake's impacts on the city, describes the university's immediate and longer term response to the earthquake and many after-shocks, and provides lessons learned.*

## Introduction

There is rarely a shortage of stories about disasters and catastrophic losses in the global media today. Real-time coverage delivered by both international news services and social networking sites provide continuous details of the impact of significant events anywhere on the planet. While keeping us informed, they also serve as reminders for the importance of risk management in both our professional and personal lives. A survey of global disasters clearly shows that 2010 was a watershed year for our profession in terms of both man-made and natural disasters. While many risk professionals personally experienced the atypical weather patterns of that year, such as colder than usual winters, more severe storms, and localized flooding, overall 2010 was a year of exceptional loss of property, commerce, and human life from earthquakes, heat waves, floods, volcanoes, super typhoons, blizzards, landslides, and droughts. Each of these large-scale events, when coupled with local experience, tested the ability of universities to provide uninterrupted services to staff, students, and community. As a year, 2010 was exceptional in providing the higher education risk management profession with examples illustrating the

need to better prepare institutions for future losses and interruption events.

In addition to economic costs and business disruptions, the catastrophic loss events of 2010 had a tragic impact on human life, resulting in the death of at least a

quarter million people across the globe. Measured in terms of human life, it was the deadliest single year in more than a generation. By comparison, more people were killed worldwide by natural disasters in 2010 than have been killed in terrorism attacks in the past 40 years combined.<sup>1</sup>

In addition to the loss of human life, the impact on an already weak global economy was profound. The reinsurance company SwissRe estimated that the global economic loss from both natural and man-made disasters that year was around \$218 billion, more than triple the 2009 experience.<sup>2</sup> A major contributor to the extreme human and financial toll for the year was earthquakes. Across the globe in 2010, there were 2,114 earthquakes recorded above an intensity of 5.0 on the moment magnitude scale, which will be used in this article, coming close

to the 2007 record of 2,270.<sup>3</sup>

The year witnessed an 8.8 earthquake in Chile which was the fifth largest earthquake recorded since 1900 and the tragic devastation caused by the 7.0 quake which struck Haiti, causing the loss of 230,000 people and a physical and economic aftermath which still cripples the country today.

This article discusses another of 2010's large earthquakes and its subsequent aftermath on a major university. At 4:35 am on Saturday, September 4, 2010, a rupture occurred on a previously unrecognized Greendale strike-slip fault beneath the Canterbury plains of New Zealand's South Island. The event produced a magnitude 7.1

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earthquake that caused widespread damage throughout the region. In spite of being slightly larger than the deadly Haitian quake, no deaths occurred and only two serious injuries were reported despite the epicenter lying 40 kilometers west of the city of Christchurch, population 386,000. On February 22, 2011, a large aftershock of 6.3 magnitude again struck the city, resulting in significant loss of life and halving the forecasted economic growth for the country.<sup>4</sup> The original, larger quake released an estimated 648 kilotons of energy, and the strong ground motion led to some building collapses, widespread non-structural damage, and extensive liquefaction with an estimated loss of \$4-5 billion. The second quake is estimated to have caused \$11 billion in damage. Located near the site of the greatest devastation was the University of Canterbury.

#### **Earthquake Impacts on a College Campus: The University of Canterbury**

The University of Canterbury is one of the country's most distinguished universities. Established in 1873, the university is located three miles from the center of Christchurch, along with several other tertiary institutions, including Lincoln University, Christchurch Polytechnic Institute of Technology, and the University of Otago Christchurch School of Medicine. Canterbury is a public university with a student population of over 18,000, including 1,800 students living in on-campus residence halls.

Due to several factors, including comprehensive pre-event planning and well coordinated post-event recovery operations, most organizations in the metropolitan Christchurch area, including the University of Canterbury, were able to resume relatively normal operations shortly after the first earthquake event. The university was able to continue providing teaching, learning, and research activities within two weeks of the large earthquake. It is hoped that university risk professionals will examine significant earthquake losses, such as the California Northridge event

and the Christchurch earthquake, as learning experiences for future university risk planning and mitigation strategies.

Why is learning from both the successes and failures of these events so important? Dr. Roger Bilham, a professor of geological sciences at the University of Colorado, noted that the current trend indicates world populations are moving to growing mega cities located on fault zones and in flood prone areas. Along with these populations are

higher education institutions tasked with providing resilient education services. Professor Bilham's work estimated that 400 to 500 million people live in large cities prone to major earthquakes, and developing the skills to plan for and respond to such low-frequency but high-severity events is an increasingly important skill for university risk professionals.<sup>5</sup>

#### **The Charm of New Zealand: The Geologic Story**

As major land masses go, New Zealand is a very "new" place both in terms of geology and the presence of man. One could say it was one of the last major land masses created and the last to be discovered by mankind. Geologically speaking, New Zealand was formed from volcanic action and substantial earth movement; as a result, there are few places in the world with such diverse geographic characteristics and greater physical beauty and charm. Noted for its isolation, the country is located 1,200 miles southeast of Australia. Its nearest neighbors are the Pacific Island nations of New Caledonia, Fiji, and Tonga. Due to its isolation, it is one of the last major land masses to be settled by human habitation with Polynesian settlers arriving 700-800 years ago.<sup>6</sup>

Earthquakes loomed large not only for those first inhabitants, but also for today's residents. Located on the Pacific "Ring of Fire" and along the meeting point of the Pacific and Australian plates, New Zealand remains very active in terms of seismic activity. One of the oldest recorded major earthquakes was a 7.8 event recorded in

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1848. To date, the largest recorded earthquake was an 8.2 magnitude which struck in 1855, significantly changing the configuration of the capital city's waterfront, Wellington Harbor. While no subsequent earthquakes have surpassed an 8.0 magnitude, the country has experienced 10 major quakes since, ranging from 7.0 to 7.8 in intensity. The latest information from GeoNet, the New Zealand government's seismic incident reporting bureau, reported the islands experience about 15,000 tremors a year, with at least one a day measuring 4.0 or larger.<sup>7</sup> Translated in terms of frequency and severity, this means the country can typically expect a magnitude 6.0 earthquake once a year, a magnitude 7.0 once a decade, and a magnitude 8.0 once every 100 years.

### **Emergency Planning and Response at the University of Canterbury**

Many regard the emergency preparation at the University of Canterbury as among the best in the university sector, and it is clear this preparation served the university well in facilitating a rapid recovery to the September earthquake. The university had sustained significant damage to the more than 80 capital buildings across the campus, but no lives were lost. The early morning hour of the quake and the fact that it occurred during an academic mid-term break meant there were few people on campus and bore an uncanny similarity to the university's case study used during planning stages, the Northridge Quake in California in 1994.

It is important to note that the university's level of emergency planning was not always so high. Until 2006, the University of Canterbury, as was common in the sector, had let emergency preparedness slip in its priorities. While meeting statutory requirements for building and workplace emergency management, the university lacked a holistic view of emergency response across the campus. In 2006, the university did not have an effective emergency management plan or in-house expertise, and leaders had not conducted any meaningful response specific training. There was little support or resource allocation for emergency preparation by senior management and no defined emergency management structure in place. The deterioration of the university's ability to respond and lack of an emergency preparedness budget placed great doubt in the minds of some senior managers that the university could

respond to a major incident with an adequate level of coordination, much less effectively communicate to internal and external stakeholders during a serious incident.

By 2006, university management began to recognize this deficiency and the reputational risk for a campus that could not demonstrate an efficient emergency response. While civil preparedness became an increasingly important initiative of the New Zealand government, several high profile North American campus shootings focused the attention of university administration in both New Zealand and Australia on the need to effectively respond to campus emergencies. These incidents catapulted local educational institutions into the international media, highlighting the benefits of a comprehensive emergency management framework in protecting students, faculty, and staff and maintaining university image and reputation.

By 2007, the University of Canterbury was engaged in reviewing and rebuilding its emergency management capability to become one of the leading universities in the Australia/New Zealand region. Following a comprehensive review of the current emergency management process, university leaders developed a detailed emergency plan which recognized the criticality of web communication in disaster planning. Examples included an emergency management specific website, which has served as a model for other institutions in the region. More importantly, during a fiscally austere time, the university allocated funding to emergency management and began setting up a dedicated EOC to allow effective internal and external communications from a central command center to coordinate recovery following a catastrophic loss.

### **The September Earthquake: A Personal Perspective**

The University of Canterbury's experience in major earthquakes began on September 4, 2010, when the eighth largest earthquake in New Zealand history struck. Jacqui Lyttle, senior policy and risk advisor for the University of Canterbury, explained, "I recall stirring to the sound of a flock of seagulls screeching across the sky, but woke up properly to the sound of breaking glass, falling bookcases, loud rumbling, and the bedroom violently moving."

The quake was uncharacteristically local with its epicenter in Christchurch, located on the eastern shore of New Zealand's South Island. The more lethal quake, of course, occurred on February 22, 2011. This aftershock of

6.3 magnitude was approximately the 14<sup>th</sup> aftershock of a magnitude larger than 5.0 resulting from the initial event.<sup>8</sup>

Ms. Lyttle, a key member of the university's emergency operations center (EOC) team and one of the authors of the university's emergency preparedness program, was alone with her child, as the previous day her husband departed on a remote camping trip and was out of cell phone range. Without power or water and facing unknown damage to her home, she felt the same conflict common to large event response team members, where obligations to home and family momentarily conflict with obligations to perform an important emergency response function for the university. While most emergency response plans recognize the possibility of such potential inherent conflicts, they can significantly impact the staffing and effective performance of incident team members and are difficult to fully incorporate into emergency response planning. While most plans cover the detailed roles of each emergency responder, such plans should also recognize that circumstances may not immediately allow each team member to have a complete support structure in place to allow a timely response.

Surprisingly, after the earthquake, cell phone networks were still in operation, allowing for widespread communication until the system was overloaded. Within 20 minutes of the earthquake, Ms. Lyttle was in contact with the incident controller at the University of Canterbury EOC to inform them of her status. Ongoing phone coverage allowed her to eventually contact her husband, who returned to a cell coverage area, and facilitate child care arrangements with her parents. Emergency planning must include a 24-hour possibility horizon when anticipating availability of response team members. In this case, the timing was fortunate: people were at home or in student housing, making everyone easy to locate and allowing emergency teams to verify that their homes and families were safe. The February aftershock occurred during the middle of the day of a work week, creating a situation of greater uncertainty regarding people's whereabouts even weeks after the event.

In Ms. Lyttle's case, the first quake hit her suburb of Christchurch particularly hard. As neighbors gathered in the street during the early dawn hours, they discovered that all but five of the 20 homes in the cul-de-sac on which she lives sustained heavy damage. To leave one's home fol-

lowing such devastation is a significant personal challenge, knowing that even basic utilities, such as water, may not be restored for several days. In New Zealand, Civil Defense authorities encourage residents to be extremely self-sufficient. The message from the authority has always been that residents must plan for up to four or five days of no assistance from the government and should plan to support themselves before help arrives from the government. Creating this expectation amongst the population allowed the civil authorities the freedom to establish priorities for response and recovery without a flood of demands for service from much of the population.

The February 22 aftershock demonstrated the importance of the timing and destructive forces of catastrophic events. The timing made it far more difficult to locate people, which greatly increased the criticality of emergency response. The aftershock was far more destructive; the New Zealand government offered to buy 5,000 homes in the most heavily impacted areas after it determined the quake had left the land too unstable to rebuild with another 10,000 homes still needing to be assessed.<sup>9</sup> The aftershock also killed 181 individuals.

### **The September Earthquake: Activating the EOC and Launching the University's Response and Recovery**

The September 2010 quake resulted in the first actual activation of the University of Canterbury's EOC when a staff member switched on its emergency generator at 4:55 am, 20 minutes after the quake hit. The incident controller, Chris Hawker, was onsite by 5:15 am, and an initial briefing was held 30 minutes later, establishing priorities and advising the university vice chancellor of the current situation and plan. Within one hour of the earthquake occurring, the EOC was in operational contact with the Christchurch City Civil Defense Authority and part of the integrated network of emergency response and recovery operations for the area. The vice chancellor arrived at the EOC by 6:00 am, and the fully functional incident response team was onsite by 8:00 am to begin a damage assessment.

What was waiting for them? Fortunately, they were working with an almost empty campus where structural damage was minimal. Initial evaluation teams found what appeared to be minor structural damage, but extensive damage to building contents, including equipment and

research facilities. In particular, the university's James Hight Library had over a million volumes scattered across the facility as extensive shelving systems had collapsed and "dominoed" across entire floors, resulting in significant damage to the shelving, windows, ceiling tiles, and light fixtures. It was clear the university would have to close the library, a key resource for the university, for an extended period. For some disciplines, a prolonged closure could be endured; however, some disciplines, such as arts, music, and social studies, required access to hard copies of volumes and monographs. The university needed to identify new methods of providing teaching and research resources to those students.

Initial concerns were, of course, for any injuries or deaths. The team quickly established that no casualties had occurred. The second priority was to secure the campus; the university's "open campus" design made it necessary to enlist the support of campus security to ensure that no one entered the area until the team could assess the safety and integrity of campus buildings. The team also had to contend with the possibility of aftershocks. Unlike an explosion or a flood, earthquakes are typically not a one-time event; on September 4, there were 98 recorded aftershocks, presenting a significant safety concern for emergency responders and damage assessment teams.

Earlier testing on using the EOC facility provided a degree of familiarity to emergency response staff. The dedicated EOC facility served as the location for practice drills, and tested decision making models worked well for the university in the actual situation, resulting in not only the ability to activate and coordinate recovery operations quickly, but also in providing a framework for key decision making. High priority problems were recognized and resolved quickly, such as the unexpected automatic unlocking of all doors on campus due to complete power loss.

Having a trained central response team allowed the university to quickly engage a structural engineering firm, and Ms. Lyttle began accurate, early discussions with

insurers to inform them of the extent of damage and remediation actions.

Once the incident controller and vice chancellor determined significant courses of action, communication with stakeholders became critical. The first web staff arrived at the EOC at 6:30 am, and the first in a long series of earthquake-related messages was loaded onto the university website at 7:20 am. This student, staff, and community communication channel provided photos, bulletins, and university status announcements and developed into a key resource for the university community.

It was fully operational when the university's leaders decided to close the campus at 1:00 pm on the day of the quake. Following the decision to close, the EOC coordinated a wide range of activities, including a staged recovery program once the structural integrity of campus buildings was established. Due to the efforts of the power company, electricity was returned in stages to the campus as early as the evening of the quake and was fully restored over the next few days.

On Wednesday, September 8, there was a 5.1 aftershock which rattled the EOC, resulting in another temporary loss of power and another requirement to assess the structural integrity of the campus. The university postponed scheduled recovery actions for an additional day. In spite of the frustration caused by this setback, later that day the recovery of

university laboratory spaces began, followed by the initial recovery of offices and workshops the following day. By Friday, staff and research students returned to continue low risk cleanup of labs and research areas, although research could not resume until the team could assess the integrity of fume hoods and other major research instruments.

The University of Canterbury opened to returning students two weeks later. While normal academic activities were taking place, of particular concern was the exam period scheduled from October 28 through November 11. During that period, 110 aftershocks hit the campus, which developed aftershock evacuation protocols and en-

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gaged extra security personnel to ensure both the integrity of the exam process and a safe environment. The university informed students of the procedures and carried out exams as scheduled.

The library re-opened to the public on February 21, 2011, and provided a unique case study for the delivery of remote library services. While many universities have included e-learning and alternative methods of providing library resources, the experience of the University of Canterbury was unique for the region, as this was the first recent full loss of a major university library building in the Australian/New Zealand region. It provided a comprehensive test of the ability of e-learning and online access to resources to meet students' needs during the second term of 2010.

### **Key Lessons Learned**

So how did the university do? Certainly, the unexpected nature and severity of the earthquake was very significant for the university. Officials had included earthquakes in their various disaster scenarios, but most believed Christchurch had a relatively low risk of major earthquakes due to the assumption that it was not located near a major fault line. However, evidence of fault lines could have been covered up by sedimentation deposited over the years from the mountains to the west. In a 1998 report produced for the local government authority, the Canterbury Regional Council, the possibility of such hidden or "blind" faults was predicted by University of Canterbury scientist Dr. Jarg Pettinga.<sup>10</sup> The fault is clearly on the map now.

The lessons captured below relate to the initial earthquake in September 2010 and were identified over the following five months. The University of Canterbury's culture of continuous learning drove its desire to glean useful information from the institution's response to the first event. Early in the initial recovery phase, university officials recognized that they needed to capture lessons learned as part of the recovery process. As early as midday on the day of the quake, the emergency response team had established a self-analysis process to add to the institutional memory, identify improvements, and provide credible information to share with others. Mechanisms used to build the institutional memory of the quake included two formal "lessons" debriefs undertaken in subsequent weeks; an online student experience survey to allow the sharing of

experiences, comments, and suggestions among the entire student community; and the commissioning of a formal report by the university on how it performed. The university will release this report to the higher education sector.

While to date there have been many lessons learned, including the need to keep phone trees up to date and the issues regarding staffing of the EOC during a regional event addressed above, the following are some of the lessons the University of Canterbury wishes to share with the high education sector.

### ***The "End" of an Event***

As Christchurch was not regarded as an earthquake intensive zone, planning and preparation could have better addressed the ongoing aspects of a large quake. In the five and a half months between major quake incidents, there were close to 4,000 aftershocks recorded in the region. Prior to the February 2011 event, some of these aftershocks reached magnitudes of 5.1 and 4.7, large events in themselves. While University of Canterbury planners were aware that aftershocks can last for up to one year, it was difficult to understand how that would impact the long-term activation of the EOC and staff's personal and professional lives. Even before the February 2011 aftershock, university staff realized that recovery must go beyond the normal operation of buildings and academic schedules to also address the needs of staff, students, and community members when the "event" has no defined ending. This also took a toll on emergency staff, who worked to return the university to normal operating procedures, only to experience setbacks in the form of continued aftershocks and the need to revert back to emergency operating mode. Having a limited number of emergency management team members under such circumstances placed unrealistic expectations on some key individuals and affected performance.

### ***Staff Availability***

Like all prominent institutions, the University of Canterbury is fortunate to have amongst its academic staff professional experts who can provide advice during a crisis situation. For example, during the avian and swine flu epidemics, it was common for Australian and New Zealand university emergency professionals to enlist the services of medical academics on emergency response committees as consultants. At the time of the quake, the university had

on staff at least five leading experts on earthquake damage and post-event engineering. However, these academics were called away to provide advice and support for both the city of Christchurch and the New Zealand Earthquake Commission, making them unavailable to assist with the university's recovery efforts.

After the quake, there was an immediate need for structural engineering support to inspect and declare buildings on campus safe for occupancy. The university contracted with an external geotechnical and structural engineering firm to conduct surveys of the campus and the certification of damaged buildings. The university recognized this critical dependence on outside structural engineers and will continue to incorporate it into future crisis events where such expertise would be sought competitively. However, additional pre-event coordination with outside service providers would also improve this critical relationship.

### ***Striking a Balance to Accommodate Unexpected Responses***

New Zealand makes no secret about earthquake risk, and the government has spent vast resources preparing its citizens for a large event. With that said, it is never clear how staff and students, as individuals, will cope with a large seismic event. It became clear as the recovery process began that there was a range of coping methods. While many staff and students of the University of Canterbury had previous experience with earthquakes, some from other countries found the post-event losses shattering, both professionally and personally. The homes of many staff and students were seriously damaged, and some were without power and water for an extended period. Such personal challenges, when coupled with challenges at the university, tested the coping skills of everyone and fostered the feeling of divided priorities for many staff members. The university must recognize these divided priorities, perhaps by increasing the number of individuals who have roles in recovery to allow stressed emergency staff to have time to address personal recovery.

Some staff and students were completely surprised by the event, which in some cases resulted in a series of

unreasonable demands and unrealistic priorities. Such demands created an unanticipated drag on the operational response of the recovery. For example, while demands such as, "My research is important and must be accommodated at once," were not unanticipated, the impacts of such demands on the university's true recovery priorities will be included in greater detail in future disaster recovery planning.

### ***Role Reversal***

Even though the University of Canterbury is home to a substantial number of research programs, after the quake, the campus itself became a type of research laboratory for the impact of major earthquakes on urban environments.

There was significant interest in how the university and surrounding communities fared following this major loss. The university will incorporate a greater recognition of "disaster tourism" in its future planning, whereby people who were not affected by the event came to the university to see for themselves the damage and impact of large losses. These unexpected visitors, of course, differ from looters and others such as opportunists who come to sites following a loss for personal gain. Since the campus is an open campus with few effective fences or gates, the university needed additional security resources to patrol the perimeter, keeping out those who might do the campus further harm or expose themselves to danger while the campus was closed.

The University of Canterbury also discovered another class of visitors to post-disaster locations: the "earthquake tourist." Many of these tourists represented the engineering field, and they came to learn from building failures and how structures respond to significant earthquakes. The University of Canterbury became a teaching and research laboratory and a subject of academic investigation and interest to many in the engineering field.

For example, shortly after the loss, an overseas architectural society was interested in the impact of large quakes on building internal fittings and how they survive such events. The university, with a core mission of teaching, learning, and research, responded to these requests by

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earthquake tourists, and this phenomena will be recognized in future planning, including identification of such researchers on campus and the ownership of equipment brought on campus to measure ongoing impacts.

### **Social Networking**

Events in the Middle East during the spring of 2011 illustrated the power of the Internet and social networking when it comes to suddenly organizing large groups of people into action. Universities must address this type of self-initiated activism in disaster planning. Universities are places where development of stakeholder relationships takes priority, and following a catastrophic event, stakeholders may wish to participate in the recovery process. Through social networking sites, these groups have the potential to spontaneously organize and impact recovery operations before emergency planners have time to coordinate and focus these efforts. The University of Canterbury experienced a strong wave of volunteerism, including a volunteer group called the Silt Worms, which assisted in landscaping recovery. This group became even more important following the February quake when it transformed into the USCA Volunteer Army, made up of thousands of volunteers assisting in liquefaction ravaged communities. Future disaster planning should recognize the potential for spontaneous volunteer corps and provide guidance for such groups when they occur.

### **Insurance Issues**

With the initial quake and its deadly aftershocks in February 2011, the impact on the insurance sector will be considerable. As of the development of this article, there have been an additional 31,000 property damage claims added to the 181,107 damage claims from the original 7.1 earthquake in September.<sup>11</sup> New Zealand, a small country, relies heavily on the global insurance market to assist in its risk financing. It is predicted that risk financing will be difficult over the next few years, as earthquakes caused the largest single losses to the global reinsurance market in

2010. According to a December 2010 *Guy Carpenter* report, in 2010 the Chilean earthquake cost the reinsurance market around \$8 billion, and the cost of the September New Zealand quake was estimated to be around \$4 billion with perhaps an additional \$12 billion resulting from the February 2011 aftershock.<sup>12</sup> Of the eight catastrophes that individually caused insured losses of more than \$1 billion in 2010, five were related to severe weather and storms in the United States, Australia, and Europe for a total loss of \$7.9 billion.<sup>13</sup> The only man-made event to incur losses in excess of \$1 billion in 2010 was the Deepwater Horizon

oil rig explosion in the Gulf of Mexico, with the expectation that BP and its captive will cover most of the expenses, capping insured losses at approximately \$3.5 billion.<sup>14</sup>

For countries like New Zealand to maintain the confidence of the global insurance market, the coordination and support of insurance professionals must become an important part of the post-event process. This is an issue which has taken up most of Ms. Lyttle's professional time since September 2010. Insurance coordination was part of the university's original disaster recovery planning, and the earthquake and aftershocks reinforced the need to have detailed plans for the appointment of loss adjusters, claims preparers, and other experts prior to the critical incident in order to expedite the recovery process. A robust approach to

insurance issues was evident from the quake and resulted in the creation of an insurance steering group of senior university staff and best practices as a model for others to follow.

### **Areas of Greatest Benefit**

Finally, the quake reinforced not only the value of the costs, time, and resources needed to maintain emergency management as a priority in the university, but also which areas delivered the most benefit in the days following the quake. For example:

1. The university recognized a need to train more staff in emergency management to build a larger

**To maintain the confidence of the global insurance market, the support of insurance professionals must become an important part of the post-event process.**

cohort of staff to support the response and recovery process, particularly when faced with a regional disaster impacting team members personally, as well as professionally. Knowledgeable and trained staff, able to engage the emergency response network, clearly shortens recovery time. Additional training programs are under design by the university to ensure more staff members can play a role in the recovery response.

2. The earthquake strongly validated the importance of testing systems and conducting exercises to ensure currency and confidence across the entire emergency management structure. This has encouraged emergency response staff to improve and further develop their desktop and applied training exercises.
3. The earthquake highlighted the need to find a balance between raising the awareness of the need for emergency preparedness and the general perception of the University of Canterbury as a safe place for learning and research. The university is concerned that the quake will affect future foreign student enrollment and the perception of Christchurch as a safe destination for study. Emergency response awareness efforts, however, may possibly be sending the wrong message to parents of foreign students considering sending their children to the university.
4. The university also recognized the need to develop more standard operating procedures (SOP) to use during an event. Over time, the earthquake will prove to be a rich source for the development of SOPs, which can serve to identify core programs the university needs to address for future disasters. SOPs will be particularly helpful in unanticipated areas of operation, such as conducting exams during a period of aftershocks. Recognizing the need to develop new SOPs on the fly is an important attribute in the recovery process.
5. Nothing beats experience. While South Islanders are no strangers to earthquakes, past experience in other emergency situations helped senior management make decisions in this crisis. In addition to emergency testing and drills organized by the risk management division, the deputy vice chancel-

lor who oversaw the emergency activity had prior experience during both the H5N1 and SARS epidemics. This previous experience in managing risk-related issues during a crisis helped create a good result for the university when faced with the 2010 earthquake. The lesson is to engage senior management in all emergency operations to ensure they have practiced skills when a large event requires decisive action.

### **Elevation of the Role of the Risk Profession on Campus and Beyond**

Perhaps equally as significant has been the elevated status of the university's risk personnel in campus planning, as well as the role the University of Canterbury has played in higher education in sharing their methods with Australian and New Zealand institutions. For many in higher education, a key lesson stemming from the earthquake was the importance of developing a strong culture of mutual, cooperative information sharing within a professional network to ensure a well-developed emergency response plan. Staff members from the University of Canterbury have presented at sector professional gatherings on the development and testing of the emergency management program. For the past five years, the University of Canterbury has consulted with, shared information, and engaged the higher education sector through organizations such as the Australasian University Risk and Insurance Management Society (AURIMS) and the Tertiary Education Faculties Management Association (TEFMA), inspiring others to improve the resilience of their respective institutions through the mutual sharing of knowledge and expertise. The free and candid exchange of information through these professional networks benefited all in the university sector and served the University of Canterbury well in the days following the earthquake and aftershocks.

Ms. Lyttle was a key presenter at the 2009 AURIMS conference in Perth, Australia, and in May 2010, the university hosted a conference dedicated to emergency management in Christchurch. At that conference, they conducted a simulated exercise for participants, encouraging others to advance their emergency response programs. The Australian university risk financing mutual, Unimutual, has incorporated and shared the university's expertise in its Business Continuity Special Interest Groups,

comprised of universities across the Australian higher education sector.

### Summary

Sir Geoffrey Palmer, New Zealand's prime minister from August 1989 to September 1990, said, "Sometimes it does us a power of good to remind ourselves that we live on two volcanic rocks where two tectonic plates meet, in a somewhat lonely stretch of windswept ocean just above the Roaring Forties. If you want drama—you've come to the right place."<sup>15</sup> These words ring true for many people who live in seismically active zones, including Hawaii, California, or Tokyo. In these zones are universities, which play a critical role in their communities and must possess the skills to rapidly recover following a loss to continue providing training, education, and research opportunities.

These skills are not the source of competitive advantage amongst higher education institutions. Instead, universities should share them in the spirit of mutual cooperation of all in the higher education sector. There is no better example of this spirit of sharing in the Australia/New Zealand region than the University of Canterbury, and it is rewarding to see collaboration has helped forge more resilient institutions in the face of challenging circumstances.

In spite of the recent economic and human losses suffered in the February 2011 aftershock, the residents of Christchurch know that large earthquakes may be likely in the future, as the nearby Alpine Fault is overdue. The university has endured a difficult time, but its leaders view these difficulties as an opportunity to examine their priorities, find a better balance of their limited resources, and keep people focused on future possible events as they undergo a process of returning to "normal." The University of Canterbury is dedicated to sharing any lessons learned with the higher education sector, allowing other universities to use those experiences to produce better responses to the next crisis event.

### About the Authors



*Harry Rosenthal* is the general manager of risk management services for Regis and Partners, the managers of Unimutual, a discretionary mutual of Australian universities and affiliates which provides a wide range of property and liability protections for its members. He is the former

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He holds a master's of business degree from the Florida Institute of Technology, as well as an Associate in Risk Management (ARM) from the American Insurance Institute. In addition, he holds the professional designation of a Chartered Casualty and Property Underwriter (CPCU) with the American Insurance Institute, one of the highest professional titles in the American insurance industry.

Mr. Rosenthal began his professional career as an archaeologist working in the Mediterranean, Europe, the United States, and Mexico. Leaving archaeology in the late 1970s, he began a career in government administration and has over 25 years of experience in risk management and claims administration in the utility, government, and private sectors in both Australia and the United States. He has been an adjunct lecturer and facilitator in both undergraduate and postgraduate programs at the University of New South Wales and University of Technology, Sydney, and he is active in the development of risk management education in Australia.



*Jacqui Lyttle* has worked in the tertiary sector for the last 15 years, most recently in the role of senior policy and risk advisor at the University of Canterbury in Christchurch, New Zealand. Ms. Lyttle's current line management responsibilities include policy, risk, compliance, earthquake

insurance, and emergency management.

Ms. Lyttle is part of the emergency management team charged with developing and implementing a comprehensive emergency response strategy for the university. This team was awarded "Organisation of the Year" in 2008 by the Emergency Management Academy of New Zealand (EMANZ) for outstanding campus emergency management. Ms. Lyttle holds a role within the university's incident management team and has been involved in both the planning and operational response for campus and scenario exercises for the last four years.

All the emergency management planning came to fruition in both September 2010 and February 2011 when Ms. Lyttle was part of the frontline incident management response to the earthquake events. Subsequent to both, Ms. Lyttle has had operational responsibility for insurance matters related to the quakes.

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#### Endnotes

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