Australian Government
Attorney-General's Department

Australian Emergency Management Institute

DISASTER RESILIENT AUSTRALIA

AUSTRALIAN JOURNAL OF EMERGENCY MANAGEMENT

ISSN: 1324 1540

Volume 27 I No. 4 I October 2012

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Australian Journal of Emergency Management

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ABOUT THE JOURNAL
The *Australian Journal of Emergency Management* is Australia's premier Journal in emergency management. Its format and content is developed with reference to peak emergency management organisations and the emergency management sectors—nationally and internationally. The Journal focuses on both the academic and practitioner reader and its aim is to strengthen capabilities in the sector by documenting, growing and disseminating an emergency management body of knowledge. The Journal strongly supports the role of the Australian Emergency Management Institute (AEMI) as a national centre of excellence for knowledge and skills development in the emergency management sector. Papers are published in all areas of emergency management. The Journal emphasises empirical reports but may include specialised theoretical, methodological, case study and review papers and opinion pieces. The views in this journal are not necessarily the views of the Attorney-General's Department.

PUBLISHER
The *Australian Journal of Emergency Management* is published by the Australian Government's Attorney- General's Department. The Journal is published on the Australian Emergency Management website at www.em.gov.au.

COVER
A variable road sign above the Wellington Urban Motorway reminds commuters of the New Zealand Shakeout earthquake drill on 26 September 2012. Photo: Ministry of Civil Defence & Emergency Management, New Zealand.

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PUBLICATION DEADLINE
The Journal is published on the last day of January, April, July and October, each year. Copies of the Journal are distributed quarterly without charge to subscribers throughout Australia and overseas.

CIRCULATION
Approximate circulation: 3 000.

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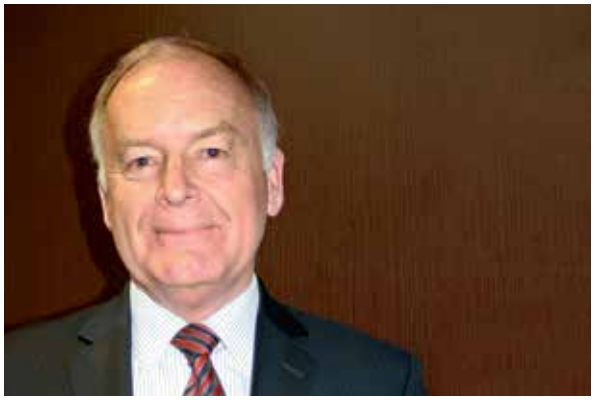
DISASTER RESILIENT AUSTRALIA

Foreword

By John Hamilton, Director
Ministry of Civil Defence & Emergency Management, New Zealand.



Earlier this year the Prime Minister of Australia offered New Zealand full membership of what was then the National Emergency Management Committee alongside membership of a number of other important Australian co-ordination committees. Not surprisingly the Prime Minister of New Zealand accepted the generous offer and as Director Civil Defence & Emergency Management in New Zealand, I am the Kiwi representative on the re-named Australia New Zealand Emergency Management Committee.

The change consolidates the outstanding trans-Tasman relationship we have enjoyed in emergency management over many years, and which was epitomised for New Zealand and the people of Christchurch in the aftermath of the 22 February 2011 earthquake. Australian support, in so many forms, was rapidly deployed to the city without hesitation and with complete understanding of the operating conditions. We were able to do this because of the relationship and the way in which our two nations have shared experiences and developments in the field of emergency management. The arrangement is the envy of many others, if not the basis of a model for international co-operation in a crisis.

I appreciate the differences between the two nations and I know that not everything that either of us develop or implement has direct applicability on the other side of the Tasman. But there are many similarities and challenges and the new arrangements give us an even better opportunity to enhance emergency management in both nations by sharing concepts and procedures. We have already shared many ideas including those around the concept of resilience and we have discussed public alerting and warnings. We share with the States and Territories our experiences with public awareness program and programs for schools. We have a common interest in understanding volunteers and how to encourage them and manage them well, saying nothing of coming to grips with social media in the response. We co-operate in recovery doctrine and I expect we will soon have conversations on the lessons we are drawing from the response to the earthquakes in Canterbury just as we in New Zealand have reviewed the lessons from the Queensland floods, and before that the bushfires in Victoria, and drawn important pointers. To continue the theme this edition of the Journal includes two articles contributing to the discussion on lessons from Christchurch drawing on the public information function and the role played by the health sector in the response.

No one wishes an emergency or crisis on any community. But we understand they will come from time to time and probably with little warning and perhaps of a scale that is not anticipated. While we do our best to balance our investment and efforts across risk reduction, readiness and the ability to respond and recover from an emergency, inevitably there will be times when the unstinting help of friends is welcome and essential to bolster local capacities. The Australia New Zealand Emergency Management Committee serves as a foundation for the understandings and procedures that underpin effective emergency management and co-operation. I am extremely grateful that New Zealand has access to the pool of experience in Australia and I will do my best to reciprocate wherever possible.

John Hamilton
Director
Ministry of Civil Defence & Emergency Management, NZ.

OPINION:
Prevention is no longer a useful term in emergency management

Stuart Ellis AM says resilience is a fine example of the right term conveying the right message.

Stuart Ellis is a consultant in emergency management who has worked in the industry for the last 15 years. He was Chief Officer of the South Australia Country Fire Service from 1996-2002. While this article was written prior to the announcement, Stuart Ellis is the incoming CEO of the Australasian Fire and Emergency Service Authorities Council, with his appointment commencing on 26 November 2012.

Having been a team member that recently completed a review of the operational response to the Christchurch Earthquake in New Zealand, it reinforced to me the inappropriate use of the term *prevention* when referring to natural disasters. Prevention is cited as an aspect of emergency management referred to as the 'Comprehensive Approach' in our national doctrine, being "the development of emergency and disaster arrangements to embrace the aspects of prevention, preparedness, response, and recovery (PPRR)."[1]

While our doctrine acknowledges it is not a series of sequential phases,[2] the doctrine also ignores the reality that PPRR is out-dated.

Apart from using an inappropriate term which I shall return to, our doctrine ignores the role of research, even though Cooperative Research Centres have been established and other research is being conducted which is well acknowledged as enhancing emergency management capability and performance. This was explored by the COAG National Inquiry into Bushfire Mitigation and Management 2004 which proposed the 5 R's:[3]

- Research, information and analysis
- Risk modification
- Readiness
- Response
- Recovery

Referring back to Christchurch, even the 5 R's proposed in 2004 do not take account of the necessary

Image: Stuart Ellis

Review Team members Stuart Ellis, Basil Wakelin, David Oughton, and Ian McLean (Chair). The Review is currently being considered by the New Zealand Government.

1. *Australian Emergency Management Series.*
2. *Australian Emergency Management Series.*
3. Ellis, Kanowski, Whelan, *COAG National Inquiry on Bushfire Mitigation and Management* 2004 p52.

A unit block being 'deconstructed' after the earthquake albeit it remained standing during the event.

role emergency managers have in influencing the 'reconstruction' phase (for both communities and infrastructure), to ensure they have greater resilience – an ongoing activity in Christchurch today. Reconstruction goes beyond recovery. You may recover from a bout of illness and resume your normal life, but after a major disaster, there is a need to reconstruct, do things differently and better, not recover what you had before. In all likelihood, that will no longer be possible. Reconstruction is for a further 'R' that could be added to the 2004 COAG Report's 5 R's.

Why is the use of terminology important? Because we know the public pays scant attention to our emergency management messages at any time, and promoting terms such as *prevention* may generate an expectation in the minds of the public that despite whatever nature delivers, emergency managers can prevent it becoming a disaster. For natural disasters that are likely to impact our region, the use of the term is flawed at worse and unhelpful at best. We cannot prevent an earthquake, subsequent tsunami, cyclone, hail storm, or bushfire and the list goes on. Prescribed burning is likely to reduce the intensity of bushfires in areas that have been treated, but that is the best we can hope for and arguably on a *Catastrophic-Code Red* day, that treatment will provide little, if any, substantive mitigation.

Fortunately the Australian Government is focussing on 'Resilience' (a further R, or perhaps the centre of what should be an updated 'Comprehensive Approach'), rather than prevention, with its *National Strategy for Disaster Resilience*.[4] Hopefully State and Territory-based agencies will follow similar approaches. Bushfire prevention plans and programs should be rebadged. They should be referred to as 'Risk Reduction' plans and programs – reflecting more accurately what they are seeking to achieve.

In Christchurch after February 2011 resilience was very apparent – resilience of the vast majority of structures, of communities, and of attitudes. Of course none of these remained unchanged. A resilient building may need to be deconstructed and rebuilt, but if it remained upstanding and allowed its occupants to escape, it was resilient. Likewise with communities. They will adjust and refocus but they are largely surviving. Resilience is a fine example of the right term conveying the right message.

So let's do away with the term *prevention* in regard to emergency management. Even in our doctrine, we are saying prevention means something else: "regulatory and physical measures to ensure that emergencies are prevented, or their effects mitigated".[5] If prevention means mitigation it is nonsensical.

Our national strategy states: "Natural disasters are a feature of the Australian climate and landscape and this threat will continue, not least because climate change is making weather patterns less predictable and more extreme."[6] We know we have limited opportunity to communicate with the public regarding our needs and their obligations to ensure the impact of future natural disasters is minimised. We know that effective communication and example on the ground is going to best convey our message. We should not persist using words that we say also mean something else and that convey to the public an unrealistic expectation regarding our capabilities and the impact of natural events. It is time to remove *prevention* from our emergency management lexicon and rethink what a truly comprehensive approach should look like.

4. *National Strategy for Disaster Resilience 2009.*

5. *Australian Emergency Management Series.*

6. *COAG National Disaster Resilience Statement*, 7 December 2009.

2011 Winston Churchill Fellowship for disaster assistance programs and community resilience

Wendy Graham, Director Resilience and Planning, NSW Ministry for Police and Emergency Services shares her Churchill Fellowship experience in the UK, the USA, Canada and New Zealand.

I have been involved in the state wide co-ordination and delivery of disaster assistance programs to individuals and households in NSW in response to a large number of disasters over many years. During this time I have observed, particularly in some communities that experience frequent disaster events, that rather than becoming more resilient to future disasters, community expectations about what the government 'should do' and the financial assistance that it 'should provide' appeared to be a growing focus of community attention and tension.

In February 2011, the *National Strategy for Disaster Resilience* was endorsed by the Council of Australian Governments (COAG). It provided a whole-of-nation resilience-based approach to disaster management and recognised that disaster resilience is a shared responsibility for individuals, households, businesses and communities, as well as for governments.

In early 2012 I embarked on a Churchill Fellowship to research how similar national strategies were being implemented in other countries and how they were influencing government and community thinking and actions in relation to planning for, responding to and recovering from disasters.

There were many highlights throughout my Fellowship research in UK, the USA, Canada, and New Zealand. I met with many individuals working in and supporting their local communities in planning for, responding to and recovering from disasters. Their passion and commitment to their work and their communities was both extraordinary and inspiring.

Project description

To study the effectiveness of disaster assistance programs in promoting individual and community resilience in recovery from disasters.

The severity, frequency and scale of natural disasters has been increasing over recent years. This fact along with the escalating immediate and long-term costs of disasters, made even more poignant in an environment of global financial crisis, has captured the attention of central governments around the world. There is a realisation that government alone cannot sufficiently respond and provide for disaster affected communities. A government-centric, top-down approach to emergency management is unsustainable and ultimately destined to failure. However, it is not just an economic driver that has precipitated this shift in strategic focus but importantly, recognition of the wealth of resources and expertise present in local communities and a desire to recognise and harness this capability within the emergency management environment.

National disaster resilience frameworks and strategies that focus on whole-of-community engagement, participation and shared responsibility represent a significant philosophical shift in how emergency management has traditionally been conducted.

Disasters happen to individuals in local communities. A bottom-up approach to building resilience recognises individuals and communities as the starting point. What works best in communities is what is already there. At a practical level this means working in partnership with the community, building on existing networks, resources and strengths, identifying community leaders and empowering the community to exercise choice and take responsibility. This approach requires government decision makers to "recognise the critical role of social capital and social resources"[1] as the foundation in building disaster resilient communities.

It is important to recognise that while this approach of public participation and empowerment is relatively new within the emergency management sector, it is the basis of community development work established within the social sciences over many decades and also aligns with the core principles of international aid.

1 Aldrich, D (2010). Fixing Recovery: Social Capital in Post-Crisis Resilience, *Journal of Homeland Security*, June 2010, p9.

This should provide some encouragement for emergency planners, as research within the social science arena has well demonstrated the effectiveness of this approach in building resilient communities. It also suggests that emergency management policy makers and practitioners should look for opportunities to partner with the social sciences/community development sector to maximise learning opportunities and avoid duplication of effort.

Disaster assistance programs play a critical role in targeting unmet material and financial disaster related need in communities, however the provision of assistance by agencies to a community does not in and of itself enhance community connectedness or wellbeing, deliver better recovery outcomes, or build resilience. As Aldrich[2] highlights, recovery *"does not depend on the overall amount of aid received nor on the amount of damage done by the disaster; instead, social capital – the bonds which tie citizens together – functions as the main engine of long term recovery."* This is an important consideration for government and the not for profit sector in how communities are supported to recover from disasters. It suggests that as well as attention on the aid and resources being provided to a community, there needs to be a greater focus and investment in identifying and building on existing community strengths.

Building disaster resilient communities must be seen within the context of long term generational change, requiring a fundamental cultural shift by government and communities in responsibilities and expectations of how disasters are planned and prepared for, responded to and recovered from. Cultural and behavioural change is never easy. Campaigns around wearing seat belts, wearing sunscreen and quitting smoking have all demonstrated this fact. Engaging individuals and communities in emergency preparedness is equally as challenging. Disaster preparedness programs will feel remote and irrelevant to most individuals unless they have been directly or indirectly affected by disaster. A more sustainable approach is to integrate everyday preparedness measures that focus people on being aware of their own risks and caring for themselves, family, friends and neighbours. This approach aims to build individual resilience by preparing people for personal emergencies and equipping them in ways that will also be effective in coping with disaster events.

The long-term nature of building disaster resilient communities means that it will rarely produce quick political wins. If this paradigm shift is to be successful it will require a long-term commitment from government. Working with communities in changing expectations and responsibilities is a complex and evolving process that is done *by* people, not *to* people and will take time before demonstrated outcomes are evident.

My fellowship report (available in full on the Winston Churchill website) summarises my observations, alongside the reading and analysis that were such an important part of my Fellowship. The aim was to contribute to the ongoing dialogue occurring in and between countries about how communities can become disaster resilient. Throughout the report I identify key considerations for future practice and I provide a number of broad themes which I hope will contribute to ongoing discussions. These are:

- Recognising disaster resilience as a shared responsibility between the community and government requires an approach to emergency management that begins with identifying existing community strengths and networks and involves the whole community being engaged and empowered to make choices and take responsibility in planning for, responding to and recovering from disasters.
- Top-down, government-centric approaches that provide strategic frameworks, guidance documents and templates set direction and provide a clear road map for action but do not engage communities or drive cultural change at the local level. A greater focus and investment in supporting bottom-up, community-led strategies is the key to effecting sustainable change.
- Disaster assistance programs are effective in targeting unmet material and financial disaster related need in communities. However, the provision of assistance by agencies to a community does not in and of itself enhance community wellbeing, deliver better recovery outcomes, or build resilience. The critical role of social capital in building disaster resilient communities requires greater attention and research.
- Community engagement in preparing for, responding to and recovering from disasters extends beyond information and consultation. Engagement means local communities having a place around the emergency planning table, being listened to and empowered to influence and make decisions that affect them.
- A greater investment in research and evaluation with regard what works well in communities that have been affected by disaster and how communities can best build resilience is required.

Acknowledgements

I would like to express my sincere gratitude to:

- Winston Churchill Memorial Trust for the opportunity to travel abroad to research this challenging and important topic.
- Kate Alexander and Sally McKay who were my referees during the application process and provided me with so much support and encouragement.
- NSW Ministry for Police and Emergency Services for supporting my pursuit of knowledge in this area.

Full report available at
http://www.churchilltrust.com.au/fellows/detail/3548/

2 Aldrich, D (2010). Fixing Recovery: Social Capital in Post-Crisis Resilience, *Journal of Homeland Security*, June 2010, p1.

Public Information Management in Christchurch following the February 2011 earthquake: lessons learned

By Michele Poole, Communications Manager, Environment Southland, NZ.

ABSTRACT

On 22 February 2011, Christchurch was struck by a magnitude 6.3 earthquake which caused 185 deaths, thousands of injuries, and the destruction of the central business district. It damaged or destroyed thousands of homes and buildings. A state of national emergency was declared on 23 February – the first in New Zealand and the first time that the separate civil defence emergency management responsibilities of national, regional and local government came together to provide a single, unified response to a major emergency.

This paper outlines how a large Public Information Management (PIM) team was pulled together at the time of the earthquake response. It considers the unfolding events and the PIM team's tactics and makes recommendations for the management of public information in future large-scale emergencies. Findings are based on an analysis of PIM activities and were presented at the Emergency Management and Public Affairs (EMPA) Conference in May 2011.

> "Communication is the critical thing and if you do not do it right you will be judged to have failed, regardless of what else you do with your fire trucks and your response."[1]

Bruce Esplin, the former Emergency Services Commissioner for Victoria, made this observation when he addressed emergency communicators in 2009 after the Black Saturday bushfires.

Correctly managing public information is a key element of managing an emergency. Increasing access to, and use of, social media, web-based journalism and the 24/7 news cycle have raised public expectations of immediate access to information. Communities no longer accept an attitude of: "trust us, we know what we're doing."

The response to the Christchurch earthquake in February 2011 brought together the largest PIM team ever assembled in New Zealand. Tasked with developing and communicating critical public safety messages, the team's responsibilities included media liaison and press conferences, website updates and social media content and monitoring, community engagement, stakeholder relations, staffing the public call centre, hosting VIPs, advertising, publications, inter-agency communications, and keeping elected members informed.

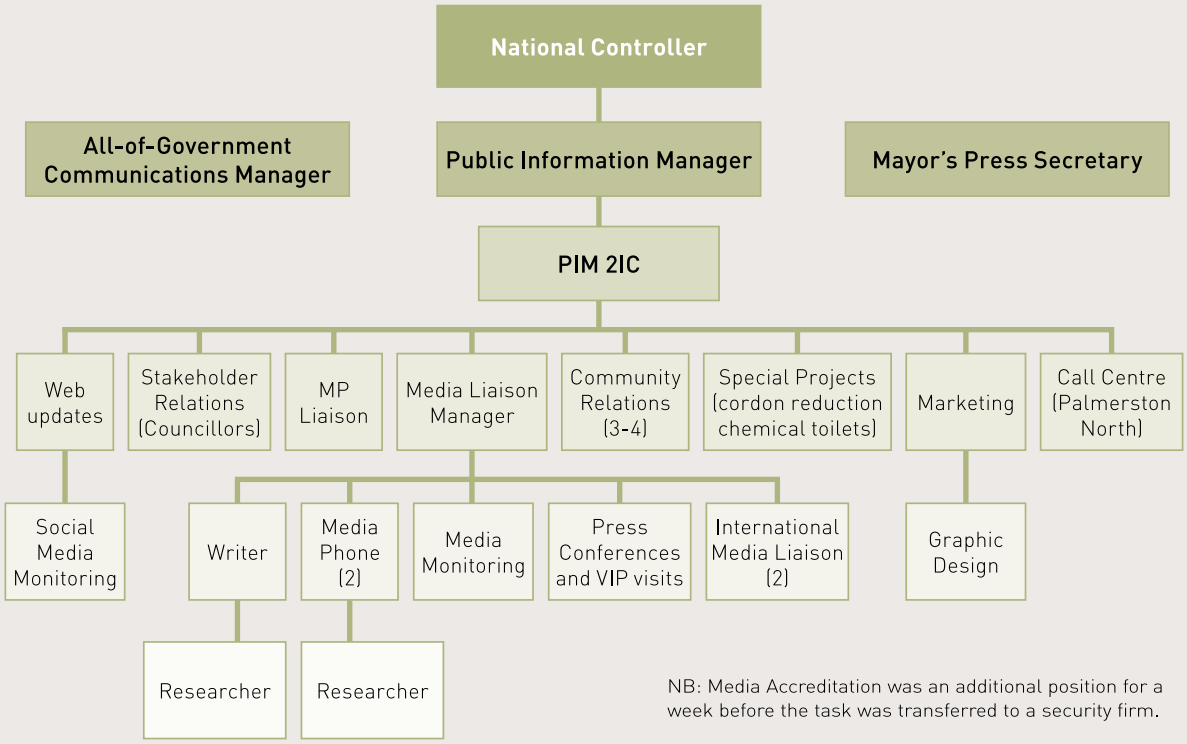
The enormity of the tasks faced both in the extent of communication and length of time the response ran, led the National Controller, John Hamilton, to concede that he had "grossly underestimated how much time and effort was required to manage the media" and the amount of work required by the public information team to cover off on the multiple channels used to reach the community[2]. In his view, public information management "came of age" during the earthquake response and he concluded that "The effort by a raft of people paid off and the result was good."

Image: Jason Dorday

Media team members of the Public Information Management section, 28 February – Dave Miller dealing with a media query while Mayor Bob Parker (left) checks his daily briefing notes.

1. Bruce Esplin, EMPA Conference, May 2009.
2. John Hamilton, presentation to the National Civil Defence Emergency Management Conference, Wellington, 28 February 2012.

Figure 1. Christchurch Earthquake Response, Public Information Structure as at mid March-2011.



Lessons learned

1. **Scale up early and fast.** It's impossible to manage public information successfully in a serious and escalating situation with the resources used in routine events.

The Canterbury Civil Defence and Christchurch City Council emergency management units both had small PIM teams which worked independently. Following the quake, on Friday 25 February, the National Controller combined the groups and the PIM teams were brought together in a new structure with over 22 positions covering a range of responsibilities (see Figure 1). Each shift had a Public Information Manager, a Media Manager and media team members, a webmaster, and social media monitor. Another six positions covered two shifts while the remainder worked a daytime shift. Over 45 people were needed each 24 hours.

On day two a new position of Assistant PIM was created to direct and manage the team. The Mayor's press secretary was also part of the team but did not report to the PIM. An additional position was created to accredit attending media, but this task was later delegated to a security firm. As the response continued, team members were seconded to work with other sections to co-ordinate the messaging of specific issues. Some roles remained vacant due to lack of suitable personnel. VIP visits were organised by the PIM team, the Mayor's office, the Controller's team, or from staff in Wellington.

While doctrine required all PIM team members to be trained in the civil defence system, this proved neither feasible nor necessary. Some staff were unavailable because of the earthquake's impact on their families and homes so other trained personnel were required. Local body and government agency staff from other regions known to have the right skills and experience, Council librarians, archivists, webmasters and designers, and a handful of contractors from PR agencies, came together to take up roles and fill the rosters.

Recommendations:

1.1 Be clear about the skills, attributes and experience required when recruiting.

1.2 Fill key leadership roles with staff trained in emergency communications. Draw on people with appropriate skills who can fill a role within the team.

1.3 Have clear lines of responsibility within the team.

2. **Sign-off processes for all information must be rigorous. Whoever authorises it has to be available.** Only the Controller could authorise the release of information. If he was unavailable no-one else had delegated authority and the release of information could be delayed for up to an hour.

Media updates were developed from briefings, press conferences and planning sitreps, which were checked and signed by the Controller. Emergency management

response organisations can be on the back foot when authenticating and releasing information. While news media have protocols for verifying the details of what they broadcast or publish, in a fast-moving event they report what they see and hear. Social media channels have no such constraints and anyone with a smartphone can send what they see or hear to an expanding audience in seconds.

Recommendations:

2.1 Maintain rigorous checking and sign-off procedures for the release of all information.

2.2 Ensure the authority to approve the release of information does not reside with one person.

2.3 Develop protocols so information provided at a press conference or public meeting is based on authorised briefing notes that can be used as the basis of a media release, bulletin, update or talking points without a fresh approval process.

3. Match messages and channels to target audiences. Recognise the different needs of residents in different localities and those who have been impacted in different ways. Tell them what they need to know.

At the 2006 census, 348,435 people lived in Christchurch making it New Zealand's second largest city. While the whole city was affected by the earthquake, suburbs were impacted in different ways and to differing extents. Media coverage focused initially on the central business area where the most deaths and casualties occurred and many buildings collapsed. Yet the significant impact on most citizens was in their homes. Land liquefaction, structural damage, loss of power, water and sewerage systems, twisted roads and broken bridges were worst in the suburbs nearest the sea, with hill communities also impacted by landslides and rockfalls. Neighbourhoods which escaped widespread damage experienced pockets of destruction. Indeed the whole of Christchurch's population was affected by the fragile water, sewerage and power systems, congested roads, and constant aftershocks.

Initial message design was general in nature, for example, *"check on your family and neighbours", "boil the water", "how to make an emergency toilet", "where to access welfare centres and water tankers".* Other messages were targeted at particular audiences - residents of specific suburbs, building owners, beneficiaries, householders needing chemical toilets.

The PIM team used a variety of channels to reach residents, none of which would have been adequate alone. They included:

- mass media (TV, radio, print)
- advertising (radio and print - daily and community newspapers)
- dedicated information website www.canterburyearthquake.org.nz[3]
- social media channels[4]
- mass text messaging to mobile phones
- printed fliers delivered:
  - personally to householders by building inspection teams going door to door
  - via letterbox drop in the worst affected suburbs by the student volunteer army, and
  - to welfare centres, corner stores, petrol stations and at water tanker sites.
- *Earthquake Recovery* tabloid delivered in March to householders
- information posters
- emergency response call centre, and
- community meetings.

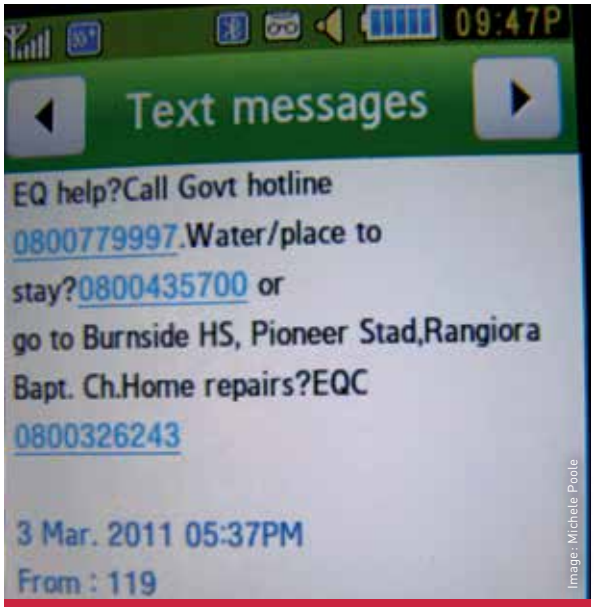
Facebook, Twitter and other social media were monitored and answered 24/7. Trending issues were identified and reported to the Planning/Intelligence team. Social media, by its very nature, is easier to monitor and evaluate and response times can be immediate. These channels proved an effective way to counter rumours and correct misinformation.

The city's newspaper, *The Press*, was delivered to most suburbs throughout the emergency. The PIM team placed full page advertisements in *The Press* almost daily with details of where to get help, road closures, the location of water tankers and other key information.

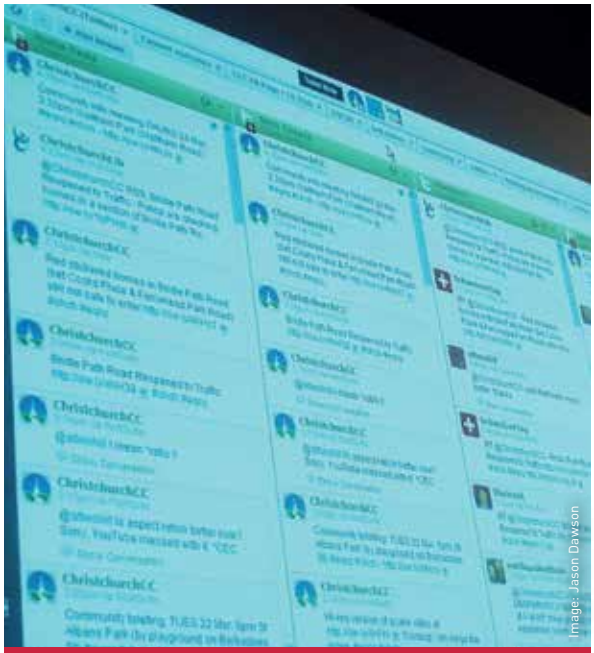
Residents who stayed in their homes situated inside the cordoned-off central city were isolated from official sources of information. They had no power, water or sewerage, and found it increasingly difficult to get through the cordons as access was tightened and a system of passes was introduced. As this community was not officially acknowledged, no effective way was identified at the time to get information to these residents.

The PIM team was also responsible for communicating with the estimated 63,000 residents who had been evacuated or had chosen to leave Christchurch. Messages were developed to help evacuees understand what was happening to their properties while they were away, where they could get help and support, and to advise them on practical matters when they returned. These messages were published in advertisements in the daily and community newspapers, in the recovery tabloid delivered to all households in March, via fliers, on the website, and by mass text messages.

3. Christchurch Response Centre SITREP #23, 20 March 2011. 1.4 million hits by the end of the first month.
4. Ibid. Twitter – 2025 followers by 16 March and Facebook – 897,227 post views after 1 month.



Civil Defence used mass text messages like this to reach Christchurch residents from week two of the emergency.



The Public Information Section monitored social media, and projected tweets on the wall so team members could see what was trending.

Recommendations:

3.1 Identify discrete communities and develop strategies for communicating to each.

3.2 If a daily newspaper is maintaining deliveries to impacted areas, negotiate to increase the print run and deliver to every household.

4. Don't place total reliance on the website. The internet is useless to people who have no power or who don't have internet access.

The website was a very effective means of providing complex information on multiple topics, but only to those who could access it. The day after the earthquake electricity had been restored to 50 per cent of the city. By day four 42,000 customers were still without power.[5] Residents in the eastern suburbs were without power for days and for 550 homes, it was weeks.[6] Aside from those without power, an estimated 30 per cent of households had no access to the internet at home.[7] Those without access who were constantly told they could "get more information on-line at ..." became frustrated and angry.

Recommendations:

4.1 Use multiple channels to provide information. Avoid over-reliance on the internet.

4.2 Update website content as the emergency response evolves.

5. Radio – first and fast. Radio is highly effective for reaching a mass audience in the immediate aftermath of an emergency.

Controller John Hamilton being interviewed during a media trip inside the red zone.

Broadcast media played a critical role in communicating the scale of the damage and the immediate impacts after the earthquake. Commercial radio stations gave updates about casualties, damage, road closures and practical advice, while Radio New Zealand broadcast live reports.

Commercial stations continued to broadcast civil defence messages to Christchurch residents in

5. National Crisis Management Centre SITREP #10, 26 February 2011.
6. Orion, quoted in http://www.stuff.co.nz/national/christchurch-earthquake/4764928/Return-of-Christchurch-earthquake-evacuees-to-stretch-service.
7. 2006 census figures on internet access (the 2011 census was cancelled because of the earthquake), cited in http://www.ccc.govt.nz/cityleisure/statsfacts/census/familyandhouseholds.aspx.

the days following the earthquake. As normal programming resumed, the Christchurch City Council paid for civil defence messages.

In week two, Southland community broadcaster, Chris Diack, relocated his mobile studio to Christchurch and set up a small station in the eastern suburbs. Although it had limited range and the listenership wasn't measured, it provided information targeted at local residents.

Recommendations:

5.1 Educate communities to listen to local radio stations during emergencies.

5.2 Develop relationships with broadcasters and establish procedures for providing authenticated emergency messages.

6. Media liaison is crucial. Acknowledge the role media organisations play and make it as easy as possible for them to communicate messages. Media perception of the way the emergency is managed will influence the community's level of confidence in the response.

Physical conditions for journalists covering the Christchurch earthquake were difficult. The Emergency Operations Centre (EOC) was inside the central city cordon. Before the official media accreditation system was implemented journalists had to negotiate their way through the cordons each day and wait for a press conference or waylay emergency personnel. There was no shelter, no access to food or water inside the cordon, and the only amenity was the EOC portaloos. After a week, a marquee was set up as a media centre.

Police arranged the first media bus trip inside the cordon on day three. Once the expanded PIM team became operational, a media liaison officer was dedicated to the journalists camped outside the EOC. By 3 March there were 600 accredited journalists on site.[8] Two press conferences were held each day, one or two daily bus trips through the CBD were organised, and there were regular opportunities to film or interview Urban Search and Rescue representatives and emergency services personnel.

Most international media left on 11 March following the earthquake and tsunami in Japan. NZ and Australian journalists maintained a constant presence for weeks.

Recommendations:

6.1 Consider the physical needs of attending media as well as those providing coverage elsewhere.

6.2 Implement media accreditation immediately.

6.3 Set up a media centre close to the EOC.

6.4 Identify photo opportunities and arrange access to restricted areas where possible. Be open about the reasons for denying access or requiring pooled footage.

7. Work with welfare teams to reach those most severely affected. Some people will be too traumatised to hear or understand official messages.

All information put out by the PIM team during the earthquake response was on the website. Basic messages were reiterated daily in newspaper

International and local media clustered for a stand-up press conference two days after the earthquake.

8. Christchurch Response Centre SITREP #6, 3 March 2011.

advertisements, on radio and in media updates. As the response evolved, the key messages changed. People who didn't have internet access or a battery-powered radio, or who didn't receive a daily paper, or who had left Christchurch and returned later, missed some of the information provided at the beginning of the response. Some were too shaken and emotionally fragile to understand or retain what they were told. Only personal visits would have proven effective for the most traumatised residents who were coping with land liquefaction, damaged homes and possessions, sudden unemployment, disrupted schooling, no electricity, no water, and no toilet facilities.

Recommendation:

7.1 Liaise with welfare agencies to ensure field staff are communicating key messages and obtain feedback about what they are encountering in the community.

8. Identify and cater for non-English speakers as well as those with disabilities.

Christchurch has New Zealand's largest community of deaf people and a large immigrant and refugee population. To reach these groups a Sign Language interpreter stood beside every speaker at press conferences and information fliers were translated into the most commonly spoken languages.

Recommendations:

8.1 Identify non-English speakers in the community and ways to help them receive messages.

8.2 Identify potential interpreters.

9. Don't assume stakeholder representatives are spreading your messages among their members.

Communication with the business sector began badly. The initial priority was to identify and contact building owners, rather than the tenants, in relation to demolition or 'deconstruction' of their property to prevent further damage to adjacent structures or provide safe access routes. The extent of the damage and the danger level in the inner city meant it was weeks before many businesspeople were allowed even brief access to their premises.

Access to the CBD was controlled at various stages by a mix of personnel from the NZ Defence Force and Army Reserve, the Singapore Army, NZ and Australian Police. Such a combination meant that consistency in the rules governing access was lacking and business owners were frustrated at being refused access to retrieve critical records so they could restart in temporary premises. By mid-March several protests took place outside the EOC, which prompted a meeting between Civil Defence and the business community. Although the Canterbury Employers Chamber of Commerce had been meeting the Controller's representatives regularly, information had not reached hundreds of small business owners. The PIM structure had provided for an external stakeholder relations position, but this was not filled until week three, and then only for MP liaison. While social media monitoring identified the growing frustration among the business community and the media coverage of disgruntled business owners was increasing, it was not given priority as an area needing special attention.

Recommendations:

9.1 Be proactive. Identify affected groups and set up direct communication with them.

9.2 Test arrangements for passing messages through representatives.

10. Provide constructive roles for elected members. In a crisis, communities look to elected members for leadership and reassurance.

Mayors, councillors and Members of Parliament play an important but ill-defined role during emergency responses. While focus is on managing the emergency, Mayors can be briefed for media appearances and public meetings to reassure the community. Christchurch Mayor Bob Parker was acknowledged as the face and voice of the earthquake response in September 2010, and in February 2011 he filled the same role. From 25 February, he and the National Controller spoke at every press conference.

Virtually the whole of the Central Business District was cordoned off as the no-go 'Red Zone' because of collapsed or compromised buildings. The rest of the inner city was divided into zones and opened progressively.

The Controller would speak first about the response and the Mayor would cover 'hearts and minds' issues. Outside the press conferences the Mayor handled the bulk of the media interviews.

It is important that response personnel in the EOC are focussed on their roles. Access to the EOC by others can cause considerable distraction. During the response some local government Councillors and MPs did gain access to the EOC as they felt their requests for information or action were not getting a response. The PIM structure provided for two stakeholder liaison positions dedicated to elected members, but one was not filled for three weeks and the other proved inadequate.

Recommendations:

10.1 Negotiate roles that elected members can play during the response. Councillors, community board members and MPs are legitimate representatives of the community. They can provide reassurance, communicate accurate messages and provide valuable feedback.

10.2 Brief Mayors before media and community appearances.

10.3 Task a PIM team member with elected member liaison.

10.4 Establish consistent and agreed rules about access to the EOC.

11. Liaise with other agencies to keep messages consistent.

As well as Civil Defence, a plethora of other agencies were working on the earthquake response, each putting out its own messages. The All-of-Government Communications Manager (AOGCM) convened a daily meeting of the communication managers from all the participating agencies to share information and align messaging.

Recommendation:

11.1 Liaise closely with communication managers from other agencies involved in the emergency response but outside the CDEM umbrella to avoid conflicting messaging and public confusion about roles and responsibilities.

12. Allocate time to develop strategy. Nightshift is not the right time for strategic planning!

A recognised shortfall of the PIM response was that it was reactive. Essential messaging was done well in the critical phase but there was no strategic communication planning.

Several factors contributed to this:

- Four people were designated as PIMs and others joined the roster over time. No seniority was established so no-one took the lead or set an overall direction. Priorities could change from shift to shift.

Image: Neil Macbeth / Christchurch City Council

Christchurch Mayor Bob Parker at the first stand-up press conference after the earthquake on 22 February.

- Strategic planning was a standing task for the nightshift PIM for over a week, on the assumption there would be down-time. Even if there had been, few people can think strategically at 2am.
- The expanding role of the All-of-Government Communications Manager began to usurp some of the strategic communications decision-making that would normally have rested with the PIM. What began as a dotted-line relationship sideways to the PIM on 25 February had evolved into a superior / subordinate relationship by mid-March.

Recommendations:

12.1 Identify and designate one person as the senior Public Information Manager.

12.2 Task an experienced PIM to develop / review strategic or longer-term plans for each activity. Align plans to the Controller's critical priorities and review them to respond to emerging issues.

12.3 Hold a PIM / 2IC meeting regularly to discuss priorities and strategic direction, resolve conflicts and agree on the approach to emerging issues.

13. Manage rosters carefully. In a short, sharp event, people can cope with working long hours. In a long-running response, rostering has to be carefully managed.

In Christchurch, the PIM team's rosters were aligned with other core functions in the EOC. There were three shifts working 7am – 3pm, 3pm – 11pm and 11pm – 7am. This resulted in too many handovers and a significant demand for staff. However, the Controller's team worked 12-hour shifts and the Controller worked 16-18 hour days. On reflection it would have been more efficient and effective for the PIM, and arguably the Media Manager, to work 12 hour shifts. This would have improved continuity, required fewer handovers, enabled a better working relationship to develop with the Controller, and freed up a PIM to take responsibility for strategic planning.

Initially there was no difficulty finding people to work in the PIM team – it just took time to get some of them to Christchurch. By the end of the first fortnight, resources were becoming scarce and the earthquake response was still running 24/7. Staff from Christchurch City Council and Environment Canterbury who were filling key roles in the PIM team were facing pressure to resume their normal responsibilities. There was a growing demand to bring in people from other organisations or regions to fill team roles.

Recommendations:

13.1 Be aware of people who consider themselves indispensable. Exhaustion is the enemy of clear thinking.

13.2 Ensure seconded staff do not have a simultaneous commitment to their own work as well as the response team. Resist pressure for local staff to return to their pre-emergency roles while they are still needed in the EOC.

13.3 Roster the PIM, the 2IC and the Media Manager for 12 hour shifts.

Aftermath

The findings of a comprehensive review of the Christchurch earthquake response were released on 5 October 2012. Reviewers concluded that:

- The media got the story of the earthquake out competently and sensitively. Staff assisting the media were effective in managing a large number of media representatives and providing advice to communities through the media.
- The provision of very timely and localised information to badly impacted communities not contactable through traditional media needs significant improvement.

Independent to this review, the Canterbury CDEM Group and the Christchurch City Council have organised a forum to discuss public information management in the earthquake response. The conclusions of this forum and the overall review will influence public information management in future large-scale emergencies.

About the author

Michele Poole is the Public Information Manager of Emergency Management Southland, the local government agency responsible for emergency planning and response in the southernmost region of New Zealand. She was deployed to Christchurch three times between 24 February and 21 March 2011 as one of the initial four Public Information Managers. She is the first person to be accredited as an Emergency Public Information Officer by Emergency Media and Public Affairs.

Control and co-ordination during a health emergency response

By Graeme McColl, Emergency Management Advisor (Retd).

Frequent media reports and many reviews (two cited in this paper) of health responses to major emergencies stress the failures of control and co-ordination and the lack of application of the lessons learnt to the next major disaster where a health response is required.

One of the repeated criticisms following any review of health response to a major emergency is the lack of control and co-ordination of the responders and resources.[1] This was most apparent in the January 2010 response to the massive earthquake in Haiti. Apart from the many media reports (not always accurate) one of the first reports on the situation was the *Haiti Disaster Tourism – A Medical Shame* (Van Hoving *et al.*, 2010). This provided valuable insights into the 'provision' of unrequired and inappropriate personnel and aid.

The report highlighted the problems with unsolicited and unco-ordinated aid.

> "Sometimes the responders are poorly suited to help, with little or no experience in international relief, poor understanding of the local culture, and usually have no relationship with either the local agencies or the affected population. This influx phenomenon has been described as 'disaster tourism' or 'parachuting'. This has an adverse impact on relief efforts, and may dim local receptiveness to foreign help" (Van Hoving *et al.*, 2010).

Fortunately the paper was published in June 2010, prior to the series of earthquakes that rocked Christchurch, New Zealand, in September 2010 and February 2011. The problems highlighted were seen as something that must be avoided in the health response co-ordinated by the Canterbury District Health Board (CDHB) and supported by the Ministry of Health. In a small way the health response in the aftermath of earthquakes in Christchurch took heed of the lessons and recommendations and produced positive experiences that could be developed for global consideration.

The New Zealand response

New Zealand, like most countries, has a plan for the health response to major emergencies. For example health professionals must receive approval and be accreditated from respective NZ colleges and the Ministry of Health. The procedure provides the control required over those arriving with good intentions but who are not suitable or required. Approvals can be streamlined for an emergency situation.

The New Zealand Ministry of Health National Health Emergency Plan (NHEP) provides for District Health Boards to control and co-ordinate the overall health response within their regions of responsibility with the Ministry taking responsibility for national support and co-ordination.

The Ministry of Health and CDHB took responsibility for the ongoing provision of health services as well as the health response required for the aftermath of the earthquakes. Nationally, overall control and co-ordination was the responsibility of the Ministry for Civil Defence & Emergency Management (MCDEM). Liaison between the Ministry of Health and the Civil Defence Emergency Management organisations (CDEM) was established at national and local levels.

These structures ensured that control and co-ordination was established and that responsibilities and functions were clearly defined. They also met terms contained in the UN General Assembly Resolution 46/182 which acknowledges that governments have primary responsibility for organising humanitarian assistance following a major emergency (United Nations, 1991). The authority for all health issues should remain with the government body responsible for health provision in the affected country.

Figures 1 and 2 show the organisational structure for the health response to the NZ earthquakes.

1. For the purposes of this paper control and co-ordination are defined as: Control - to exercise authority or dominating influence over. Co-ordination - state of being co-ordinate, harmonious adjustment or organisation. (The Free Dictionary, Fartex, www.thefreedictionary/ accessed 31 May 2012).

Figure 1. Health emergency response organisational structure.

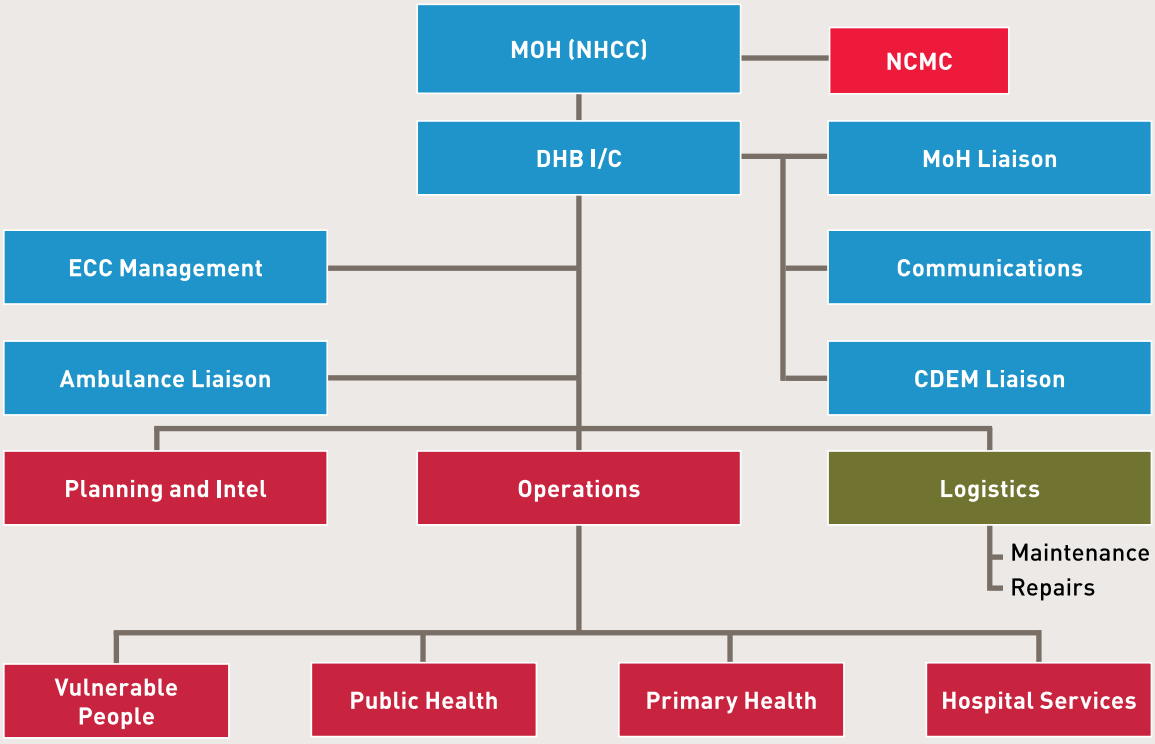
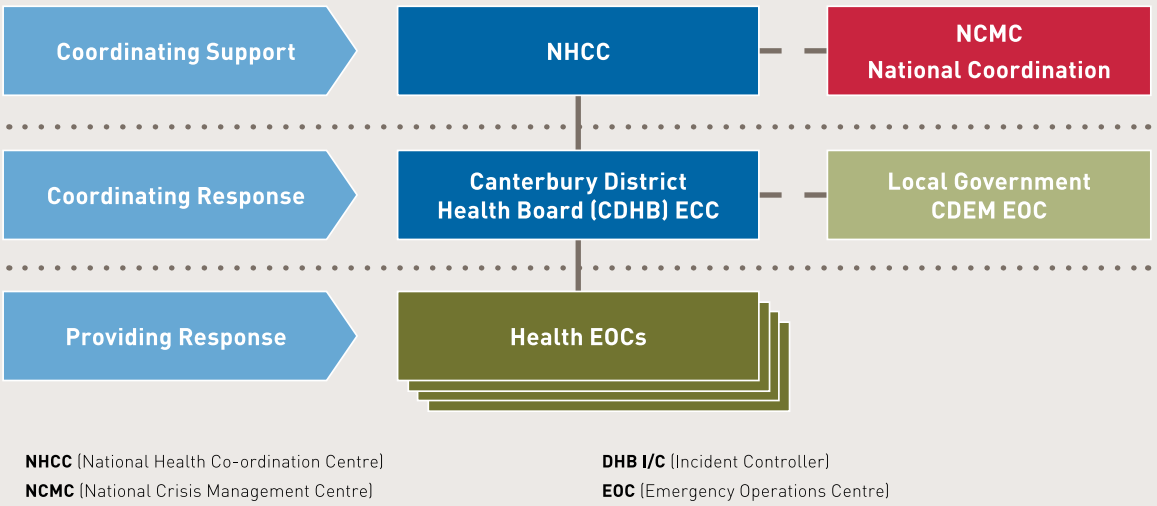


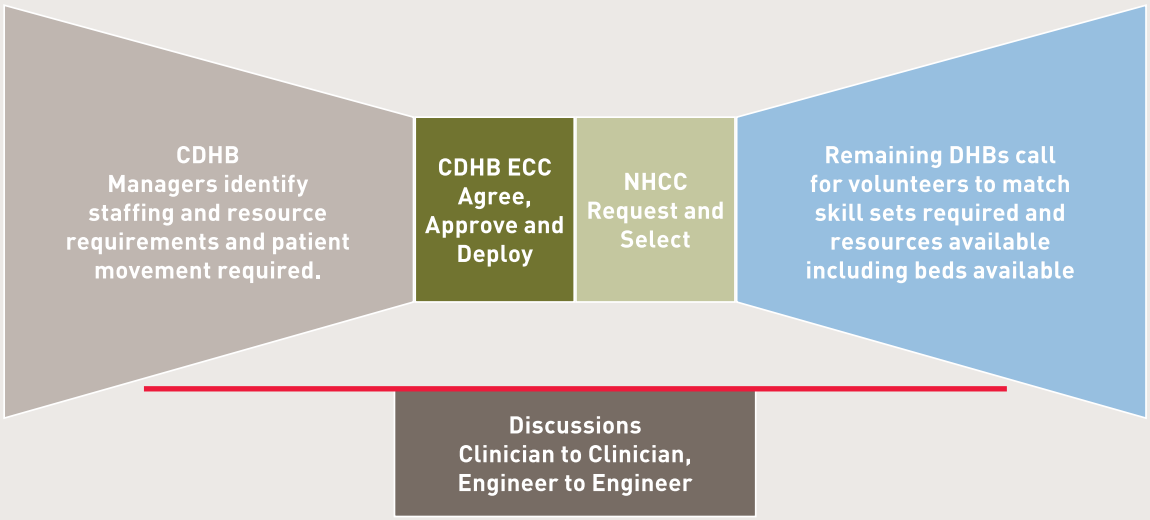
Figure 2. Functions structure and links to Civil Defence & Emergency Management.



However, in the NZ earthquake response, these organisational arrangements and responsibilities could not guarantee that inappropriate or unsolicited resources and responses would be controlled. A centralised approach to control and co-ordination of resources was required. To enable this, the movement of patients locally and nationally was included.

Thorough assessment of needs was required from managers. This included investigating the altered use of their own resources to meet new priorities. Their respective needs, if not met, had to be prioritised and specifically described including identification of skills required, shifts to be covered, and how long resources were required. These details were sent to the CDHB

Figure 3. Flow chart of the CDHB resource control and co-ordination process.



ECC, that would check and agree with overall resource availability and approve for action.

No request by any manager or staff was made to any outside source, nor were 'self presenting' volunteers accepted without agreement and appropriate checking of credentials. This did not preclude clinicians discussing patient needs with clinicians elsewhere prior to transfer, or engineers discussing plant and building issues before support action. Once discussions had taken place the approval process of the CDHB was to be followed.

Initially, the flow of information was achieved by emailing Microsoft Excel spreadsheets. Problems arose when DHBs responded to requests for assistance. When a DHB received a request they would assess their ability to supply or respond. When they had made arrangements to meet the request and advised staff or allocated resources some found their acknowledgement had been slower than other DHBs and offers for assistance had been accepted and arrangements made. Naturally, frustrations arose and much work around reallocation of staff and resources was wasted.

The CDHB responded and introduced a more effective, user-friendly and accurate means of requesting resources and communicating. This was achieved quickly with the use of *Google Docs*, where web-based documents could be centrally accessed by authorised personnel. (Figure 3)

The assessment and requesting process remained the same and the requests were still entered into a spreadsheet, but now everyone had a single source of information and access to the current status of requests.

Google Docs proved to be a valuable tool as it enabled users, located in different geographical areas, to access the same document at the same time.

The facility allows approved users to simultaneously edit, change, and update the same document.

Colour coding was used to highlight the progress of requests, as shown in Figure 4. Every request received an immediate colour code as each action commenced. This meant that time was not wasted by supported DHBs by others responding to the same request. Over 300 requests, together with the responses for staffing, were managed in this way after its introduction in April following the February 2011 earthquake.

Figure 5 provides an example of the spreadsheet fields and the cell content. This example relates to the requests for staffing and skills. Similar systems were also in place for patient movements and supply requests.

Figure 4. Request for resources spreadsheet.

Colour	Coded meaning
White	There is a vacancy (position is still being advertised on WebEOC with other DHBs).
Green	NHCC is working on it (have a placement just waiting to confirm VHP name, contact details, flights and accommodation requirements).
Orange	Christchurch EOC is working on request. Need to book accommodation, phone and confirm, email and inform sponsor and HR advisor.
Yellow	VHP is all booked and confirmed

Key: WebEOC[2] = Ministry of Health Emergency Management Information System (EMIS). VHP = Visiting Health Professional.

2. WebEOC, V7.1. Product of ESI Ltd.

Figure 5. Example of spreadsheet fields.

Ref No	Request Date	Status	Position requested	Facility	Location	Sponsor
211	3 Mar 2011	Requested	Social Worker	Mental Health Unit	Hillmorton Hospital	Gordon Woodstock

Sponsor Contact	Required From	Shift(s)	Duties	Accommodation	Actioned By DHB	ETC>
Mob xxxx xxx xxx xxx xxxx Ext xxxx	7 March 2011 for 3 weeks					

The relocation of staff to Christchurch commenced only when arrangements were in place for them to be met at the airport, given an induction to their duties, provided with accommodation and local travel arrangements. This system and procedures worked well and control was maintained allowing for proper co-ordination.

Some examples of the controls exercised were:

- A group of private health providers from another DHB area set up an unrequested service in the badly affected eastern suburbs of Christchurch. They refused to co-operate with existing health providers in that area regarding referrals and follow-up treatment. This was corrected through contact with their home DHB.
- The Australian Government offered to send an Australian Medical Assistance Team and facilities to assist. This was cleared with the CDHB Incident Controller and approved as a backup to the rather fragile hospital facilities at that time. CDHB staff then liaised with Christchurch CDEM EOC to locate a suitable site and services for this unit. An example of overall response co-ordination.
- A small group of doctors, together with at least one nurse, turned up at an international airport intending to help. They were intercepted and advised by the Ministry of Health that their services were not required. They returned to their home country.
- New Zealand Ministry of Foreign Affairs and Trade received an offer of a team of trauma counsellors through diplomatic channels. This was referred to the CDHB Incident Controller who assessed the requirement with his managers. The offer was declined as local resources were coping.

The Ministry of Health has added health applications to these procedures to incorporate the online, real-time requests and responses to resource needs for future major emergencies in New Zealand. The MCDEM is also implementing a national EMIS system.

The CDHB resource control and co-ordination model worked for the situation following the Christchurch earthquakes and the lessons learnt from responses to major international sudden onset disasters were applied. The development of the CDHB model for international use in control and co-ordination could be evolved as shown in Figure 6.

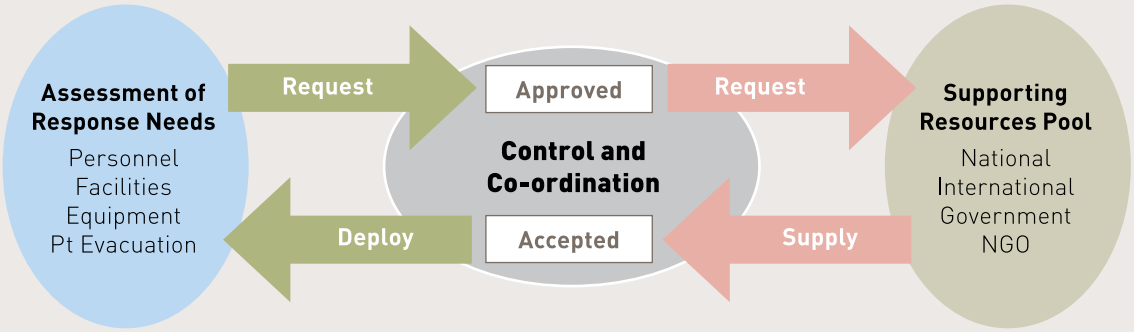
Implications for future responses

It is necessary to take the experiences from the New Zealand earthquakes and promote them in the international arena as it is clear that positive lessons could be absorbed to ensure the chaos of past responses is not repeated. Proof that positive control and co-ordination experiences need to be publicised and shared are apparent from the recent Pan American Health Organisation (PAHO) publication of a full review of the health response to Haiti (de Ville de Goyet, C *et al.*, 2010). The findings in this comprehensive publication support and expand the findings of Van Hoving (2010).

In the publication's foreword, Mirta Roses Periago, Director of the PAHO, comments:

> "If the impact was unprecedented, the organisation of the response was not. It followed the same chaotic pattern as in past disasters. Information was scare, decisions were often not evidence-based, and overall sectoral coordination presented serious shortcomings. Management gaps noted in past crises were repeated and amplified in Haiti. The humanitarian community failed to put into practice the lessons learnt"
> (de Ville de Goyet, C *et al.*, 2010).

Figure 6. Flow chart of CDHB Model for international application.



The World Health Organisation (WHO) has taken heed and set a priority resulting from the Haitian experiences. A Foreign Medical Team (FMT) working group was formed and is actively meeting and seeking agreement to ensure there is control and co-ordination during future responses. This work is based on actual experiences not only in Haiti but also Aceh, Pakistan and Rwanda.

The group has made the following recommendations and is working on the implementation.

> "The Cuba (late 2010) meeting recommended a Foreign Medical Team (FMT) working group be set-up to guide and monitor activities related to the development of an international register for FMT provider organizations following a sudden-onset disaster, with the overall aims of:
>
> a. improving FMT's adherence to international core standards,
>
> b. ensuring that these FMTs respond to identified needs that cannot be met nationally" *(Ibid).*

At a meeting in Geneva in December 2011 the following goals were agreed.

- The development of functional criteria for classification and minimal standards for FMTs required for such registration.
- A minimum set of information and reporting to the recipient health authorities *(Ibid)*.

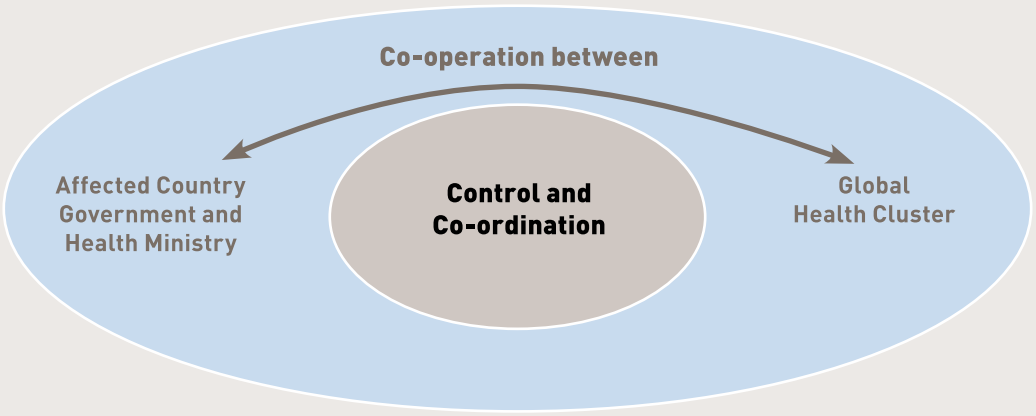
The push is to bring control by approving FMTs as responders to major emergencies and eliminating the sudden rush of 'feel good' responders who have failed to respond in an appropriate manner in the past. Arguably, there could be difficulty with some accepting such approval and the requirements on control and co-ordination it would bring. This is more so with the proliferation of responders in recent years. For example:

> "In Banda Aceh, Indonesia following the Boxing Day Tsunami in 2005, 180 agencies (representing all agencies (not just health)) registered with the UN.
>
> In Port au Prince, (Haiti) the proliferation of international organisations was far greater than Banda Aceh. In the health sector alone, 390 agencies, mostly international registered with the external coordinating mechanism (Health Cluster). Many more health actors did not register." *(Ibid).*

Clearly there must be co-operation between governance in the affected country and the global health cluster to bring control and co-ordination to the response. This ensures that chaotic situations of the past remain there. While each responding organisation, either national or global, has control and co-ordination of their own resources the overall relief effort is, and must be, controlled by the national government and not the global community.

Figure 7 shows the addition of the element of co-operation to the flow chart in Figure 6. It provides a model suitable for international use. Agreement to co-operate must be an essential requirement in any developments by the WHO FMT working group in the process to 'approve' FMTs.

Figure 7. Need for co-operation to ensure control and co-ordination.



The Haiti situation, depicted by de Ville de Goyet (2010) must be corrected.

> "All profess to be willing to coordinate with others. Few accept being coordinated. Many operational partners, while decrying the vacuum of authority as a major impediment to effective relief, in fact see it as convenient" *(Ibid).*

This is hardly the 'harmonious adjustment' from the meaning of co-ordination provided at the start of this paper.

Summary

Control and co-ordination as mandated by the UN General Assembly Resolution 46/182 achieves an organised and appropriate humanitarian response to the health requirements following a major emergency, provided there is co-operation between all agencies involved.

Many papers and editorials have been produced outlining the problems and the lessons to be learnt to avoid previous mistakes.

The initiatives of the WHO FMT working group in developing approval for FMTs requires acceptance and support to ensure that chaotic situations of the past are avoided. The aim must remain to provide a proper, appropriate and sustained humanitarian response to affected communities.

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About the author

Graeme McColl retired in late 2011, after more than 15 years in health emergency management covering New Zealand's South Island. In the last four years, Graeme was employed by the Ministry of Health as an Emergency Management Advisor. He filled key response roles for the Ministry of Health during the Swine Flu pandemic in 2009 and the Pacific tsunami the same year. Following the Canterbury earthquakes in 2010 and 2011 he served as a liaison between Canterbury District Health Board and the Ministry of Health during the response.

Graeme is currently the President of the Oceania Chapter of the World Association for Disaster and Emergency Medicine (WADEM), a member of the Editorial Board for the WADEM *Prehospital and Disaster Medicine Journal* and is the Editor/ Co-ordinator of the *Oceania Chapter Newsletter.*

New Zealand ShakeOut: more than 1.3 million people in New Zealand participate in a Drop, Cover and Hold earthquake drill

By Anita Komen, Emergency Management Advisor, Ministry of Civil Defence & Emergency Management, NZ.

Overview

At 9:26am on Wednesday 26 September 2012, more than 1.3 million people in New Zealand (approximately 30 per cent of the population) practised the right actions to take in an earthquake: **Drop, Cover and Hold**. This was the country's first ever nation-wide earthquake drill and was part of an earthquake preparedness campaign, *New Zealand ShakeOut*. The campaign aimed to help people in New Zealand better prepare for an earthquake. Participants included individuals and families, schools, businesses, government departments, emergency services, community groups and many other organisations.

New Zealanders became well aware of the devastating effects of large earthquakes in 2010 and 2011 following the Canterbury earthquakes. *New Zealand ShakeOut* built on that awareness and encouraged people to learn what to do in their homes, schools, workplaces or wherever they might be in the event of an earthquake. While the earthquake hazard varies from region to region, all of New Zealand is prone to earthquakes and everyone needs to know what to do when they occur.

The Drop, Cover and Hold drill was the focal point of the campaign. It is a clear, simple action that people can take to prepare themselves for an earthquake. The drill was only a first step. The campaign encouraged people to look at their preparedness in more detail. As well as the drill, many businesses and other organisations developed, reviewed or tested their emergency plans, and families wrote and/or tested their household emergency plans.

From one to 1.3 million!

New Zealand ShakeOut was based on the highly successful Great California ShakeOut, which began in 2008 and is an annual event involving over 8 million people. The ShakeOut concept has spread to other states in the US and to other countries including Canada, Italy, Puerto Rico, and Japan. In New Zealand, the West Coast held its own Great West Coast ShakeOut in 2009 as part of a civil defence exercise. *New Zealand ShakeOut* was the first national ShakeOut earthquake drill in the world.

The decision to hold a New Zealand-wide ShakeOut was made in July 2010 by the Ministry of Civil Defence & Emergency Management (MCDEM) and the 16 Civil Defence Emergency Management (CDEM) groups across the country. A national civil defence exercise is held every two to four years, but *New Zealand ShakeOut* was the first to include the public. Support was given by the Director of Civil Defence Emergency Management, John Hamilton, and the Minister of Civil Defence, Chris Tremain.

Two campaign co-ordinators were appointed from the MCDEM who worked closely with the lead co-ordinator of the Great California ShakeOut earthquake drills, Mark Benthien, to ensure the development of the *New Zealand ShakeOut* was successful.

As the campaign was an all-of-government campaign, a ShakeOut Planning Team was formed in 2011. It consisted of representatives from central government, local government, emergency services, and GNS Science. The team met once a month leading up to the ShakeOut exercise and was responsible for setting the aims, objectives, key performance indicators and the general approach to making *New Zealand ShakeOut*

Image: Ministry of Civil Defence and Emergency Management

New Zealand Shakeout **co-ordinators Jo Guard (left) and Anita Komen (right) and Stan the Dog – mascot for the schools emergency management program.**

a success. One of the ambitious objectives established was to have 1 million people participate in the Drop, Cover and Hold drill.

New Zealand ShakeOut was tied very closely to the well-established *Get Ready Get Thru* public education campaign, which has been running since 2006. With only a small budget assigned to the ShakeOut, every effort was made to ensure the *Get Ready Get Thru* campaign and *New Zealand ShakeOut* supported each other. Agencies and businesses involved in *New Zealand ShakeOut* made their own decisions about how much staff time and funding they would contribute to their parts of the drill.

New Zealand ShakeOut was essentially a public education campaign, and therefore an 'approach from all angles' mentality was adopted. A huge number of resources was compiled ahead of the campaign launch on March 29, including a dedicated *New Zealand ShakeOut* website. The website was the main conduit of information for the campaign and allowed people to register their participation, see who else was participating, get information about how to be involved, find out about the earthquake risk in their region, and learn how to prepare for earthquakes. Resources available on the website include drill manuals and other planning documents, posters and flyers, Facebook and web banners, logos and other artwork, colouring-in pictures, online ads and videos, and screensavers.

The website and the drill were promoted through a multi-media campaign using news media, advertising (TV, print, radio and online) and central and local government communication networks. New Drop, Cover and Hold TV ads were launched on 28 June. Drop, Cover and Hold radio advertising was also developed and aired from late August through to 26 September. Social media (Facebook and Twitter) were used to spread the word about ShakeOut and to engage with the public.

Eighteen different category groups (individuals, schools, businesses, etc) were identified and resources and information were tailored for their needs. Throughout the campaign much effort was put into direct contact with these groups. The Minister, the Director, Mayors, Planning Team members, MCDEM, CDEM Group and Council staff, encouraged people to sign up for *New Zealand ShakeOut*. Letters were written, phone calls made, articles written, and many presentations given. The strong, active involvement of many central and local government agencies that used their existing contacts and networks was absolutely crucial to the success of *New Zealand ShakeOut*.

The success of *New Zealand ShakeOut* was not only reflected by the 1.3 million people who were involved but by the way the campaign fostered stronger links and engagement across central and local government agencies and businesses, all focused on emergency management.

Stories from around the country

Nelson Tasman

Nelson City and Tasman District Councils had all staff, Mayors, Deputy Mayors and CEOs practising Drop, Cover and Hold. Staff and teachers of Garin College gathered in assembly and did the drill - just over 500 students at once! Local pre-schools had a 'shaky shaky' day, having jelly castles, and messy lunches. Nelson Mitre 10 Mega hardware store hosted local radio stations and the Nelson-based New Zealand Response Team 2. Nelson Library had a real turtle come in for Turtle safe story time (Turtle safe is the resource used to teach pre-school aged children Drop, Cover and Hold). The builders at all Gibbons sites stopped work at 9:26am and did the Drop, Cover and Hold drill.

Students at Garin College, Nelson take part in the Drop, Cover and Hold drill.

Hawke's Bay

In Hawke's Bay nearly 47,000 residents registered to participate in *New Zealand ShakeOut*, a great result! Schools, local authorities and other workplaces dropped, covered and held with some going on to complete full evacuation and rescue exercises. Solar powered torch radios and personal survival kits were given away as incentives to register for *New Zealand ShakeOut* with more available to anyone in Hawke's Bay who uploaded stories or photos of their ShakeOut experience. An important element was the use of the well-known Hawke's Bay Civil Defence Emergency Management Group website (www.hbemergency.govt.nz) to provide local content and links to the national *New Zealand ShakeOut* website.

Staff at Waipawa Kindergarten taught the children the right actions to take during an earthquake.

Image: Rebecca Aston

Hamilton City Council participate in a *New Zealand ShakeOut* flash mob in Garden Place, Hamilton.

Images: Waikato Region Civil Defence Emergency Management Group

Te Aroha Hospital turned off power for 24 hours and practiced using alternative heating, cooling and lighting.

Waikato

More than 90,000 people in Waikato signalled their intent to participate in *New Zealand ShakeOut*, including around 65,000 pre-schoolers and students who completed the Drop, Cover, Hold exercise. At Te Aroha Community Hospital, the drill started a 24-hour exercise which involved shutting off power and water supplies. CEO Nikki Close said at the end of the exercise that some changes would need to be made to the hospital's emergency plan, but overall procedures in place beforehand had worked well. *"The whole point of the exercise was to find the stresses in the plan, identifying what was idealistic versus realistic. There are some parts of the plan which will need to be re-written."* All staff involved in the exercise, which spanned three shifts, participated in a debrief.

Image: Bay of Plenty Regional Council

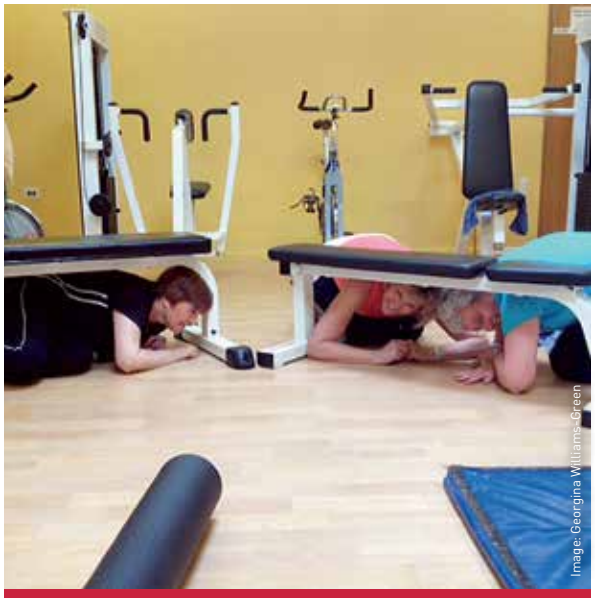
Bay of Plenty Regional Council staff in Tauanga assemble after an evacuation of their building during the exercise.

Bay of Plenty

After the whistles had stopped being blown and Bay of Plenty Regional Council staff were given the all clear to emerge from under their desks, the real benefit of the exercise was obvious at the debrief. Staff began thinking about what they'd do once the shaking stopped, and how they might contact their families and meet up with them when they couldn't just jump in a car. The debriefs in each of the five offices provided food for thought for many staff who then headed home to ensure their household emergency plans were up to date.

Image: Bay of Plenty Regional Council

James Lowe and David Phizacklea of the Bay of Plenty Regional Council talk through a scenario.



Recreation Centre staff and members drop for cover during a workout session.

Canterbury

Despite being well practised in what to do during earthquakes, with over 10,000 earthquakes rocking the region since September 2010, many Cantabrians still showed support to *New Zealand ShakeOut*. Five schools from the Waimate district (175 students, plus teachers and parents) participated in an exercise starting with the *New Zealand Shakeout* drill, and then an afternoon of earthquake related scenarios including learning how to boil water and make shelters. Students went home with a home survival kit checklist to complete.
One school in Kaikoura was fully evacuated and a welfare centre established. All councils in the region took part, with the Regional Council and Ashburton and Kaikoura District Councils practising full evacuations. Many community radio stations played features leading up to the day as well as helped to trigger the drill by playing the civil defence 'sting' at 9:26am (the 'sting' is an electronic sound that has been given to broadcasters to use before making an official civil defence emergency announcement).

Wellington Region Emergency Management Office (WREMO)

For WREMO, *New Zealand ShakeOut* was all about community engagement. The earthquake drill was the opportunity for emergency management staff to be out and about in their community and encourage people to practise Drop, Cover and Hold. Staff were involved with local council drills and evacuations. Berhampore School, whose registration took *New Zealand ShakeOut* to more than 1 million participants, warmly received goodies from the mascot, Stan the Dog. Wellington International Airport provided national media with a focal point for an en-mass Drop, Cover and Hold drill. Senior Advisor Craig Hamilton hailed the campaign a success, *"A successful campaign – Yes, ShakeOut has opened doors for us, now our challenge is to keep them open."*

Table 1: Category groups and participant numbers for *New Zealand ShakeOut*.

Category	Participants
Individuals/Families	20,492
Pre-schools	108,936
Schools	650,962
Youth Organisations	1,345
Tertiary Education	134,140
Iwi	384
Government Agencies	72,497
Local Authorities	28,623
Emergency Services	17,510
Businesses	203,570
Health & Disability Sector	59,220
Non-Government Agencies	14,961
Volunteer/Service Clubs	1,440
Animal Shelter/Service Providers	274
Agriculture/Livestock	311
Science/Engineering Organisations	5,234
Media Organisations	2,103
Community Groups	9,378
Other	8,800
TOTAL	**1,340,180**

About the author

Anita Komen is an Emergency Management Advisor at the Ministry of Civil Defence & Emergency Management. Anita co-coordinated the *New Zealand ShakeOut* exercise over 2011-2012. Anita works on issues to do with the co-ordination and accessibility of civil defence emergency management research, ensuring that evidence-based best practice is promulgated across the field. She also contributes to disaster risk management in Samoa.

New Zealand Red Cross earthquake response and recovery

NEW ZEALAND RED CROSS PROVIDES AN INSIGHT TO THE EARLY DAYS OF THE RED CROSS RESPONSE.

Article edited by Corinne Ambler, New Zealand Red Cross Recovery Communication Manager.

On 4 September 2010, the Canterbury region of New Zealand was hit by a 7.1 magnitude earthquake. Despite the magnitude of the earthquake there were no fatalities, however a number of people were injured and substantial damage was sustained to public buildings, businesses and private properties. Significant liquefaction affected the eastern suburbs, producing around 400,000 tonnes of silt.

Nearly six months later on 22 February 2011, the city of Christchurch was struck by a 6.3 magnitude earthquake that caused widespread devastation. Seismologically, this event was classed as an aftershock because of its relationship to the ongoing earthquake activity since September 2010. The quake caused significant loss of life and injury. There were 185 fatalities with nationals from more than 20 countries among the victims. There was severe damage to infrastructure, disruption to services and extensive liquefaction in some areas.

A national state of emergency was declared on 23 February 2011, which stayed in place until 30 April 2011. The earthquakes in Canterbury have generated around 12,000 aftershocks. A large aftershock on 13 June 2011 caused considerable damage, especially to sewerage infrastructure.

New Zealand Red Cross emergency response team members hold a briefing outside St Johns Latimer Square, an Anglican church that has now been demolished.

Canterbury has also been affected by adverse weather events, including power cuts and school closures caused by snowstorms. This has been particularly difficult for people with damaged homes and those without mains sewerage. The intensity and frequency of seismic events means that a linear transition from response to recovery has not been possible. New Zealand Red Cross response and short-term recovery activities and longer-term recovery planning, were operating in parallel with response activities that were scaled up when required.

New Zealand Government involvement

To lead the recovery of Canterbury, the government established the Canterbury Earthquake Recovery Authority (CERA) to work with the people of Canterbury to rebuild Christchurch and its surroundings. New Zealand Red Cross undertook a range of activities in response to the February earthquake.

Response teams and outreach

Fourteen response teams from across New Zealand were sent to support the Red Cross response. A total of 289 volunteers worked more than 6,800 hours undertaking a number of roles, including welfare centre support, registration, light search and rescue (SAR), support to the Emergency Operations Centre (EOC), and on-call tasks.

The New Zealand Red Cross conducted outreach on a small scale, based on a referral system where requests are received from beneficiaries, concerned friends, relatives or agencies. The outreach team received five to 10 calls a week which increased sharply during extreme weather and seismic events. Immediately following the February quake, outreach was conducted almost full-time for two to three months using up to four teams at any one time. New Zealand Red Cross has grown its Outreach service and now has 80 volunteers providing around 50 visits a week, with more than 2200 visits so far this year. The team has also completed 3000 door-knocks this year in affected suburbs.

Welfare support

Red Cross teams established and provided assistance at six welfare centres supporting more than 3,000 evacuees with welfare, psychosocial support, first aid and registration. A permanent first aid post was established at the Christchurch-based EOC to support the civil defence staff for three weeks. Small street corner first aid sites were also active during the relief period.

New Zealand Red Cross conducted surveys and assessments as part of an inter-agency program *Operation Suburb* to determine the needs of 70,000 people affected by the disaster as well as to disseminate information regarding available services and grants.

Recording of registration data, enquiries for missing persons and the Red Cross call centre

New Zealand Red Cross collected and recorded a large amount of registration data, using social media to connect with hundreds of IT-savvy volunteers, most of whom had no previous involvement with Red Cross. Capitalising on their innovative ideas and skills, more than 50,000 people were recorded in the Public Registration and Inquiry Database for Emergencies (PRIDE).

A number of government agencies used the PRIDE database as a vital source of information. With the assistance of two Australian Red Cross workers, New Zealand Red Cross assisted the police with enquiries for missing persons and resolved 832 cases. Three call centres in Hamilton, Palmerston North, and Christchurch were also set up and operational within 48 hours. These call centres processed more than 15,000 calls in the first night. The Hamilton call centre was open 24 hours a day for the first 10 days. It remained open for 27 days, processing 73,500 calls in that time.

Emergency water distribution

The objective of the water program was to reduce the risks of water and sanitation diseases to those affected by the earthquake through the provision of safe water and hygiene promotion.

The emergency water distribution operation began in Christchurch on 27 February, following a formal request from the Ministry of Civil Defence & Emergency Management (MCDEM) and the Christchurch City Council. The program included a needs assessment process, promotion of public health messages, development of a volunteer information pack and robust monitoring.
Four aid workers and 55 volunteers:

- distributed 257,150 litres of water from 2 to 18 March
- assisted up to 600 people per day collect water from the sites
- distributed 3,500 water containers (10L and 20L), and
- distributed 11 pallets of bottled drinking water along with various donated goods.

Working with others

Twelve Australian Red Cross staff and nine New Zealand Red Cross relief and disaster management workers from the international aid worker program were sent to assist. The International Federation of Red Cross and Red Crescent Societies (IFRC) provided two specialist aid workers in planning, monitoring, evaluating and reporting and water and sanitation for two weeks. A global agreement between the IFRC and Lions International resulted in 100 Lions volunteers working jointly with Red Cross teams.

Emergency service volunteers: a comparison of age, motives and values

By Julie E Francis and Michael Jones, University of Wollongong.

ABSTRACT

Understanding why volunteers join an emergency service and why they stay is critical to developing more effective recruitment and retention strategies. Subsequently, this study examines the roles of age, motivations and values in satisfaction among New Generation (aged below 35 years) and Traditional Generation (aged 35 years and above) volunteers. The research conducted an online survey of 252 State Emergency Service (SES) volunteers. The results indicate a mix of similarities and differences across the generations. First and foremost though, the primary reasons for joining and staying with the service are the same for both age groups – and those reasons revolve around serving the community. Younger volunteers do have an extended range of reasons for joining and staying but the areas of difference point to stage-in-life considerations as opposed to generational changes. The discussion identifies and examines the key implications for emergency service managers. R

Introduction

Organisations that rely on a volunteer workforce confront various challenges in relation to growing competition for unpaid helpers, the ageing population and declining rates of volunteer participation (Francis, 2011). These challenges intensify in emergency services where operations depend on highly trained, highly committed, risk tolerant volunteers in whom the organisation invests considerable resources (McLennan and Birch, 2009; Rice and Fallon, 2011). In the NSW State Emergency Service (SES) for example, volunteers can be on-call and work in adverse conditions. General training can take 24 months to complete and involves high start-up costs for the organisation. However, many volunteers leave before or around the 24-month mark. Subsequently, understanding why volunteers join an emergency service and why they stay is critical to developing more effective recruitment and retention strategies.

Researchers are closely examining the factors that feed into satisfaction and dissatisfaction among emergency service volunteers (Baxter-Tomkins and Wallace, 2009; Huynh, Metzer and Winefield, 2012; McLennan, Birch, Cowlishaw and Hayes, 2009; Rice and Fallon, 2011). Certainly, some attrition is unavoidable, such as when volunteers leave due to ill health or relocation. However, the research provides valuable insights relating to potentially manageable factors such as leadership styles, group cohesion, personal conflicts, organisation structures, and connectedness to the service. Notably the work to date tends to focus on interpersonal factors. There is the opportunity to examine personal factors, including personal motivations and values, that affect volunteer satisfaction. Recent work has questioned the possible impact of age and generational differences. Accordingly, this paper examines the roles of motives, values and age in emergency service volunteer satisfaction.

Motivations

Motivation models of volunteer behaviour contend that volunteering is the outcome of an individual's drive to satisfy functional or reasoned motives. A leading model of the functional motives is Clary *et al.*'s (1998) Volunteer Functions Inventory (VFI). The VFI identifies and measures six functional motives that variously drive volunteerism. The VFI motives are:

- *Values:* concern for, and desire to help, people in need or important causes.
- *Protective:* relieve one's own personal problems and negative emotions.
- *Enhancement:* increase positive feelings about one's self.
- *Understanding:* learn about the cause, other people, and one's own abilities.
- *Career:* develop and expand career-related skills and opportunities.

- *Social:* align own behavior with that of social referents who volunteer.

The VFI is widely used to assess and compare the motives of volunteers. The results indicate that volunteer motives, and thereby the sources of satisfaction, vary across service contexts (Carlo *et al.*, 2005; Mayer and McNary, 2007; Okun and Schultz, 2003). However, no studies appear to have used the complete VFI to identify the motives that are most important to emergency service volunteers.

Values

The related, but distinct, attribute of personal values refers to a person's underlying beliefs about what is acceptable and desirable, and their enduring goals or sought after end states (Hitlin and Piliavin, 2004; Schwartz and Bilsky, 1987). The Portrait Values Questionnaire (PVQ) developed by Schwartz and colleagues (2001) is widely used in social research (Bilsky, Janik and Schwartz, 2011) and has been recently used to help understand volunteerism (Briggs, Peterson and Gregory, 2010). Relevant to this context, the PVQ includes the Self-Transcendence values of *Universalism* and *Benevolence* and the contrasting Self-Enhancement values of *Power* and *Achievement*, as summarised below.

- *Universalism:* appreciate and protect the welfare of all people in the world.
- *Benevolence:* preserve and enhance the welfare of people close by.
- *Power:* attain social status, prestige, and control over resources or people.
- *Achievement:* attain personal success and recognition for achievements.

Like the VFI, the PVQ could help to understand why volunteers join and stay with an organisation but it has not yet been used in the context of emergency service volunteers.

Age

Appealing to younger volunteers is vital to the short and long-term futures of emergency service organisations. The popular media and various scholarly sources suggest that today's younger adults, especially Generation Y (those currently aged around 18-34 years) are generally more self-oriented and less community-minded than previous generations (McLennan and Birch, 2009). If so, generational difference would mean modifying traditional recruitment and retention practices. However, research with volunteer firefighters suggests that younger volunteers are no less concerned about safety and community than older volunteers but they do have additional stage-in-life needs relating to careers and friendships (McLennan and Birch, 2009). This being the case, modifying traditional practices could be counter-productive. Thus, it is important to clarify if, and in what ways, the motives and values of what this study hereafter refers to as new generation

Image: NSW SES

NSW SES and NSW Fire Brigade carry out joint training to retain high-level skills.

emergency service volunteers (people younger than 35 years) differ to those of traditional generation volunteers from Generation X and Baby Boomer cohorts (people 35 years and above).

Research aims

To extend the current literature, the research described here seeks to better understand the personal and age-related reasons why volunteers join and stay with an emergency service organisation. In particular, the research has two aims:

1. To assess and compare the motivations, values, and satisfaction of New Generation and Traditional Generation volunteers.

2. To examine the relationships between motivations, values and satisfaction for each generational group.

Method

The research involved conducting an online survey of NSW SES volunteers. Recruitment emails were sent to the SES email accounts of 6,070 current members. Each email contained a secure single-use link to the survey site. The survey obtained 252 completed responses which provided a relatively low response rate of 4 per cent. Informal feedback from two SES units later indicated that less than 10 per cent of volunteers use their SES email account. The sample included 179 (71 per cent) males and 73 (29 per cent) females of whom 153 (61 per cent) were New Generation volunteers and 99 (39 per cent) were Traditional Generation. The reported length of SES service ranged from 1.8 to 46.8 years (M = 10.5 years). Also, approximately 60 per cent of respondents reported working or studying full-time and 45 per cent reported having children living at home.

The online questionnaire included sections that measured functional motivations, personal values and satisfaction with the SES. These sections used scales for which the reliability and validity has previously been established. *Motivations* was measured with the 30-item VFI scale (Clary *et al.*, 1998) and *Values* was measured with the nine-item PVQ to assess *Universalism*, *Benevolence*, *Power* and *Achievement* (Schwartz *et al.*, 2001). *Satisfaction* was measured with a six-item 'Satisfaction with the Volunteer Organisation' scale (Marta and Pozzi, 2008). Responses to the motivation and satisfaction questions were captured on a seven-point fully labelled Likert response scale that ranged from 'Strongly Disagree' to 'Strongly Agree'. Responses to the values questions were measured on a six-point fully labelled Likert response scale that ranged from 'Not At All Like Me' to 'Very Much Like Me'.

The data was prepared for analysis by computing each respondent's mean component scores for the six functional motives, the four personal values, and satisfaction. Respondents were also sorted into the two generational groups by recoding their age-in-years responses. To address the first aim of the research, descriptive analyses extracted the sample means and standard deviations from each generational group for all of the research variables. Three separate one-way analyses of variance (ANOVA's) were then conducted to examine the generational differences in means for:

i) the VFI components

ii) the PVQ components, and

iii) satisfaction.

The second research aim was addressed conducting four multiple-regression analyses – two for each generation. These regression analyses examined the relationships between motivations and satisfaction as well as values and satisfaction for each generation.

Results

Table 1 presents the results from extracting the motivation, values and satisfaction scores for the New and Traditional Generation volunteers along with ANOVA results from comparing the sample means.

Functional Motivations (VFI) and Age

The VFI scores indicate similarities and differences between the motivations of each generational group. The key similarity is that for New and Traditional Generation volunteers, the two highest motivations are *Values* (M = 5.8 and 5.7) and *Understanding* (M = 5.9 and 5.4). In terms of differences, the *Understanding* motive is statistically higher for the New Generation group. New Generation volunteers also report significantly higher *Career* and *Protective* motivations. These results indicate that the primary motivations for both generations revolve around concern for, interest in, and the desire to help people. Younger volunteers are also strongly motivated by career and personal functions but these motives do not take precedence over the community well-being concerns.

Personal Values (PVQ) and Age

The PVQ scores also reveal similarities and differences across the generations. Critically, both groups are equally and most highly oriented towards the self-transcendence values of *Benevolence* and *Universalism*: New Generation volunteers scored means of 4.8 and 4.6 respectively for these values while Traditional Generation volunteers scored 4.6 for both. Meanwhile, the self-enhancement values of *Achievement* and *Power* achieved the lowest scores, albeit that New Generation scores were significantly higher than those of the Traditional Generation. Similar to the motivations results, the personal values results reveal that both generations

are similarly and most highly oriented towards serving the community but younger volunteers are, to a lesser degree, also driven to attain personal success.

Satisfaction with the SES

The measures of satisfaction with the SES produced relatively high scores for both groups. With a maximum possible score of seven, the mean score for New Generation volunteers was 5.9 and for Traditional Generation volunteers the mean was 5.6. The difference in the means was statistically significant, indicating that younger volunteers are more satisfied with the organisation than their older counterparts.

Relationships between Motives, Values and Satisfaction

Satisfaction scores were used in regression analyses to examine the Motivation-Satisfaction and Values-Satisfaction relationships for each generation. The results are presented in Table 2. Overall, the fulfilment of functional motivations is a stronger predictor of satisfaction than personal values. In the case of New Generation volunteers, motivations explain 39 per cent (R^2 = 0.39) of satisfaction whereas values explain only 8 per cent (R^2 = 0.08). For Traditional Generation volunteers, the difference in explanatory power is not as large, but where motivations explain 32 per cent (R^2 = 0.32) of satisfaction, values explain 18 per cent (R^2 = 0.18).

Of the VFI motives, *Values* had the strongest influence on volunteer satisfaction. For the New and Traditional generations, this motive recorded the largest beta coefficient (β = .220 and .384) and is significantly related to *Satisfaction* at the stringent p < .01 level. In the case of Traditional Generation volunteers, *Values* is the only VFI component that is significantly related to satisfaction. For New Generation volunteers, Enhancement (= .203, p = .005) and Career (= .118, p = .026) also predict satisfaction but the lower beta coefficients indicate that these motives have less influence on satisfaction.

Regarding the PVQ components, *Benevolence* (= .524, p = .000) is the strongest and only significant predictor of satisfaction for Traditional Generation volunteers. *Benevolence* (= .181, p = .022) is also significant for the New Generation group but this group also produced significant results for *Power* (= -.199, p = .018). Notably too, *Power* has a negative beta coefficient which indicates an inverse relationship between desire for social status and satisfaction with the SES.

Discussion

The study examined the roles of age, motives and values in emergency service volunteer satisfaction and identified a mix of similarities and differences across New and Traditional Generation volunteers. The two highest functional motivations for both age groups are *Values* and *Understanding*. Also, fulfilling the *Values* function is the primary driver of satisfaction for both groups. Likewise, both age groups are equally and most highly oriented to the self-transcendence values of *Universalism* and *Benevolence*, with fulfilment of *Benevolence* being significantly related to satisfaction among younger and older volunteers. This indicates that, first and foremost, the primary reasons for joining

Table 1. Comparison of Motivations, Values and Satisfaction.

		New Generation	Traditional Generation	Comparison of Means	
Motivation	**Values**	**Mean (SD)**	**Mean (SD)**	**F**	**Sig.**
Functional Motivations (VFI)	Values	5.8 (0.8)	5.7 (0.7)	0.84	.359
	Protective	3.7 (1.3)	3.3 (1.2)	4.09	.044*
	Enhancement	5.1 (1.1)	4.8 (1.0)	3.29	.071
	Understanding	5.9 (0.7)	5.4 (1.0)	21.61	.000**
	Career	4.5 (1.4)	3.4 (1.3)	40.96	.000**
	Social	4.2 (1.3)	4.0 (1.3)	2.12	.146
Personal Values (PVQ)	Universalism	4.6 (0.9)	4.6 (0.9)	.41	.520
	Benevolence	4.8 (1.0)	4.6 (0.9)	3.01	.084
	Power	2.9 (1.1)	2.4 (0.9)	20.08	.000**
	Achievement	3.6 (1.4)	2.8 (1.1)	23.00	.000**
	Satisfaction with SES				
	Overall Satisfaction	5.9 (0.9)	5.6 (1.0)	6.60	.011*

* Significant at p < .05 level ** Significant at p < .01 level

and staying with the emergency service are the same for both age groups – and that those reasons revolve around serving the community.

The research also revealed certain differences between the age groups. In particular, younger volunteers are more highly oriented towards the *Career* function and self-enhancement values of *Power* and *Achievement*. Younger volunteers also report higher levels of satisfaction and their sources of satisfaction extend beyond *Values* and *Benevolence* to include the functional motives of *Career* and *Enhancement*. These findings do not necessarily reflect fundamental generational differences. Instead, the differences point to stage-in-life matters whereby young adult volunteers are understandably working to establish their livelihoods, independence, and place in society. Arguably too, younger volunteers have an extended range of reasons for joining and staying. This is potentially advantageous for the organisation and provides more bases on which to appeal to, and satisfy the needs of, young adult volunteers.

These findings have two key implications for emergency service managers.

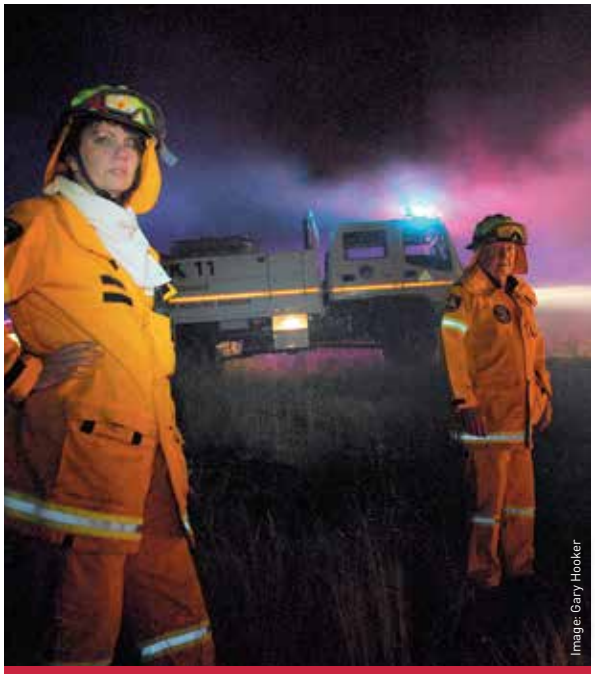
1. The notion of Generation Y being fundamentally different to, and more self-oriented than, older generations does not apply in this context. Younger and older members are similarly and most highly concerned with serving the community. Subsequently, managers should focus their recruitment and retention practices on maximising opportunities for all volunteers to fulfil their community-oriented needs and to minimise backstage or bureaucratic requirements that keep members from frontline activities.
2. Young adult volunteers have reasonably foreseeable stage-in-life matters with which to contend, as indicated by the importance of career, status and success factors. These matters are not necessarily a threat to the core purpose of the organisation. However, they may necessitate some management modifications, such as providing greater flexibility, empowerment and opportunities for younger members to satisfy these needs, in order to increase the likelihood of volunteer satisfaction and retention among this group.

Some of the limitations of the study and the emerging directions for research warrant consideration. The survey responses were limited to the relatively low proportion of members who use their SES email account. Subsequently, further research could expand the potential sample by encouraging and enabling increased use of SES email accounts or by conducting such surveys via traditional post. The present study was a single-stage survey that captured responses from current volunteers at a single point in time. As such, the project did not examine changes in volunteer motives, values and satisfaction over time or stages in service. Valuable insights could be gained by conducting multi-stage longitudinal studies that monitor new volunteers as they progress through their training and deployment or, alternatively, decide to leave the organisation.

Table 2. Relationships between Motivations, Values and Satisfaction.

		New Generation			Traditional Generation		
Motivation	**Values**	**β**	**t-value**	**Sig.**	**β**	**t-value**	**Sig.**
Functional Motivations (VFI)	Values	.220	2.67	.008**	.384	2.70	.008**
	Protective	-.042	-0.77	.440	.053	0.56	.578
	Enhancement	.203	2.86	.005**	.209	1.61	.110
	Understanding	.146	1.64	.103	.157	1.21	.226
	Career	.118	2.26	.026*	.135	1.48	.143
	Social	.090	1.92	.056	-.084	-0.90	.375
			R^2 = 0.39			R^2 = 0.32	
Personal Values (PVQ)	Universalism	-.056	-0.66	.512	-.059	-0.45	.656
	Benevolence	.181	2.32	.022*	.524	4.01	.000**
	Power	-.199	-2.40	.018*	-.111	-0.73	.469
	Achievement	.059	0.88	.381	.038	0.31	.756
			R^2 = 0.08			R^2 = 0.18	

* Significant at p < .05 level ** Significant at p < .01 level



Younger and older volunteers are most highly concerned with serving the community.

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Shifting Victoria's emphasis in land-use planning for bushfire: towards a place-based approach

By Dr Lucy Groenhart (RMIT), Dr Alan March (University of Melbourne) and Mark Holland (Country Fire Authority, Victoria).

ABSTRACT

Land-use planning has traditionally been considered a powerful mechanism for the reduction of bushfire risk. However, its potential has not been fully acted on. Urban planners have relied heavily on fire agencies to provide advice and to make decisions, rather than using statutory mechanisms in a complementary manner. Bushfire risk has tended to be 'balanced' against other factors in making planning assessments. This paper shows how changes to the provisions in Victoria are providing a platform for more proactive and place-based land use planning approaches to bushfire risks, prioritising the protection of human life. R

Introduction

The role of land-use planning in reducing bushfire risk is increasingly being recognised both in Australia and internationally. The 2004 COAG National Inquiry on Bushfire Mitigation and Management found that land-use planning processes to 'ensure that built assets are not placed in areas of high fire risk' (Ellis *et al*, 2004) were a key risk mitigation measure for bushfire in Australia. Planning has again come to the forefront of bushfire policy following the 2009 Victorian bushfires, one of Australia's most devastating natural disasters. This event caused the death of 173 people and property damage estimated at $4 billion (Teague *et al*, 2009). The Victorian Royal Bushfires Commission (VBRC), established to enquire into the fires, made 67 recommendations of which 19 related to planning and building controls. These included that the State 'amend the Victoria Planning Provisions relating to bushfire to ensure that the provisions give priority to the protection of human life' and 'adopt a clear objective of substantially restricting development in the areas of highest bushfire risk' (Teague *et al.*, 2009). The Victorian Government accepted all of the VBRC's recommendations. Handmer and Haynes (2008) suggest that Victoria has taken a lead in terms of developing planning instruments to mitigate fire risk. Discussion here partly explores this proposition by looking at recent changes to the Victorian planning and building system, and considering them against the broad principles of place-based planning for disaster management.

Place-based planning and risk

Urban planning is concerned with finding ways that human settlements and natural systems can be spatially and functionally arranged in the most advantageous way (Hall 2007). While this is a highly complex task, one aspect that planning may take into account is the management of risks associated with hazards, such as bushfires. Risks are widely defined as the 'effect of uncertainty on objectives' (ISO 31000, 2009) – in this case the possibility that bushfires may take human life, damage property, or impact the environment, economy or social functions of places in a given fire season.

Mapping of the bushfire hazard

In keeping with a place-based approach, integrating risk with planning processes highlights the site-specific and highly varied nature of bushfire risks. Place-based planning identifies the specific physical, natural and human values of a given geographic area and the ways we 'make' places (including the bushfire risks they face) by the ways we build, live in, and manage them (Tuan, 1977). In this sense, a place-based planning approach to bushfire ensures that risks associated with a given place and planning proposals are explicitly considered. Planning should consider the particularities of bushfire risk on sites in their context (Schwab *et al*, 2005), at various geographic scales, and over longer timeframes such as those required to consider fully disaster risks (Alexander, 1999).

The Bushfire Integrated Planning and Building Framework

In response to the VRBC recommendations, the Victorian Government developed a Bushfire Integrated Planning and Building Framework to 'strengthen the consideration of bushfire at different stages of the planning process and better integrate the planning

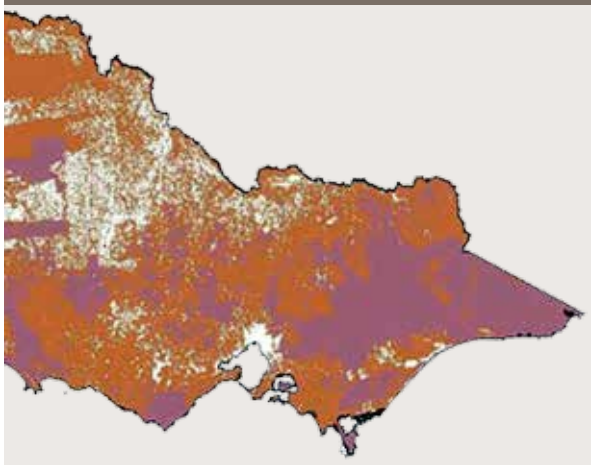
and building systems' (Victorian Government, 2011a). The principal changes introduced by the Framework are:

- a new emphasis on the priority of protecting human life in building and planning decision-making, and
- the application of the precautionary principle to development in areas at most risk from bushfire.

The emphasis on protecting human life is a shift from the previous policy outlined in the Wildfire Management Overlay (WMO). This stated that new development should 'not *significantly increase* the threat to life and surrounding property from wildfire' (Victorian Government, 1997, emphasis added).

At a state-wide macro scale, new mapping of the bushfire hazard has been carried out for the Bushfire Management Overlay (BMO). The BMO came into force in November 2011 and replaced the WMO. Under the WMO, mapping of bushfire risk was based on areas of forest greater than five hectares in size and with a vegetation density of greater than 80 per cent. The BMO mapping is based on a more detailed set of criteria, including vegetation, weather characteristics and slope (see Figure 1). The Victorian Government is currently working with local councils to finalise the updated BMO mapping.

Figure 1. Victoria Bushfire Prone Areas are in orange and Bushfire Management Overlay areas are in pink. Source: Department of Planning and Community Development, 2011.



A multi-tiered location specific response to bushfire risk

The BMO is part of a new multi-tiered location specific response to bushfire risk, with site based response levels increasing as bushfire hazard escalates, as shown in Figure 2.

1. Low-risk areas are outside the BMO and Bushfire Prone Areas and require no additional response. These are generally built up, urban areas that do not connect with the bushfire hazard, including ember attack.
2. Bushfire Prone Areas are subject to, or likely to be subject to, bushfires as designated by the Victorian Minister for Planning. They cover the majority of Victoria, including grassland and farming land (see Figure 1). Development of land in BPAs has specific building requirements under the Building Code of Australia. An assessment of the site is required to establish a Bushfire Attack Level (BAL) to determine construction requirements (see Table 1). In establishing a site's BAL, the Fire Danger Index, vegetation type, distance of the site from vegetation and the slope of the ground under the vegetation are taken into account. Once the BAL is determined (from 'Low' to 'Flame Zone') construction requirements are set out for things like flooring systems, external walls and doors, windows, and decks. As the bushfire threat increases, so do the construction requirements.
3. Land in the BMO covers a smaller area than the BPA (see Figure 1). This is considered to have the highest bushfire risk. Both building and planning responses now apply to development on this land. Based on the site assessment approach used by the Australian Standard AS 3959-2009 *Construction of buildings in bushfire prone areas*, the BMO shows the defendable space, construction requirements, water supplies and access requirements that must be maintained for the life of the development.

This is the practical realisation of the Integrated Planning and Building Framework.

Table 1. Bushfire Attack Levels and corresponding construction sections within the new building standard.

Bushfire Attack Level (BAL)	Description of predicted bushfire attack and levels of exposure
BAL – LOW	There is insufficient risk to warrant specific construction requirements
BAL – 12.5	Ember attack
BAL – 19	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux between 12.5 and 19 kW m^2
BAL – 29	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux between 19 and 29 kW m^2
BAL – 40	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux with the increased likelihood of exposure to flames
BAL – FZ	Direct exposure to flames from fire front in addition to heat flux and ember attack

Figure 2. Location specific response to bushfire risk. Source: Department of Planning and Community Development, 2011.

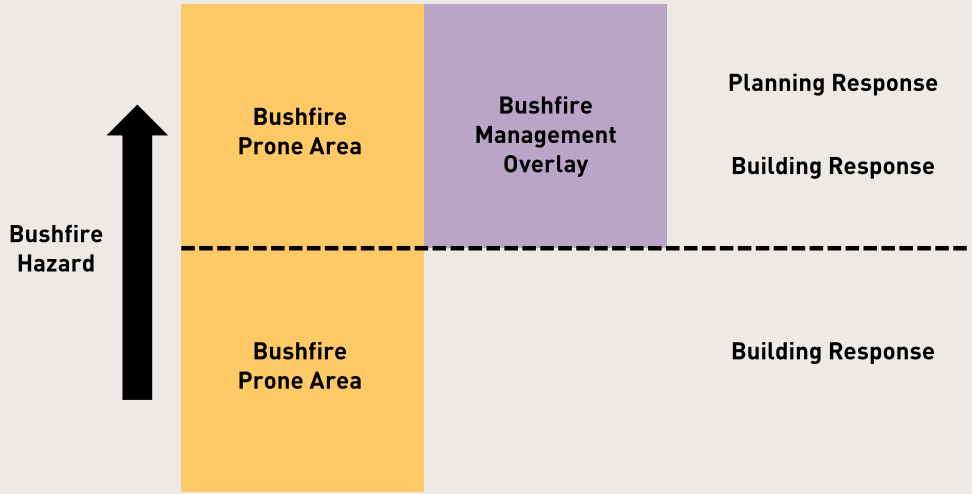


Table 2. Inner and outer protection zone requirements.

Zone	Requirements
Inner protection zone	• Within 10 metres of a building. Flammable objects such as plants, mulches and fences must not be located close to vulnerable parts of the building such as windows, decks and eaves. • Trees must not overhang the roofline of the building, touch walls or other elements of a building. • Grass must be lower than five centimetres in height. All leaves and vegetation debris must be removed at regular intervals. • Shrubs must not be planted under trees and must be separated by at least 1.5 times their mature height. • Plants greater than 10 centimetres in height at maturity must not be placed directly in front of a window or other glass feature. • Tree canopies must be separated by two metres, with an overall canopy cover of no more than 15 per cent at maturity. • Tree branches below two metres from ground level must be removed.
Outer protection zone	• Grass must be lower than 10 centimetres in height and leaf and other debris must be mowed, slashed or mulched. • Shrubs and/or trees must not form a continuous canopy with unmanaged fuels. • Tree branches below two metres from ground level must be removed. • Trees may touch each other with an overall canopy cover of no more than 30 per cent at maturity. • Shrubs must be in clumps of no greater than 10 square metres. They must be separated from each other by at least 10 metres, to the satisfaction of the Country Fire Authority.
Inner and outer zones	• Non-flammable features such as tennis courts, swimming pools, dams, patios, driveways or paths should be incorporated into the proposal, especially on the northern and western sides of the proposed building. • Features with high flammability such as doormats and firewood stacks should not be located near the structure.

Place-specific assessments

Development proposals in BMO areas are subject to both building and planning controls. Planning controls require applicants who want to subdivide or build to complete a number of place-specific assessments, starting with the broader landscape. The proposed development must be described in its landscape context, including:

- characteristics of bushfire hazard in the local area
- likely bushfire behaviour
- proximity to established urban and town areas, and
- access and egress arrangements.

At the site scale, there are new standards for locating buildings to achieve better bushfire resilience and minimise vegetation removal.

Based on Australian Standard AS 3959-2009 the requirements include a revised method for calculating defendable space. Defendable space is 'an area of land around a building where vegetation is modified and managed to reduce the effects of flame contact and radiant heat associated with bushfire. It comprises an inner zone and an outer zone' (Victorian Government, 2011b). This space must be located on the site itself and it can incorporate land that does not require management to minimise the spread and intensity of bushfire. There also must be some certainty that it will be managed in perpetuity. Table 2 provides the basic level of management required for the inner and outer zones.

Development must achieve defendable space and the new system provides the process for that determination. Once this is established, the appropriateness of any vegetation loss and the requirement to 'offset' that loss is considered under the relevant sections of the planning scheme.

Local overlay schedules

A further aspect of place-based planning is the introduction of local overlay schedules to the BMO. These provide bushfire protection requirements to be tailored to specific local circumstances. A schedule can address a particular neighbourhood, township or rural settlement and may specify alternative standards and permit exemptions that respond to local conditions. These were not allowed under the WMO.

Refusing applications

There is now a clear framework for refusing subdivision or building applications under the BMO on the grounds of bushfire risk. The BMO's objectives and standards provide a benchmark for meeting policy objectives and determining 'acceptable risk'.

With the new emphasis on the priority of protecting human life in building and planning decision-making and the application of the precautionary principle to development in areas at most risk from bushfire, applications for subdivision permits must ensure new lots in bushfire areas meet bushfire protection requirements and are capable of being built upon. There will be situations where the objective of protecting human life cannot be met, for example if acceptable defendable space cannot be established. In this case, development would be refused.

Finally, Victoria's new planning provisions remove the need for a planning permit to clear native vegetation around existing dwellings for bushfire protection. For land in the BPA, the '10/30' vegetation removal rule allows vegetation including trees within 10 metres from an existing dwelling, and other vegetation (except for trees within 30 metres) to be removed. For land in the BMO, a '10/50' vegetation removal rule extends the 'as of right' removal of vegetation (excluding trees) to 50 metres from a dwelling. This allows landowners to create more defendable spaces on their site without a permit.

Discussion and conclusions: towards a place-based approach?

The recent roll-out of the Bushfire Integrated Planning and Building Framework in Victoria includes a number of elements and is a significant step forward in terms of reducing bushfire risks. It includes place-based planning that begins to harness urban planning mechanisms to deliver site-specific responses to disaster risks. This is quite different from the one-size-fits-all mechanism. The explicit prioritisation of human life in the planning provisions provides an overall standard against which decisions can be measured. This is important in decreasing the tendency for compromise via development control processes which try to balance out multiple concerns. The ongoing implementation of mapping to identify bushfire hazard areas is a key step in developing a knowledge base at the various spatial scales necessary for informed decisions regarding which level of requirement should be applied. Detailed decisions are made following a site assessment.

The direct integration of building standards with land-use planning mechanisms, allows a more sophisticated and streamlined approach. This draws direct attention to determining, for a given location, the combination of building, design, vegetation or planning responses required to reduce risk to an acceptable level. The use of a tiered mechanism for determining risks using a spatial and site specific basis is fundamental to this approach. It draws the core elements of planning and disaster risk management approaches together.

The recent policy developments in Victoria also suggest a number of additional directions for future research and policy development. The first relates to the interplay of bushfire risk reduction and strategic planning processes. Continuing growth pressures and the desire for land owners to develop and use land in attractive and sometimes lower-cost locations at the edge of settlements or in remote areas, will continue.

Accommodating this growth now requires that an assessment regarding acceptable bushfire risks be made and prioritised against the range of other goals. These goals include:

- housing choice and affordability
- size of rural lots, and
- the scope for individual choice.

The second direction relates to the range of policy measures aimed at improved ecological management, such as the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*, the *Victorian Flora and Fauna Guarantee Act 1988*, and components of the Victoria Planning Provisions relating to protection of native vegetation and habitat, or of amenity. Balancing these competing objectives is challenging. It is most successful when considered as part of robust strategic planning processes, rather than at the development application stage where siting constraints can lead to choices between prioritising human life, vegetation retention, or sterilising land from development.

The Victorian Government policy is now clear: protecting human life must be prioritised. Adequate strategic planning is crucial so that broader planning requirements, such as zoning, satisfactorily reflect bushfire risk. Planning requirements should not create the expectation that urban growth or intensification of land-use is appropriate where it is difficult or unreasonably expensive to achieve development objectives as well as protect human life.

The majority of Victoria's existing settlements were constructed well before planning and building controls sought to manage bushfire risks. Victorian planning, like its other Australian equivalents, is strongly oriented to passive regulatory standards focussed on management of change initiated by landowners seeking to develop. This raises the question of whether there is a need for more comprehensive complementary measures that actively intervene in high risk areas to reduce bushfire hazards. The possible shortfall of appropriate expertise is highlighted by the range of skills necessary to manage bushfire risks adequately, and with due regard to other considerations such as maintaining aesthetic and ecological values. These include, but are not restricted to, urban planning, building engineering and surveying, fire engineering, fire behaviour and science, forestry, landscape architecture, urban design, and bushfire emergency response.

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Is insurance an under-utilised mechanism in climate change adaptation? The case of bushfire management in Tasmania

By Dr Kate Booth and Dr Stewart Williams, University of Tasmania.

ABSTRACT

This article presents a summary of findings and recommendations from an Australian research project funded by the National Climate Change Adaptation Research Facility (NCCARF).[1] This case study examined the role of insurance as a mechanism for climate change adaptation. It is based on interviews about bushfire management in Tasmania.

Interviews were conducted with staff in state, regional and local government agencies and with representatives of the housing construction, property development and insurance sectors. The results are discussed in the context of international examples and practice, and with regard to the three key themes of insurance affordability and availability; current and potential roles for insurance; and constraints and opportunities in governance. We conclude that insurance is critical to disaster recovery but its role in preparedness remains poorly understood, under-developed and under-utilised. R

Introduction

There is an apparent mismatch between public expectations and 'insurance reality', a mismatch that has been observed by, and reflected in the recommendations from both the *Natural Disaster Insurance Review* (Australian Government Treasury, 2011) and the *Queensland Floods Commission Report* (QFCI, 2012). Significant problems with non-insurance and under-insurance in Australia have also been noted. For example, the 2009 Victorian Bushfires Royal Commission (VBRC) stated that it was difficult to identify the levels of non-insurance and under-insurance associated with the Black Saturday bushfires, but cited evidence suggesting that about 13 per cent of all property losses were not insured (Teague *et al.*, 2010). It has also been estimated that between 27 per cent and 81 per cent of effected households were under-insured with regard to the 2003 Canberra bushfires (ASIC, 2005).

It is widely acknowledged that consumers struggle to engage with low-probability, high-loss events. Kunreuther and Pauly (2004), and Michel-Kerjan *et al.* (2011) postulate a range of factors that contribute to the lack of purchase or renewal of household insurance policies. These include non-engagement, disinterest or lack of understanding of the probability data, and an attitude of 'it will not happen to me'.

Lack of interest or knowledge about insurance is not only evident in consumer practice. In disaster management and climate change adaptation literature insurance is most commonly portrayed as a measure to assist in recovery rather than preparedness, if it gets addressed at all. As shown in the VBRC (Teague *et al.*, 2009, 2010), the *National Disaster Insurance Review* (Australian Government Treasury, 2011) and the *Queensland Floods Commission Report* (QFCI, 2012), insurance is understood primarily as a backup measure that is pursued after risk mitigation has perhaps been undertaken. Most often it is expected to be in place and available to enact after a natural disaster.

In Australia, building control and land-use planning mechanisms are key components of climate change adaptation and disaster management (Dovers, 2009; Handmer and Dovers, 2007). Building and planning issues have therefore dominated the recommendations made in recent reports from major post-bushfire inquiries (Ellis *et al.*, 2004; Esplin *et al.*, 2003; Teague *et al.*, 2009, 2010). However, these reports also point to the important role that insurance may play in bushfire management, including the need to address issues of non-insurance, under-insurance and the timeliness of payouts (Teague *et al.*, 2009). Yet in Australia, the role of insurance as a mechanism in natural hazard mitigation has rarely extended beyond such basic concerns.

The NCCARF project engaged the perspectives and knowledge of key stakeholders to identify the role

1. This work was carried out with financial support from the Australian Government (Department of Climate Change and Energy Efficiency) and the National Climate Change Adaptation Research Facility. The views expressed herein are not necessarily the views of the Commonwealth or NCCARF, and neither the Commonwealth nor NCCARF accept responsibility for information or advice contained herein.

of insurance in bushfire management based on a Tasmanian case study. These issues are discussed in the context of an emerging national and burgeoning international literature on the role of insurance in disaster mitigation and climate change adaptation, and the project made a number of findings and recommendations (King *et al.*, 2012).[2] Three themes emerged as most relevant to the current and potential role of insurance as an adaptive mechanism, namely:

- insurance affordability and availability
- current and potential roles of the insurance sector, and
- constraints and opportunities in governance.

Methods

The value of generic and all-hazard approaches to disaster management are well noted. Recent research places value on considering specific and localised disaster 'hotspots' and 'case studies' (Arnold *et al.*, 2005, 2006; Christianson *et al.*, 2011; Thomas *et al.*, 2011). Such work emphasises the benefits of paying attention to detail in disaster management, and in accounting for the environmental, social and economic variations that influence the occurrence of disasters and response and recovery. Focusing on a particular case – as with regard to the role of insurance in bushfire mitigation in Tasmania – provides an example with rich contextual detail, while allowing more generalised observations to be extended elsewhere (Wall, 2006).

In looking at opinions and practices around building and property insurance for bushfire risk management in Tasmania, 19 open-ended, semi-structured interviews were conducted of 1 to 1½ hours duration with 16 participants. These participants were identified and recruited as key stakeholders working in the public and private sectors, including:

- the Tasmanian state agencies of Premier and Cabinet, emergency management, fire services and housing
- regional council associations and individual councils, and
- private firms and employer groups in the areas of housing construction, property development and insurance.

Most of the interviews were conducted in participants' workplaces and audio-recorded. Two telephone interviews were also conducted.

Interviews were guided by questions about stakeholder practices relating to hazard mitigation, especially bushfire risks, and the actual and perceived roles of insurance in climate change adaptation. Interview transcripts were subjected to thematic analysis, and emerging key themes were interpreted in relation to the latest disaster inquiries in Australia as well as an international literature review. Extracts from these interviews and findings from the Australian and international literature were used to inform, explain, substantiate and support the findings and associated recommendations made by the project (King *et al.*, 2012).

Findings

Declining insurance affordability and availability

Purchasing and maintaining an insurance policy is not always a priority or even an option for all people. The factors contributing to this are complex. For example, research undertaken after bushfires in the East Gippsland region of Victoria found that most residents had home and contents insurance, but a significant number were un-insured or under-insured, particularly with regard to assets such as farm fences, livestock and outbuildings (Whittaker *et al.*, 2012). The prioritisation of long-term and ongoing drought mitigation over planning for low probability events such as bushfires was a reason for this non-insurance and under-insurance. Other reasons included the limited financial resources associated with drought and other pressures resulting from changes in the nature of farming and rural communities.

It is broadly acknowledged that similar and associated pressures are likely to increase in light of climate change (Garnaut, 2008; 2011). With the exacerbation of associated risk it is likely that premiums will increase significantly in the future (Kunruether *et al*, 2011). Reductions in the availability of insurance coverage and its complete withdrawal from some areas are also to be expected.

In the interviews, expectations of insurance coverage becoming more costly and less readily available were reinforced in comments made by insurance sector representatives. Several participants remarked on the positive effects of having insurance that accurately reflected new risks. Despite an expectation that higher risks and increased insurance costs would be reflected in lower land and property prices, the market was deemed by many to be an effective means to price and allocate risk. However a housing industry representative noted that higher premiums didn't necessarily equate to people avoiding high risk areas:

> "If they [insurers] get some clarity around where those high risks are they'll increase their premiums accordingly and that may or may not influence people, but at the end of the day often those more remote and high-risk areas are probably, you know, cheaper and so I'm not sure how much impact

2. This interim report is published by the *Australian Journal of Emergency Management* and has not been peer-reviewed by the (NCCARF). NCCARF will arrange for peer-review and publication of the project final report and make it available at www.nccarf.edu.au.

> that will necessarily have unless the premiums are prohibitively expensive, or uninsurable, and people can then start to question whether or not they want to build in that area... Having said that, ... the appetite for risk is quite large on behalf of insurers."
> (Housing industry representative).

One insurance industry agent made positive reference to the US practise of property buy-back under the compulsory National Flood Insurance Program (NFIP). Some of the research participants considered that there could be problems in Australia with similar initiatives. For example governments may not be financially willing or able to engage in buy-back or retreat programs. It was acknowledged that rates of non-insurance and under-insurance would likely rise with a reduction in insurance availability and affordability. It is important to note that participants were unaware of existing schemes currently operating in Australia (Department of Justice, 2012).

The issue of affordability is addressed in part by the VBRC recommendation that the existing fire services levy be replaced by a property-based levy. A substantial reduction in insurance costs is predicted under this proposed change. The cost of insurance would drop by 24 per cent for a rural residence and 17 per cent for an urban residence (Teague *et al.*, 2010).

Taking a wide-ranging approach with a focus on climate change, Kunreuther *et al.* (2011) conducted what they describe as a "first attempt to systematically measure the implications of future climate scenarios for the pricing of catastrophe risk insurance, using the case of hurricane risk in the state of Florida, under various conditions of adaptation and reinsurance availability" (2011). They concluded that without adaptation and a worst case climate change scenario, the price of insurance would increase to the extent that it would not be affordable for many Florida residents. They recommended that reinsurance and loss reduction measures (such as the enforcement of existing building codes and retrofitting existing properties) would maintain insurance availability and affordability under such a scenario. These observations place the focus on risk mitigation measures rather than on the regulation or manipulation of risk pricing and premiums as a means of managing losses.

However, the regulation or manipulation of risk pricing and premiums may still be relevant particularly in regard to low income earners. As a housing industry representative commented:

> "The homes that are probably most at risk are probably at the cheaper end of the market where these people [of lower socio-economic status] are going to be buying in and they're going to be the ones that the insurance companies are going to slug."

Australian research highlights that people in social housing are hardest hit by natural disasters such as cyclones, floods and bushfires (Jacobs and Williams, 2009; Williams *et al.*, 2009; Williams and Jacobs, 2011). This is supported by research in the UK (Pitt, 2008; Priest *et al.*, 2005), the USA (Tierney, 2008), and in developing nations (Bosher, 2011; Warner *et al.*, 2010). It is broadly acknowledged that supporting low income earners in the purchase of insurance reduces demand on government post-disaster and reduces the possibility of disadvantage becoming further entrenched following a disaster.

Current and potential roles of the insurance sector

Most participants, ranging from state housing officers to senior staff of local councils considered that the provision of planning schemes and building regulations pre-empts any significant role for insurance in risk mitigation and climate change adaptation. Representatives of the housing construction and property development sectors were likewise adamant that the combination of a more streamlined planning process and enforcement of building regulations meant insurance would continue to have a minor subsequent role (primarily for the purposes of household loss recovery).

A belief was also expressed that there is an emphasis on the purchase of insurance largely only to protect against losses resulting from an event and not to prevent it happening. According to some participants, the purchase of insurance can contribute to the reduced participation of individuals and communities in risk mitigation activities. For example, one Tasmanian Fire Services officer observed:

> "People buy insurance rather than solutions... so insurance becomes a way of participating in mitigation without actually doing much... natural hazards are somebody else's job."

The participant also mentioned how new treatments aimed at improving the built environment's capacity to resist fire had been driven in a large part by insurer-funded research.

Cost-effective adaptation and mitigation measures have been shown to play a significant role in reducing losses due to catastrophe (Kunreuther *et al.* 2011). However, the insurance sector appears reluctant to encourage the adoption of such measures (Kunreuther and Michel-Kerjan, 2009). Participants in this project commented that there was little interest or capacity for insurers to devote attention to localised matters.

For example, officers with local government noted the lack of any meaningful engagement with their insurers:

> "As far as pro-active stuff about the insurers coming to us and saying, 'well you know, what are you going to do about mitigating your fire risk?', before we get into a relationship with them as they're providing insurance – no, that doesn't happen" (Risk manager, local government).

Likewise, a representative of Tasmania's housing construction industry commented that the insurance sector is driven by global players and interests, and that a few major reinsurers located elsewhere set the terms and conditions, and premiums for insurance. There was a sense of insurance failing to deliver any adaptation through either soft behavioural or hard structural changes due to the impossibility of pursuing enforcement.

Jaffee *et al.* (2010) and Kunreuther and Michel-Kerjan (2009) suggest that long-term insurance policies – policies attached to specific properties that would be renewed every five, ten or 20 years – could be linked to home improvement loans for risk reduction measures and could act to reduce premiums. As a result, householders would have better coverage, and damage and loss may also be reduced significantly. This would benefit insurers, householders and state governments.

It is important to note that representatives of the housing construction and property development sectors, in particular, emphasised the suitability and effectiveness of the market as a mechanism for managing risk. With regard to regulation (in some cases, a stated sense of over-regulation), participants reiterated how any decision to purchase insurance is a matter of personal choice for individuals, householders and businesses.

There was some evidence of emerging insurer engagement in regard to climate change adaptation. For example, one climate change adaptation project manager reported that while insurers may not be proactive in relation to giving incentives for climate change adaptation and associated risk mitigation, some insurers are accounting for climate change adaptation measures in audits of local government risk, and doing so in ways that influence premium pricing.

> "As far as I am aware, all councils in our region use [a named insurance company] for their public liability and professional indemnity insurance. [This company] conducts biannual audits on its members which include organisational risk management… The impression I get from our councils is that climate change is a relatively new area of risk that is examined in the [insurance company] audits and those that have been audited over the course of the [Regional Climate Change Adaptation Project] have been pleasantly surprised since they have, as a result of the project, scored well for climate change" (Climate change adaptation project manager, local government).

Constraints and opportunities in governance

Climate change adaptation is broadly acknowledged as requiring a whole-of-community approach (Garnaut, 2011). As one participant stated:

> "Something like bushfire management requires everyone to participate. You need all members of the community in a vulnerable area to be doing their bit; otherwise the whole thing falls over" (Climate change adaptation project manager, local government).

However, the role of insurance is usually framed around the individual and his or her sense of responsibility and choice:

> "There is always going to be that community expectation; I want to go and live by the beach or I want to go and live in the hills and the one thing that is going to drive those decision-making processes is going to be 'can I get insurance for that?' Because that is the biggest signal to a person that there is a risk here and then that might change their behaviour around whether or not they can accommodate that risk" (Climate change adaptation project manager, local government).

The mixed messages here have implications for the provision of leadership, and what governance arrangements might be adopted in relation to the role of insurance in climate change adaptation.

Examples of community-based insurance initiatives include the NFIP in the United States. This program

started as a voluntary partnership between government and communities in which local governments implemented flood management regulations. Property owners in participating communities became eligible for federal flood insurance (Michel-Kerjan and Kousky, 2010). Such initiatives reflect a broader shift from management that pivots on *"government* (the practice of politics, policy and administration within the state-form) to *governance* (the co-production of many agents and agencies)" (Clarke, 2007, p. 838). This includes a shift towards partnerships between government, industry and the community.

Mixed messages from different levels of government were also reported by participants and appeared to reflect a lack of leadership. For example, a state housing officer reported:

> "The insurance part of it can come in and work if you've got a regime of control that's set up that allows and supports it, but if you don't, I don't think that you can direct it [adaptation] from the perspective of insurance... on its own. To put a fire trail through that same area of land required a planning application to go the council to put in a fire trail. Even though the Tasmanian Fire Service was saying clearly that it's a fire-prone area and it's a risk, you weren't in a position as an owner to be able to go in and put a fire trail in without getting permission from the council to do that because it necessitated cutting down some vegetation. If you were to link insurance requirements in to something like that where you've got this odd situation where regulatory bodies are not consistent... I don't think it would work."

McLennan and Handmer (2012) observe a broad shift in disaster-related policy away from government responsibility for risk management and towards the individualisation and privatisation of risk. In this project, a senior bureaucrat discussed the principles embedded in draft policy on the role of state government in relation to risk. These principles clearly demonstrate the shift towards placing emphasis on the roles and responsibilities of the individual:

1. Private risks associated with natural hazards are the responsibility of individuals and businesses.
2. Government should encourage public and private risks to be factored into investment decisions.
3. Government, because of the position it is in, can support individuals and others to understand and manage their private risks through education, the provision of evidence and frameworks to facilitate collective action where individuals can't reasonably act upon their own.
4. Government should ensure that private investment minimises unacceptable public risk.
5. Government as a responsible corporate citizen should avoid investment regulation and policies that give rise to public and private risk (Senior emergency management officer, State Government).

The VBRC takes risk management in the near opposite direction. As McLennan and Handmer (2012) state:

> "the Royal Commission called for a shift towards greater government leadership and responsibility in Australian bushfire risk management. Underpinning this call was the view that government agencies have far greater capacity to identify bushfire risk and to manage important aspects of that risk under extreme and variable conditions."

The dynamics between government and the insurance industry in Australia shows a shift in governance arrangements which appears aligned with those provided by the VBRC. Relations between government and insurers have become openly strained (ABC, 2012) following eight official natural disasters in 2011 that included cyclones, floods and bushfires resulting in $5 billion losses and approximately 275,000 claims. There has been a move by government to consider more stringent regulation for the insurance industry, particularly in light of public frustration regarding the number of unpaid and unresolved insurance claims.

Informed by the long history of uncertainty and debate over flood insurance in Australia (Smith and Handmer, 1989) the *National Disaster Insurance Review* made recommendations stating, amongst other things:

- Recommendation 1: That all home building insurance policies include flood cover.
- Recommendation 13: That all insurers offering small business insurance be obliged to include flood cover on an opt-out basis, instead of an opt-in/opt-out basis as at present, in all of their small business package policies.
- Recommendation 32: That all home building insurance policies providing sum insured cover be modified by the end of 2014 so as to include replacement value cover in the event of total loss of the home (Australian Government Treasury, 2011).

The Queensland Floods Commission also made recommendations directly targeting the operations of the insurance industry, including that:

- Insurers should review their existing system and processes and implement any improvements necessary to ensure that accurate and complete records of conversations with policy-holders are made.
- The Insurance Council of Australia should amend clause 3.4.3 of the *General Insurance Code of Practice* so that it requires insurers to inform policy-holders of their right to request a review of an insurer's decision to refuse to provide access to information on which it relied in assessing claims (QFCI, 2012).

Historically intervention and regulation of the insurance industry in Australia regarding natural disasters has been less rigorous than in the USA. In some cases, insurers have been restricted by legislation from cancelling policies as a means of ensuring that coverage continued. In Australia, much of the public/private interaction has focused on dialogue between sectors regarding building standards, planning codes, government assistance in times of disaster, and taxation reform (Wilkins, 2010). Given recent events and emerging trends this focus on dialogue may not remain the status quo.

Research participants representing the housing construction and property development sectors stressed a sense of over-regulation. Suggestions that insurance might be a useful addition to the usual approaches of land-use planning and building control in risk management were rejected by representatives from this sector.

There are a number of overseas initiatives that involve collaboration between government and the insurance sector in relation to disasters (Figure 1). These initiatives tend to focus on the role of insurance in recovery rather than preparedness, but they do illustrate that a variety of regulatory and non-regulatory opportunities exist, and that there is room for significant innovation in this area.

Discussion

The NCCARF project findings show that the practicalities of using insurance in bushfire management are currently limited, and yet there are opportunities and signs of initiative. Further research and the subsequent implementation of research findings are required if insurance is to contribute meaningfully to climate change adaptation and risk mitigation.

Figure 1. Examples of the role of government in insurance and risk management.

In developing regions and nations a range of innovative insurance partnerships between the public and private sectors are being explored and implemented (Warner *et al.*, 2009; Warner *et al.*, 2010). For example, the Caribbean Catastrophe Risk Insurance Facility (CCRIF) brought together Caribbean nations in partnership with the World Bank to create a not-for-profit insurance vehicle (Warner *et al.*, 2010). A Board of Directors that includes representatives from participating nations and technical experts oversees governance and strategic decisions. The operational and risk management functions are carried out by a private risk company. This includes modelling, calculation of loss, and policy sales and premium collections. Reinsurance and Alternative Risk Transfer is placed in international markets via a Placement Broker.

Key features of the CCRIF include:

- To trigger an insurance payout, CCRIF uses a catastrophe model to estimate the loss for any actual events, with the same model, calibrated against real historical events and losses, used to evaluate the risk and price the insurance contract.
- By pooling the risks of its members the CCRIF serves as a risk aggregator and can provide insurance coverage at a comparatively low premium.
- CCRIF member countries can decide on the level of coverage for each peril insured (Warner *et al.*, 2010, p.20).

In the United States, Kunreuther *et al.* (2011) describe the intersection of public and private insurance in Florida in the aftermath of the 2004 and 2005 hurricane seasons which included Hurricane Katrina. In the aftermath insurers filed for an increase in insurance rates. Only a portion was approved by the state insurance regulator. This added to existing public/private tensions where the focus is on insurance affordability and the latter on the market and insurer sustainability. In response, large insurers reduced the amount of coverage they provided in high hurricane risk regions. At the same time, Citizens Property Insurance Corporation (CPIC) – a state-run insurance company – was permitted to charge lower, subsidised rates than its private competitors and consequently became the largest homeowner insurer in Florida. In addition, it is legislated that any deficit faced by the CPIC in the aftermath of a major hurricane can be recouped from its private competitors in Florida. The private insurers then have to levy this amount against their own policy holders.

Kunreuther *et al.* (2011) sound a note of caution regarding the sustainability of such an approach, as they argue that CPIC's premium pool is invariably not going to meet catastrophic losses. Thus, this private/public insurance hybrid has significant ramifications for the broader insurance sector.

In summary:

- Availability and affordability. Further research could explore the likely changes in the availability and affordability of insurance in light of climate change with respect to natural disasters in an Australian context, and notably with reference to low income earners and vulnerable communities.
- Roles for insurance. Insurance could be better deployed in risk mitigation, including preparedness as well as recovery, with greater consideration of the factors that influence consumer participation and insurer incentives in climate change adaptation. This could include a comprehensive review of its current and potential roles.
- Governance constraints and opportunities. Governance structures related to climate change adaptation and natural hazard risk mitigation are reviewed with a focus on the provision of greater leadership. This includes further exploration of both non-regulatory and regulatory approaches regarding the role of insurance in adaptation.

In addition, input from participants suggests that more work is required on the following:

- Data sets and risk mapping. It is important to have accurate, consistent data and risk maps readily available to the public. This information is a central determinant in the role of insurance in climate change adaptation.
- Disaster-specific research. The vast majority of research to date, particularly in the USA and UK, has focused on the role of insurance in relation to flooding. Little is known about the current and possibly enhanced roles of insurance in relation to managing bushfires and other hazards at a regional level in Australia particularly in relation to climate change.
- Liability uncertainty. Uncertainty exists in relation to how liability issues will play out with regard to climate change. A review of liability laws and associated issues in light of climate change is required.
- Stakeholder uncertainty. There is evidence that key stakeholders have differing, and at times, uncertain understandings of the nature and role of insurance in climate change adaptation and risk mitigation. Education about this and associated issues, as well as policy reform would be beneficial.

Conclusion

It is clear that insurance is currently playing a substantial role in disaster recovery even if it is still problematic in terms of poor uptake, availability and coverage. However, its role in preparedness remains poorly understood, under-developed and under-utilised. It is apparent that insurance could play a far more significant role in this regard.

There are a number of issues that require consideration in order to progress insurance as a climate change adaptation as well as risk mitigation mechanism. These issues are insurance availability and affordability, current and potential roles of the insurance sector, and constraints and opportunities with regard to governance. A recurring theme is the need for further research. Interagency, intergovernment and public/private sector collaboration is required to fully comprehend the usefulness and versatility of insurance as a mechanism for climate change adaptation and risk mitigation.

Climate change poses major concerns for those involved in natural hazards, disaster and emergency risk management. It is predicted that events such as Victoria's 2009 Black Saturday bushfires and the 2010-11 Queensland floods will increase in both frequency and intensity. Insurance, if developed and used in conjunction with other mechanisms, promises pro-active and meaningful outcomes. However, significant progression in understanding and innovation is required.

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Tsunami alert: the mobile phone difference

By Dr Amanda H A Watson.

Introduction

Substantial growth has occurred in the telecommunication sector in Papua New Guinea (PNG) since 2007. Mobile telephony has spread to rural and remote localities, following decades of inadequate telephone services. This paper examines the introduction of mobile telephones into a rural village in PNG, and focuses on information access during emergency situations. It considers three tsunami alerts: one immediately prior to the introduction of mobile phone services in the area, and two which occurred after mobile phone reception became available. The research shows that for people with limited access to information, responses to threats such as tsunamis can be inappropriate and driven by fear and panic. By contrast, when there is reliable, timely information available, measured responses can be adopted. This research demonstrates how the use of newly-introduced communication technologies for handling emergencies may work in practice, benefitting people in poorer, rural communities.

This research is based on the experience of tsunami alerts in Madang Province of PNG. It asserts that changing levels of access to communication technologies are shifting the patterns of communication, as well as the ability to get timely, relevant and reliable information and knowledge.[1]

Background

PNG is a developing country, north of Australia which has been inhabited for at least 40,000 years (Rynkiewich, 2004, p.17), with European contact since the 1800s (Stanley 1982, pp. 318-319). Although culturally rich, PNG performs poorly in a wide range of development indicators, as reflected by its ranking of 153rd out of 187 countries on the United Nations Human Development Index (United Nations 2011). Over 87 per cent of the people live in rural areas (National Statistical Office of Papua New Guinea 2004) where media access, landline telephone infrastructure and postal services are limited, and computer use is rare (Watson 2011). Since mid-2007, there has been substantial growth in the telecommunication sector, with mobile telephony rapidly rolling out to rural and remote areas.

Methods

Data collection methods, which were part of a larger study into mobile telephony in rural villages in PNG, included semi-structured interviews, orally-administered surveys and participant observation. In particular, there was a focus on the experience of tsunami alerts. The research is based on a detailed account by one interviewee, Pancratius 'Pan' Lakot, late in 2009, and draws on researcher observations in PNG during three tsunami alerts in 2007, 2009 and 2011.

The village of Megiar

Megiar is a coastal village in Sumkar District, Madang Province. It is located on the mainland, along a sealed road, some 90 minutes by bus from Madang town. Housing ranges from bush material houses, to semi-permanent houses using mixed materials[2] and permanent houses. Some homes have mains electricity connected. Megiar residents have access to water from various sources, such as wells and springs. Some homes have rainwater tanks or drums for storing water. Most people have access to toilets, which are usually pit toilets[3] or seawater toilets[4]. An active marketplace operates in Megiar on a daily basis in a designated area by the road and benefits from passing trade. There are several trade stores, at least two of which are open daily.

Mobile telephone coverage reached Megiar in October 2007 with the construction of a Digicel[5] tower

1. An earlier version of this paper was presented at JEAA Annual Conference, 2010 Journalism Education Association Conference, University of Technology Sydney, November 24 - 26, 2010.
2. A typical semi-permanent house is primarily made of bush materials, with a corrugated iron roof.
3. Pit toilets are bush material structures placed over deep holes in the ground. When the need arises, a new hole is dug elsewhere, the above-ground structure is moved and the first hole is covered over.
4. Seawater toilets are bush material structures erected over the water's edge.
5. Digicel is one of three mobile phone providers in PNG. It has a large percentage of the market share. The other two providers are bemobile and Citifon.

at Barikas, a mountaintop village overlooking Megiar. There are no landline telephones, Internet connections or postal services. In a survey of 102 respondents conducted in 2009 in Megiar, it was found that very few people had a television or computer in their home (7.8 per cent and 5.9 per cent respectively) and one third (34.3 per cent) had a functioning radio receiver. The newspaper was the most regularly accessed medium, with 69.6 per cent of respondents having read a newspaper within the previous month. Half of those surveyed owned a mobile phone.

2007 Tsunami alert

On April 2 2007, a large earthquake occurred in the ocean off the Solomon Islands which led to a tsunami warning being issued for Australia's east coast, and Pacific island nations including PNG. While beaches were evacuated in Australia as a precaution, in Madang Province, a panic ensued. Many people fled to the hills and in Madang town, which is situated on a low-lying peninsula, the single road out of town was crowded with people hurrying on foot or in vehicles to get away from the expected influx of water. Luckily, there was no need for alarm.

Madang residents fleeing town due to tsunami alert.

2009 Tsunami alert

On October 8 2009, there was a tsunami warning issued for coastal areas of PNG following an earthquake near Vanuatu. Travelling to Megiar on a public bus that morning, the author received an international phone call with the warning. On arrival in Megiar, the residents were already aware of the warning, having received this information from a government car that was travelling along the coastal road spreading the news via a loudspeaker.

Initially, the villagers seemed calm, indicating they would keep an eye on the ocean, birds and other animals and would have sufficient time to move to higher ground if necessary. A short time later, excitable school children were present in large numbers as their teachers had let them out of class when they received word of the threat. The children were unsupervised, nervous and frightened. They were carrying bags on their backs and apparently some had already retreated to the higher ground of the inland bush areas.

Later in the morning, a respected local leader, Felix Didol, received a mobile phone call from an official in the town saying the warning had been cancelled. Felix set his phone handset to loudspeaker and held it up in the air so that others could hear the update. A large crowd of people, including many school children, gathered around to hear the latest news.

In a number of cases, people in Megiar were sourcing up-to-date information about the status of the tsunami warning via their mobile phones from contacts with Internet access based in Madang town or other urban centres. In one case, town resident Pan Lakot, was able to reassure his relatives in Megiar that there was no need to flee up the hills.

> "I was at work when the tsunami threat came about, and we were ... monitoring on the Internet the progress of the tsunami threat. Anyway, my brother-in-law called up. He says "brother-in-law, should I move to higher ground?". And I said, "no, don't move. Just stay put. We're monitoring the situation here, on the screen through the Internet. We'll be alright. Just stay put." [But he replied,] "No, everyone's carrying things, and they're now going up the hills into the bush due to hearing this warning." [I responded with,] "Just stay put. Don't move yet. I'll ring you back. If it's not looking good, I'll ring you back on your mobile and let you know." So that, that was a real plus. And anyway, I called him back and said "no, it's over now, things are normal, you can all just stay put." And he said "yeah OK"."[6] (Lakot, 2009)

2011 Tsunami alert

On March 11 2011, there was an earthquake measuring 8.9 on the Richter Scale which led to thousands of deaths in Japan and large-scale devastation due to

6. The original interview excerpt contained some phrases in Tok Pisin, a language spoken throughout PNG.

tsunamis there. A tsunami warning was issued for many countries around the Pacific, including the northern coast of PNG. At about 7pm, all Digicel users received a tsunami warning text message alert. Felix Didol had already received the warning about an hour earlier by phone from a relative in an urban centre. A town-based family member kept in touch with relatives in Megiar throughout the evening, updating them with information from television coverage.

Discussion

This experience illustrates how mobile phones can play a role in disseminating up-to-date information about important events, such as tsunami warnings. However, other communication methods, like announcements through loudspeakers, continue to play an important role in information access strategies.

Two key concepts in this paper are *information* and *knowledge*. Weigel's view is that "knowledge is based on information, but it is linked to a specific context, for instance to a specific local context from which it derives its value" (2004, p.20). As information is generally thought of as being factual or concrete (Bennett *et al*. 2005, p.186-187), it is not usually connected directly to an individual, whereas knowledge is associated with a sense of "personal ownership" (Weigel 2004, p.20) and active engagement with the subject matter (Bennett *et al.* 2005, pp. 195-196).

Megiar resident Christine Yass checking for the latest warnings using her phone.

Linked with both knowledge and information is an important role for communication (Weigel, 2004, p. 20).These three notions interact with, use, or are effected by technological developments (Weigel 2004, pp. 20-21). The term 'information and communication technologies' (ICTs) can include "the whole range of technologies designed to access, process and transmit information" (Weigel 2004, p.19), including both the Internet and mobile telephones (Unwin 2009, pp. 26-27; van Dijk 2005, p.204; von Braun and Torero 2006, p.3).

The experiences of tsunami alerts in the Madang area differ in one key respect. After the 2007 event, mobile telephony became available in rural villages, including Megiar. These experiences provide a compelling opportunity to evaluate the relationship between the key concepts of information, knowledge and ICTs. It is argued that mobile phone reception in rural settings, combined with Internet access in urban centres, allows rural villagers to gather reliable, timely information and knowledge. In 2009, Pan Lakot was able to translate the 'information' available to him on the computer screen into appropriate 'knowledge' relevant to his relatives in a particular locality. During the 2007 tsunami alert, villagers suffered from a lack of information and responded in fear and panic. By contrast, they were able to source reliable, timely knowledge in the second and third instances and could respond appropriately.

Pan Lakot was pleased he could help his relatives during the 2009 tsunami alert. For his relatives, their experience of the tsunami threats was quite distinct. Their reactions were influenced by the amount and kind of information and knowledge they had access to in each instance. In this family, mobile phones made a difference.

> "I was able to impart something to people in the village who didn't have the resource to be able to get the correct information. Because the previous one they packed up and they went, all ran into the bush. And it never struck me, but until, then the recent one, my brother-in-law rang up and I was in front of the screen. [...] So yeah, that was, really, I thought that was really great." (Lakot 2009)

This shows that

> "an informed public is the best defence against any emergencies" (Au 2011, p.27)

as "information enables enhanced control" (Bennett *et al*. 2005, p.187) over one's environment and one's behaviour. In 2011, a public warning system further enhanced speedy access to reliable information. Contact with relatives in urban localities remained an important aspect of the experience in 2011.

A visitor from Karkar Island talking on his phone in Megiar.

In another study of emergency use of ICTs in rural districts of developing nations, "ICTs have been found to increase time-efficiency among users" (Chib, Lwin and Jung 2009, p.216) as they eliminate the obstacle of distance. In a place like Megiar where there is limited media access, and no landline telephones or Internet connections, the recent introduction of mobile phones provides a new, modern form of communication that is time-efficient. Previous methods for communicating between Madang town and Megiar involved sending verbal messages with people travelling by bus between these places, or writing notes. It often took two to three days for a reply to be received. For relatives living in other parts of the country, communication with Megiar was even more difficult due to the lack of a full postal service. The time-efficiency of communicating is much improved using mobile phones. This is particularly important during crises such as medical emergencies or tsunami warnings.

Access to mobile telephony is not restricted to urban or privileged populations. Throughout the developing world there has recently been an "unabated uptake of mobile technologies among hitherto unconnected sections of society" (Chib *et al*. 2009, p. 220; Donner 2008, p.143). The value of mobile telephone systems in emergencies can be greater in rural settings where other ICTs and emergency services (such as ambulances and police) may be non-existent or unreliable.

In the 2009 tsunami "mere access to information" (Weigel 2004, p.20) was not enough for people to make an informed decision about what appropriate action to take. Pan Lakot's relatives phoned him in search of 'knowledge', both in the sense of locally-relevant information and information holding some sense of personal attachment or value (Weigel 2004, p.20). As knowledge can change rapidly and can be shared or exchanged in dialogue (Weigel 2004, p.20), the mobile phone facilitated a conversation that continued in subsequent phone calls throughout the morning until the tsunami alert was lifted.

Weigel outlines several elements of ICTs which have impact on information, knowledge and communication (2004, pp. 20-21). These are:

- Interactivity - Weigel argues that ICTs can "facilitate dialogue", which is certainly true in these examples as mobile telephony is more interactive than other mediums, such as radio or television broadcasting or newspaper publishing.
- Speed - Weigel refers to the speed with which information can be published on the Internet, and these examples show that the introduction of mobile telephony has made communication between Megiar and elsewhere quicker.
- Lower costs - Weigel argues that modern ICTs can be cheaper than traditional means of finding information such as books and newspapers. Despite this, "the cost factor is still a challenge in general" (Weigel 2004, p.21), particularly for poor people. In Megiar, the most frequently expressed concern in association with mobile phones is the high cost of operating them and recharging handset batteries (Watson 2011, p.173).
- Integration - Weigel argues that the integration of different types of media is a crucial element in contemporary changes taking place. Access to mobile telephony would have been of little value during tsunami alerts in Megiar without some access to other forms of media in urban areas.

Following an earlier tsunami alert in the Pacific region, Nadkarni suggested that a disaster warning agency based in New Zealand "could have used the cellular phone system to mass broadcast their messages" (2006, p.8). Two advantages of using mobile telephony are that messages would be distributed almost instantaneously, and recipients would each receive an identical message (Nadkarni 2006, p.8), ensuring greater clarity and less confusion. For Nadkarni, mobile telephony "needs to be put at the very centre of disaster warning systems worldwide" (2006, p.8). In PNG, such a mechanism was used in 2011.

The recent introduction of mobile telephony into rural villages in PNG, coupled with increasing Internet

Messages and alerts can be distributed almost instantaneously and recipients can receive identical messages.

access in urban centres and the development of websites with suitable, timely information regarding weather and disaster warnings, has changed the availability of information, knowledge and communication for many people in PNG. Mobile telephony and the Internet lend themselves to being useful in times of emergency or danger, specifically in aspects of time-efficiency, interactivity, lower costs, and the capacity for interplay between the two (Weigel 2004, pp. 20-21). While information can be sourced using traditional forms of communication, the information accessed using newer ICTs can be reliable and very timely, and can become knowledge, through the adoption of location-specific information and two-way dialogue.

Conclusion

During emergency situations, a multi-pronged approach could prove a valuable strategy for informing citizens. Locally appropriate methods such as a loudspeaker on a motor vehicle are likely to remain useful in conjunction with newly available technologies. This study shows how mobile telephony has enhanced the information-seeking abilities of rural villagers in PNG, particularly in situations when information is needed urgently. Tsunami alert experiences show the value of this communication technology, particularly when used in conjunction with other information access devices (such as Internet connectivity in urban centres).

Acknowledgments

The author's field research in Megiar was made possible through receipt of an Endeavour Awards Endeavour Research Fellowship. Dr Lee Duffield of Queensland University of Technology gave feedback on drafts of this paper. Dave Robson also offered his ideas.

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Image: Dr Amanda H A Watson, 2009

Dr Amanda H A Watson conducting research in Megiar, Madang Province, Papua New Guinea in 2009.

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Managing the tension between emergency management policy decisions and residential aged care facility planning in South Australia

By Lynette Cusack, Lesley Siegloff, Professor Paul Arbon and Dennis Chamberlain, Flinders University, South Australia.

ABSTRACT

In Australia all residential aged care facilities applying for new Australian Government funded aged care places, must demonstrate planning for environmental disaster threats such as bushfires and floods (Department of Health and Ageing, 2011). This policy was introduced in 2009 following the catastrophic bushfires in Victoria, Australia. Added to this Australian policy decision was the adoption by the State Government of South Australia of a new fire danger rating scale, with the inclusion of an extreme level weather warning called *catastrophic* or *code-red*. This rating requires all services and community members living in bushfire prone areas, to assess their risk and decide whether or not to evacuate from the catastrophic zone the day before or morning of a *code-red* weather warning. This paper discusses the issues these Australian and state government emergency management policy decisions are having on the management of residential aged care facilities. R

Introduction

Emergency planning for vulnerable populations constitutes a major element of community disaster preparedness and is an area where guidance is particularly sparse (Dosa *et al.*, 2008). Following the Victorian bushfires of 2009 and the north Queensland floods 2010-11 a number of national policy decisions were made that directly affected the management of residential aged care facilities (RACFs) in planning for environmental disaster threats. This includes new Australian Government funding requirements for RACFs and adoption by South Australia of a new fire danger rating scale. The scale now includes an extreme weather condition called *catastrophic* or *code-red* (Country Fire Service 2010a). Where a catastrophic fire day is predicted for the next day the Bureau of Meteorology will make a public announcement to declare a code-red for the relevant geographic locations. Service providers and community members located in the relevant bushfire prone areas must decide whether or not to evacuate the day before, or morning of, the day declared as *code-red*.

Background

There is no widely accepted definition of disaster. Most definitions describe it as an 'overwhelming' disruption to the community. The World Association for Disaster and Emergency Medicine defines a disaster as:

> "an event that interrupts the normal functioning of a community, resulting in the need for external human and/or physical resources to assist in a response beyond that of the normal day-to-day operational capacity for that community"
>
> (TFQCDM/WADEM 2002).

Disasters and catastrophic emergencies have the capacity to overwhelm emergency services making it difficult, at least in the short-term, to provide assistance to the broader community (Templeman and Bergin, 2008).

It is necessary for organisations, including RACFs, to have some capability to manage through these situations on their own until other services, including emergency services, can provide additional assistance. The immediate impact of disaster situations on the capacity of agencies external to the RACF, especially emergency services, to provide relief is difficult to assess because each disaster event presents its own unique set of issues related to its environment. A major emphasis in planning for disaster for any organisation is the need to understand the environment, as well as the potential disaster events, and to be relatively self-reliant when the plan is in operation (Templeman and Bergin, 2008).

The aged care sector in Australia is legislated and funded under the Australian Government through the Department for Health and Ageing (*Aged Care Act 1997*). The state and territory governments' health departments have no jurisdiction over RACFs in their state or territory. This means that RACFs run the risk of receiving insufficient attention in state government emergency management plans because they are not part of the jurisdiction's health structure in a formal and legislative sense. The Australian Government may issue a direction to RACFs about emergency and disaster response that is not in keeping with the other government emergency management plans. Therefore there is a potential for friction to develop where two separate jurisdictions are making policy decisions that affect the management of RACFs.

Discussion

In February 2009, South Australia and Victoria experienced a heatwave unusually excessive in both duration and intensity (Australian Bureau of Meteorology 2011). The extreme weather resulted in the 'Black Saturday' fires in Victoria, which claimed 173 lives *(Victorian Bushfires Royal Commission 2009)*. As a consequence of this disaster a Royal Commission was established and a number of important recommendations were made. Two of these had significant consequences for RACFs. They included the changes to the *Aged Care Accreditation Standards* by the Australian Government for RACFs to establish plans for disaster events such as bushfire and flood, and the change to the Bureau of Meteorology Fire Danger Ratings to include a new category called *Catastrophic Fire Day, code-red*.

Changes to the *Aged Care Accreditation Standards*

The Australian Government's aged care certification and accreditation standards already included a standard requiring RACFs to have evacuation plans in place. The additional requirement to expand evacuation plans to include disaster threats brought to the fore a need for careful planning and review by RACF managers of the implications of the revised standard (Aged Care Standards and Accreditation Agency 2011).

Changes to Community Fire Danger Ratings and Education Department policies

The second change was an extensive re-evaluation of the existing South Australia community bushfire management system which, in light of the Victorian bushfires, was deemed inadequate (Taylor 2010). A revised process model was recommended by the interim report of the Royal Commission *(Victorian Bushfires Royal Commission 2009)*. One of the modifications introduced was an increase of information to the public in the form of more regionally accurate Fire Danger Ratings (Country Fire Service 2010a). A catastrophic day is declared when it is considered:

- that the worst conditions for a bush or grass fire exists, and that
- should a fire start there is a very real likelihood of major loss of life and/or property (Country Fire Service 2010b).

Large fires will not be defendable under these extreme conditions.

On these days community members in bushfire prone areas are advised to implement their bushfire action plans. Where this includes evacuation they need to leave their homes early and relocate to declared safe regional centres. The community is also advised to avoid unnecessary travel on roads in the regions where there is a catastrophic warning (Country Fire Service 2010a).

The catastrophic fire rating recommendation was adopted at the state government level in South Australia and has led to further state policy changes. In November 2009 the Country Fire Service and the Department of Education and Children's Services in South Australia developed a policy for schools and pre-schools. These institutions would be temporarily closed and school buses cancelled on days of declared catastrophic bushfire weather conditions (Robinson 2009).

An announcement is made by the schools and preschools the day prior to the forecast catastrophic conditions, detailing those subject to closure. This is designed to help families make alternative arrangements for their children's care. The policy to close schools has the potential to affect the ability of services and businesses in the bushfire risk areas to maintain effective staffing levels on these particular days, as most employees of RACFs are female and, often, carers of school-aged children.

There are essential services, such as hospitals and RACFs, that must be maintained in the community, regardless of the fire risk. Staff availability may be reduced on catastrophic conditions days for many of the semi-rural and rural hospitals and RACFs. School closures may mean staff need to be with their children and prepare their properties. Staffing of these facilities may be more difficult on these high fire risk rating days.

The tensions that these policy changes placed on RACFs were recognised by a number of Chief Executive Officers (CEO) of licensed RACFs in South Australia. One CEO was so concerned with the potential implications of the policy changes that the Flinders University Disaster Research Centre was approached to run disaster management planning sessions for interested managers of RACFs. What ensued was a number of workshops at which RACF managers explored the key issues and analysed their planning needs to develop a disaster management plan.

Issues for Aged Care Service Managers

RACFs in South Australia were not linked into the state government or local government emergency management planning processes, unless they are attached to a hospital service. Local governments are required to have a Bushfire Plan for their council area, but are only able to provide minimal support to RACFs such as advice on local risks. This is due to the separate legislation and funding responsibilities between Australian, state and local governments and a limitation on their available resources and ability to provide support in the event of a disaster.

This lack of connectedness of RACFs to a state's disaster emergency planning is important because, as identified from the Hurricane Katrina experience, where the RACFs were not part of the broader health service disaster plan they were not recognised as essential services and were not included as a priority area in response and recovery operations. Consequently, unlike hospitals, they did not receive adequate resources (Latika *et al.* 2007; Dobalian *et al.* 2010). It is important that RACFs are involved in state and local government disaster planning because it provides both the emergency planners and the RACFs a clear understanding of their level of access to emergency support and supplies.

As RACF managers have not been part of the disaster planning process many were unsure about where to go for advice and assistance to help them meet the new accreditation requirements in disaster response. This was the first time that many of the managers realised that if a disaster event was to happen they were potentially on their own. There are no guarantees that the emergency services would be able to assist them. A number of RACF managers had, up until this time, vested the decision-making for event control with emergency services who they believed would be in a position to respond quickly to their needs.

In the past, some RACF managers had undertaken a hazard analysis of their facility's geographical location, surrounding environment, building structures, staffing availability and lifelines. However this was with an expectation that emergency support would be quickly available. The hazard analysis was often not linked to the notion that they may have to defend on their own and may be without support for long periods of time.

The unpredictability of disasters makes it difficult for RACF managers to plan for the range of potential impacts and the responses that may be required. Better preparation entails efforts to understand risks and to strengthen the absorbing, buffering and response capacities of the facility, its staff and residents: in so doing, reducing the extent of damage and the effects of that damage on the functioning of the facility. The question the managers grappled with was 'how much preparation is sufficient?' when the scope and scale of an event is unpredictable. This challenged RACF managers to think about a business and service provision continuity plan taking into account potential disaster events that may occur given their location and level of risk. In particular how long could they survive without water, electricity, medication and food supplies.

To enable alterations to the RACFs to increase the absorbing, buffering and response capacity, a major issue was to determine the extra financial resources required to meet additional budget requirements. This was of particular concern to the smaller RACFs operated through charitable organisations that do not have ready funds for building alterations identified in the hazard analysis.

In planning for a disaster event the RACF managers reviewed the implications for staffing levels on days declared code-red to determine how many staff may have to remain at home with their children if schools close, or who are unable to travel on the roads to get to work, or have to stay at home to defend their property and livestock. They also considered if extra staff were required during code-red days in case of a bushfire event and the activation of their bushfire plan.

To evacuate or not is the most difficult issue for RACF managers to come to grips with. The ability to evacuate residents and the identification of critical decision points in an evacuation of the facility is the issue that managers and staff of the facility discussed the most, because there is no ready-made solution. Managers expressed concern about their ability to make an informed assessment of the risk(s) in the planning and preparation phase, and on the day of an emergency. This risk assessment depends on a complex set of issues such as their proximity to hazards and the risk of potential disaster events, the structure of the facility to withstand the event, type and complexity of resident dependence/needs, staff availability and training, evacuation options and transport access, and the availability of suitable accommodation for those evacuated from the area.

Another aspect that managers explored was the situation that may arise during an event where the RACF becomes the sheltering point for people from the local community as well as their own staff with their families. These discussions highlighted the importance of instigating collaborative arrangements and establishing organisational life-lines with other key services in the local community. The time required to safely evacuate residents without causing harm to very frail elderly residents can take many hours for even the smallest of facilities. Therefore the ability to 'invacuate' or shelter in place and protect residents, staff and others in the facility during periods of intense smoke and heat requires support either during or immediately after the fire front has passed. This requires inter-agency awareness and collaboration and appropriate notification systems to ensure that already overwhelmed emergency services can and do respond in a timely manner.

These were the main issues that RACF managers grappled with during the disaster planning workshops. None of these issues have straightforward solutions, especially in the context of facilities located in areas where they are adjacent to identified hazards and are at risk of an event such as a bushfire, flood or cyclone.

Since the disaster workshops a number of RACF managers and their professional body, the Aged and Community Services (South Australia and Northern Territory), lobbied the state government for inclusion in state disaster planning. A working-party was established to undertake a bushfire risk assessment of over 40 RACFs across South Australia funded by the South Australian Department of Health. These RACFs have been provided with a report and defensibility rating of their infrastructure.

Conclusion

This paper discusses how the changes to policy regarding emergency management planning made by one jurisdiction (a state government) can impact on RACFs, licensed by another jurisdiction, the Australian Government. The policy and operational decisions made at the Australian Government level have been made without fully examining the practical implications, particularly for RACF managers. While many of the facilities on which these decisions impact understand the rationale for such decisions, it is argued that these decisions have serious implications for services and residents. Privately-operated RACFs have not historically been involved in any state or local government emergency management planning. The whole concept of risk assessment, preparation and planning to increase the absorbing, buffering and response capacity of their facilities, against extreme weather events, has become, for some, an overwhelming and resource intensive task.

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Australian training package in serial wildfire arson investigation goes international

Richard Woods provides an overview of the 2012 wildfire arson investigation courses.

Richard Woods is the Operations Manager for the ACT Rural Fire Service in Canberra. He is the current Chair of the International Association of Arson Investigators, Wildland Arson Committee; Australian representative of the North American based National Wildfire Co-ordinating Group Wildland Fire Investigation Team and is a former President of the NSW Chapter (47) of the International Association of Arson Investigators. He has been a member of the AFAC Fire Investigation Network Group since 2000.

Superintendent Richard Woods has led the development of a Wildfire Arson Investigation Management Course to enhance the skills of fire and police agency investigators in Australia and New Zealand.

In August, two courses were delivered to 39 students from Australia, New Zealand and, in a first for this new initiative, Europe.

Since 2009, Superintendent Richard Woods has been working to develop a specialist course to improve the investigation skills of fire and police investigators in investigating serial wildfire arson. Funding was received from the Attorney-General's Department National Emergency Management Projects Grants in 2010 and 2011. Significant work was undertaken by the ACT Emergency Services Agency in conjunction with a reference group of course facilitators from across Australia and New Zealand, to develop the 'Wildfire Arson Investigation Management Course'. Two courses were conducted in August preparing fire and police investigators for the 2012/13 fire season.

According to Richard, "one of the fundamental issues regarding the successful investigation of wildfire arsonists in Australia over the years has been the need to improve co-ordination and collaboration of investigation expertise. Both fire and police investigators bring skills and experience from differing backgrounds. It's been shown that these must be combined to deal more successfully with serial wildfire arson." In more recent years, this has been addressed across a number of jurisdictions, however, ensuring investigation personnel are trained to a common level has been lacking. This course now fills that void.

Importantly, areas within the course support Element 1 of the Australian Institute of Criminology, *Bushfire Arson Prevention Handbook*, namely, "Good practice in BFA [Bushfire Arson] prevention is built on good working relationships between police and fire agencies." (Victorian Bushfires Royal Commission 2009, Australian Institute of Criminology, 2010).

Students from the second course, AEMI Mt Macedon 2012.

2012 Courses

The two Wildfire Arson Investigation Management Courses were held at the Australian Emergency Management Institute at Mt Macedon in Victoria. The courses ran between Sunday 5 August and Friday 17 August 2012, with very positive results coming from both. Students covered theory and practical sessions during the six-day courses and combined their collective skills in wildfire investigations with specialist aspects of analysis associated with wildfire arson events.

International attention

Interest in the courses was received from Europe and students from The Netherlands fire and police services attended along with a student from Italy (being a researcher currently working with the RMIT University in Melbourne). Their attendance provided an excellent opportunity to test the finalised course content for multi-agency application and possible future international student attendance. Feedback from all attendees was very positive, indicating they had gained significant skills in dealing with wildfire arson. In fact, one student (a Crime Analyst from The Netherlands Police Department) stated he would be applying much of the theory covered in addressing other areas of criminal investigation and analysis back in Europe. Further, The Netherlands Fire Service Investigators provided the class with an example of a serial wildfire arson case that extended over a number of years. Using the theory provided in the classroom, the students analysed this case and provided recommendations for avenues of investigation that had not been considered by the investigators. These outcomes provide significant endorsement of the content and the need for this specialist course.

Consultation

Course content was finalised in consultation with stakeholders, including:

- the Australasian Fire and Emergency Services Authorities Council
- the Community Safety Committee and Fire Investigation Network
- the Australia New Zealand Policing Advisory Agency, and
- the 2010 and 2011, Attorney-General's Department Arson Prevention Forums.

In addition, the National Bushfire Arson Prevention Working Group endorsed the course in its overseeing role of the National Work Plan to Reduce Bushfire Arson in Australia. Importantly, the Action Plan was specifically mentioned in the 2009 Victorian Bushfires Royal Commission Recommendations, namely, Recommendation 36, "The Commonwealth,

The visitors from the Netherlands with staff and facilitator. L to R- Fokko Drijver, Raelene Thompson (Executive Director AEMI), Richard Woods (ACT RFS), Roger Wilkins (Secretary Attorney-General's Department), Petra Olthof, Winand Sitsen and Rob Hauptmeijer.

states and territories continue to pursue the National Action Plan to Reduce Bushfire Arson in Australia, giving priority to producing a nationally consistent framework for data collection and evaluating current and proposed programs in order to identify and share best-practice approaches" *(Victorian Bushfires Royal Commission, 2009)*. The course is part of the Action Plan and provides an opportunity to share the latest in world best-practice to investigate serial wildfire arson between state and territory agencies.

It also links to Recommendation 35, (specific to the Victoria Police in this Recommendation, however has broader benefit to all state and territory agencies), providing "centralised coordination that includes comprehensive training, periodic evaluation of arson prevention strategies and programs, and promotion of best-practice prevention approaches" *(Victorian Bushfires Royal Commission, 2009).*

Final content

The content and makeup of the course was the result of personal commitment by members of the Course Reference Group. Richard stressed that "the advantage of engaging these officers from across Australian and New Zealand police and fire agencies has seen the combining of skills to refine content and delivery. This allows the application of specialist skills that can be applied across the different jurisdictional areas and, now, Europe".

A key aim was to ensure the theory covered was reinforced with examples and cases from the Australian scene. An example was the Task Force Phoenix Victorian Police Investigation into the 2009 'Black Saturday' bushfires. As one of the largest wildfire cases to be investigated in Australia's history, this provided an excellent example of the significant challenges faced by the Victorian fire and police investigators after the event.

Students were also provided with a serial wildfire case which they had to solve by the last day of the course. This 'real life' scenario meant they had to develop a solid legal case which was presented to 'prosecutors' on the final day. The exercise was optimised because investigators from both police and fire services could work together using their combined skills and experience to identify and charge the arsonist.

Wildfire Arson Investigation Management Course Reference Group

- **Richard Woods** - ACT Rural Fire Service (Course Manager)
- **Gerold Seppelt** - SA Police (CFS Volunteer)
- **Wayne Hamilton** - New Zealand Fire Service
- **Warwick Jones** - Former Researcher, Australian Institute of Criminology
- **Penny Brown** - NSW Police
- **Scott Barnes** - Victoria Police
- **David Gorton** - WA Police
- **Julie Nolan** - ACT Emergency Services Agency
- **Robert Kilpatrick** - ACT Emergency Services Agency
- **Rob Llewellyn** - AFAC Community Safety Manager

Course units

- The importance of co-operation in wildfire investigation
- Overview of wildfire arson in Australia
- Pattern analysis in the Australian context
- Pattern analysis methodology
- Case organisation and documentation
- Wildfire investigation behavioural analysis
- Aims and objectives of managing multi-agency wildfire investigations / Task Force Phoenix
- Strategy and tactics in multi-agency wildfire arson investigations
- Considerations surrounding suspect searches and expert witnesses
- Wildfire arson awareness- firefighter arson
- Wildfire cause determination overview
- Practical application of pattern analysis
- Interview planning and witness contamination
- Wildfire crime scene physical evidence management
- Wildfire investigation case presentation and post investigation analysis

Accreditation

An important aspect of the final phase of the project was to finalise the accreditation. Given the diverse range of skills delivered during the course, this was always going to be a challenge. However this was addressed by the Canberra Institute of Technology (CIT) in concert with the Reference Group. Participating students achieve formal recognition through the 'Diploma of Government Investigations' and the Unit PUAFIR612A ('Undertake Post-Incident Analysis'), post-course. CIT is considered the logical link for issuing of qualifications given their involvement in law enforcement training, particularly that of fire investigation and criminal investigation.

It is anticipated that this specialist course will be delivered annually, based on demand and subject to funding opportunities.

Conclusion

The problem of wildfire arson is a significant issue across Australia and New Zealand. Understandably, there is an expectation for the crime to be solved, arsonists to be prosecuted and, ultimately, reduce its occurrence. Enhancing the skills of fire and police agency investigators in this challenging area will increase their ability to detect and prosecute wildfire arsonists. The course provides investigators with the latest skills and knowledge to identify arsonists. Ultimately, a co-operative investigation team approach will lead to safer communities with a reduction in deliberate fire lighting.

To date, no similar course has been available in Australia or New Zealand. In August 2012 the Wildfire Arson Investigation Management Course was awarded 'Winner in the Federal Project Category of the 2012 Resilient Australia Awards' for the ACT.

"The co-operation and support of the Attorney-General's Department, the reference group members and their agencies needs acknowledgement. In addition, the ongoing support of the ACT Emergency Services Agency in hosting this project was integral to its success," said Richard.

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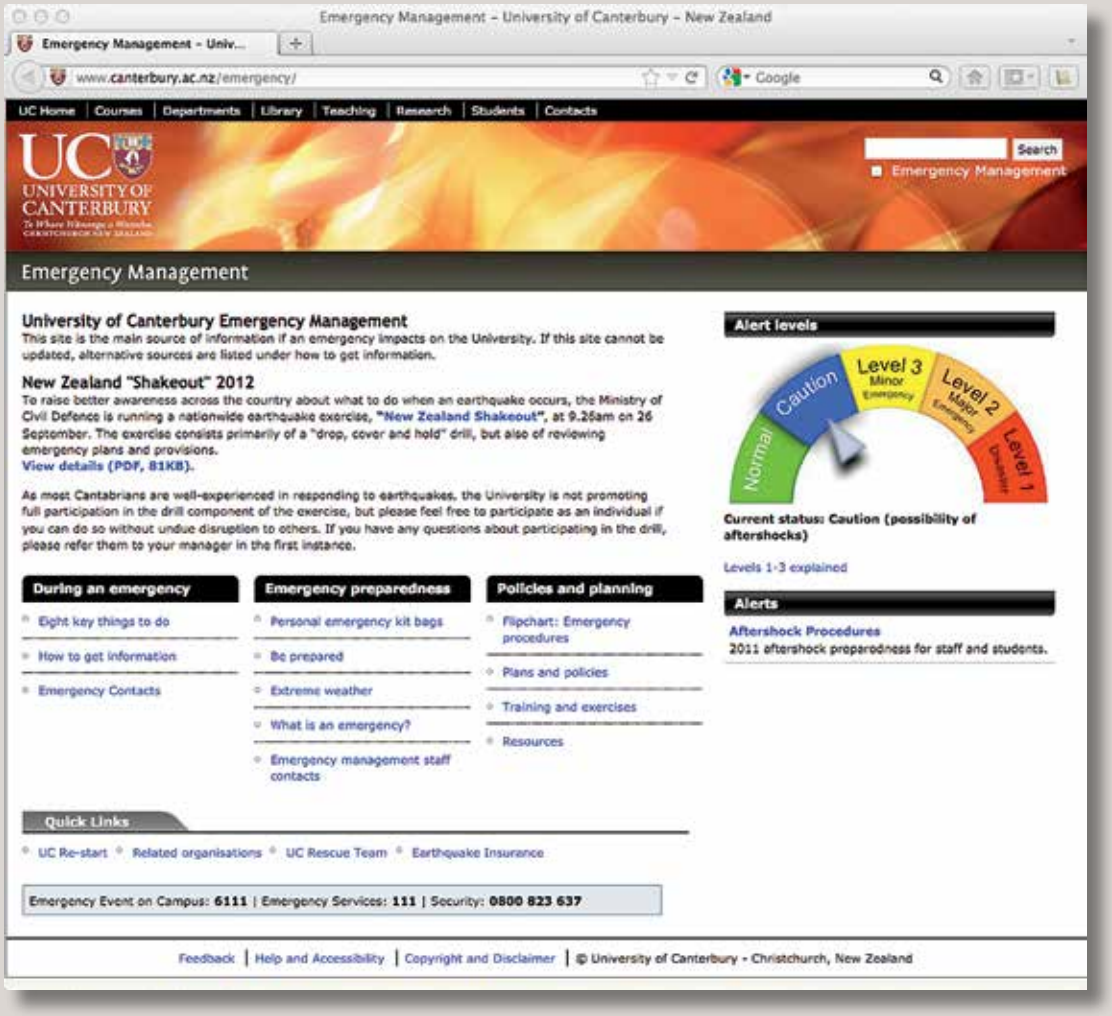

UNIVERSITY OF CANTERBURY, NEW ZEALAND

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Content on the site covers preparedness information, action steps during an emergency, how and where to get help, who to go to for assistance, and information about their own on-campus rescue team. There is a resources and training area and a complete section on "'Academic Aftershocks' - What really happens to a university after an earthquake" which is a series of 16 short movie files showing how California State University worked through the aftermath of the Northridge earthquake in 1994.

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