

Organisational effectiveness in times of seismic risk.

Lessons for Wellington
Tuesday 18 October 2011

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Building resilience

Presenters: Glen Hughes (Chair), **Allan Freeth**, **Helen Anderson**, **Margaret Jefferies**, **Dave Middleton** - Speakers are identified in **bold** type. Alan Bollard and Geoff Bascand contribute.



Start building resilience into your communities today - Margaret Jefferies (*Project Lyttelton*)

Theme 1 – *Building resilience before the event*

Alan Bollard - The devastating nature of events in Christchurch has highlighted the importance of risk management and organisational preparedness. This is particularly true for Wellington, a capital city built on hills, flood plains and reclaimed land. Wellington overlooks a harbour connected to Cook Strait, and is bisected by a major active fault line at the intersection of the Indo-Australian and Pacific tectonic plates. In the little more than a year since the first of the major earthquakes in Canterbury, we have seen these events produce highly complex and unforeseen outcomes. One of the least expected outcomes has been the long-lasting nature of the earthquakes through their associated aftershocks.



Christchurch – Fact Box

- Affected areas are home to around 12 percent of the country's population
- Near 165,000 homes impacted
- 5000 lots lost - zoned 'unbuildable' by CERA
- 16,000 new sections since re-zoned for people to move into

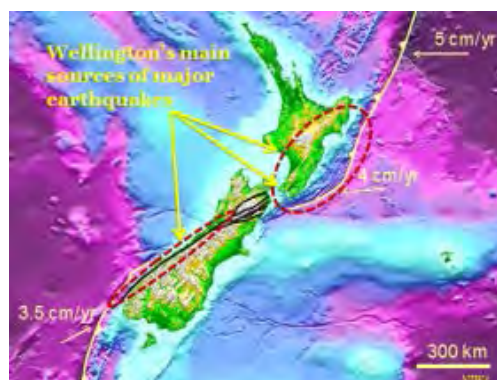
Photo: via Porirua EOC

Planning in the face of such uncertainty is a challenge. It is also vital – to ensure that our society is able to continue to function effectively in times of considerable disruption. From the perspective of the Reserve Bank for example, organisational preparedness means both business continuity considerations for the Bank itself, as well as working to maintain economic stability.

This section discusses:

1. The impact of the Canterbury earthquakes on the economy, on people, and how organisations have responded;
2. Business Continuity Planning;
3. The lessons from Canterbury that businesses and other organisations can apply in Wellington, to build our resilience.

Our geography matters very much in Wellington. **Dr Helen Anderson** describes the strongest shaking in Christchurch as like a bulls-eye – fairly regular. Ground shaking in Wellington is different – with strong shakes spread across Miramar, Lyall Bay, Petone, Lower Hutt, Wainuiomata, reclaimed areas and the CBD. The story is similar for tsunami hazards, especially for coastal and harbour areas.



Our geography matters very much - Dr Helen Anderson



New Zealand is New Zealand is geographically, and economically, isolated - Alan Bollard

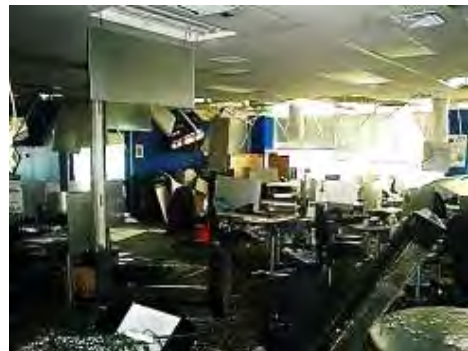
In Wellington, parts of the CBD and near the airport are vulnerable to a combining all of these hazards – with liquefaction, tsunamis and strong shaking also challenging in Petone and Wainuiomata. New Zealand's characteristics as a nation are important too. Being geographically and economically isolated, when significant challenges confront us, it may be with little external financial support. An event like a major earthquake has so many uncertainties, it can be difficult to plan crisis-responses in detail.

The focus for institutions should therefore be on lifting general preparedness, competency, leadership, delegation powers – building commercial and personal resilience, in preference to making detailed plans for specific situations, which may never be repeated.

The importance of Business Continuity Planning (BCP) is stressed in this section on building resilience. Business Continuity Plans should focus on the needs and constraints that may follow a major event.

How might your business's ability to perform its operations be constrained? What are the immediate and not-so-immediate needs of your people? What are the necessary conditions for the business to perform its operations? Are you testing and updating your BCP and related systems regularly?

Location is a pressing issue in regard to planning for business continuity, with many Christchurch businesses forced to re-locate, sometimes more than once. Statistics NZ's **Geoff Bascand** provides some insights on this in [Leading people](#) (Theme 3 of the Forum).



Nothing could have prepared us for the scale...but we were able to adapt quickly because of our plans and our practice - Allan Freeth, Telstra Clear

What are the risks to your business if your place of business or your equipment suffers damage from a seismic event? What if your business is legally required to continue providing services? **Alan Freeth** from Telstra Clear offers some observations in the context of leading and managing during a 'global-level' disaster.

Please hold the line caller, the earth is moving!

While later declared structurally sound, Telstra Clear's Christchurch base and call-centre ended up in what was referred to as the Red Zone and sustained extensive interior damage, such that it was deemed inhabitable. It is still unoccupied today. We are forever grateful that our staff managed to simply walk away with just one or with sustaining minor injuries. It has only been in hindsight that we have understood how our history and our pedigree helped to make our response comparatively seamless and effective.

We have comprehensive disaster-recovery business continuity plans in place for a considerable number of events that could affect our extensive network and business operations. We deal with disasters every week, sometimes every day. It could be rats chewing through fibres, fires, floods, even the odd drunk driving his or her car into our cabinets on the street. So our structure, our crisis communication plans and our communications just swung into action and did what they did every week, every day, every month. However, nothing could have prepared us for the scale and the magnitude of the issues and concerns that we faced, but we were able to adapt very quickly because of our plans and our practice.

The first quake came as a practice run for the second, more tragic quake and we have learnt from it. In accordance with our disciplines, we had just finished reviewing the project incident report on our first response to the quake. We had not yet implemented the decisions when the second quake struck. So a lot of that was done real-time.

The second quake, like the first, was a multidimensional challenge that cut across many of our BR and BC plans. For the first time on any scale, we had to face the issues of the whereabouts, the safety and the wellbeing of our staff and their teams. By 11pm on the night of the second quake, through a combination of staff contact trees, mobile phone, internet and most importantly social media, we had accounted for all our staff and found them as far afield as Invercargill.



If you don't have BC Plans, develop them and practice them
- Allan Freeth

We differ from many businesses and organisations in that we have to abide by legislation that binds our service, with consequent obligations and responsibilities. That means our own disaster recovery is the least of our worries – because we are responsible for the disaster recovery of our customers as well. Unlike the message on the plane – put your own mask on before helping others – we are obliged to do both at the same time. And we were up against inconsistent, contradictory, incorrect information.

Telstra Clear's Christchurch call-centre and engineering unit serves customers all around the country, with about 230 staff and about another 100 contractors there. Some

50,000 consumers and business in the region use our telecommunication services. We have literally hundreds of kilometres of fibre and HMC cable.

We had 80 cabinets in the affected areas that we were unable to get to. And with power outages affecting vast tracks in the city, the majority were running on battery, lasting anywhere from 3 hours to 3 days. We have several large and vital equipment sites in the city providing essential services. These are, among others, the NZ Defence Force, NZ Customs Service, MAF, Christchurch City Council, Civil Defence, Transpower, BNZ, Qantas – the list goes on. These sites have generators and large diesel tanks that can last from 1-3 days. At lunchtime on Friday 22nd, the stopwatch was started on us, and we knew we were in trouble, because of the devastation reported.

Street cabinet failure we can live with, but loss of a major switch is *Armageddon* for us. Yes, we have contingency and redundancy plans for loss of power to a site, harm for employees, or damage to network operations, but I have to say we hadn't envisioned dealing with all three at once without any information and then dealing immediately with the needs of our customers. The need for contradictory types of management became very clear – you had to be focussed, and strategic, at the same time.

The good news was that our network did not fail – it had been built well and it had been well-maintained. Parts of the network did lose power: Three hours is not a long time for cabinet batteries, so we were monitoring every cabinet. Barring thieves, and well-intentioned locals borrowing the generators, we kept the cabinets running.

In terms of critical sites, no amount of training or preparation would have been any use; this just became real-time crisis management. If we had lost one of the sites we would have lost almost the entire South Island and it would have taken days or weeks to restore it. By 7pm on the Friday following the second quake, we had just 45 minutes of fuel left for one generator. I was literally seconds away from picking up the phone to the beehive to get in touch with Bill English, when we finally got the agreement from Civil Defence to let us through the cordon to keep that generator going.

I don't believe that Telstra Clear is any different or unique to other network businesses. We have resiliency in our DNA, but you can build resilience into your organisations.

The first step is accepting that an event will happen. Even when events happen every week – if on a different scale – we have people who greet those BR plans with scepticism and amusement, but not now. Secondly, you can build fiscal resiliency. Before the second

quake we had business customers who believed that our pledges to have systems diversity and backup network operations were expensive and unnecessary, and were simply a way for us to extract more money. Not anymore, though in some cases, memories are short.

We believed in the strength of our network design, in its capacity, resilience and diversity. Hundreds of millions of dollars have been invested into strengthening the Telstra Clear network. The quake proved this right. We are proud of the fact that we did not lose the network during either of the quakes, or since.

What have learnt?

We have learnt that BCPs must be based on reality. They must take account of basic human behaviours and they must assume the very worst. No power, no communications, no food, no water, and then once you have them, you may lose them again. We have learnt that nothing is normal in such a disaster. Plan and train – but ensure that your staff understand that they may have to improvise and think outside the norm to find resolutions.

We have learnt to keep leadership local wherever possible, but with clear boundaries and decision-making rights. We have learnt not only to be conscious of the need to swap out teams at the disaster, but to manage and swap out teams behind the scenes. At one point we had over 200 people backfilling the Christchurch team roles and this continued for some months.

We have learnt in times of emergency to communicate constantly and repeat messages over and over, and communicate with everyone.

If your executive team doesn't have wide experience across your business, then develop a process where they can learn the job of the man or woman above, below and beside them.

If your organisation has business infrastructure or process weaknesses then identify them now and build redundancy while you can.

We have learnt that doing the impossible is doable. Smart people can find solutions, but sometimes, only in the face of the inevitable. My engineers told me there was no hope –

that if we lost the generators at one particular critical site, we were done. I sent them away for an hour, with instructions to come back with an answer, and they did so.

We have learnt that preparation and training is essential. But, in the face of totally unexpected events – common sense, passion and intuition can take you a long way. Know your strengths and weaknesses. If you don't have Business Continuity Plans, develop them and practice them.

Finally, always test the unthinkable. You can never fully be prepared for a disaster like Christchurch, but that is no excuse to not try.

Dr Helen Anderson describes building resilience in a particularly Wellington context, next: Wellington has experienced major earthquakes and a destructive tsunami within the last 200 years and is likely to again. Christchurch has taught us that uncontrollable factors, such as time of day, have a dramatic impact on the loss of life, social disruption and the economy. Wellington unique geography will create localised areas of very different damage, such as on steep hills or reclaimed land.

I'm going to be slightly doomsday about Wellington...I think we need a wake-up call and if we don't get it from Christchurch, I don't know where on earth we'll get it from.

Where our earthquakes come from, the major sources of earthquakes for Wellington, some particular aspects of Wellington's geography, these affect our resilience and response, particularly in regard to the CBD.

There are obvious lessons for Wellington from the Christchurch CBD building collapses. Wellington has around 800 potentially earthquake prone buildings - *potentially* - as many are yet to be assessed. Wellington City Council assesses only those buildings built before 1976 – because it is assumed that 1976 onwards buildings are 'safe'. Council is reviewing this assumption.

What is an earthquake-prone building? According to the [definition](#) in the Building Act (2004), it is something that is less than 33% of the new building standard. That is less than a third of what you would expect to build now.

In order to remove that earthquake prone status, an upgrade to just 34% or more is acceptable under the current rules. Notably, some of

the buildings that completely collapsed in Christchurch would not have been identified as earthquake prone.

This raises a pressing issue – a building or other structure that is not described as *earthquake-prone* is not necessarily *earthquake-proof*. Customers and citizens are demanding. They should demand much more reassurance about the safety of our buildings in our CBD. There are 800 potentially earthquake prone buildings on Wellington City Councils list, but that is the minimum. I would like to offer a suggestion: A new rating scheme for buildings – an earthquake rating symbol to be displayed outside Wellington buildings. So customers can make a clear and informed choice. Customers and citizens do need to know and be informed about the safety of our buildings.

We know that disaster preparedness is necessary and desirable, but not without cost. Improvements to seismic strengthening through increased safety standards are welcome. However, as Alan Bollard suggests, we also know that the significant costs, not to mention additional complexities in the regulatory environment, have the potential to impede activity. While there is a strong argument to prepare for low-frequency, high-impact events, there is a risk that doing so may be constraining in terms of activity and prohibitive in terms of costs. The assessment of such risks in New Zealand is complex, with work ongoing to more effectively quantify this.

Margaret Jefferies

Building resilience is about people and communities. *Project Lyttelton* is a shining example of what can be achieved with the power of community. **Margaret Jefferies**, Chair of *Project Lyttelton* takes up the narrative.

Now is the time. You could start building resilience into your community today! A resilient community will move more quickly through the ensuing chaos. But, to build resilience in a community you need to know one another, so you can have easy conversations and work things out together.

Project Lyttelton uses a number of tools to strengthen its community and hence its resilience. These include: Appreciative Inquiry, Open Space, Time Banking and other money systems, community gardens, shared meals, festivals, farmers market, welcome bags, a newspaper, a newsletter, a website, electric cargo bikes, and most recently, a large food security project has received support, including Crown funding.

Now is the time to build resilience. Today we are talking about businesses and structures. But, you are all people, you all have families and it is important to start thinking about your community.

Lyttelton is over a faultline and was badly affected in February 2011. Yet, we're quite a way ahead, compared to other affected communities – because we constantly address the idea of resilience and have built this sense of community. We know how to act and how to respond, to build resilience.

Wellington can be affected by many things, not just earthquakes – climate change, tsunamis, financial crisis, you could have the lot. We need to start thinking about how we work together in all of this – and start building resilience into our communities today.

So, what can you start doing today in your community to start building resilience? Start thinking – not just of your organisation – but think of yourself, your family and friends too, your community. Start getting to know them. What ideas do you have? Start thinking.

People tend to think it is someone up the chain who makes the decisions, but sometimes it is you who has to be the one to take the lead and make the decisions. What is it that you can offer? One woman I'd like to mention is a quilter. She started sewing on a street corner. People crave just to sit down and talk normally. So she sat down outside on the street, and she started sewing hearts. People sat down beside her. She stayed there for days – just sewing and giving away these hearts.

Would you think quilting would be related to earthquakes? It is about taking your individual skills and relating them. It's about connecting too – what are the ideas buzzing in your head and whom are you going to connect with?

Dave Middleton is the Chair of David is Chair of the Strategic Advisory Group representing users of natural hazard research funded by the NZ government and others through the Natural Hazards Research Platform and leads the steering group overseeing the Canterbury University Project, *Resilient Organisations*. He wraps up this conversation on building resilience.

The resilience of organisations

In modern times, the large settlements that we now have the tendency to live in depend on complex and interlaced systems for normal functioning. When disaster strikes, they also rely on these systems for recovery and their survival.

Resilience measures how well prepared organisations, either individually or interdependently, are to withstand or recover from external shocks.

Yet, little has been done to measure organisational resilience or study how it can be improved. In 2004 a diverse group of researchers secured long-term funding from the Government to investigate resilience in New Zealand. Recognising resilience as a practical matter, the research team included experts in transport engineering, construction and IT security, initially from the universities of Canterbury and Auckland.

The research programme was designed to assist New Zealand organisations to recover economic competitiveness after destructive events.

The longer the downtime, the less likely a business is to survive and at a tipping point of only a few weeks, many organisations are not able to survive at all.

There is also a national interest to focus on organisational resilience in recognition that it is organisations that manage, maintain and operate our infrastructure, create our economy and enable communities to return to normal. The concept of resilience for business is just as relevant for non-profit organisations as it is for-profit organisations.

Like Christchurch, the Wellington business scene is dominated by small to medium enterprises, which are shown to be more vulnerable than large businesses to major disruption. Bearing in mind that Wellington's topology and possible isolation, some immediate issues may well reflect those in Christchurch CBD for service.

Some of the research recommendations are applicable to businesses outside the Canterbury area. Organisations should plan for supply chain robustness and duplication, identifying alternative suppliers is a valuable exercise. Mutual aid agreements or collaborations with other organisation to maintain critical supplies could be useful, planning, if a bit fraught, as some of these organisations will be competitors. There are examples in Christchurch of competitors becoming collaborators.

Tourism and marketing organisations should plan systems for marketing for the region post-disaster to counteract the expected customer-base erosion. As the reconstruction continues, road networks are likely to be disrupted, so long-term changes in these networks, such as decisions to delay repairing some of these roads down in

Christchurch, are likely to have major impacts on some businesses. Up-to-date and accurate information on road network disruptions is needed by all businesses. An interest in plans and capabilities of other vital lifelines will serve businesses well – information, information, information – you can't have too much.

The overall negative disposition of businesses to move back to the CBD within 18 months underlies the importance of decision-makers working collaboratively with businesses. The consultation process needs to go far beyond keeping businesses informed. Small businesses especially need to be engaged and empowered through the reconstruction process in order to improve and maintain investor confidence. Businesses should plan, and in the event strive, to become involved. Actively involved business groups are essential for a successful commercial recovery.

The commercial sector needs to support ongoing fact-finding and research in the recovery phase of several years to keep abreast of possibly rapidly changing factors. From the individual businessperson's perspective there are some resilience fundamentals to attend to. An ability to survive and even prosper in the wake of disaster is dependent on the ability to get the right balance of planning and preparation on the one hand, and adaptability on the other.

Disasters throw up winners as well as losers. It is those organisations that have better planning and adaptive capacity balance that win out over their competitors.

Summary

To build resilience, for people, for organisations – there is work to do. Assume the worst, suggests Allan Freeth. Update your business continuity plans and practice them. Keep leadership local where possible, but have clear boundaries for decision-making. Share information. Demand information – Dr Helen Anderson cautions against being too accepting, when it comes to building safety, in particular.

National, as well as local action has been required in the case of the Christchurch earthquakes. Similarly, for other disasters: the Rena grounding in October 2011, Pike River in 2010. There is a need to prepare for and manage the effect of big national challenges and shocks from offshore, as much as the shocks that nature poses for us at home. Arguably, *think global – act local* is an overused phrase, but it applies.