Indigenous Peoples and urban disaster: Māori responses to the 2010-12 Christchurch earthquakes

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Abstract

Indigenous Peoples retain traditional coping strategies for disasters despite the marginalisation of many Indigenous communities. This article describes the response of Māori to the Christchurch earthquakes of 2010 and 2012 through analyses of available statistical data and reports, and interviews done three months and one year after the most damaging event. A significant difference between Māori and 'mainstream' New Zealand was the greater mobility enacted by Māori throughout this period, with organisations having roles beyond their traditional catchments throughout the disaster, including important support for non-Māori. Informed engagement with Indigenous communities, acknowledging their internal diversity and culturally nuanced support networks, would enable more efficient disaster responses in many countries.

Keywords: *Indigenous communities, disaster response, Māori, cultural institutions*

Indigenous Peoples are increasingly urbanised (Del Popolo, Oyarce, Ribotta, & Jorge, 2007; UNHRP, 2007; UNHSP, 2010), altering their exposure to environmental hazards and challenging disaster management approaches for individuals and collectives. Over 80 percent of Māori, the Indigenous People of New Zealand, now reside in urban areas (Ministry of Social Development, 2010). New Zealand has significant geological and hydro-meteorological hazards and the experiences of how urban Māori respond to ensuing disasters provides important insights into 21st century disaster risk reduction for Indigenous societies.

Christchurch, the second largest city in New Zealand with a population of 400,000, experienced a series of earthquakes beginning on September 4th, 2010, with a magnitude (M) 7.1 event that resulted in no deaths but saw significant damage to many buildings (Stevenson et al., 2011). A smaller (M6.2) but more damaging earthquake on February 22nd, 2011, killed 185 people and caused widespread destruction in the CBD and to thousands of residential properties (Canterbury Earthquakes Royal Commission, 2011). Thousands of aftershocks, more than 50 of them stronger than M5.0 (Bannister & Gledhill, 2012) kept residents under stress and hampered the recovery. Christchurch contains a relatively large population of Māori (see Table 1) including the majority of Māori in the Canterbury region and the South Island.

For a better appreciation of the effects of the disaster on Māori it is perhaps more useful to understand that significant communities of Māori reside in the Eastern suburbs which suffered significant damage from liquefaction and the loss of services including retail, medical centres, sports and cultural facilities. Initial 'red/orange zoning' of damaged land and properties fell disproportionately in these suburbs.

An important characteristic of Māori society is the distinction between those who have genealogical links to a location or territory, and those who do

Table 1.
Total Residents and Māori in Christchurch City and Neighbouring Districts (from Statistics New Zealand, 2012, 2014b[1])

Area	Total			Māori		
	2001	2006	2013	2001	2006	2013
Hurunui District	9,885	10,476	11,529	516	594	804
Waimakariri District	36,903	42,834	49,989	2,430	2,856	3,570
Christchurch City	324,057	348,435	341,469	22,533	25,725	27,768
Selwyn District	27,291	33,645	44,595	1,572	2,010	3,039

1 Statistics NZ cautions the interpretation of ethnic data as people can and do identify with different ethnic groups over time. Methodology, questionnaire design, classifications and coding practices have also changed over time, meaning some data is not consistent between 2001, 2006 and 2013

not. The first group are considered to have traditional authority and claims to ownership as *mana whenua*; through Treaty of Waitangi settlement processes these tribal authorities are formally acknowledged and included in relevant national and local government processes (Waitangi Tribunal, 2013). Māori who do not trace their descent to local tribes often maintain their identity and engagement with their own tribe and are collectively known as *ngā maata waka* or *ngā taura here* and may outnumber *mana whenua* in urban areas. Ngāi Tahu is the local tribe for Christchurch, indeed for much of the South Island; their tribal authority is Te Runanga o Ngai Tahu (TRoNT)[1] and tribal members make up about 40 per cent of Māori resident in the city. Figure 1 shows that relative population sizes for the main areas impacted by the disaster.

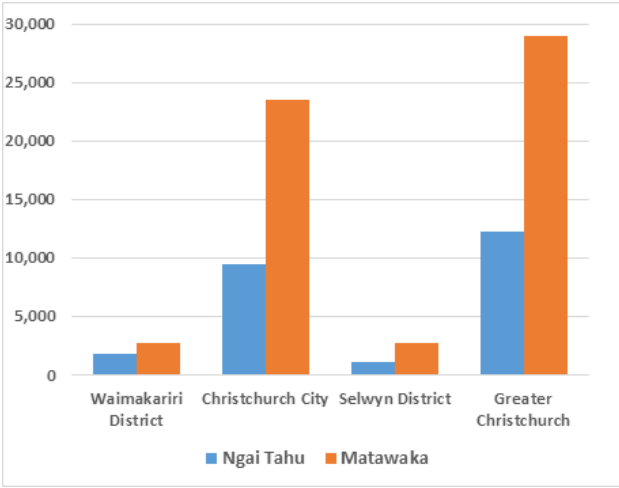

Figure 1. Ngāi Tahu and Ngā Maata Waka/Taura Here communities (from Statistics New Zealand, 2014a)

Those Maori who do not trace their ancestry to the Christchurch area are primarily from the North Island and will have their own tribal networks and practices with their subtle differences. There are also significant numbers of Maori who do not know their tribal affiliation, further complicating a uniform approach in disaster management for Māori. Several formal organisations represent non-Ngai Tahu in Christchurch and the wider Canterbury region, including Te Runanga o Taura Here, Te Runanga o Ngā Maata Waka (Te Runanga o Nga Maata Waka, 2013), and the Māori Community Leaders forum. While personal, social and professional interactions take place between all these groups, and between them and Ngai Tahu, *mana whenua* status will have implications for, *inter alia*, disaster management in New Zealand.

1 At June 2011 the total equity held by TRoNT was NZ$591m (Te Runanga o Ngai Tahu, 2012).

Literature Review

That disasters impact differently on different groups is well-known (Cutter, 2010; Wisner, Blaikie, Cannon, & Davis, 2004). Indigenous communities often highly vulnerable despite the ancient wisdom they hold on environmental risks and hazards (Ellemor, 2005; Howitt, Havnen, & Veland, 2012; Lambert, Athayde, Yin, Baudoin, & Okorie, 2014; McAdoo, Moore, & Baumwoll, 2009). These insights are now included in international fora such as the United Nations Fourth Session on the Global Platform for Disaster Risk Reduction (UNISDR, 2013) which noted that "Organizations increasingly seek systematic evidence based methods for risk-informed decision-making, drawing on scientific analysis and tested Indigenous Knowledge" (p.13). Indigenous Knowledge (IK) is a body of knowledges maintained by Indigenous Peoples that is "poly-rhetorical, contextually-based, and rooted in a specific place and time" (Louis, 2007, p.134). While IK is increasingly recognised in environmental and resource management, it remains marginalised and struggles for acceptance and ethical engagement.

Shaw, Sharma, and Takeuchi (2009b) classified IK in disaster risk reduction according to four socio-ecological systems and their hazards: mountains (geological and hydro-meteorological hazards); coasts (tsunamis, storm surges, erosion); water management (drought risk); river basins (floods and erosion), They labelled a fifth area as the role of housing in coping with diverse disasters (Shaw, Sharma, & Takeuchi, 2009a). Illustrating with examples from across the Asia-Pacific region, their case studies reported on how IK contributes to scientific and engineering understanding, and state and private responses including the communication of research and knowledge across cultural borders.

A 2013 UN conference on Disaster Risk Reduction in Geneva drew attention to worldwide efforts to adopt the Hyogo Framework for Action 2005-2015 (HFA) and promote the strategy of 'Building the Resilience of Nations and Communities to Disasters'. A side event called "Engaging Indigenous People in Disaster Risk Reduction" (UNISDR, 2013, p.50) discussed how Indigenous communities might contribute to local, national, and global disaster risk reduction practices, stressing the *necessity* for Indigenous Peoples to have a voice in order to reduce disaster risk and vulnerability. Imposing centralised solutions to local problems threaten a community's capacity to initiate risk reduction and save lives. Risks may include some that are unique

to Indigenous communities – exacerbated colonisation and ongoing marginalisation – but also includes contexts common with other, non-Indigenous, communities.

Recommendations for the new Hyogo Framework for Action (HFA2) (the 2015 culmination of the UN programme) included: 1. recognition and better use of Indigenous perspectives and knowledge by incorporating these in HFA2; 2. support for the creation of regional Indigenous networks to give voice to Indigenous advocates for disaster risk reduction; 3. advocacy, through respective National Platforms, for 'a seat at the table' and for the inclusion of Indigenous knowledge in national disaster risk reduction planning; and 4. provision of opportunities for Indigenous participation in regional and international forums.

In this nascent (and eclectic) discourse, historical colonisation and ongoing oppression are themselves framed as 'disasters' (Stewart-Harawira, 2005), an approach that can if not diminish at least risk diluting our focus on the risks and responses to specific contemporary environmental hazards and their subsequent disasters. While IK has a fundamental role in identifying, assessing and living with environmental hazards and their consequent disasters, many generations of discrimination and marginalisation have fragmented and denigrated this knowledge. Urbanisation of Indigenous communities further removes vulnerable communities to necessary insights and access to relevant knowledge.

Research on the response and role of Indigenous collectives in disaster management aligns itself with community focused research (Shaw, 2012) but IK has been slow to 'infiltrate' disaster management (McAdoo, et al., 2009). Kirmayer, Dandeneau, Marshall, Phillips, and Williamson (2012) presented four North American case studies of Indigenous mental health through disasters and by "a focus on resilience [shift] attention from vulnerability and pathology toward the analysis of resources, strengths and positive outcomes" (p. 399). While their socio-ecological insights are fundamental, ongoing marginalisation remains a source of vulnerability to Indigenous communities. Some of the research discourse has blurred *resilience* with simple (but not simplistic) *endurance* (Lambert, Mark-Shadbolt, Ataria, & Black, 2012), and while the latter may precede the former, understanding and improving the ability of Indigenous communities to absorb the worse effects of a disaster and not just endure but consequently *flourish* should be the ultimate aim of disaster risk reduction strategies.

Few publications have appeared on the Māori experiences of the Canterbury earthquakes. A Master's thesis by Rae (2013) compared post-disaster planning for Indigenous Peoples in Taiwan and Ōtautahi. The experience of Taiwanese Indigenous society after a 7.3M earthquake on September 21, 1991, saw a more participatory approach evolve through the Taiwanese recovery. However this is not as formal as TRoNT's stakeholder role in the rebuild enacted through the 2011 Canterbury Earthquake Recovery Act. But while Ngāi Tahu have acquired considerable experience around the resourcing and skills needed in disaster response as well as benefitting from their extensive property portfolio, a role for those Māori who cannot claim 'local' status does not feature in formal planning other than through ad hoc community representation.

Māori are not often directly represented in the many reports on the disaster, being present by proxy through either geographical characteristics where the Eastern suburbs are acknowledged as being the location for many Māori in Christchurch, or socio-economically with Māori being disproportionately represented within poorer communities. Two studies on the Eastern suburbs highlight the difficulties poorer neighbourhoods have in recovering from large-scale disaster. Gilbert and Elley (2013) in a study commissioned by Te Runanga o Ngā Maata Waka surveyed households on the periphery of three red zones in the Eastern suburbs, finding property damage, the loss of amenities, and growing crime and antisocial behaviour were common concerns, with those on lower incomes were more likely to have a negative view of the future. Yanicki (2013) compared Aranui (one of the poorer of the Eastern suburbs, and over 20 per cent Māori) with Sumner, a comparatively wealthy suburb, and found that Aranui was able to quickly activate existing support organisations and networks but that once Sumner residents had established support networks, these networks were better resourced and of broader scope than its poorer near-neighbour.

Thornly, Ball, Signal, Lawson-Te Aho, and Rawson (2013) investigated the 'psychological resilience' of communities 15-17 months after the February 2011 event through case studies that included marae; Māori participants spoke of the sense of community and the importance of cultural practices. Despite this, the series of *Wellbeing* surveys by the Canterbury Earthquake Recovery Authority (CERA) (Canterbury

Earthquake Recovery Authority, 2013; 2012) show an alarming pattern of Māori suffering some of the worse effects on well-being of the 2011-12 earthquakes. For example, those less likely to rate their overall quality of life positively included 63 per cent of the 100 Māori respondents (CERA, 2013, p. 20), up from 56 per cent in the first survey (CERA, 2012, p. 13).

Paton, Johnston, Mamula-Seadon, and Kenney (2014) continued the somewhat flattering treatment of a Māori response. Looking specifically at the 2009 Victoria, Australia, bushfires and the 2011 Christchurch earthquakes, their section on 'Māori perspectives on recovery' began by under-stating the percentage of Māori in the city and drew solely on Ministerial and iwi authority reports (i.e., from TRoNT). I examined Māori resilience in a forthcoming book chapter (Lambert, forthcoming) but point out here that *recovery* to this disaster for Māori and other residents will be a very drawn out process, with worsening psycho-social effects for many now taking place three years after the 22-2-11 event (Conway, 2014). Cooper-Cabell (2013, p. 27) argued that the country's "pervasive neo-liberal perspective" has hampered the provision of the necessary support for individual and community recovery from the Christchurch disaster. Their article contributed important baseline data on Māori to better gauge their recovery over time and in particular drew attention to the risks of embedded disparities between local and non-local Māori.

Methods

The current article presents an overview of statistical data alongside selected quotes from Māori impacted by the disaster. Although statistical data on Māori has often been limited (Statistics New Zealand, 2002), government sources on school enrolment and beneficiaries enable an analysis of short-to-medium term movements of Māori. Various reports and presentations have been gleaned for information relevant to the Māori response including reports on localities such as the badly affected Eastern suburbs (home to many Māori), the Ministry of Māori Development (Te Puni Kokiri/TPK), and the annual reports of the local tribal authority. Integration of 2006 census data on tribal affiliations of Christchurch Māori and Earthquake Commission (EQC) post-disaster zoning decisions is also presented.

This article also presents insights from a series of semi-structured interviews. Twelve individuals were interviewed six months after the worst event of February 22, 2011, including first responders, *marae* managers and Māori within the CBD at the time of the earthquake. A further 16 interviews (of different participants) took place 12-14 months after the February 2011 event and included four participants who had left Christchurch for Brisbane, Australia(Lambert et al., 2012). Selected quotes are embedded around the statistical and other data to provide context and insight from the personal stories of Māori who experienced the worst disaster in New Zealand for three generations.

Results

Immediate Impacts

While the February 2011 event was the most significant for most residents, it is important to note that for some, one of the many other earthquakes may have been the most frightening event. The extended seismic event began at 4:35 a.m. on September 4th, 2010 when most residents were in bed. One participant stated:

> *[I] grabbed the cot and pulled it over to the bed and we just sort of rode it out, 30 seconds or whatever it was. Felt like a f***ing eternity! Shocks kept coming, I tried to get out of the house, the doors were jammed so I kicked the front door open, basically to get out.*

While there was significant damage to buildings and infrastructure, there were no fatalities from this event. However, at 12:51 pm on February 22nd, 2011 (lunch hour on a Tuesday) a 6.3M earthquake brought extensive devastation to the city. A participants stated:

> *I was in the Carlton hotel and it was falling down all around me … a building that actually falls apart, it's way more scary than just being in an earthquake where nothing falls down.*

While most Māori had been reunited with family by nightfall, many were traumatised and some (including first responders) did not know of the safety of tamariki, whānau, or friends for many hours (Lambert et al., 2012). This is illustrated by the interview excerpt:

> *When I looked at it, my house was unsafe, there was glass everywhere … All I wanted to do was create a safe place.*

All interviewees spoke of the sense of community that quickly developed across the city. Neighbours were talking and helping out, often for the first time, hosting each other, allowing the use showers and toilets,

helping with repairs, childcare, sharing food, water and information, as described by one participant:

> *Around that time everyone's like 'Oh how's your fellas house?' I suppose you have something to talk about. And just people doing with what they've got and getting on with it, you know, surviving! Seeing them all down there with their water bottles and 'Come and have a sausage', you know, 'free sausage, come on!'*

Short and Medium Term Movements

Of course, many immediate impacts were not distributed according to ethnicity. But Māori ethnicity does correlate to political, economic, social and cultural frameworks (Durie, 2005) and ethnicity is a significant factor influencing the impacts and responses to disasters (Cutter, 2010). Many residents were forced to flee the city in the first few days after February 22nd but accurately quantifying these movements is difficult. Interviewees talked about leaving the family home for varying periods or permanently, with some arranging for children to live away from the city with extended family. A useful indicator is the change in school enrolments between 2010 and 2011 (see Figure 2) which shows this change in roll by ethnic group, with 3-5 times the number of Māori children leaving Christchurch in the days following the February event compared to Pākehā.

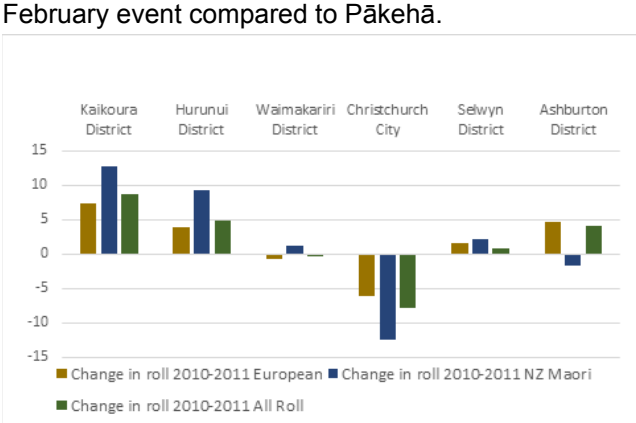

Figure 2. Per cent change in the number enrolled aged 5 to 10 years by district 2010-2011, and by ethnicity (from Newell 2012). Districts are in order from north to south.

This data indicates a stronger outward movement by young Māori families compared to Pākehā in response to the disaster. There is tendency to move northwards. An exception is the Selwyn District which is to the immediate south of Christchurch city (and has since become one of the fastest growing district in New Zealand, see Stewart and Gates, 2013).

Data on beneficiary movements shows a net loss of beneficiaries, both Māori and non-Māori, immediately following the February earthquake. While this exodus was followed by an overall return of beneficiaries to the region within three months (see Figure 3), this return was not shown by Māori beneficiaries (see Figure 4).

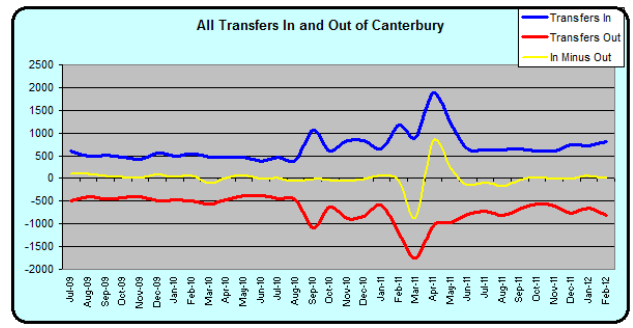

Figure 3. Total beneficiary transfers in and out of Canterbury (July 2009-February 2012) (from Ministry of Social Development, 2012)

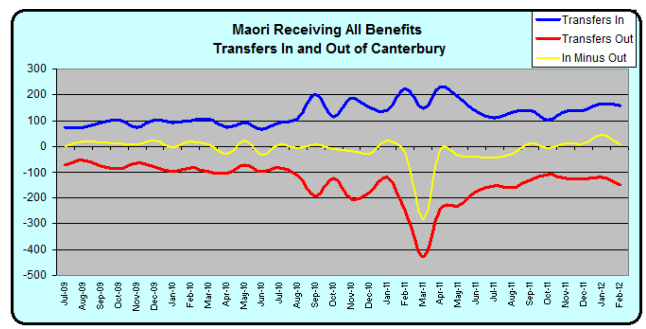

Figure 4. Māori transfers for all benefits (July 2009 - February 2012) (from Ministry of Social Development, 2012)

Financial assistance was available for people wanting to leave the city, with Air New Zealand offering $50 flights. However difficulties remained, as described in the following interview excerpt:

> *[T]hey were happy to give you all this money to help you relocate, to get out of town … but the girls had already gone by that stage. And then there was no help to get them back, so you know it was like 'Oh'. That didn't work so well.*
>
> *Interviewer: So you were looking for a bit more follow up?*
>
> *Well for us it would've been handy for the return trip but yeah, it was a bit, I don't know, one way ticket…*

Aftershocks caused serious distress and disruption and contributed to outward migration although it is difficult to isolate the earthquakes as the sole cause of this movement. Estimates of overall Christchurch resident movements from other studies (Newell, 2012; Price, 2011) ranged from 2.0 to 3.5 per cent. Statistics New Zealand (2012c) estimated 16,600 residents left the city in the two years to June 2012. If the city average of 7.3 per cent of this group are Māori then as many as 1,200

Māori may have left Christchurch. Given the impacts on the Eastern suburbs, coupled with a propensity to move for economic opportunities (Sin & Stillman, 2005), the number could be several hundred more. In the post-disaster context, this mobility has implications for the support of Māori families, particularly children, and the provision of general and specialist health and counselling services. One participant stated:

> *Māori are used to the last minute evacuation when it comes to tangi [funeral], book a ticket, pack a bag, ring your boss, you can be gone anywhere up to a week!*

The 'New Normal'

For those who couldn't leave, or chose not to, the *new normal* of life in a shattered city became a daily trial. Services and infrastructure were severely disrupted, some schools were relocated, and demolition and repair activities created noise and delays in moving around the city as transport routes constantly changed in response to road closures. One participant stated:

> *It annoyed us that the Orbiter bus still hasn't returned to its normal route. And the buses were no longer travelling over the East side which made it difficult for people without transport to get to work and do shopping, especially when you have to travel to the other side of town because all the malls around you are closed due to being so badly damaged.*

For badly affected suburbs, and particularly in the Eastern suburbs, concerns were expressed on the marginalisation of response with the comparative limited distribution of portable toilets becoming a cause *cèlébre* (Potangaroa, Wilkinson, Zare, & Steinfort, 2011). Kahi and Borrell (2011) presented on the experiences of the their community in the east, pointing out how many young Māori took on roles of support in this often marginalised community, a fact noted by one of our participants:

> *I would like to add that my oldest girl surprised me by going out and finding water on the bike, cooking dinner in our makeshift kitchen out the back, boiling water for dishes. She really stepped up in time of a disaster.*

The first 'red zone' decisions, identifying land to be removed from residential use, were made in June 2011(Canterbury Earthquake Recovery Authority, 2011). Referring back to the impacts of the earthquakes on neighbourhoods with significant Māori population, merging 2006 census data on iwi in the city and EQC zoning maps of late 2011/early 2012 (see Canterbury Earthquake Recovery Authority, 2014b) gives an estimate of the impacts on Māori by tribal affiliation (Figure 5). As Māori can often identify with more than one iwi, these data are very general but do show that the participation of Māori in mainstream disaster management is nuanced and not amenable to a simplistic template to account for all Māori.

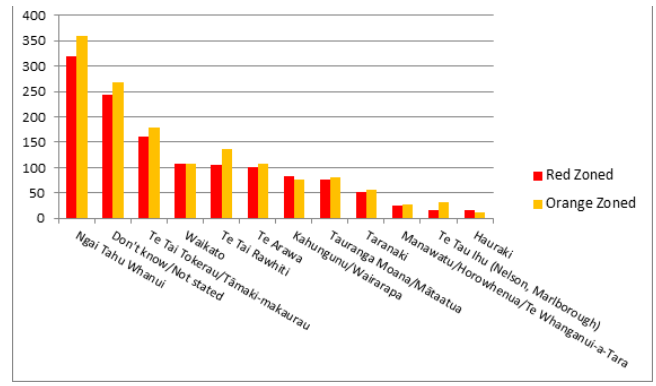

Figure 5. Māori by main tribal affiliation and EQC Zoning (Newell, 2012). Note that the second largest category is Māori who 'don't know' or don't state their tribal affiliations.

Discussion

The Role of Māori Institutions in the Overall Response

Māori cultural practices of hosting and reciprocity (*manaakitanga*) and the bonds of kinship (*whānaungatanga*) were seen by interviewees as contributing to a degree of community resilience. *Marae*, the traditional communal meeting places, have featured in past disaster responses, providing ready-made spaces for dislocated individuals and families (Mutu, 2000; Webber, 2008). All marae that were in a position to take refugees in the Canterbury region were opened with support staff helping complete Red Cross and Work and Income forms on arrival to access emergency cash. *Marae* were supported with essential resources by local tribal authority, TRoNT, who provided petrol, gas, food, water, blankets, and toiletries and a free-phone number for help (Anderson, 2012; Paton et al., 2014), ultimately totalling $953,000 over the 12 month reporting period of the 2012 financial year (Te Runanga o Ngai Tahu, 2012, p.5).

Rehua *marae* (near the badly damaged CBD) operated as an accommodation centre and housed relocated Māori government staff including coordinators for other, North Island, tribal responses (Anderson, 2012). One participant stated:

We got a lot of help from the iwi, Tūhoe, through Rehua marae. They were catching up with whānau, ringing up, 'Are you guys alright? We've got money here.'

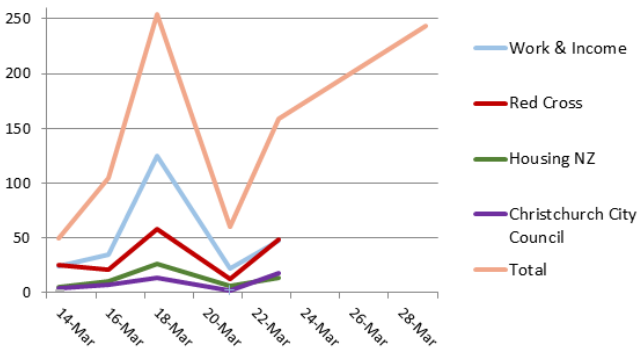

Figure 6. Queries to Ngā Hau e Whā Recovery Assistance Centre (March 14-28, 2011) (from Te Puni Kokiri, 2011). Raw data is drawn specifically from Bulletins 12-17 after which the series seems to have stopped.

Ngā Hau E Whā, a large urban *marae* in the Eastern suburbs, was quickly established as a Recovery Assistance Centre (RAC) and fielded many enquiries (see Figure 6). Rāpaki *marae*, near Lyttleton Harbour, housed up to 60 people from the local community and was included as an accommodation centre for the area (Te Puni Kokiri, 2011b); Takahanga *marae,* in Kaikoura, about 180 km north of the city, experienced an influx of Māori in transit to the North Island (Te Puni Kokiri, 2011a), many from the Eastern suburbs. Many of these had little or no money, sometimes no ID and little clothing (Te Puni Kokiri, 2011a). Te Aitarakihi *marae*, in Timaru, about 165 km south, was also very busy, and *marae* in the Nelson-Tasman district opened their doors to Christchurch residents (Anderson, 2012).

Māori service providers, tribal organisations and the Māori wardens (a pan-tribal organisation of uniformed community workers) brought resources and networks to bear on a 'Māori response' (Lambert & Mark-Shadbolt, 2012; Te Puni Kokiri, 2011c; Te Runanga o Ngai Tahu, 2012; Thornly et al., 2013; Triegaardt, 2011). *Kura* (Māori schools) became important community nodes. This was an extension of their pre-disaster role but a role made more important by the collapse of many support systems. The insights that staff had of family circumstances were vital to ascertaining needs, as described by one participant:

There were four of us who sat at school for one day, and if we couldn't ring them, we'd go and visit them. The people we were a bit more concerned about, we'd ring not just that once, we rang a few times to see if they needed anything else.

Most participants in this research considered "being Māori" an important aspect of how and why they managed to cope with the earthquakes. However, despite narratives of endurance, the scale and severity of the overall disaster has meant that most residents have been impacted: for Māori, the impacts seem worse than for Pākehā. CERA continue their wellbeing surveys with the proportion of Maori less likely to rate their overall quality of life positively is currently unchanged from the third survey at 63 per cent (Canterbury Earthquake Recovery Authority, 2014a, p.22). Overall, Māori continue to feature across most of the negative indicators: stress; damaged or poor quality housing; loss of access to the natural environment; uncertainty; transport issues; relationship problems; and potential or actual loss of income.

The economic impacts on many Māori households are likely to have been severe as employment opportunities have declined for many. As a direct result of the February earthquake, overall employment in Canterbury fell by 28,200 people or 8.3 per cent, driven by significant decreases in part-time employment, youth employment, female employment, and people employed in retail trade, tourism (Statistics New Zealand, 2012). Women employed in the hospitality, service, and light manufacturing sectors and those Māori hoping to work in the reconstruction of Christchurch are particularly limited by the delayed rebuild.

The recovery and rebuild phases still offer considerable options for Māori with the relevant skills. TRoNT is set to play an important role as a formal stakeholder in future infrastructural, residential, and commercial developments via the Canterbury Earthquake Recovery Act implemented in April 2011. However, recalling the distinction between traditional descent groups and *outsiders*, this legislation does not allow for a formal role for non-local Māori (Rae, 2013). This oversight further emphasises the ongoing marginal status vulnerability of many, and perhaps the majority, of Māori. One participant drew explicit attention to this dichotomy:

I think sometimes it's ok to have an 'ethnicity' response … but [are you] *talking about a 'Māori response' or are you talking about a 'Ngāi Tahu' response? What were you talking about? See I don't know! … once they started asking questions, it was a Ngāi Tahu response. So then I came out and I said 'Well I'll take care of the*

other 70 per cent of the Māori population, so I'll give you a Māori response then!' The earthquake didn't differentiate between who was going to get hurt and who didn't and neither are we so every nationality gets treated the same on a level playing field and Ngāi Tahu have a responsibility to look after their own first and foremost, and so they should. I have a responsibility to help look after every NZ citizen, simple as that.

But the formal and timely inclusion of marae in strategic and tactical decisions in disaster management was lacking, as stated:

Marae don't even feature in [the planning] and yet the marae in my view are the organisations that are more prepared. I just hope that we engage better with the Civil Defence and the city council moving forward. I hope that our voice can be heard somewhere.

Given these layers of complexity to Māori responses to the disaster, it is difficult to argue that Māori culture is somehow sufficient for resilience to disasters. Rather the assumed uniformity about how Māori operate collectively can be turned to disaster response and recovery activities through Māori institutions such as *marae*, the Māori Wardens, tribal authorities and, ultimately, *whānau*. One participant stated:

[Our] organisational skills, knowing your community, knowing who to contact, that's it in a nutshell. Knowing your community, the right people to approach. And yeah, being Māori does help a big way because of what's in here [taps chest], not what's up here [taps head].

This hints at something other than the much vaunted *mātauranga Maori* or Maori knowledge, generally of the so-called natural environment and a field of study dominated by natural scientists (see, e.g., King, Goff, & Skipper, 2007). Rather it is perhaps *mātauranga hapori* or social science that is the discipline more likely to contribute to a better understanding of any Māori resilience. Shaw and others (e.g., Campbell, 2010) acknowledge the gap between what is known by IK and what is successfully applied and implemented. Thus disaster risk reduction (DRR) will always require more than scientific and technological advances and the challenge is that not enough attention has been given to grounded implementation in the context of daily life and the routine work of communities, especially where those communities are Indigenous.

Disaster management must be cognisant of the socio-cultural proximity of Indigenous cultural nodes (such as the institutions of *marae*, *kura*, and *whānau* for Māori) that may be spatially dispersed and often geographically very distant. This distance is seen with North Island *marae* and extended *whanau,* including some living overseas. Indigenous individuals and communities that are not *local* in the cultural sense may be sidelined through the weight of state recognition for contemporary tribal authorities. A one-size-fits-all approach by state agencies may hide or ignore important intra-community differences and exacerbate the effects of disruption and dislocation that follow a large disaster.

The promotion of good governance at all levels, from local to national/international levels, is an essential pre-requisite for effective risk reduction. Given the extensive work required to just maintain New Zealand's general DRR capability, improving the situation for Māori collectives will required the multi-hazard, multi-level and interdisciplinary approach promoted by Indigenous researchers and their supporters from other Indigenous societies.

Conclusions

The Christchurch disaster seriously impacted Maori individuals and communities through the social and spatial characteristics of Maori residency in the city. Although Maori institutions and cultural practices facilitated a culturally-tailored response, which automatically helped non-Māori, many Maori still struggle in the post-disaster landscape. There are risks that a general historical marginalisation of Māori is morphing into a more nuanced structural side-lining of non-local Maori through the dynamics of formal iwi authority engagement by local and national government.

For more efficient responses to future disasters, disaster management needs to be more inclusive through meaningful collaboration with Indigenous communities where they exist. In New Zealand this will require the informed engagement of Māori, mana whenua and ngā taura here/ngā maata waka, who also need to be allowed to participate in the myriad strategic plans for DRR. While an important reaction to any disaster may be to move, the movement of Indigenous individuals or groups will have known pathways according to cultural nodes, networks, and practices. These can, and should, be integrated into disaster management planning and operations, including DRR.

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