

INDIGENOUS RESILIENCE THROUGH URBAN DISASTER

The Māori response to the 2010 and 2011 Christchurch Ōtautahi earthquakes

*Simon Lambert**

Melanie Mark-Shadbolt†

Jamie Ataria‡

Amanda Black§

Abstract

The scale of damage from a series of earthquakes across Christchurch Ōtautahi in 2010 and 2011 challenged all networks in the city at a time when many individuals and communities were under severe economic pressure. Historically, Māori have drawn on traditional institutions such as whānau, marae, hapū and iwi in their endurance of past crises. This paper presents research in progress to describe how these Māori-centric networks supported both Māori and non-Māori through massive urban dislocation. Resilience to any disaster can be explained by configurations of economic, social and cultural factors. Knowing what has contributed to Māori resilience is fundamental to the strategic enhancement of future urban communities – Māori and non-Māori.

Keywords

resilience, disaster, emergency management, urban communities

* Faculty of Environment, Society, and Design, Lincoln University, New Zealand.
Email: Simon.Lambert@lincoln.ac.nz

† Bioprotection Research Centre, Lincoln University, New Zealand.

‡ Faculty of Agriculture and Life Sciences, Lincoln University, New Zealand.

§ Bioprotection Research Centre, Lincoln University, New Zealand.

Background

The seismic activity affecting Christchurch Ōtautahi began on 4 September 2010 with a magnitude (M) 7.1 earthquake that resulted in no deaths but significant damage to many buildings. A smaller (M6.3) but more damaging event on 22 February 2011 killed 185 people and caused widespread destruction. An M6.3 earthquake on 13 June led to just one related death but brought further structural damage and considerable distress to many residents, as did the thousands of aftershocks, some over M5.0, that rumbled through the city.

Both Māori and Pākehā societies have firsthand experience of the hazards associated with settling such a geologically active land (Goff & McFadgen, 2003). Table 1 lists major earthquakes in Aotearoa New Zealand over the past 160 years. While these and other histories form an important backdrop to this research, they are just a starting point for a modern Māori perspective that has brought seismic change, not least among Māori whānau, kura, organisations and businesses that have established themselves in urban settings.

Risk, hazards, vulnerability and resilience

Although risk, vulnerability and resilience are imprecise terms, they nevertheless possess an “intuitive resonance” (Barnett, Lambert, & Fry, 2008), with evidence that the effects of hazards and disasters are not distributed evenly through society. Instead, we see the distribution of loss and damage, and the capacity to respond to and recover from loss and damage, varies according to social, political, economic and geographic factors (Cutter, 2010; Ellemor, 2005). The challenge for researchers is to broaden our catchment for both data and analytic approaches beyond merely aggregating and homogenising places and people for the purposes of comparison.

Risk

The word risk comes from the Greek rhiza, meaning the hazard of sailing along rocky coastlines, an etymology that lends itself nicely to the actuarial approach understood (from this perspective) as the sum of individual risks of all misfortunes:

TABLE 1. Significant earthquakes in New Zealand.

Date	M	Location	Fatalities	Damage
3 Jan 1855	8.1	Wairarapa	4	
17 Jun 1929	7.8	Murchison	17	\$133,000,000 ¹
3 Feb 1931	7.8	Napier	256	\$650,000,000 ²
24 June 1942	7.8	Wellington, Hutt Valley,		£2,000,000 ³
2 Aug 1942	6.8	Wairarapa, Manawatū		
24 May 1968	7.1	Īnangahua	3	
22 Mar 1987	6.3	Edgumbe	1	\$300,000,000 ⁴
20 Dec 2007	6.8	Gisborne	1	\$36,000,000 ⁵
15 Jul 2009	7.8	Dusky Sound		\$6,100,000 ⁶
4 Sept 2010	7.1	Ōtautahi	0	
2 Feb 2011	6.3	Ōtautahi	185	> \$30,000,000,000 ⁷
13 Jun 2011	6.3	Ōtautahi	1	

¹ 1998 NZ\$ (Owens, 2001; Table 23.2). ² 2010 NZ\$. ³ <http://www.teara.govt.nz/en/1966/disasters-and-mishaps-earthquakes/3> ⁴ Estimate (<http://christchurchcitylibraries.com/kids/nzdisasters/edgumbe.asp>). ⁵ EQC cost (over 6,000 claims) 2010 NZ\$. ⁶ EQC cost (5,219 claims). ⁷ Estimate (Bennett, 2011).

$\text{Risk} = \sum f(\text{probability of misfortune, expected loss from misfortune})$

Despite some studies showing an increase in deaths, damage and costs over time (United Nations International Strategy for Disaster Reduction [UNISDR], 2004), governments, local authorities, businesses and households tend to ignore those risks that are seen as highly unlikely, even though their effects may be devastating, and they do not sufficiently plan, engineer or insure for these risks. This is regrettably evident within planning authorities in the development of Christchurch (Canterbury Earthquakes Royal Commission, 2011; Heather, 2011a), highlighting the political-economic contexts influencing the vulnerability of individuals, households and communities.

Hazards

A hazard is a potentially damaging physical event, phenomenon or human activity that may cause death, injury, property damage, socio-economic disruption or environmental degradation (UNISDR, 2004). On the one hand, hazards can have geological, hydro-meteorological or biological origins; on the other, individuals and communities are increasingly affected by technological hazards – as in the cases of Three Mile Island and Bhopal – or particularly challenging combinations, such as the Japanese nuclear reactor emergency at Fukushima following an earthquake and tsunami in March 2011.

Vulnerability

At its most simple, vulnerability is the potential or susceptibility to damage or loss and is determined by physical, social, economic, environmental and cultural factors. Some communities are better able to absorb and recover from disasters simply because they have access to assets, credit and useful political networks (World Bank, 2010). Notwithstanding the value of indigenous ecological knowledge

– increasingly acknowledged and accepted in environmental management – the built environment exposes all its inhabitants to new and emerging hazards, with marginalised groups in urban areas being more vulnerable (Del Popolo, Oyarce, Ribotta, & Jorge, 2007).

Resilience

Resilience has been described as the ability of a system to absorb shocks before altering its structure in some way, or the speed of recovery of a system following disturbance (Adger, 2000). A resilient system, therefore, is one that accommodates change or absorbs shocks in such a way that the system is not fundamentally altered. This positions resilience as the inverse of vulnerability, notably in ecology (Holling, Berkes, & Folke, 1998), but also in studies of social systems (Barnett, 2001). Resilience can be built by shocks to a system provided there is “system memory” – in ecosystems, through the composition and functioning of species assemblages and, in society, through enduring communal understanding that captures the experience of past changes (Berkes, Colding, & Folke, 2003).

Response and recovery: Definitions and examples

The Ministry of Civil Defence and Emergency Management (2008) categorises four mutually inclusive phases: reduction, readiness, response and recovery. The reduction phase seeks to identify and mitigate long-term risks to life and property, while the readiness phase focuses on the preparation of operational systems and capabilities. In many respects, these two phases ended with the 4 September quake, as the 22 February event framed the intervening period as contributing to “reduction and readiness” (Heather, 2011b). The response includes all actions taken immediately before, during or directly after an emergency event, essentially

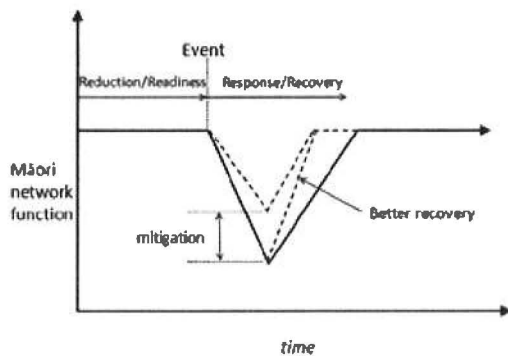


FIGURE 1. Māori network resilience model (after McDaniels, Chang, Cole, Mikawoz, & Longstaff, 2008).

seeking to save lives and protect property. The recovery period consists of the regeneration of communities. Figure 1 outlines how we model the resilience of Māori networks within this conceptual framework.

For the February earthquake, national and international aid was quick to arrive (Lambert & Mark-Shadbolt, 2012). Despite this rapid and professional response, the city's population was subject to considerable danger, discomfort and disruption, and significant movements of people and resources took place over the following months. Local unemployment was up 17% in the 4 months post-February (Wood & Chapman, 2011), school rolls dropped by up to 20%, and domestic violence, gambling, drinking, stress and insecurity increased (New Zealand Press Association, 2011; Stylianou, 2011). This paper reports on several broad and evolving areas in the response phase and makes some comments on the current and ongoing recovery phase. How do Māori – as individuals, communities and a society – respond and recover in such an environment?

Method

It should be clear that a broad approach is needed to account for how people are affected by hazards and disasters. This paper gives an overview of two projects that sit within

a programme of three interlinked projects. We initially undertook 10 semi-structured interviews with selected Māori informants, beginning with emergency workers and several Māori managers caught in the central business district (CBD) on the day of the February quake. This was expanded in a second project for Te Puni Kōkiri that focused on whānau resilience (a third programme focusing on Māori mental health networks has just begun at the time of publishing). Transcripts were analysed for common themes, and follow-up contact – further interviews, phone calls, emails and personal meetings – were undertaken with some participants. Our approach integrates the response and recovery experiences of Māori within a context of historical and contemporary marginalisation, to bring about constructive attention to these networks so that Māori in the future might become more resilient.

The Māori response

The response to the 22 February event was the immediate mobilisation of emergency workers, hospital and medical staff, volunteers and many so-called ordinary citizens who found themselves in the midst of a damaged city and traumatised population and helped out or escaped as best they could. One of our informants had to amputate the legs of a man trapped in a building; another hurrying home to his own whānau stopped to carry an injured woman – her legs crushed – from a collapsed building. All over the city and beyond, Māori networks mobilised to contact and help whānau; many children were taken away to safe areas (often to the North Island) and mattresses were laid out in homes to accommodate the refugees.

Marae enacted their role as communal refuges, not just in the tribal area of Ngāi Tahu but across the South Island and including North Island marae such as Pipitea in Wellington (Te Puni Kōkiri, 2011). Several iwi sent in teams of tradespeople and nurses; Māori wardens

came, first from elsewhere in the South Island, then from the North Island. Ngā Hau e Whā was quickly established as a recovery assistance centre (RAC) and fielded many enquiries (see Figure 2), primarily directed towards Work and Income (WINZ) and Red Cross but also including Housing New Zealand, Christchurch City Council, the Inland Revenue Department and Victim Support.

Four themes stood out in our interviews: neighbourhood, tamariki, whānau and community, with the last-mentioned connecting each of them and forming an important but also shifting concept. Social media technologies now mean people belong to a globally extensive community, and many of our participants of all ages have used Facebook to maintain links and seek reassurance and support. The safety of children was paramount for several of our respondents, and determined location and lifestyle decisions following February 2011. Many respondents were inspired by their children, who frame many whānau responses: “Everything is for our kids though so we knew if we showed panic that

would reflect on them and they’d also panic”; “My oldest girl, she really stepped up, fetching water and helping out”.

A constant comment was that Māori are better at disasters than others. For some, this was because of a personal and whānau history of poverty and need for self-sufficiency; for others, it was our acceptance of upheaval: “Māori are used to the last minute evacuation when it comes to tangi, book a ticket, pack a bag, ring your boss, you can be gone anywhere up to a week”.

Cultural practices were reiterated: for example, in answer to a question about why some systems and processes worked well through the disaster, several respondents noted *kanohi ki te kanohi* or *kanohi kitea* approaches. Yet *tikanga*, particularly around *manaakitanga* and hosting incoming helpers, was also seen as making excessive demands on whānau and organisations severely disrupted by the earthquakes, which were struggling to look after themselves.

Although the focus of emergency services was in the CBD, considerable damage occurred

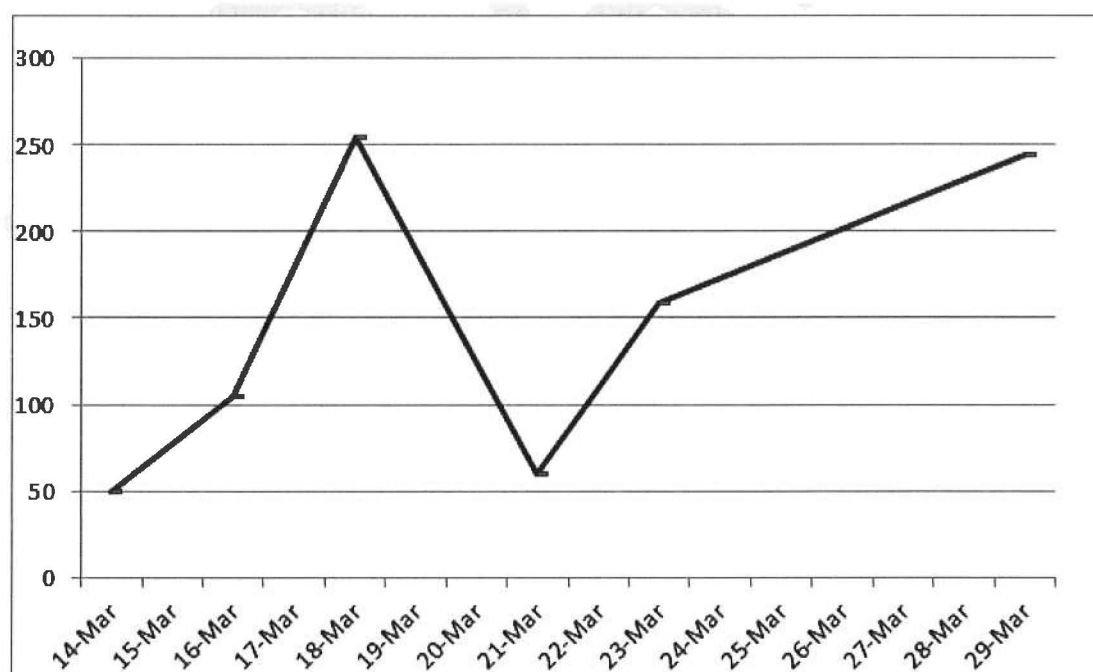


FIGURE 2. Queries to Ngā Hau e Whā (Te Puni Kōkiri Earthquake Bulletin updates).

to residential properties, especially in the eastern suburbs. Abundant aid was supplied in the immediate aftermath: "People were happy. We were prosperous!"

However, one significant lack noted by residents of the eastern suburbs and other observers was the low number of Portaloos supplied in the east compared with other areas of the city (Potangaroa, Wilkinson, Zare, & Steinfert, 2011). This unfortunate lack draws attention to the economic marginalisation of the eastern suburbs. Māori unemployment nationwide had been poor for several quarters, and indeed had recently worsened (Statistics New Zealand, n.d.). After the February event, retail and hospitality (sectors with strong representation by Māori) were badly hit, affecting female workers more than male workers, and while Māori unemployment figures in Canterbury were lower than those nationwide through 2011 and the beginning of 2012, many of those without work appear to have left the region.

Environmental impacts have been sidelined by the serious social and economic impacts. In the immediate aftermath of the February shock, many of those affected expressed concerns over biohazards (primarily, water quality). While, internationally, environmental impact assessments are more likely to be requested or required (Kelly, 2011), there are concerns that the environment has yet to figure prominently in discussions about disaster recovery in Christchurch (see, e.g., Gorman, 2012, on asbestos dumping). Impacts on Ngāi Tahu wāhi tapu have been significant (Yates, Mark-Shadbolt, & Brown, 2011), as has been damage to cemeteries (Dunbar, 2011). Continuing ecotoxicological impacts are being experienced. Approximately 35,000 m³ of wastewater was being discharged daily into the Avon-Ōtākaro River in mid-March 2011, although this had declined to about 13,300 m³ per day by the end of April (Environment Canterbury, 2011, p. 2). New springs have been reported as a result of both the September 2010 and February 2011 events, and large numbers of birds died

from avian botulism following the discharge from broken sewage pipes into treatment ponds (Martinez-Allier, 2000). Despite these events, preliminary research has indicated the urban waterway of the Heathcote River is probably recovering fairly rapidly (Wells, 2012). Unfortunately, the same cannot be said for the city's social and cultural systems.

Discussion

The response and recovery of Māori to the massive dislocation of the earthquakes in Ōtautahi displays the strength and resilience of Māori cultural values and skills as well as the distressing effects of ongoing Māori economic vulnerability. The institutions of whānau, marae and iwi provided immediate and much needed help to more than just "their own", and the values of whanaungatanga and manaakitanga were manifested in the actions of countless individuals and groups.

However, we make the comment that framing Māori resilience as somehow emanating from generations of poverty risks reifying the economic vulnerability of Māori and diluting attention from a key component of resilience to hazards and disasters, namely, asset wealth (Vatsa, 2004). By emphasising that Māori resilience is nuanced, place based and culturally attuned, we hope to expand the possibilities for better disaster preparation and improved post-disaster recoveries. Simply judging Māori response(s) and recovery(ies) according to assumptions of population stability or resistance to change denies the mobility and adaption Māori have incorporated in their collective and individual reactions to disruption. As for a stronger resilience to future disasters, we can only point out the fundamental aid to expanding options, namely, economic wealth and security. Engineering a wealthier Māori society remains vital to improving the resilience of Māori and poses a continuing challenge to efforts to reduce our collective vulnerability to what are recurring events.

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