



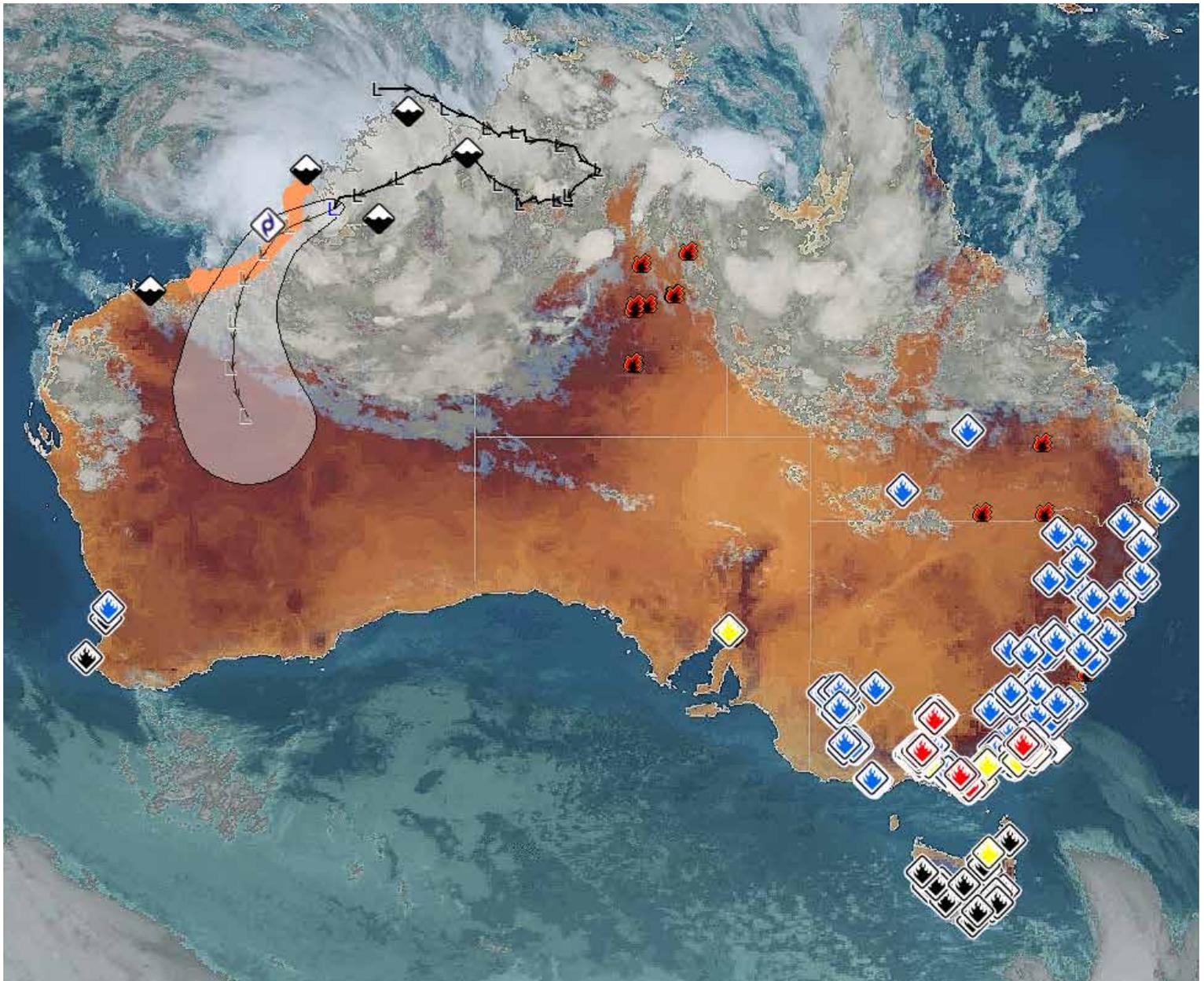
Australian Government  
 Attorney-General's Department  
 Emergency Management Australia

# AUSTRALIAN JOURNAL OF EMERGENCY MANAGEMENT

ISSN: 1324 1540

Australian Emergency Management Institute

Volume 30 | No. 4 | October 2015



 **DISASTER  
 RESILIENT  
 AUSTRALIA**  
**GET READY**

PLANNING AND  
 BUILDING FOR  
 BUSHFIRES

11

VICTORIAN GENDER  
 AND DISASTER  
 TASKFORCE

26

HOW THE WORDS WE  
 USE INFLUENCE ACTIONS  
 AND PERCEPTIONS

55

Some contributions to the Australian Journal of Emergency Management are reviewed. Academic papers (denoted by ) are peer reviewed to appropriate academic standards by independent, qualified experts.

	<b>Foreword</b> The Hon Michael Keenan MP, Minister for Justice and Minister Assisting the Prime Minister on Counter-Terrorism	<b>4</b>
	<b>Vale</b> Claire Zara	<b>5</b>
	<b>Oceans on the rise</b> Nathan Maddock, Communications Officer, Bushfire and Natural Hazards Cooperative Research Centre, tells how researchers are investigating where extreme water levels could impact Australia's coast.	<b>6</b>
	<b>Lessons from the April 2015 Dungog flood</b> Stephen Yeo, Director of Flood Focus Consulting Pty Ltd	<b>8</b>
	<b>Interdisciplinary action in urban planning and building for bushfire: the Victorian case</b> Associate Professor Alan March and Yogita Rijal, University of Melbourne, describe interdisciplinary approaches used when implementing Victorian bushfire policies. 	<b>11</b>
	<b>Helping children and adolescents recover from disaster: a review of teacher-based support programs in Victorian schools</b> Vicki Trethowan, Department of Education and Training, and Jane Nursey, Phoenix Australia: Centre of Posttraumatic Mental Health, present an overview of teacher training that supports recovery. 	<b>17</b>
	<b>Teaching students involved in emergency management how to use social media effectively</b> Kirsten Ross, Michael Taylor, Mitchell Fitzgerald, Flinders University, describe a social media teaching method for public information in emergency response. 	<b>21</b>
	<b>Victoria's Gender and Disaster Taskforce</b> Debra Parkinson and Claire Zara, Women's Health Goulburn North East and Women's Health in the North, and Susan Davie, Save the Children, present progress on the Gender and Disaster Taskforce. 	<b>26</b>
	<b>Public-private partnerships in emergency and disaster management: examples from the Queensland floods 2010-2011</b> Associate Professor Bishna Bajracharya and Dr Peter Hastings, Bond University, examine a framework for public-private partnerships in building community resilience. 	<b>30</b>

## AUSTRALIAN JOURNAL OF EMERGENCY MANAGEMENT

Vol. 30 No. 4, October 2015, ISSN: 1324 1540

### PUBLISHER

The *Australian Journal of Emergency Management* is published by the Australian Government Attorney-General's Department. The Journal is published on the Australian Emergency Management website at [ajem.infoservices.com.au](http://ajem.infoservices.com.au).

### COVER

Screen shot of the National Situational Awareness Tool, 9 February 2014. It reflects the previous and expected track of a tropical low and its associated flooding in northern Western Australia, and hotspots in the Northern Territory. Multitude bushfires at different alert levels across the eastern seaboard are also shown.

### 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 roles of Emergency Management Australia (EMA) and 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 or the views of the Australian Government.

### EXECUTIVE EDITOR

The Editor-in-Chief of the Journal with responsibility for the Journal's operations and policies is Mark Crossweller, Director-General, Emergency Management Australia.

### EDITORIAL ADVISORY COMMITTEE

- Andrew Coghlan, Australian Red Cross, Melbourne
- Michael Eburn, Australian National University College of Law
- Prof Jennifer McKay, University of South Australia
- David Parsons, NSW Trade & Investment
- Luke Brown, AEMI, Attorney-General's Department

### EDITORIAL TEAM

AEMI Contract Director: Sally Burton.  
Managing Editor: Christine Belcher, Canberra.  
Design, typesetting: Biotext, Canberra.

### CIRCULATION

Approximate circulation (print and electronic): 5 500.

---

**Different but also the same: mental illness and bushfire planning, preparation and response** **37**

Dr Danielle Every, Appleton Institute, University of Central Queensland, examines data from bushfire research to explore special needs of people with a mental illness to prepare for emergencies. 

---

**Improving our capability to better plan for, respond to, and recover from severe-to-catastrophic level disasters** **41**

By Mark Croweller AFSM, Director General, Emergency Management Australia

---

**Emergency Response Intelligence Capability: improving situation reporting in the Australian Government Department of Human Services** **46**

Robert Power, Michael Compton, David Ratcliffe, Bella Robinson, Geoff Squire, Catherine Wise, CSIRO, and John Dickinson and Lucy Knight, Australian Government Department of Human Services, describe the development of the ERIC reporting tool.

---



**Development of a household resilience toolkit** **51**

Professor Paul Arbon, Professor Kristine Gebbie and Anna Hall, the Torrens Resilience Institute, Flinders University, identify the resources and actions that contribute to household resilience and the development of an assessment and referral tool.

---

**The words we use and the stories we tell: the impacts language has on the actions and perceptions of emergency managers** **55**

Kate Brady, Australian Red Cross looks at the use of language to influence behaviour and actions.

---

**New consortium to deliver professional development products and services** **58**

Australasian Fire and Emergency Services Authorities Council, Australian Red Cross and Bushfire and Natural Hazards Cooperative Research Centre.

---

**Harnessing innovation, fostering collaboration: the Young Emergency Planners Workshop** **59**

A report by the Australian Emergency Management Institute

---

**#AFAC15** **61**

The annual AFAC and Bushfire and Natural Hazards CRC conference

---



**Notes from the Field** **62**

Building cross-cultural disaster resilience: Australia assists with wildfires in Canada

Online training for volunteers builds leaders in resilience. Australian Emergency

Management Volunteer Forum **64**

---



**REVIEW: *Collective Conviction: The Story of Disaster Action*** **65**

Reviewed by Joshua Whittaker, RMIT University

---



**Index of articles** **66**

*Australian Journal of Emergency Management*, Volume 30, 2015

---

**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.

**COPYRIGHT**

Material in the *Australian Journal of Emergency Management* is provided under a Creative Commons Attribution 3.0 Australia license ([www.creativecommons.org/licenses](http://www.creativecommons.org/licenses)). For the avoidance of doubt, this means this licence only applies to material as set out in this document.

Relevant licence conditions are available on the Creative Commons website, [www.creativecommons.org/licenses](http://www.creativecommons.org/licenses).

**SUBMISSIONS**

The *Australian Journal of Emergency Management* welcomes submissions. The Contributors' Guidelines are available at <https://ajem.infoservices.com.au/page/about>. In brief, contributions should be no longer than 3 000 words, be submitted as a Word file and contain photographs, graphs and tables in their original software applications as separate files.

All articles must contain an abstract and a small biographical paragraph about each author. A Copyright Release form and the Editorial Policy are available on the website. Authors should familiarise themselves with the Journal before making a submission. Contributions should be forwarded electronically to [ajem@ag.gov.au](mailto:ajem@ag.gov.au). All academic papers are peer reviewed. Please note that the *Australian Journal of Emergency Management* is indexed by several indexing organisations throughout the world, please visit our website for details.

**SUBSCRIPTIONS**

For new subscriptions please visit us online at [ema.infoservices.com.au/member/new](http://ema.infoservices.com.au/member/new).

Changes to current subscription details can also be made by visiting us online at [ema.infoservices.com.au/member](http://ema.infoservices.com.au/member).

**CONTACT US**

Mail: *Australian Journal of Emergency Management*  
Australian Emergency Management Institute  
3-5 National Circuit, BARTON ACT 2600

Email: [ajem@ag.gov.au](mailto:ajem@ag.gov.au)

Phone: 0409 823 344 (editorial enquiries only)



# Foreword

The Hon Michael Keenan MP, Minister for Justice and Minister Assisting the Prime Minister on Counter-Terrorism



It is my pleasure to introduce the October edition of the *Australian Journal of Emergency Management* (AJEM).

The AJEM is an important publication, which brings together the expertise of practitioners and experts from across the emergency management community to build collective knowledge and strengthen capability within the sector. By reflecting diverse perspectives and disciplines, the AJEM encourages us all to think differently about how we prepare for and respond to disasters. Such approaches are vital as increasing our resilience to natural disasters requires governments, businesses, individuals, non-government organisations and volunteers to pool our skills, knowledge, experience and imagination to anticipate, prevent and respond to disasters.

2015 has been a significant year for new approaches to emergency management.

Since the release of the Productivity Commission's report into natural disaster funding arrangements in May this year, I have been working with my state and territory counterparts to find new ways to better protect communities from disasters. The Commission's central finding was that governments focus too much on recovery, at the expense of directing resources towards better preparing for future disasters. It is vital that we recalibrate these settings to get the balance between mitigation and recovery funding right and ensure that resources are directed towards addressing the greatest risks to communities. I have welcomed the constructive discussions that have already taken place around these issues, and I look forward to further engagement between Commonwealth, state and territory officials as we look to settle new arrangements over the coming months.

Meanwhile, the Australian Government is continuing to invest in programs that encourage innovative approaches to help communities prepare for, respond to and recover from natural disasters and emergencies. In August this year, I announced \$3.7 million funding for 22 nationally significant projects through the annual National Emergency Management Projects program to help communities better prepare and respond to natural disasters. We're also continuing to partner with states to fund projects through the Bushfire Mitigation Program to help local communities better prepare for bushfires. The Australian Government has also allocated \$48 million to the Bushfire and Natural Hazards Cooperative Research Centre to undertake research across the spectrum of natural hazards.

Developing leadership capability and professional competency is also at the core of building disaster resilience in Australia. On 12 August, I announced a new Australian Emergency Management Institute partnership model to deliver emergency management professional development. A consortium comprising the Australasian Fire and Emergency Services Authorities Council, the Australian Red Cross and the Bushfire and Natural Hazards Cooperative Research Centre will deliver contemporary professional development products and services for the emergency management sector from late 2015. This will include the delivery of professional development courses and workshops, school education programs, knowledge management services and volunteer support. This public-private sector partnership will give the emergency management sector access to innovative capability development. I look forward to the emergence of this collaborative model with great enthusiasm.

As we again enter the disasters season, my thoughts are of course with the professionals and volunteers who are charged with protecting Australian lives and property. As the Australian Government Minister responsible for emergency management, it has been a privilege to see first-hand the commitment and expertise of our emergency management sector, and I know our communities are in safe hands as we face the challenges ahead.

I hope you enjoy this edition of the AJEM, and I wish you and your colleagues a safe summer.

**The Hon Michael Keenan | Minister for Justice  
Minister Assisting the Prime Minister on  
Counter-Terrorism**

# Vale Claire Zara



It is with sadness that we mark the passing of Claire Zara and honour her legacy to the emergency management field.

Researcher, journalist and published author, Claire held degrees in the arts, education and in children's literature. As an interviewer, Claire was tenacious, incisive and perceptive, and her warmth and unique sense of humour characterised every interview. She was driven by her sense of justice and fairness with a goal of system change and societal change.

In the wake of Black Saturday in 2009, Claire turned her research skills to considering how gender is central in the ways women and men experience disaster. She used this to build a growing body of knowledge and literature on gender and disaster and, critically, to advance gender-sensitive policy, practice and research in emergency management.

Her work was pivotal in a 2013 VicHealth Award for 'Family violence after natural disaster research: breaking new ground', in the category of 'Knowledge and Understanding'. The same year, Claire and her co-researcher were honoured with an invitation to present the 6th Annual Professor Frederick 'Skip' Burkle Jnr Keynote Lecture at Monash University on the topic of 'Risky Research'. In 2014, Claire travelled to Canberra with her co-workers to receive a Resilient Australia Award, sponsored by the Attorney-General's Department, for 'Gender & Disaster: Leading the Change', in the category of 'Projects of National Significance'.

Claire authored and co-authored multiple articles, book chapters, reviews and media releases on the subject of gender and disaster and presented at numerous conferences and events. International audiences were reached via inclusion in the United Nations Office for Disaster Risk Reduction's publication, *Women's Leadership in Risk Resilient Development: Good Practices*

and *Lessons Learned*, a conference presentation in Japan, and a webinar on family violence after disaster that was broadcast to women in the Asia Pacific via the Soroptomists.

In addition to her research, Claire led the development and piloting of training tools and resources for emergency services agencies. She played a central role in the establishment of the Victorian Gender and Disaster Taskforce in January 2014.

Up until weeks before her death in early 2015, Claire was still heavily engaged in advancing initiatives for men and women in the area of gender and disaster. As a testament to her contribution, the 15th Annual Emergency Management Conference (7 July 2015) hosted the Inaugural Claire Zara Memorial Oration. The Oration was given by Australia's Sex Discrimination Commissioner, Elizabeth Broderick, Air Chief Marshall Sir Angus Houston and ACT Emergency Services Commissioner Dominic Lane, who all spoke of the significance of Claire's work in this field.



Claire Zara, Deb Parkinson and The Hon Michael Keenan MP at the 2014 Resilient Australia Awards.

# Oceans on the rise

Nathan Maddock, Communications Officer, Bushfire and Natural Hazards Cooperative Research Centre, tells how researchers are investigating where extreme water levels could impact Australia's coast.

In August 2014 a container ship in Fremantle Harbour, Western Australia broke away from its moorings and collided with the bridge on the Perth-to-Fremantle train line, closing the bridge for two weeks. Unknown to most casual observers, this part of the coast had been hit by a meteorological tsunami, or meteotsunami for short. The strong currents of the meteotsunami broke the ship's moorings and the increased water height allowed the ship to travel over the sandbar separating the harbour from the Swan River.

Along Perth's waterfront, meteotsunamis, in combination with high tides and storm surges, have led to flooding of the Swan River. June 2012 saw the highest water level recorded in 115 years, which resulted in the closing of the Kwinana Freeway.

Professor Charitha Pattiaratchi, an oceanographer at the University of Western Australia (UWA) said, 'Most people do not know that a meteotsunami has occurred. They think it's just a high tide or a king tide. But it's the stacking up of the events that causes problems.

'The timing is really important. If a meteotsunami occurs at low tide there is negligible impact. In contrast, if it happens close to the high tide, it will lead

to high water levels. This is what happened at the Perth waterfront in June 2012,' he said.

Around 85 per cent of Australia's population is within 50 kilometres of the coast, along with a significant proportion of key assets and infrastructure. Yet these coastlines, and the communities that call them home, are exposed to a range of natural hazards that can cause severe damage. Research underway by the Bushfire and Natural Hazards CRC will improve the knowledge of such hazards.

Professor Pattiaratchi is leading the CRC study, with fellow UWA researchers, Drs Sarath Wijeratne, Ivan Haigh, Matt Eliot, Ivica Janekovic and Yasha Hetzel.

Professor Pattiaratchi said that extreme water levels can result from the combination of different physical processes including tides, storm surges, tsunamis (both seismic and meteorological) as well as seasonal and inter-annual mean sea level variations. Extending the understanding of meteotsunamis and their risk around the country is a key focus of the study.

'Meteotsunamis are relatively common phenomena, but not well understood. We could consider Western Australia a global hotspot for meteotsunamis with 25 being recorded in 2014,' Professor Pattiaratchi said.



The Office of Environment and Heritage NSW assess erosion at Jimmy's Beach, NSW, after storm damage in April 2015.



Locals brave the elements during April's east coast low.

So what is a meteotsunami and how does it differ from a tsunami caused by an earthquake?

'In Western Australia, and across most of Australia, meteotsunamis are caused by the passage of thunderstorms or very fast travelling frontal (weather) systems. These weather systems result in a change to the atmospheric pressure and, if the propagation of the pressure disturbance matches the speed generated by a wave, then a meteotsunami could occur.

But not every thunderstorm will cause a meteotsunami.

'If the passage of the storm or weather system is too slow, or too fast, then you will not have that resonance. But it is more likely if a thunderstorm is travelling parallel to the coast where a range of water depths is experienced,' Professor Pattiaratchi said.

Many people would not be aware of meteotsunamis because, compared to a seismic tsunami that is often associated with large, destructive waves, meteotsunamis do not necessarily cause loss of life.

'Meteotsunamis are not that large. In Australia the maximum height is around one metre,' noted Professor Pattiaratchi.

But that does not mean there is not a risk. When the tidal range is factored in, one metre can become very significant.

'We know Western Australia is at risk, but we want to understand what other areas of the country are at risk too. This study is about extending our knowledge around the entire coastline to gain a better understanding of their occurrence and, therefore, risk,' he said.

## Predicting extreme water levels

This research documents the risks posed by meteotsunamis and also the risk associated with a combination of different processes such as tides and storm surges generated by tropical and extratropical cyclones. A computer model allows the research team

to map the coastline around the country, highlighting where extreme water levels could occur. This provides an accurate assessment of potential impacts on the coastline, leading to better emergency planning and management.

A key aspect of the research is not just about finding the areas that might have problems, but being able to tell when these extreme water levels could occur.

'We will analyse the identified problem areas to find out under what specific conditions problems occur. This will allow coastal engineers, emergency managers and planners to be better prepared with accurate estimates of extreme water levels,' Professor Pattiaratchi said.

This outcome is precisely what CRC end user Dr Martine Woolf, Section Leader for Hazards and Risk Application and Infrastructure at Geoscience Australia, believes is needed.

'We don't really have a good handle on the likelihood of extreme water heights occurring,' she said.

Localised studies have been undertaken at various locations, but it is the national aspect of this project that appeals most to Dr Woolf.

'It is vital that the whole country is modelled using a consistent approach. Professor Pattiaratchi and his team are trying to come up with data on what is ultimately a very localised hazard, but in such a way that you can compare it across the country, from different types of events, from meteotsunamis to tropical cyclones, to extra-tropical east coast lows.

'It will be a unique, national dataset and benchmark point across the nation, identifying where the issues are, even if they have not yet been experienced at that location,' Dr Woolf said.

Ultimately, these outcomes will strengthen the resilience of coastal communities and infrastructure.

Find out more about this research at [www.bnhcrc.com.au](http://www.bnhcrc.com.au).

# Lessons from the April 2015 Dungog flood

Stephen Yeo, Director of Flood Focus Consulting Pty Ltd

In April 2015 the Bureau of Meteorology warned of an East Coast Low that was to affect coastal NSW bringing intense rainfall and likely flooding. This system led to record depths of inundation with devastating effects in Dungog, a small township located at the junction of Myall Creek and the Williams River in the Hunter Valley. This paper offers some early reflections on the tragedy from a flood risk management perspective, aiming to build resilience to future floods in Dungog and beyond.

Floodwater in Dungog rose to record levels in the pre-dawn hours of Tuesday 21 April 2015. Some 80 dwellings were flooded (representing about eight per cent of the town's housing stock). Four houses were destroyed and three people drowned in their dwellings. Based on Australia's *National Emergency Risk Assessment Guidelines* (NEMC 2010), three fatalities in a population of about 2100 represents a catastrophic consequence.

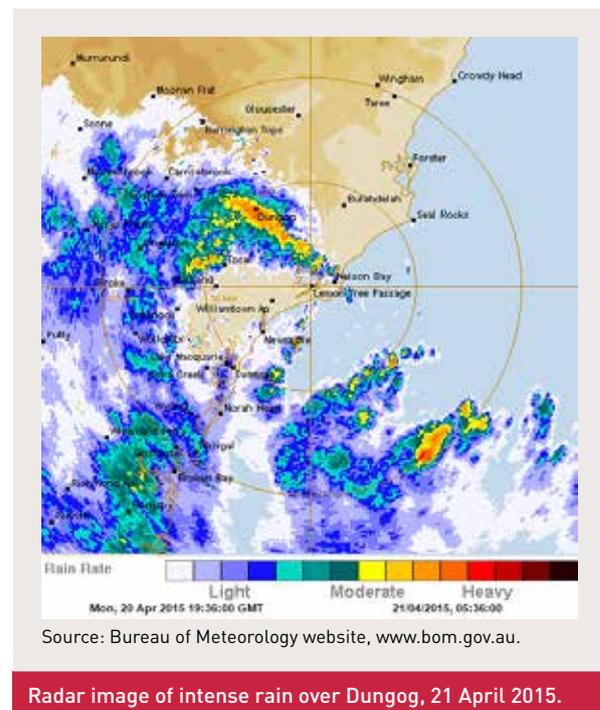
There is something particularly disconcerting about drownings in houses. Most fatalities associated with flooding in Australia result from people actively entering floodwaters. This problem demands increased investment so people better understand the risk of this activity (Keys & Gissing 2015). But what we might call 'passive' fatalities (cf. Yeo 2011) are unsettling because there is an expectation that people ought to be safe in their homes. Thus, flooding of dwellings raises deep-seated questions about land-use planning and emergency response.

There is also something especially troubling when those recognised as being more vulnerable are not protected. The three flood victims at Dungog were aged 79, 72 and 68. One was a resident in Alison Court, a Council-owned assisted-living complex. Another lived in a block of units where five others were rescued. The Dungog death toll could have been worse had residents not assisted in rescuing neighbours. For example, these five elderly residents were found standing on the handrails of their units holding onto the roof above them with the water up to their shoulders. They were rescued by a man using a wheelie bin as a flotation device.

It is imperative that the causes of this tragedy are identified and steps taken to reduce the risk of reoccurrence. At the time of writing, a coronial inquiry is under way that may contribute towards this end. The lessons offered are not necessarily novel—many having been identified after floods in eastern Australia

in 2010 to 2012—but their reiteration underscores their ongoing application.

1. Risk assessment is vital, including for local catchments and for rare events. Building development in Dungog has proceeded without a full comprehension of the modes and scale of flooding. While the *Williams River Flood Study* (BMT WBM 2009) defined flood behaviour for the Williams River at Dungog, the scenario that occurred in this event (short-duration flooding of Myall Creek, compounded by severe local overland flows) was not modelled. The one per cent Annual Exceedance Probability<sup>1</sup> (1% AEP) Williams River flood level is now known to be 0.6m below the 1% AEP Myall Creek flood level at Alison Court (Figure 1). Prior to the flood the full scope of potential flooding was not well understood.



Radar image of intense rain over Dungog, 21 April 2015.

<sup>1</sup> The AEP is the likelihood of occurrence of a flood of a given size in any one year, usually expressed as a percentage. For example, if an event has an AEP of one per cent, it means that there is a one per cent risk (i.e. likelihood of 1-in-100) of it occurring in any one year.

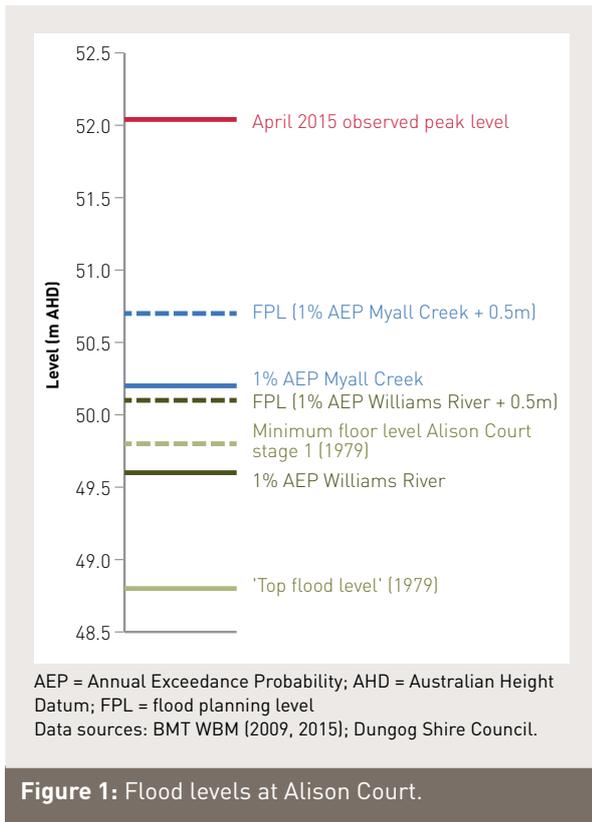


Figure 1: Flood levels at Alison Court.

2. We need to do better at managing the risk from extreme events. Post-flood modelling indicates that this was a rare flood, with peak flows in Myall Creek less frequent than 0.2% AEP (BMT WBM 2015). Flooding in Dungog was observed from 11.30 pm on Monday. Buildings in Hooke Street were flooded from 3.30 am on Tuesday. Then a huge downpour of 146mm of rain fell in Dungog in the hour from 5.15 am to 6.15 am on Tuesday, calculated as more than two times the 1% AEP rainfall based on 1987 Intensity-Frequency-Duration estimates (BMT WBM 2015). The runoff from this intense downpour backed up behind the road and rail bridges over Myall Creek and resulted in fast-rising inundation of many houses up to their ceilings. A search of newspapers going back to the 1840s suggests that this flood reached record depths. The community had no recollection of such flooding and events proved that they were ill-prepared for this rare flood event.
3. Land-use planning needs to take a greater share of the flood risk management load.
  - a) Alison Court was approved in 1979 and constructed in the 1980s, when knowledge about flooding and planning controls were less advanced—the minimum floor level was set at only 49.8m Australian Height Datum (AHD) (Figure 1). So the tragedy was associated with a decades-old legacy of floodplain development. But an examination of the current (2003) Dungog Development Control Plan (DCP) raises a few concerns. Housing for aged or disabled people is categorised as standard residential use. Best practice teaches that because of

the physical constraints affecting many older people, dwellings for senior citizens should be subject to a greater degree of control. Other council DCPs recognise housing for seniors as a 'sensitive' land use that is inappropriate within the 1% AEP flood extent and should only be permitted in other parts of the floodplain if certain controls are satisfied, including floor levels no lower than the Probable Maximum Flood<sup>2</sup> (PMF) level and the provision of evacuation egress.

- b) The observed depths and short warning times in the April 2015 flood commend higher standards for general housing too. This was made more difficult for NSW local government areas by the introduction in 2007 of a *Guideline on Development Controls on Low Flood Risk Areas*, which directed councils to adopt the 1% AEP flood as the Flood Planning Level unless there were 'exceptional circumstances'. In effect this established a default position where the planning system may be used to manage flood risks for residential uses only up to the 1% AEP plus 0.5m freeboard level leaving the residual risk associated with flooding up to the PMF to be managed through emergency response (i.e. flood warnings, evacuation planning, education). This does not adequately recognise that the residual risk varies between floodplains because flood frequency is a poor measure of risk. For some floodplains, events only slightly rarer than a 1% AEP flood could be very much more hazardous in terms of depths, velocities and evacuation constraints. The other inherent problem with this approach is that it lays too much responsibility on emergency response operations. As the Dungog flood makes clear, there is no guarantee that everyone can be rescued by responders on every occasion.
4. Flash flood warning systems require further development. There was four days warning of the East Coast Low. A Flood Watch and a Severe Weather Warning for heavy rain were issued on Monday morning, and a Flood Warning specific for the Williams River at Dungog was issued at midnight Monday. But none of these provoked the responses required. The Emergency Alert system has the capability of issuing text or voice messages to householders in Dungog in one minute, and one wonders whether this could have been activated when flooding inundated buildings from 3.30 am. The impression is that chains of command for approval to issue emergency alerts need to be short-circuited for such time-critical scenarios.
5. Good flood plans are just one prerequisite for a good response. Steve Opper, formerly of NSW SES, recognised that 'even well-written plans are dependent on human application and often rely on technical support systems and cannot

2 The Probable Maximum Flood is the maximum flood that is reasonably estimated to not be exceeded.

be guaranteed to work every time and for all circumstances in which a flood may occur' (NSW SES 2003). At Dungog, the local flood plan accurately identifies the flood risk 'hot spots', including Alison Court. But this hot spot was not attended and residents were generally dissatisfied with the official response. A number of factors appeared to undermine the response:

- An earlier flood emergency at the village of Stroud prompted the deployment of NSW Fire and Rescue and NSW Police Force personnel from Dungog to Stroud, depriving Dungog of responders when its flood crisis escalated after 5.00 am.
- Only four NSW SES volunteers were available at Dungog to assist with evacuations and rescues out of a total membership of eight. This is compared to 40 volunteers who assisted during the 1990 flood. This erosion of the volunteer base means there simply wasn't the resources to monitor flood levels, warn the public, and attend to all the time-critical rescues that arose.
- Another potentially disruptive factor was the recent retirement of the previous Local Controller in January 2015. In general, the loss of a long-time leader can result in a loss of institutional knowledge. It can also deprive an organisation of valuable operational experience as younger members have less hands-on practice of real events.
- Flooding of local roads within Dungog prevented access to some trouble spots.
- Lack of communications disrupted the emergency response. Telephone landline and mobile services went down at 7.00 am on Tuesday (this was after the fatalities occurred).



Many dwellings in Dungog were flooded to ceiling level, including these units in Brown Street.

The April 2015 flood in Dungog taught that whether because of the scale and speed of the event, split resources, inadequate numbers, leadership transitioning, local road closures and communications difficulties, emergency services organisations cannot be guaranteed to rescue everyone in need of rescue. Sustaining the capability of emergency services to respond well over the sometimes long periods between floods requires good plans, local ownership of those plans, scenario testing, organisational renewal, and smooth transitions in leadership.

Still, Murphy's Law may conspire to foil an operation and place the onus of saving lives directly on the exposed population. Most people find it difficult to comprehend floods higher than they have experienced. Overcoming this remains a great challenge for community flood education. And some people are unable to self-evacuate, emphasising again the primary role of locating the right land use in the right place, and requiring housing designs that safeguard lives even in extreme events.

### Acknowledgements

This article is an abridged version of a longer research report (Yeo 2015), sponsored in part by Risk Frontiers. Special thanks are extended to Chas Keys who reviewed this article and to Andrew Gissing who provided insightful comment during this work.

### References

BMT WBM 2009, *Williams River Flood Study, prepared for Port Stephens Council and Dungog Shire Council, June 2009.*

BMT WBM 2015, *Post Event Flood Behaviour Analysis and Review of Flood Intelligence, Dungog Township, Myall Creek Catchment and Tributaries, Draft Report, prepared for Office of Environment and Heritage, July 2015.*

Keys C & Gissing A 2015, *More than 70 deaths in five years: we need more education on the dangers of floodwaters, The Sydney Morning Herald. At: www.smh.com.au/comment/more-than-70-deaths-in-five-years--we-need-more-education-on-the-dangers-of-floodwaters-20150505-1na6vg.html [5 May 2015].*

National Emergency Management Committee (NEMC) 2010, *National Emergency Risk Assessment Guidelines, Tasmanian State Emergency Service, Hobart.*

NSW SES 2003, *DA's, Flood Risk and Site Specific Evacuation Plans, NSW SES State Headquarters, Wollongong. At: www.kempsey.nsw.gov.au/council/meetings/2003/2003-12-09/pubs/2003-12-09-de-app-a.pdf.*

Yeo S 2011, *Flood fatalities in Fiji, 2000-2009, in Collen J & Bukarau L (eds.) Abstracts of Papers Presented at the STAR Session 2011, SPC SOPAC Division Published Report 26, SOPAC, Suva, p. 37.*

Yeo S 2015, *Land use planning, emergency management and risk perception: reflecting on the Dungog flood of April 2015, Flood Focus Consulting, Sydney.*

# Interdisciplinary action in urban planning and building for bushfire: the Victorian case

Associate Professor Alan March and Yogita Rijal, University of Melbourne, describe interdisciplinary approaches used when implementing Victorian bushfire policies. 

## ABSTRACT

**Bushfires in Victoria have highlighted the need for an integrated risk assessment approach that crosses multiple disciplines and regulatory responsibilities. This paper describes interdisciplinary approaches used when implementing Victorian bushfire policies in urban planning practice. It is argued that there are three skill sets essential for risk assessments. An ability to gather and understand fundamental and background information, fire and forest knowledge, and the ability to conduct design assessment and response processes.**

## Introduction

Improved interdisciplinary disaster risk reduction has been a consistent theme highlighted in the *Hyogo Framework for Action 2005-2015*<sup>1</sup> and its successor, the *Sendai Disaster Risk Reduction Framework*<sup>2</sup>. The complexity of elements contributing to disasters requires that effective risk management extends beyond individual disciplines to be effective, through integrated or interdisciplinary approaches (van der Waldt 2009). Many recent initiatives have directly sought integrated action (Dahms 2010, Buckle 1998, Panton & Jonhston 2006). In Australia, the notion of shared responsibility applies not only to emergency management agencies, but requires action by different sectors including government, business, communities and individuals (COAG 2011).

Due to the multidimensional character of bushfire occurrence, intensity and progression, different disciplines and skills are required to assess and treat interdependent risk factors (Menoni 2006). Of the many approaches employed, urban planners and designers can have a substantial influence on the level of damage caused by bushfire and may lessen risk by carefully assessing fire likelihood and consequences

to decide between avoidance of high-risk areas or reducing risks to an acceptable level. Urban planning can shape settlements to be 'spatially and functionally' arranged to manage bushfire risks (Groenhart, March & Holland 2012). For instance, in Victoria, new bushfire policy from late 2011 sought a more integrated approach applying the precautionary principle and a proactive planning approach (Bond & Mercer 2013). Planning systems are uniquely placed to shape the relationships between disciplines and to integrate their activities, often providing a 'bridge' between other risk treatments. Planning professionals can potentially draw on understandings of risk from multiple knowledge sets when considering the bushfire risks of a site or settlement, such as topography, fuel load, likely fire behaviour and interactions with structures to undertake risk assessments and treatments via urban planning. However, these understandings cannot be determined by any one discipline. There is a need for integration of many disciplines to effectively treat bushfire risks.

This paper identifies the main disciplines, skills and activities involved in meaningfully conducting a bushfire risk assessment and treatment, particularly in Victoria. First, interdisciplinarity is examined as a concept. This is followed by a research method and a description of the integrated approach used in planning processes in Victoria. Three broad skill sets are then set out and discussed. It is concluded that while urban planning regulations now encourage interdisciplinary action, planners and other professionals need to develop skills that bridge these broad categories.

## Interdisciplinarity and bushfire

In order to consider how disciplines integrate, develop and apply knowledge, it is necessary to first understand the meaning of 'discipline'. A discipline is a specific field of study or knowledge joined with the ability to conduct tasks proficiently. Interactions between different disciplines can be multidisciplinary, interdisciplinary or transdisciplinary.

- Multidisciplinary is when different disciplines work collaboratively to solve a problem while retaining their distinct disciplinary approaches (Klein 2010).

1 *Hyogo Framework for Action 2005-2015*. At: [www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Hyogo-framework-for-action-english.pdf](http://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Hyogo-framework-for-action-english.pdf).

2 *Sendai Disaster Risk Reduction Framework*. At: [www.unisdr.org/we/coordinate/sendai-framework](http://www.unisdr.org/we/coordinate/sendai-framework).

- Interdisciplinarity requires collaboration between disciplines, linking and transferring knowledge from one discipline to another to solve problems (Park & Son 2010).
- Transdisciplinarity involves knowledge being shared, transferred and generated between and beyond disciplines (Marinova & McGrath 2004).

In the context of risk management, interdisciplinary approaches are highly desirable because they have the capability to creatively 'integrate knowledge and modes of thinking in two or more disciplines or established areas of expertise' to explain a phenomenon, solve a problem and create a product (Krohn 2010). For bushfires, shared responsibility requires the management of risks through shared skills and actions (O'Neil & Handmer 2012) between communities, industries, fire agencies and government authorities, where individual action and responsibility are integrated. This is a form of interdisciplinarity via an integrated and interoperable approach that includes pre-emergency actions. Interoperability is the ability for diverse systems and organisations to work together or to exchange information (Eslami-Andargoli, Bernus & Kandjani 2013). The question then remains *how* these disciplines and concept of responsibilities are dealt with and are there apparent ways with which they are dealt.

### Research approach

A case study of Victorian planning for bushfire risk management appraised the diverse skills, disciplines and activities involved in bushfire risk assessment and planning. In particular, the Bushfire Management Overlay (2011, 2014), which seeks an integrated approach, was examined. Three data sources were used:

- bushfire planning controls
- interviews with nine bushfire experts who undertake land-use planning assessments
- analysis of 64 completed planning applications.

Clause 52.47<sup>3</sup> of the Victorian Planning Provisions was analysed to identify skills necessary for a bushfire risk assessment in a statutory sense. The 'assessments' examined encompassed both the analysis of risks and the proposal and 'assessment' of the appropriateness of treatments proposed to reduce these risks. The results were themed around 12 areas of consideration (Table 1). The interviews with bushfire experts, working in public and private sectors, assisted in confirming information.

Table 1 demonstrates 12 areas of knowledge and skills in which disciplinary activity, data collection and analysis occur for judgement in land-use planning bushfire assessments. The themed areas were developed on the basis of the main skill sets required rather than existing disciplinary practice boundaries.

**Table 1:** Areas of knowledge and skill derived from Clause 52.47 for exercising judgement in terms of bushfire risk reduction (includes assessment of initial risks, and effectiveness of treatment/s proposed).

Clause 52.47	Fire science*		Forest science*		Slope	Settlement type/location	Vegetation location/ type	Site access/ layout	Bushfire hazards/risks	Site design	Building design	Bushfire protection measures**	Bushfire Attack Level	Alternative method
	High	Moderate	High	Moderate										
Dwellings in existing settlements Clause 52.47-1	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Landscape, siting and design Clause 52.47-2.1	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Defendable space and construction Clause 52.47-2.2	No	No	No	No	Yes	No	Yes	No	No	Yes	No	No	Yes	Yes
Water supply and access Clause 52.57-2.3	No	No	No	No	No	No	No	No	No	Yes	No	No	No	No
Subdivision Clause 52.47-2.4	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes

\*Fire science and forest science areas analysed as per the level of (high or moderate) knowledge and skills required.

\*\*Bushfire protection measures include practical implementation of safety measures, for example, vegetation is modified within the defendable space and there will be an ongoing management of vegetation.

3 Victorian Planning Provisions, Clause 52.47. At: [http://planningschemes.dpcd.vic.gov.au/schemes/vpps/52\\_47.pdf](http://planningschemes.dpcd.vic.gov.au/schemes/vpps/52_47.pdf).

The knowledge and skill requirement of these 12 areas were compared against the three distinct pathways identified in Clause 52.47 for preparing and assessing a planning permit application. The pathways provide a streamlined approach for dwellings in existing settlements (Pathway 1, Clause 52.47-1), a more detailed approach for other types of development (Pathway 2, Clause 52.47-2.1 and 52.47-2.2), and special provisions to guide the subdivision of land (Pathway 3, 52.47-2.4). Clause 52.47-2.3 requires consideration for water supply and access to assist in protecting property and is required to be incorporated in all three pathways.

The table shows that, generally, all the areas of knowledge and skills are crucial for preparing a permit application or conducting a planning permit assessment in relation to all of the three pathways. Typically, Pathway 1 (Clause 52.47-1) requires nine out of 11 areas of knowledge and skills. These are fire science, forest science, slope, vegetation location and type, site access and layout, bushfire hazards and risks, site design, bushfire protection measures and bushfire attack level. Pathway 1 requires moderate levels of fire science, forest science knowledge, and skills as it is within an existing settlement deemed appropriate for development. In addition, there is no requirement of in-depth consideration of the proposed development's settlement type and location as the area is zoned for residential purposes. Furthermore, no understanding is required in the area of building design for a planning permit and alternative method. In the case of Pathway 2, (Clause 52.47-2.1 and Clause 52.47-2.2), all the 12 areas of knowledge and skills are necessary for making a judgement on the bushfire risks of the proposal. Importantly, unlike Pathway 1, in Pathway 2 the required level of fire and forest science knowledge and understandings are high, as the proposed development is not located in an existing settlement. Furthermore, for Pathway 3, only 11 areas of knowledge and skills are essential. Similar to Pathway 2, a high level of fire science and forest science understanding and skills are essential. Unlike Pathway 2 and similar to Pathway 1, no consideration of building design is required at the planning stage.

Once the 12 areas were categorised, these were then considered within the following themes of:

- gathering and analysing fundamental information
- fire and forest knowledge
- design response.

Before discussing these results, it is appropriate to consider the planning systems role in Victoria in facilitating interdisciplinary approaches.

### Interdisciplinary approaches facilitated by Victoria's planning system

Several regulatory requirements via building and planning regulations that seek to treat bushfire risks were observed in Victoria's planning system. These



Image: Australian National University

Assessors must classify vegetation during a bushfire risk assessment.

are based on zones and overlays that require new development to be built in accordance with relevant regulations. After the Black Saturday bushfires in 2009 the bushfire Integrated Planning and Building Framework in Victoria<sup>4</sup> was introduced to 'strengthen the consideration of bushfire at different stages of the planning process and better integrate the planning and building systems' (Groenhart, March & Holland 2012).

The Bushfire Management Overlay<sup>5</sup> (BMO) is integrated into the Victorian planning scheme at Clause 44.06, regulating land development organisations to manage bushfire risks. The BMO emphasises primacy of human life and the use of the precautionary principle when considering bushfire risks. In particular, the BMO triggers the need for a detailed planning permit for developments and requires that new development include appropriate bushfire protection measures. These include building siting, defensible space, and emergency vehicle and water access. Integration of different referral authorities is required in these processes. For bushfire planning assessment, the Country Fire Authority is the key referral authority that considers a range of bushfire and other matters such as firefighting access, fuel separation, vegetation management, habitat retention, subdivision size and visual amenity. Managing bushfire risk involves a large number of issues in a wider policy context and requires good integration of different fields and experts.

4 Integrated Planning and Building Framework for Bushfire in Victoria. At: [www.dtpli.vic.gov.au/\\_\\_data/assets/pdf\\_file/0019/231625/Integrated-planning-and-building-framework-WEB.pdf](http://www.dtpli.vic.gov.au/__data/assets/pdf_file/0019/231625/Integrated-planning-and-building-framework-WEB.pdf).

5 Bushfire Management Overlay . At: [http://planningschemes.dpcd.vic.gov.au/schemes/vpps/44\\_06.pdf](http://planningschemes.dpcd.vic.gov.au/schemes/vpps/44_06.pdf).

## Fundamental and background information

The preliminary stage of the assessment process includes establishing site and surroundings background information. Fundamental or background information includes vegetation type and location, topography, settlement type, location of the area, site access, existing land management activities, and site orientation (Figure 1). Generally these are mentioned in all the three pathways. In particular, Clause 52.47-1, Clause 52.47-2.1 and Clause 52.47-2.4 of the planning scheme require that the location, siting and layout objectives are met, paying heed to the context of the surrounding area.

Part of the bushfire risk assessment requires vegetation to be classified into one of seven categories defined by Australian Standard 3959-2009. Classifiable vegetation constitutes vegetation that presents a bushfire hazard within 150 metres of the development. The assessor must be able to classify the vegetation correctly and measure the distance and location of the classifiable vegetation from the site boundary or the building footprint. Understanding the topography of the land is also important as it has a direct influence on the severity of a bushfire. Fire generally moves faster uphill. As a rule of thumb, for every 10 degrees upslope, fires will double in speed (CFA 2012). The slope to be measured is under classifiable vegetation and assessors should calculate the slope in degrees using a clinometer on site. This is detailed in the Fire Safety Officer documentation of vegetation type, location and slope details.

Determination of settlement type, location of the area, site access, existing land management activities and site orientation provides understandings of site context. Evidence shows that less than five per cent of bushfires cause more than 95 per cent of damage (Institute of Foresters of Australia 2009). This is because there is a strong link between fire progression and population patterns with increasing numbers of dwellings in proximity to forests. In a residential settlement the fire may have more catastrophic impact on human life and

property, as compared to those in open grasslands, depending on the characteristics of structures and any risk reduction activities used, such as fuel reduction on neighbouring properties.

An assessor needs to exercise judgement and to draw on additional expert opinion as required. Consultants interviewed in complex cases said they relied on the expert opinions of others to augment, validate or support their findings. An experienced bushfire consultant recommended to 'go out there first and if there are any complex issues then get in other experts'.

For example, a statutory planner might arrange an arborist to assess the site in conjunction with Country Fire Authority assessments. Cross-disciplinary advice and knowledge was apparent as a key aspect of risk assessment.

## Fire and forest knowledge

The main aim of the bushfire risk assessment is to achieve outcomes that successfully manage risk. The County Fire Authority (2012) affirms that critical factors that affect fire intensity include 'the length of time a fire has to grow and develop, the quantity, arrangement and continuity or fragmentation of vegetation cover and the topography the fire is burning within'. Developing knowledge, skills and understanding in fire and forest science provides an understanding of bushfire risks. Fire behaviour, fire intensity, forest growth and bushfire hazards are topics within this type that develop knowledge about bushfires risks (Figure 2). Therefore, a moderate to high level of understanding in this area is mentioned in each of the three pathways.

Understanding potential fire behaviour is an integral element of fire management and guides many fire-management decisions. The core skill in relation to the likely fire behaviour is to analyse the probability of ignition or burning (likelihood), flame length (intensity), and effects in likely weather scenarios (Miller & Ager 2013). A general understanding of how a bushfire behaves, from widespread grassfire to intense hot-burning wildfire, and destroys structures is crucial.

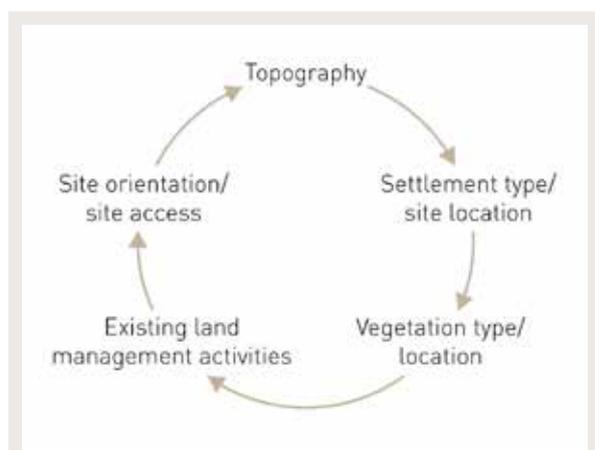


Figure 1: Fundamental or background information components.

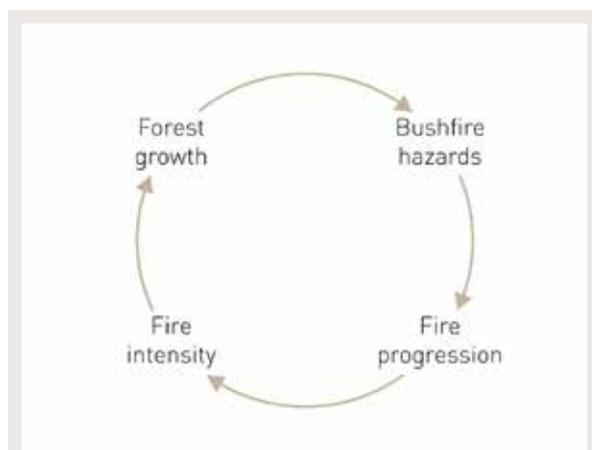


Figure 2: Fire or forest knowledge components.

Fire science is complex and requires the broader context to be considered, such as the possibility for long fire runs versus lower intensity fragmented fires and fire fronts, and topographical or other factors in the wider landscape. Fire behaviour understandings can also be augmented by information of an area's fire history and assessment of the fuel hazard development over time.

Vegetation is the primary source of fuel for a bushfire until it transitions into an urban area, when structures may provide fuel for fire progression. Assessors need to correctly identify the vegetation type and the likely growth over time, taking into account possible modification of the vegetation and its likely future state. For instance, farmland vegetation may be disturbed because of the agricultural regime in force and is likely to remain disturbed, except if changes to farming practices occur. In cases where sites were complex, the case study showed that many parties seek expert advice, for example from a fire and forest science expert. A statutory planner reflected that, 'the firm produces better bushfire management statements when it has a multidisciplinary approach, which means they have professional networks they are using or working in collaboration, as compared to someone working in isolation'.

### Risk reduction design responses

The ability to integrate multiple data and information sources to develop options for a given site that treats risks is integral to planning and design skills in this area. As shown in Figure 3, design response and risk treatment skills include bushfire protection measures, land management, bushfire attack level assessment and the use of alternative methods. The requirements for design responses are discussed in all the three pathways in Clause 52.47 to ensure development only occurs where risk has been reduced to an acceptable level.

Professional skills in carrying out iterative processes of concept development, testing and evaluation while complying with regulations were observed as a process

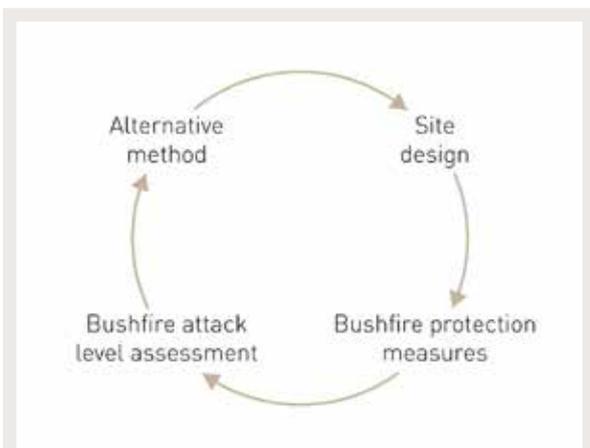


Figure 3: Design response components.

of selecting the most appropriate risk treatment option. A consultant mentioned that the option selected needs to be 'a feasible outcome' that fits into the wider context. In parallel, professionals also need to understand and apply land management measures, such as removal of vegetation and the potential use of environmental offsets and legal agreements for ongoing vegetation management. An additional skill in developing a design response is the calculation of bushfire attack level. This includes skills in calculating and designing defensible space or asset protection zone areas and, occasionally, bunkers in extreme situations. Areas of separation around structures reduce flame contact and radiant heat effects as well as providing external areas for active defence or exit from buildings should it become necessary. A bushfire consultant highlighted that 'sometimes I act as an educator, as the clients do not understand the risks and management issues'.

The assessor's role is to deliver solutions that ultimately are consistent with the regulatory standards, that will be granted permits, and also meet client needs. In doing so, they need an understanding of the risk factors associated with developments and the corresponding treatments. This analysis shows that assessors offering services and advice in this area need to carry out an analysis of background information, propose options with calculated defensible space and bushfire attack level ratings and choose one that has an acceptable level of risk in the context of the other treatments being used.

### Conclusion

This research shows that the nature of bushfire management is complex and includes physical factors, meteorological conditions, building elements, and human behaviours. Of the many treatments available urban planning can play a key role in improving the survival of dwellings. In states such as Victoria that use all-hazards, all-agencies approaches there is a challenge for assessors undertaking land-use planning bushfire assessments, such as planners, ecologists, foresters and fire officers, to develop a deeper understanding of bridging multiple aspects of bushfire risks and the multiple ways these can be minimised. The research shows that key skill sets, many of which are interdisciplinary, are required for assessors to better understand and treat bushfire risks. The theme that emerged from this research is that while the planning regulations do trigger and facilitate interdisciplinarity action to some extent, assessors themselves need to develop skills in this area to be effective contributors to that interdisciplinarity.



Image: Bushfire CRC

Rapid development in city fringe areas highlights the vital role urban planning can play in improving the survival of dwellings in bushfire events.

## Reference

- Buckle P 1998, *Re-defining community and vulnerability in the context of emergency management*, *Australian Journal of Emergency Management*, vol. 13, no. 4, pp. 21-26.
- Bond T & Mercer D 2014, *Subdivision Policy and Planning for Bushfire Defence: A Natural Hazard Mitigation Strategy for Residential Peri-Urban Regions in Victoria, Australia*, *Geographical Research*, vol. 52, no. 1, pp. 6-22.
- Council of Australian Governments 2011, *National Strategy for Disaster Resilience*. Attorney-General's Department.
- Country Fire Authority 2012, *Planning for Bushfire Victoria (Version 2)*, Melbourne: Country Fire Authority.
- Department of Transport, Planning and Local Infrastructure 2014, *Victoria's bushfire planning and building framework*, Victoria: Victorian Government. At: [www.dpcd.vic.gov.au/planning/plansandpolicies/bushfire-planning-and-building/framework](http://www.dpcd.vic.gov.au/planning/plansandpolicies/bushfire-planning-and-building/framework) [22 June 2014].
- Dahms T 2010, *Resilience and risk management*, *Australian Journal of Emergency Management*, vol. 25, no. 2, pp. 21-26.
- Eslami-Andargoli A, Bernus P & Kandjani H 2013, *Analysis of Interoperability Issues in Queensland Disaster Management System*, 15th International Conference on Enterprise Information Systems (ICEIS) Proceedings. SciTePress.
- Groenhart L, March A & Holland M 2012, *Shifting Victoria's emphasis in land-use planning for bushfire towards a place-based approach*, *Australian Journal of Emergency Management*, vol. 27, no. 4, pp. 33-37.
- Institute of Foresters of Australia 2009, *Submission to the 2009 Victorian Bushfires Royal Commission*. At: [www.forestry.org.au/pdf/pdf-public/Submissions/Vic%20Bushfires%20RC%20submission%2018%20May%202009%20V2%20-%20page%20numbered.pdf](http://www.forestry.org.au/pdf/pdf-public/Submissions/Vic%20Bushfires%20RC%20submission%2018%20May%202009%20V2%20-%20page%20numbered.pdf) [26 March 2014].
- Klein J 2010, *A Taxonomy of Interdisciplinarity*, in *Frodeman R, Klein J & Mitcham C (Eds.) The Oxford Handbook of Interdisciplinarity*, pp. 15-19. Oxford University Press.
- Krohn W 2010, *Interdisciplinary Cases and Disciplinary Knowledge*. In *Frodeman R, Klein J & Mitcham C (Eds.), The Oxford Handbook of Interdisciplinarity*. Oxford University Press.
- Marinova D & McGrath N 2004, *A transdisciplinary approach to teaching and learning sustainability: A pedagogy for life*, *Teaching and Learning Forum*. At: <http://otl.curtin.edu.au/tlf/tlf2004/marinova.html> [13 June 2014].
- Menoni S 2006, *Introducing a transdisciplinary approach in studies regarding risk assessment and management in educational programs for environmental engineers and planners*, *International Journal of Sustainability in Higher Education*, vol. 7, no. 3, pp. 309-321.
- Miller C & Ager AA 2013, *A review of recent advances in risk analysis for wildfire management*, *International Journal of Wildland Fire*, (22), pp. 1-14.
- Panton D & Jonhston D 2006, *Disaster Resilience: An integrated approach, USA: Charles C Thomas*.
- Park J-Y & Son J-B 2010, *Transitioning toward transdisciplinary learning in a multidisciplinary environment*, *International Journal of Pedagogies and Learning*, vol. 6, no. 1, pp. 82-93.
- O'Neil SJ & Handmer J 2012, *Responding to Bushfire Risk: the need for transformative adaption*, *Environmental Research Letters*, 7, pp. 172-178.
- van der Wald G 2009, *Public Management and Disaster Risk Reduction: potential interdisciplinary contributions*, *Journal of Disaster Risk Studies*, vol. 2, no. 1, pp. 14-27.

## About the authors

**Dr Alan March** is Associate Professor in Urban Planning in the Faculty of Architecture, Building and Planning at the University of Melbourne and is Director of the Bachelor of Environments. His research includes examination of the practical governance mechanisms of planning and urban design and the role of urban planning in reducing disaster risks.

**Yogita Rijal** is an urban planner who has worked in the private sector in Victoria and as a researcher in the Faculty of Architecture, Building and Planning at the University of Melbourne. She has an undergraduate degree in Architecture and a Master of Urban Planning from the University of Melbourne. She has practical expertise in statutory planning and project management.

# Helping children and adolescents recover from disaster: a review of teacher-based support programs in Victorian schools

Vicki Trethowan, Department of Education and Training, and Jane Nursey, Phoenix Australia: Centre of Posttraumatic Mental Health, present an overview of teacher training that supports recovery. 

## ABSTRACT

Children and adolescents are among the most vulnerable in the aftermath of a disaster. Following the devastating Victorian bushfires in 2009 the Victorian Department of Education, in partnership with Phoenix Australia: Centre for Posttraumatic Mental Health and a child adolescent mental health expert, adapted two U.S. programs that provide teachers with knowledge and skills to support child and adolescent recovery in the school setting. This paper provides an overview of the two-phased approach to teacher training.

The first phase was the development of a manual, *Psychological First Aid and Mental Health First Aid: A Guide for Teachers*. The first component, *Psychological First Aid*, is designed to develop teacher skills in supporting children and adolescents in the first days and weeks after an emergency or disaster. The next component, *Mental Health First Aid*, aims to help teachers recognise signs and symptoms of mental health problems in their students in order to facilitate appropriate and timely referral to specialist services. The second phase involved the development of online training, *Skills for Psychological Recovery for Teachers*, designed to give teachers direction and skills for teaching children and adolescents with mild to moderate distress effective ways of coping in the weeks, months and possibly years after a disaster. This phase also included incorporating the *Psychological First Aid and Mental Health First Aid* programs into an online training format.

## Introduction

Australia has experienced a number of large-scale disasters in recent years that have caused widespread devastation in affected communities. These include the bushfires in Victoria in 2009, Western Australia and New South Wales in 2011, Tasmania in 2013, South Australia in 2015, and the 2010–2011 floods and cyclones in Queensland that have resulted in many lives being lost and widespread destruction of properties, schools and businesses.

Children are among those most vulnerable in the wake of disaster (Allen *et al.* 2007, Anderson 2005). In Australia there is a growing awareness by educators and health care professionals to provide programs and activities that help to actively engage children and adolescents. These programs develop the skills and knowledge that enhance the understanding about the event and how to cope during and after an emergency or a disaster.

While children and adolescents may show signs of distress in the first days and weeks following a disaster, in most cases they respond positively to being well supported by adults who are closest to them, including parents and teachers (Raphael 1986, Rolfsnes & Idsoe 2011). Schools can provide a safe place for children and adolescents along with practical and emotional support. Indeed, support from teachers and classmates has been identified as a significant predictor of fewer posttraumatic symptoms in children and adolescents following a large-scale disaster (Prinstein *et al.* 1996). Aside from providing support, teachers can also assist children to learn coping skills such as emotional regulation, maintaining routines and relaxation, and distraction techniques (Prinstein *et al.* 1996). These coping skills help children gain a sense of control over their reactions. Alisic and colleagues (2012) explored teacher experiences in supporting children's recovery after a trauma. They found that teachers want better knowledge and skills to assist children after a traumatic incident. They suggested that introducing a trauma-informed approach into schools that provides teachers with the information to facilitate coping skills when working with children affected by disaster or trauma could be a first step.

Ronan and Johnson (2005) argue that school-based interventions can assist individuals to prepare physically and emotionally to manage the effects

of a disaster and they can help to build personal resilience. A strong foundation for school-based life skills and resilience training is already provided for in the Australian Curriculum that requires students to develop personal and social capability through learning to understand and manage themselves and their relationships with others (Australian Curriculum v7.5 2014). The *Melbourne Declaration on Educational Goals for Young Australians* (MCEETYA 2008) identified that students with well-developed social and emotional skills develop resilience and feel positive about themselves and the world. While this is a great start in helping to develop resilience in children and adolescents, it can be argued that more targeted programs are required to address trauma-specific vulnerabilities. Peek (2008) reported that teachers must be prepared to respond appropriately if they are to support children in the classroom. Raphael and Burns (2014) note that to facilitate recovery, education needs to have clarity and should be practical and focused, encouraging individuals to 'tune in' to their strengths. Recent natural disasters in Australia provide a fertile ground for programs that address these requirements.

Following the 2010-2011 cyclones and flooding in Queensland a three-tiered approach was developed to provide a range of interventions that support the recovery of children and adolescents.

- Tier 1 involved low intensity intervention through provision of advice and information via a vodcast made available to teachers, school support staff and parents.
- Tier 2 involved teacher training and parent sessions.
- Tier 3 provided high intensity intervention involving trauma-focused cognitive behaviour therapy to address trauma-related mental health issues in children and adolescents.

Following the Victorian bushfires in 2009, the Victorian Department of Education met with child and adolescent trauma experts and the Department of Health and Human Services (DHHS) to identify ways in which schools can provide psychological support that will promote the recovery of children and adolescents. There were a number of psychological recovery initiatives that the Department of Education worked on with mental health experts including the following:

- The Department of Health and Aging funded an initiative to support child and adolescent recovery that included professional development training for teachers on the potential short- and long-term effects of bushfires. The Australian Principals Association and the Australian Child and Adolescent Trauma Loss and Grief Network worked in partnership with the Department of Education to plan and implement these sessions under the direction of Professor Beverley Raphael.
- The DHHS, in consultation with the Department of Education, implemented a child screening program in bushfire-affected areas. The screening program required parental consent and involved mental health professionals screening children to identify those potentially at risk of developing psychological or emotional problems. At-risk children were then offered a referral to a mental health professional.

Notwithstanding these initiatives, ongoing education to help children in their recovery is considered critical (Raphael & Burns 2014). Consequently, the Department of Education identified a two-phased approach that could give teachers practical ways to teach effective coping skills in the school environment and help support recovery. Assistance with coping has been identified in the literature as an active attempt (through social supports such as family, teachers and friends) to help a child deal with a major life event in a supportive manner (Prinstein *et al.* 1996).

Two specific U.S. programs were identified by the Department of Education and adapted (with permission from the respective authors) to train teachers in ways that support child and adolescent recovery in the short and medium term following a disaster. The Psychological First Aid and the Mental Health First Aid for Teachers programs prepare teachers to provide support to students within the school environment in the immediate days and weeks following a disaster. The Skills for Psychological Recovery for Teachers online training modules aim to build the skills of teachers to enhance the coping and recovery of children.

### **Phase 1: Psychological First Aid and Mental Health First Aid: A Guide for Teachers**

Psychological First Aid and Mental Health First Aid: A Guide for Teachers program (PFA/MHFA) was adapted in 2012 (with permission) from the Listen, Protect and Connect Program (Schreiber, Gurwitsch & Wong 2006). PFA is based on five empirically-supported early intervention principles of safety, calming, connectedness, self-efficacy and hope as identified by an international panel of trauma experts. These principles guide and inform intervention and prevention efforts in the days and weeks following a disaster (Hobfoll *et al.* 2007). The program aims to reduce distress, assist people to feel supported, and promote hope and healing. It was rolled out in 2012 as both a face-to-face and online teacher training program.

The Department of Education and a child and adolescent mental health expert delivered the PFA/MHFA face-to-face training sessions to teachers in bushfire-affected regions in Victoria. The importance of teachers to understand that, for some children and adolescents, the need is greater than what psychological first aid can provide, is emphasised in the program's manual and the online teacher training. Additionally, the training stresses that a teacher's role in supporting students is not to replace the critical role that student support staff, allied health professionals, and mental health professionals play in supporting vulnerable and at-risk children and adolescents. The process for teachers to refer a child or adolescent to a mental health professional is highlighted in the training as well as in information sheets provided to schools and parents.

### **Phase 2: Skills for Psychological Recovery for Teachers**

The second phase of the Department's recovery teacher support program was the adaptation of Skills for Psychological Recovery (SPR) Field Operations

Guide 2007 (National Centre for PTSD and National Child Traumatic Network) into an online training program for teachers. SPR is an 'evidence informed' early intervention program designed to help adults and children who may be experiencing ongoing distress in the weeks and months following a traumatic event.

Principles and techniques of SPR meet four basic standards, which are:

- consistency with research evidence on risk and resilience following trauma
- applicable and practical in field settings
- appropriate for developmental levels across the lifespan
- culturally informed and delivered in a flexible manner.

The goals of SPR are to:

- protect the mental health of survivors
- promote and accelerate recovery
- prevent maladaptive behaviours.

It does this by enhancing skills in five core areas that are known to assist recovery. These are:

- building problem-solving skills
- promoting positive activities and plans
- promoting helpful thinking and reframe obstacles and challenges
- rebuilding healthy social connections
- developing skills to manage distress.

## Overview of the Skills for Psychological Recovery for Teachers program

The SPR for Teachers program was developed as a classroom teaching aid for children and adolescents to develop coping skills and resilience in the face of adversity. The ability of children and adolescents to understand and use the SPR skills is influenced by their developmental level. As a result the SPR for Teachers training program is tailored for three different age levels (Preschool–Year 2, Year 3–Year 7, Year 8–Year 12) with each age level having its own training module and set of age-appropriate lesson plans and classroom activities.

The SPR for Teachers program was developed to ensure it fits with the teacher's role as a 'teacher'. It was not intended that the program would equip teachers to act as a mental health professional for individual children or adolescents in the wake of a traumatic event. Teachers are encouraged to maintain appropriate boundaries as a teacher when using SPR in the classroom, not just as part of their own self-care, but to ensure they do not take on a counselling role.

For some children SPR may not meet their needs. There is a section in the training program (Referrals for Professional Psychological Support) that provides teachers with information about how to identify

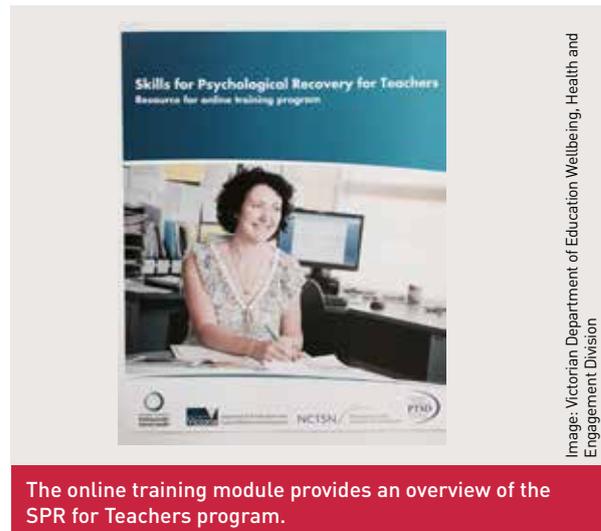


Image: Victorian Department of Education Wellbeing, Health and Engagement Division

children and adolescents at risk and how to refer them on for professional support.

The SPR for Teachers program allows teachers to tailor the program to meet the needs of the children and adolescents in the classroom. Rather than just targeting individual children or adolescents who may be struggling with specific issues, teachers teach the skills to the whole class. This whole-of-class approach builds social support through developing a shared knowledge and skill base and can help build the broader resilience skills of students who may not be adversely affected, while helping to support the children in need. Teachers can choose to teach all five skills or they can choose to focus on a particular skill. The program compliments other evidence-based mental health practices and wellbeing programs used in schools such as Kidsmatter, MindMatters, Bounce Back program and Circle Time. It can also be used as part of the school's emergency response and recovery following a natural event or significant school emergency.

### Involving parents

Teachers are encouraged to involve parents by informing them about the purpose of the SPR training and explaining the importance of their support in helping their child or adolescent to practice the skills being taught. The SPR for Teachers program has an 'Information for Parents and Carers' handout that explains SPR and its purpose and includes an explanation of the specific skills being taught. The effectiveness of the SPR skills training is enhanced by engaging parents in the process. Teachers are also encouraged to model the use of the SPR skills in the classroom in their daily interactions with students.

### Roll out

The SPR for Teachers program has been available online to all primary and secondary schools in Victoria since late 2012. Participants must complete a pre- and post-training quiz for each skill module and achieve a score of at least 80 per cent in each of the post-training quizzes to achieve a pass for the

module. To date approximately 400 teachers have successfully completed the SPR for Teachers online training program.

### Issues and challenges

Developing the SPR for Teachers training program presented a number of challenges. As it was not compulsory training it needed to be highly appealing and have face validity as a valuable and useful classroom tool if teachers were to devote their professional development training hours to completing it. It needed to be developmentally appropriate and provide teachers at each of the different grade levels with confidence in their ability to successfully teach the skills to their students. It needed to be presented in a succinct and clear style in order to comprehensively cover a large amount of information in each 20-minute module. The language used in the training needed to be simple and be meaningful to people without specific mental health training. Teachers needed to come away with adequate knowledge about the purpose and value of each skill and how to adequately teach it in their class, and also with a broader understanding of what a 'trauma sensitive' classroom might look like. At the same time they needed to clearly understand the boundaries of their role and feel confident in their ability to identify signs when a child might need referral to a mental health professional. Finally, the program needed to be self-sustaining and fit-for-purpose into the foreseeable future.

### Conclusion

Alongside parents, teachers are critically important adults who can assist and support children and adolescents to recover from a disaster or a significant trauma in their life. This paper provides an overview of a two-phased teacher training program implemented in Victorian schools following the 2009 Black Saturday bushfires. These programs build teacher capacity and confidence in providing evidence-informed, classroom-based support to children and adolescents affected by disaster.

Both programs have potential applicability across a range of trauma situations and to education departments in all Australian states and territories. A systematic roll out and evaluation of the program's capacity to successfully support teachers, children and adolescents in the post-recovery period of a significant traumatic event is warranted.

### References

- Alicis E, Bus M, Dulack W, Pennings L & Splinter J 2012, *Teachers' Experiences Supporting Children After Traumatic Exposure*, *Journal of Traumatic Stress*, vol. 25, pp. 98-101.
- Allen GM, Parrillo SJ, Will J & Mohr JA 2007, *Principles of Disaster Planning for the Pediatric Population, Prehospital and Disaster Medicine*, vol. 22, no. 6, pp. 537-540.
- Anderson WA 2005, *Bringing Children into Focus on the Social Science Disaster Research Agenda*, *International Journal of Mass Emergencies and Disasters*, vol. 23, no. 3, pp. 159-175.

Australian Curriculum Assessment and Reporting Authority 2014, *Australian Curriculum v 7.5 2014, Personal and social capability – Introduction*. At: [www.australiancurriculum.edu.au/generalcapabilities/personal-and-social-capability](http://www.australiancurriculum.edu.au/generalcapabilities/personal-and-social-capability).

Berkowitz S, Bryant R, Brymer M, Hamblen J, Jacobs A, Layne C, Macy R, Osofsky H, Pynoos R, Ruzek J, Steinberg A, Vernberg E & Watson P 2010, *The National Center for PTSD & the National Child Traumatic Stress Network, Skills for Psychological Recovery: Field Operations Guide*. At: [www.ptsd.va.gov/professional/materials/manuals/skills\\_psych\\_recovery\\_manual.asp](http://www.ptsd.va.gov/professional/materials/manuals/skills_psych_recovery_manual.asp).

Hobfoll SE, Watson P, Bell CC, Bryant RA, Brymer J, Friedman MJ, Friedman M, Gersons BPR, de Jong JTVM, Layne CM, Maguen S, Neria Y, Norwood AE, Pynoos RS, Reissman D, Ruze, JI, Shalev AY, Solomon Z, Steinberg AM & Ursano RJ 2007, *Five Essential Elements of Immediate and Mid-Term Mass Trauma Intervention: Empirical Evidence*, *Psychiatry*, vol. 70, no 4, pp. 283-315.

National Center for Child Traumatic Stress Network 2006, *The Medical Reserve Corp Psychological First Aid Field Operations Training Manual*.

Peek L 2008, *Children and Disasters: Understanding Vulnerabilities, Developing Capacities and Promoting Resilience – An Introduction*. *Children, Youth and Environments*, 18, pp. 1-29.

Prinstein MJ, La Greca AM, Vernberg EM & Silverman WK 1996, *Children's coping assistance: How parents, teachers, and friends help children cope after a natural disaster*, *Journal of Clinical Child Psychology*, vol. 25, pp. 463-475.

Raphael B 1986, *When Disaster Strikes: How Individuals and Communities Cope with Catastrophe*, New York: Basic Books Inc.

Raphael B & Burns P 2014, *Opinion: Children in disasters: the way forward*. *Australian Journal of Emergency Management*, vol. 29, no. 1, pp. 6-7.

Rolfsnes ES & Idsoe T 2011, *School-based intervention programs for PTSD symptoms: A review and meta-analysis*, *Journal of Traumatic Stress* vol. 24, pp. 155-165.

Ronan K & Johnston DM 2005, *Promoting Community Resilience in Disasters. The Role for Schools, Youth and Families*. Springer.

Schreiber M, Gurwitch R & Wong M 2006, *Listen, Protect and Connect Program*. At: [www.ready.gov/sites/default/files/documents/files/PFA\\_SchoolCrisis.pdf](http://www.ready.gov/sites/default/files/documents/files/PFA_SchoolCrisis.pdf).

### About the authors

**Dr Vicki Trethowan** is a counselling psychologist and former teacher with over 20 years experience. Vicki has developed resources, training programs and protocols for the Victorian Department of Education in emergency, disaster and critical incident response and recovery. She currently works as a crisis management and trauma consultant in education and runs a private practice.

**Jane Nursey** is a registered Clinical Neuropsychologist with over 20 years experience in the mental health field. In her current role she provides policy and service development advice to government and non-government organisations in Posttraumatic mental health and develops and delivers education and training programs. Her specialty interests are in the diagnosis, assessment and treatment of trauma-related mental health disorders and developmental disorders.

# Teaching students involved in emergency management how to use social media effectively

Kirsten Ross, Michael Taylor and Mitchell Fitzgerald, Flinders University, describe a social media teaching method for public information in emergency response. 

## ABSTRACT

Social media tools can be used as a primary method of public communication during emergency events. However as the tools are interactive (i.e. information flows both ways and allows for responsiveness) this approach needs to be managed carefully. Social media sites are used to keep the public informed and help reduce possible anxiety. It is therefore important that students learn how to use these communication tools effectively, safely and legally and to examine incidents where they have been used poorly and well. Most popular existing social media sites own all content posted on their sites. This can create problems if they are to be used in teaching, particularly for teaching using simulations. A new social media site, called EmSpace, was developed to teach students involved in emergency management and public health protection to use social media tools effectively. This platform is described for others involved in teaching and learning to develop their own interactive online teaching and learning tool.

## Introduction

Many students are studying towards a profession that means they are likely to have significant responsibilities in emergency situations (Noji 1996). These people may have the primary responsibility for protecting public health in emergency situations such as following floods, bushfires and cyclones and work in collaboration with the emergency response team (Markenson, Dimaggio & Redlener 2005, Landesman 2005). Social media tools can be used as one method of public communication during such events. These tools are interactive and this approach needs to be managed carefully (Lievrouw & Livingstone 2002, Wendling *et al.* 2013). These communication tools can be used to ensure the public is kept informed, action is appropriate, panic is minimised and public health safety is protected.

Social media is now used extensively to provide information in both public health and environmental emergency situations, including the U.S. response to the 2010 Haitian earthquake (Yates & Paquette 2011), the U.S. 2009 influenza pandemic (Merchant, Elmer & Lurie 2011), the 2010 Deepwater Horizon oil spill (Merchant, Elmer & Lurie 2011), the 2007 Californian wildfires (Sutton, Palen & Shklovski 2008), and the 2010-2011 Queensland and Victorian floods (Bird, Ling & Hayes 2012). It is important that students who will be involved in public information understand how to use these online tools effectively.

This project aimed to teach students to use these communication tools effectively, safely and legally and to examine incidents where they have been used well and used poorly. A social media site, called EmSpace, was developed on campus for this purpose.

Problem-based learning (PBL) is an ideal teaching methodology to use in situations where the 'real-life' scenario cannot be reproduced (Stepien & Gallagher 1993). It is suited to teaching such skills as emergency management and emergency and risk communication. PBL can significantly enhance learning as it provides a real platform for students to interact and come up with the best solutions. This project used an existing PBL activity that followed events post-flooding, where a town was subjected to a flood and it was the responsibility of the students to determine the most appropriate actions. The project followed the progress of events in a logical, sequential order, and information was provided to the students over the course of five days.

During the activity students were required to contribute to the overall emergency communication effort, including activities such as providing maps, press releases, updates and advice, and responding to public inquiries. This was done in collaboration with other students and the teaching staff. Assessment was based on the correct use of the emergency response framework and structures and the quality of the use of the communication tools.

Other teaching materials provided included examination of social media sites that have achieved good or bad responses in emergency situations, recorded interviews with people involved in emergency services communication, and interactive sessions

with media educators. The PBL activity consisted of an interactive social media site, a set of pre-recorded lectures, a set of readings and notes, and a set of activities. Sequential delivery of information occurred in real-time to allow the problem-based activity to be undertaken by students over a three to five day period.

The students involved were enrolled in the Graduate Diploma of Environmental Health Practice, a postgraduate (AQF Level 8) award, at Flinders University, South Australia. This course is for students who will practice as local government environmental health officers.

## Methods

### The activity

The PBL activity was divided into two parts. The first (Section 1) provided students with the information and education tools they needed and a discussion space (students were required to work in groups and come up with posts as a group). The second part provided the social media site (Section 2) where students published their posts and responded to posts made by the topic co-ordinator masquerading as the public.

Section 1 included a mini lecture describing the activity to students, several pre-readings, details of the assessment and a quiz used to determine student knowledge about managing emergencies and protecting public health. It also included resources in the form of interviews with specialists, links to informative websites, the scenarios (which were delivered over three days to mimic a disaster unfolding over a week), and other resources such as mapping websites (Figure 1).

Section 2 was the online space where students posted information meant for the public over the course of the week, maps they had created showing portaloos, phone recharge points, etc (based on New Zealand response to the earthquake example), and where students responded to queries from the public (generated by the topic co-ordinator (Figure 2)).

### Student learning assessment

Two measures were used to assess student learning. The first was to ask a series of questions to determine student knowledge and their capacity to deliver information to the public in an emergency situation. All answers to these questions were anonymous. The second was assessing the product (the social media site developed by student groups). Students were given a grade (as a group) for the quality of the social media site, including the information posted and the level of interaction by the group. The question asked of students before they started the exercise was:

List things that you think might be responsibilities of an Environmental Health Officer (EHO) in an emergency situation (bushfire, flood, etc).



Figure 1: Screen shots showing parts of Section 1 (the learning interface).



Figure 2: Screen shots showing parts of Section 2 (the social media site).

Each student response was given a grade out of ten. This was for project assessment purposes and the grades were not used for student grading nor were students made aware of their grade. The grade was determined by the level of detail provided in student answers, specifically looking for environmental health considerations including drinking water, toilet facilities, food safety, emerging problems such as pest control and safe asbestos removal, etc. Sample question:

How confident would you be to give advice to the general public about environmental health issues in an emergency situation? (very confident, confident, unsure, not confident, terrified)

The questions asked of students after they completed the exercise were:

List things that you think might be responsibilities of an EHO in an emergency situation (bushfire, flood, etc).

How confident would you be to give advice to the general public about environmental health issues in an emergency situation? (Ratings were very confident, confident, unsure, not confident, terrified)

How many hours (approximately) did you spend on this exercise?

What things did you like about the exercise?

What things could be improved?

The topic co-ordinators also posted (emulating public participation) throughout the exercise. This was to make the students consider the sorts of things they might be required to take responsibility for in an emergency situation. Examples of the posts include:

*We are a group called the Golden Nirvanas, and we have arrived in Camden Vale to help out. There are 15 of us travelling as a group in three vans. What can we do to help?*

*Do I have to throw away my fridge?*

*I have a swimming pool in my backyard. Once I've chlorinated it is it ok to swim in?*

*I represent the local Beautify Camden Vale group. Can we use sediment deposited by flood waters in the town garden beds for replanting? How should we handle this material?*

*I am part of a volunteer clean up group. We have had to stop work this morning as upon clearing a large pile of branches we have discovered a body. We are concerned that close contact with materials surrounding the body may have exposed us to disease causing organisms, particularly as not all flood water has abated and water and mud splashes have occurred intermittently. What steps should we take? Is there an infection risk? What should we do?*

*I just saw about eight rats run out of my neighbour's yard into a vine along my fence. What should I do?*

### EmSpace development

The open source social networking engine Elgg was chosen for EmSpace because the functionality best met the project needs, and because there is a strong online community that supports its development. A number of features were turned off to create silos between the dummy local government accounts so that student groups could not see each other's work. Two extra Elgg plugins were used along with the base installation; a Facebook theme and a plugin that allowed users to login via a Learning Management System. In addition, an extra plugin was created to suit the project's specific needs. This was the use of dummy 'citizen' accounts as friends to each local government account, the ability

for lecturers to post as these citizens, and the ability to group students into local governments.

Full technical details related to this exercise are available at: <https://empbl.flinders.edu.au/tech-specs.html>.

## Results

### The activity

Students enjoyed the activity with responses to the question: 'What things did you like about the exercise?', including:

*I really liked this assignment. Its [sic] very thought provoking way to implement the knowledge and information. This task made me go through many documents and I gained more information and knowledge about management of emergency situation.*

*The EmSpace interface was really realistic. I liked how we were guided through the process and given ideas on what would be necessary to think about on the given day. By completing this exercise I feel a lot more knowledgeable about what an EHO role is in an emergency situation.*

*I didn't think I would like it but I did. It was good to have provision of the extensive materials on the site, which now gives me confidence that authoritative information is readily available on the internet. The range of questions from the 'community'; making us have to think and communicate clearly and effectively as well as addressing our business of the moment was good. It was a good learning exercise for me.*

### Student learning

Student learning was measured by their responses to the question: 'List things that you think might be the responsibilities of an EHO in an emergency situation (bushfire, flood, etc)'. Grades given for individual responses to this question rose after completing the activity, from a mean of six (SD<sup>1</sup> = 2.6) to seven (SD = 2.5).

Student responses to the question: 'How confident would you be to give advice to the general public about environmental health issues in an emergency situation?' (percentage of student responses) are presented in Figure 3; notably all students were more confident after the activity.

### Social media site

Students readily took to using the learning interface to develop responses prior to posting them on the social media site. The interface between the two worked seamlessly. There were a few comments that indicated

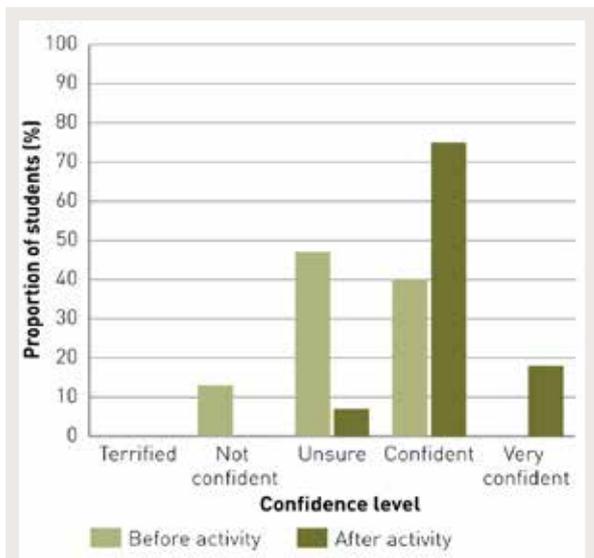
<sup>1</sup> SD = Standard Deviation.

that student expectations of the social media site were high:

*The EmSpace site was a little clunky initially but this should not be a problem into the future, having done it once now.*

*The layout of EmSpace was a bit off with comments coming up as status posts.... other than that I thought it was a good exercise.*

These criticisms were noted and addressed for future exercises.



**Figure 3:** Student responses to the question: ‘How confident would you be to give advice to the general public about environmental health issues in an emergency situation?’

## Discussion

There are two primary considerations when teaching students to use social media effectively for these purposes. The first is that the students are capable of providing simple, clear, comprehensible information to the public. However social media communication is two-way. Therefore the second consideration is that the students are able to respond to posts made by the public (e.g. how to respond to panic, how to respond to the unexpected, and how to respond to tricky or nonsense posts).

This activity allowed the assessment of student posts for appropriateness and content for the general public. It also allowed student discussions to be observed behind-the-scenes. Because the discussions can be monitored asynchronously, comments and feedback can be provided regularly to student groups to guide their thinking. This is important as meaningful feedback is one of the most beneficial aspects of the learning process (Laurillard 2013, Stevens & Levi 2011, Fisher & Frey 2012). This method also gives rise to peer support and feedback, which can be more valuable in

terms of learning than feedback from the assessors (O’Donnell & King 2014, Biasutti 2011).

## Conclusion

This paper illustrates how a social media site might be used in teaching an activity. Students enjoyed the activity, were engaged, and produced high quality materials for the assessable components of the activity, indicating effective learning.

## References

Biasutti M 2011, *The student experience of a collaborative e-learning university module*. *Computers & Education*, 57, pp. 1865-1875. At: [www.researchgate.net/profile/Michele\\_Biasutti/publication/220139875\\_The\\_student\\_experience\\_of\\_a\\_collaborative\\_e-learning\\_university\\_module/links/54243cd40cf26120b7a72a4f](http://www.researchgate.net/profile/Michele_Biasutti/publication/220139875_The_student_experience_of_a_collaborative_e-learning_university_module/links/54243cd40cf26120b7a72a4f).

Bird D, Ling M & Haynes K 2012, *Flooding Facebook-the use of social media during the Queensland and Victorian floods*. *Australian Journal of Emergency Management*, vol. 27, no. 2, pp. 27-33.

Fisher D & Frey N 2012, *Making Time for Feedback*. *Educational Leadership*, 70, pp. 42-47.

Landesman LY 2005, *Public health management of disasters: the practice guide*, American Public Health Association. At: <http://ajph.aphapublications.org/doi/book/10.2105/9780875530048>.

Laurillard D 2013, *Rethinking university teaching: A conversational framework for the effective use of learning technologies*, Routledge.

Lievrouw LA & Livingstone S 2002, *Handbook of new media: Social shaping and consequences of ICTs*, Sage.

Markenson D, Dimaggio C & Redlener I 2005, *Preparing health professions students for terrorism, disaster, and public health emergencies: core competencies*. *Academic Medicine*, vol. 80, pp. 517-526.

Merchant RM, Elmer S & Lurie N 2011, *Integrating social media into emergency-preparedness efforts*. *New England Journal of Medicine*, vol. 365, pp. 289-291.

Noji EK 1996, *The public health consequences of disasters*, Oxford University Press.

O’Donnell AM & King A 2014, *Cognitive perspectives on peer learning*, Routledge.

Stepien W & Gallagher S 1993, *Problem-based learning: As authentic as it gets*. *Educational leadership*, vol. 50, pp. 25-25.

Stevens DD & Levi AJ 2011, *Introduction to rubrics: An assessment tool to save grading time, convey effective feedback, and promote student learning*, Stylus Publishing, LLC.

Sutton J, Palen L & Shklovski I 2008, *Backchannels on the front lines: Emergent uses of social media in the 2007 southern California wildfires*. *Proceedings of the 5th International ISCRAM Conference, 2008*. Washington, DC, 624-632. At: [www.jeanettesutton.com/uploads/BackchannelsISCRAM08.pdf](http://www.jeanettesutton.com/uploads/BackchannelsISCRAM08.pdf).

Wending C, Radisch J & Jacobzone S 2013, *The use of social media in risk and crisis communication*. *OECD Working Papers on Public Governance DOI: 10.1787/19934351*. Yates D & Paquette S 2011, *Emergency knowledge management and social media technologies: A case study of the 2010 Haitian earthquake*. *International Journal of Information Management*, vol. 31, pp. 6-13.

## Box 1: Scenarios as given to students

### Scenario 1 (Day 1):

Camden Vale (34°15 33 N 80°36 33 W) has been flooded overnight. The floods are the result of heavy rainfall caused by the passage of a tropical cyclone (*Cyclone Jamie*) combined with a particularly strong La Niña period. This La Niña period had caused unusually heavy rainfall in the preceding year and subsequently the rivers and catchments surrounding Camden Vale were already at or over the maximum capacity. Additionally, high temperatures have exacerbated these conditions and driven the formation of several severe weather events.

Initially, isolated flooding began in rural areas and low-lying regions surrounding rivers. The passage of *Cyclone Jamie* forced water into the already overloaded system and caused extensive flooding through the Camden Vale region, which is home to approximately 20,000 people and includes commercial districts and light industrial zones. Officials report creeks and rivers being one to three metres above flood stage. Overnight, sandbagging efforts have concentrated around vulnerable areas such as the drinking water and wastewater treatment plants, although these have failed and flood water has entered both the drinking water and sewage treatment plants. Houses on the edge of the town are on septic systems. There is no power to any areas in Camden Vale and phone landlines are not working.

As part of a very large emergency services team, you will be working in the affected region. However for the purposes of this exercise, you are required to establish and monitor a social media site to provide information to the public. The primary role of the social media site is to protect public health.

Questions to get you started:

*What information will you post at this initial stage?*

*What information should you seek out?*

*What sorts of questions do you think residents might have?*

*What are likely to be the major concerns at this stage?*

Now might be an appropriate time to:

*Provide advice to residents about safe drinking water and sanitation.*

### Scenario 2 (Day 3):

Many residents in flood-affected areas have been evacuated, although quite a few residents have either not left their houses or have returned home. Flood waters have receded to the extent that further inflows of water are no longer considered a possible danger.

Many of the acute dangers affecting the area have been either contained or removed. Some residents have begun to return to homes and businesses, primarily during

the day, in order to begin clean-up efforts and assist emergency workers where they can.

There is still no electricity and phone landlines are still not working.

Now might be an appropriate time to:

*Provide advice to residents about food safety and personal hygiene.*

### Scenario Part 3 (Day 7):

Currently gutters and some side streets are filled with a range of mixed debris as well as volumes of standing water in low-lying areas, depressions and blocked drains. The debris primarily consists of tree branches and detached structural and building material (roofing and guttering material, broken wood, glass) and mud. Due to the varied land use surrounding the area that you are working in there may be a range of further components present in this debris either contained or obscured by the muddy water. An assessment of the area may provide insight into any specific hazards that may not be immediately apparent.

Residents have started to dispose of flood debris and sediment but are unsure where to start and what should be done with debris once it is sorted from undamaged property. They have asked for some guidance in order to decide what can be kept, what can be reused, and what needs to be disposed of. Rubbish collection services have begun. There is now daily collection.

Beyond direct water damage and damage caused by debris carried by flood waters, buildings are being affected by the accumulation of water within building materials. Many structures have only received light water damage, with little to no accumulation of flood debris. However in some buildings, particularly those that contain large amounts of natural materials (wood etc), porous and absorbent goods, carpeting etc., and that have remained unoccupied and unventilated for an extended period of time, have begun to show signs of mould growth.

Clean-up efforts have proceeded well and emergency workers have begun to clear the streets. Piles of debris have been reduced rapidly as many of the local residents who have been allowed to re-enter the area have volunteered to help emergency workers when able. However, the combination of water and warm weather has resulted in high numbers of mosquitoes.

Now might be an appropriate time to:

*Provide advice to residents about mosquito control (and possibly other vermin).*

*Provide advice to residents about safety in houses and surrounds containing mould.*

*Provide advice to residents about rubbish (particularly asbestos).*

## About the authors

**Kirstin Ross** and **Michael Taylor** are lecturers in environmental health at Flinders University with an interest in emergency management and public health.

**Mitchell Fitzgerald** is a multimedia educational resource designer at Flinders University. He has an interest in the use of online tools for effective teaching approaches.

# Victoria's Gender and Disaster Taskforce

Debra Parkinson and Claire Zara, Women's Health Goulburn North East and Women's Health in the North, and Susan Davie, Save the Children, present progress on the Gender and Disaster Taskforce. 

## ABSTRACT

Victoria is modelling an innovative way to mitigate the impacts of disaster on individuals, communities and emergency services organisations through its Gender and Disaster Taskforce. This may well be the first of its kind in the world. The Taskforce was established in 2014 and is led by the Victorian Emergency Management Commissioner, Craig Lapsley, and Susie Reid, Executive Officer of Women's Health Goulburn North East.

It brings together the energy and commitment of Emeritus Professor Frank Archer from the Monash University Injury Research Institute and Professor Bob Pease from the University of Tasmania, together with other high-level players from Victorian emergency services organisations, local government and the community. Representation includes the Department of Health and Human Services, Country Fire Authority, State Emergency Services, Metropolitan Fire Brigade, Department of Environment, Land, Water and Planning, Victoria Police, Emergency Services Telecommunications Authority as well as community consultants, Municipal Association of Victoria, and Save the Children.

## Why consider gender?

'Don't talk to me of gender, we have an emergency on our hands!' Has this thought ever crossed your mind? Leading U.S. disaster researcher, Elaine Enarson, writes:

*Historically based in civil defense and in jobs and occupations dominated by men, the emergency management culture of practice is response-oriented, fostering a climate in which the 'tyranny of urgency' (Baden and Masika, 1996) prevails. The concerns of sex and gender, like those arising around age or ability, are seen (if at all) as secondary distractions. (Enarson 2012, p. 168)*

The irony is that disasters are currently managed in a wholly gendered way. The way we construct gender roles creates different risks for men and women in disasters, and these must be planned for without the assumption that men will be tough and women will be protected (Eriksen 2014). An Australian study (Parkinson 2012, Parkinson & Zara 2013), reported that one woman almost died as a result of her belief that her husband could save her, saying, 'He was my fire plan'. He was unable to leave the fire front and any plans for protecting her had to be abandoned due to the magnitude of the disaster.

We persist in imagining the role of men as protector and women as protected. This is the case, even though in the 50 years leading to Black Saturday in Victoria in 2009, 40 per cent of deaths from bushfire in Australia were females with the gap between male and female deaths closing in two Australian bushfires (Haynes *et al.* 2008). In the 2005 Wangary Fire in South Australia, for example, three of the nine people who died were women and four were children (DeLaine *et al.* 2008). In the Lara fires of 1969, 72 per cent (13) of those killed were female (Haynes *et al.* 2008).

Given that the great majority of professional and volunteer firefighters on Black Saturday were men, the fact that 73 females died appears disproportionately high. This is 42 per cent of the total deaths. A postal survey of 1314 Black Saturday survivors found that 62 per cent of men and 42 per cent of women did not evacuate—either to defend property (83 per cent) or because it was too late to leave or leaving was unsuccessful (12 per cent) (Whittaker *et al.* 2013). DeLaine and colleagues' conclusion in 2008 that 'there are clear gender differences in bushfire knowledge, fire fighting skills and risk perception [and that] lack of interaction with fire agencies by women remains an issue' is equally true in 2015.

The consequence of men's perceived 'failure' to protect families on Black Saturday reverberated for some men in displays of hyper-masculinity, violence and risk-taking in the disaster's aftermath, and, for some others, in harmful behaviours turned inwards—mental anguish denied and repressed leading to shame, isolation, depression, anxiety and suicide (Zara & Parkinson 2013). The male culture in emergency services sometimes undermined support services

on offer, such as counselling. Men spoke of their reluctance to reveal to others that they were seeking help, fearing this would be seen as a weakness that could hinder their career paths:

*People would be worried about the confidentiality, whether there was any feedback that came around the back saying, 'Keep this guy away from big fires'. (Matthew)*

*When the Works Coordinator was away [I used to be on higher duties]. When I took that month off, which I took off as stress leave, ever since then there's been nothing. (Stuart)*

## Background to the Taskforce

The Taskforce builds on evidence collected in the aftermath of the devastating Black Saturday bushfires in Victoria in 2009. The Just Ask conference in Melbourne in 2013 and two key research reports prompted this innovative approach to emergency management. Parkinson (2012) showed an increase in family violence after the 2009 bushfires, and Zara & Parkinson (2013) documents how men spoke of their ongoing struggles with mental health issues including anger, isolation and drugs and alcohol. For some men this was the first time they had shared their experiences from the day of the fires and in the following months. Many said they did not experience symptoms until one or two years later and some spoke of violence between men in community settings that shocked them, with repercussions felt to this day.

*There were quite a lot of angry accusations flying about that, and that's to a degree still going ... We had an incident two months ago ... where two guys got into a punch-up. (Chris)*

*I was about that far from assaulting somebody one night, I just was ready to drag him across the table at a meeting in public and beat the crap out of him. (Scott)*

*Verbal abuse and physical abuse as well. I can remember walking from the big tent to the main street with a person who I'd known for the best part of 10 years. I was challenging him on a particular issue that he was taking a leadership role in, and that exploded into violence. (Paul)*

The lack of timely and appropriate services and a fear of stigma were key themes. The men's narratives show that a culture of masculinity (and an absence of women in emergency services) can contribute to men's harmful behaviours—both to themselves and to those around them (Beatson 2005, Pacholok 2013, Scanlon 1998, Tyler 2013a, Tyler & Fairbrother 2013). For example, Ainsworth, Batty & Burchielle (2014) found that masculine workplaces like the Country Fire Authority in Victoria celebrated 'qualities such as physical action, detachment from others and competition' (p. 41) and reported women experiencing volunteer firefighting workplaces as hostile and threatening. Indeed, the link between support for traditional masculine and feminine stereotypes and male violence has been identified by

VicHealth, as summarised by Council of Australian Governments:

*Evidence shows that key predictors of violence against women relate to how individuals, communities and society as a whole view the roles of men and women. Some of the strongest predictors for holding violence-supportive attitudes at the individual level are low levels of support for gender equality and following traditional gender stereotypes. (Council of Australian Governments 2011, p. 18)*

In emergency management historically, a sharp delineation between the jobs of men and women was evident and continues to be reflected in statistics. In NSW, a gendered division within the Rural Fire Service is evident as men overwhelmingly fill frontline and leadership roles and women are represented in greater numbers in non-operational volunteering such as communications and catering (Eriksen 2013). This is reflected across Australia, with women comprising less than a quarter of rural fire service personnel—primarily in support roles (Tyler 2013b). As Mae Proudley writes:

*Scant attention is paid to women and their roles in the emergency management landscape. This is particularly relevant in the field of community bushfire preparedness and mitigation. The culture of emergency management remains a very masculine field with the command and control system continuing to dominate and influence the roles and processes of emergency events. (Proudley 2008, p. 37)*

Competency is associated with masculinity and, as Huppatz & Goodwin (2013, p. 300) write, 'it may simply be a case of men being seen to have "the right body for the job"'. Segregation of women and men in emergency management, as in other employment areas (Dowd 2010, Noble & Pease 2011), works to discriminate against women and ensure higher pay and status for men. Often rationalised as natural, a leftover from 'breadwinner' imagery, the notion that men are more deserving of higher status jobs and promotions persists (Seguino 2015, Marra 2015). This male sense of entitlement may result in resentment and even violence against women (Scanlon 1998).

The Chief of Army, Lieutenant General David Morrison presented to the Taskforce in 2014 and gave the anecdote that, following reforms to address sex discrimination in the Army, women who are promoted within the military are said to have been 'Brodericked'<sup>1</sup>. This alludes to the then Sex Discrimination Commissioner, Elizabeth Broderick, and indicates male resistance to losing their previous privilege in the workplace. Such a 'backlash' against special temporary measures may manifest in discrimination against women continuing through differential treatment and interpretation of behaviour (Deutsch 2007, Noble & Pease 2011). Vigilance beyond equal representation of women and men in emergency management is therefore essential.

1 Video available at [www.whealth.com.au/environmentaljustice/gender-disaster-taskforce.html](http://www.whealth.com.au/environmentaljustice/gender-disaster-taskforce.html).

## Aims, objectives and benefits

The Gender and Disaster Taskforce is charged with setting firm goals including tackling the dearth of women in leadership positions within emergency services organisations and changing a culture that rewards men for risky behaviour to one that supports both men and women.

All documents are available at [www.whealth.com.au/environmentaljustice/gender-disaster-taskforce.html](http://www.whealth.com.au/environmentaljustice/gender-disaster-taskforce.html) and can be included and adapted by emergency management practitioners in other parts of Australia.

The Taskforce is a three-year initiative intended to make a measurable, positive difference and lay foundations for future improvement. The primary aim is to reduce the compounding effects of gender on disaster impacts, through achievement of seven objectives:

1. To transform the work environments and practices of emergency services organisations so that women find working in them to be welcoming and inclusive.
2. To transform the work environments and practices of emergency services organisations so that men feel encouraged to work against harmful, destructive, conscious and unconscious masculine behaviours to self and others, and feel less pressure to engage in them.
3. To improve the gender-specific support that men and women in emergency services organisations and other emergency management organisations receive after disasters.
4. To achieve Objectives 1-3 in ways that improve respect for the needs of diverse groups, for example culture, sexuality, age, in relation to how it intersects with the issue of gender.
5. To improve the gender-specific support that men and women, along with boys and girls, throughout the community receive after disasters.
6. To embed a gender lens across culture and systems relating to disasters to improve community outcomes following future disasters.
7. To ensure efficient and responsive Taskforce planning, reflective of gender equity and representative of the principles of the foundation document.

The work plan includes a number of approaches to support achieving each objective and suggests a multitude of ways that emergency planners and responders can adopt to address the negative and compounding effects of gender stereotyping on disaster. The benefits of focusing on gender issues in emergency management and disaster include:

- improved functioning of communities before, during and after fires and emergencies
- improved functioning of fire and emergency agencies, including increased support for employees and volunteers
- greater accuracy in emergency management doctrine by applying a gender lens to policies, plans, procedures and training manuals



Gender and Disaster Taskforce members represent a range of academic and government departments, non-government organisations and community members.

- reduced violence, particularly against women and children by men
- improved men's health including reductions in substance abuse, depression and suicide
- increased opportunities and conditions for women in fire and emergency organisations and disaster-affected communities
- better sustaining of livelihoods (including employment) after disasters
- widespread understanding of gender and disaster issues, underpinned by evidence.

Although the Gender and Disaster Taskforce was established in response to research findings following disasters in Victoria, it has wider applicability. Each Australian state and territory has its own context and its own emergency management challenges, yet human responses and behaviour are shaped by the same cultural gender norms, both urban and rural. The work completed by the Taskforce in its first 12 months of operation offers a blueprint for others to adopt and adapt to ensure that gender issues are considered in all aspects of emergency management practice.

## Evaluation

Since its inception, evaluation of the Gender and Disaster Taskforce has included a standing agenda item entitled, 'Use of gendered power and language'. At the beginning of each meeting, the Chair invites a taskforce member to observe the meeting and offer comments at its conclusion on the extent to which gendered power was evident and the use of gendered language. These comments on observed dynamics are open for a wider discussion from all taskforce members. This has proved a useful, revealing and sometimes surprising part of the meeting.

A second standing agenda item is a 'Round the table' invitation for members to report on initiatives their organisation has undertaken to address the Gender and Disaster Taskforce work plan. This inclusion allows members to share their good practice and works as a prompt to consider the ideas in the work plan. A new initiative is for members to present more formally on their organisation's performance from a gender perspective. The first presentations prompted rich

discussions that revealed the ways in which gender is implicated in emergency management. These segments will be documented due to their potential to add to the sector's understanding of this central issue.

An in-depth 'Reflection and self-evaluation' questionnaire is being trialled and will be used twice-yearly to allow measurement of satisfaction with the process of the Taskforce and assess benefits for member organisations.

## References

- Ainsworth S, Batty A & Burchielli R 2014, *Women Constructing Masculinity in Voluntary Firefighting*. *Gender, Work & Organization*, vol. 21, no. 1, pp. 37-56. doi: 10.1111/gwao.12010
- Beatson J & McLennan J 2005, *Australia's women volunteer fire fighters: a literature review and research agenda*. *Australian Journal on Volunteering*, vol. 10, no. 2, pp. 18-27.
- Council of Australian Governments 2011, *National Plan to Reduce Violence Against Women and their Children: Including the first three-year Action Plan*. Canberra: Commonwealth of Australia.
- DeLaine D, Probert J, Pedler T, Goodman H & Rowe C 2008, *Fiery Women: Consulting, designing, delivering and evaluating pilot women's bushfire safety skills workshops*. Paper presented at the *The International Bushfire Research Conference 2008 – incorporating the 15th annual AFAC Conference*, Adelaide, South Australia.
- Deutsch FM 2007, *Undoing gender*. *Gender & Society*, vol. 21, no. 1, pp. 106-127.
- Dowd NE 2010, *Asking the man question: masculinities analysis and feminist theory*. *Harvard Journal of Law & Gender*, vol. 33, no. 2, pp. 415-430. At: <http://scholarship.law.ufl.edu/facultypub/83>.
- Enarson E 2012, *Women confronting natural disaster: From vulnerability to resilience*. Boulder, Colorado: Lynne Rienner Publishers, Inc.
- Eriksen C 2014, *Gendered risk engagement: challenging the embedded vulnerability, social norms and power relations in conventional Australian bushfire education*. *Geographical Research*, vol. 52, no 1, pp. 23-33.
- Eriksen C 2014, *Gender and wildfire: Landscapes of uncertainty*. New York: Routledge.
- Haynes K, Tibbits A, Coates L, Ganewatta G, Handmer J & McAnerney J 2008, *100 years of Australian civilian bushfire fatalities: exploring the trends in relation to the 'stay or go policy': Report prepared for the Bushfire Co-operative Research Centre*. Sydney, Australia: Risk Frontiers.
- Huppatz K & Goodwin S 2013, *Masculinised jobs, feminised jobs and men's 'gender capital' experiences: Understanding occupational segregation in Australia*. *Journal of Sociology*, 49 (2-3), 291-308. doi: 10.1177/1440783313481743
- Marra M 2015, *Cooperating for a more egalitarian society: Complexity theory to evaluate gender equity*. *Evaluation*, vol. 21, no. 1, pp. 32-46.
- Noble C & Pease B 2011, *Interrogating male privilege in the human services and social work education*. [Report]. *Women in Welfare Education*, 10.
- Pacholok S 2013, *Into the fire: Disaster and the remaking of gender*. Toronto: University of Toronto Press.
- Parkinson D 2012, *The Way He Tells It – Vol. 1 Relationships After Black Saturday*. Wangaratta: Women's Health Goulburn North East.
- Parkinson D & Zara C 2013, *The hidden disaster: Violence in the aftermath of natural disaster*. *Australian Journal of Emergency Management*, vol. 28, no. 2, pp. 28-35.
- Proudley M 2008, *Fire, Families and Decisions*. *Australian Journal of Emergency Management*, vol. 23, no. 1, pp. 37-43.
- Scanlon J 1998, *The Perspective of Gender: A Missing Element in Disaster Response* In E. Enarson & B. H. Morrow (Eds.), *The Gendered Terrain of Disaster: Through Women's Eyes*. Westport, CT: Praeger Publishers.
- Sequino S 2015, *Overcoming Barriers to Gender Equality: Gender Norms and Stereotypes*. Paper presented at the *Commission on the Status of Women Fifty-ninth session*, New York.
- Tyler M 2013a, *The Country Fire Authority as an 'Extremely Gendered' Organisation*. Melbourne: College of Arts, Victoria University. At: [www.tasa.org.au/wp-content/uploads/2013/11/Tyler.pdf](http://www.tasa.org.au/wp-content/uploads/2013/11/Tyler.pdf).
- Tyler M 2013b, *Fighting and dying: blokes and bushfire in Australia*. *The Conversation*. At: <http://theconversation.com/fighting-and-dying-blokes-and-bushfire-in-australia-11552>.
- Tyler M & Fairbrother P 2013, *Bushfires are 'men's business': The importance of gender and rural hegemonic masculinity*. *Journal of Rural Studies*, 30, pp. 110-119.
- Whittaker J, Haynes K, Handmer J & McLennan J 2013, *Community safety during the 2009 Australian 'Black Saturday' bushfires: an analysis of household preparedness and response*. *International Journal of Wildland Fire*, vol. 22, no. 6, pp. 841-849.
- Zara C & Parkinson D 2013, *Men on Black Saturday: Risks and opportunities for change*. Wangaratta: Women's Health Goulburn North East.

## About the authors

**Debra Parkinson** is a social researcher, committed to feminism and social justice. She is the researcher for both Women's Health Goulburn North East and Women's Health in the North and was awarded her PhD in Social Sciences from Monash University in 2015. Debra is currently an Adjunct Research Fellow with Monash Injury Research Institute.

**Claire Zara** was a researcher with WHGNE, and a PhD candidate at Monash University. Her topic was men's experience of health and wellbeing during and after Black Saturday.

**Susan Davie** works as a senior policy advisor – domestic emergencies for Save the Children. Susan's role focuses on improving emergency management planning for children in Australia. This includes a focus on policy and advocacy for the inclusion of the unique needs of children in all emergency management plans along with operational response when Save the Children responds to children's needs in disasters. She is currently completing a PhD at Monash University.

# Public–private partnerships in emergency and disaster management: examples from the Queensland floods 2010–11

Associate Professor Bhisna Bajracharya and Dr Peter Hastings, Bond University, examine a framework for public–private partnerships in building community resilience. 

## ABSTRACT

Numerous international studies have corroborated the value of public–private sector partnerships in reducing vulnerability and building resilience to emergencies and disasters. This paper proposes a simple conceptual framework for public–private partnerships in emergency and disaster management that could be applied to research and policy analysis in Australia. The framework proposes three dimensions: sector types (public, business and community), partnership arrangements (legislated and formal to informal agreements), and partnership roles (strategic and resilience-building and response and recovery). This paper describes how the three sectors can work together under various partnership arrangements for preventive or responsive measures in emergency and disaster management. Public–private partnerships during and after the Queensland floods of 2010–11 are used to illustrate the relationships presented in the framework and to give a snapshot of these partnerships in Queensland.

## Introduction

There is potential for partnerships between governments, non-government organisations and private sector enterprises of all sizes to enhance emergency and disaster resilience. So-called public–private sector partnerships have been formally developed in Australia, particularly in relation to critical infrastructure (e.g. Commonwealth of Australia 2010). However, there has been relatively little systematic identification or analysis of other emergency and disaster management-related public–private partnership experiences particularly at local government and community levels.

Public–private partnerships are often defined in the infrastructure and development environments as contractual arrangements between governments and the private sector that support the government's broader service responsibilities (e.g. Commonwealth of Australia 2008). Consistent with the National Research Council of the National Academies (2011), this paper extends the definition to embrace a wider range of collaborations to include formal and informal arrangements and the not-for-profit sector.

The aim of this paper is to suggest a simple conceptual framework of public–private partnerships that is applicable to Australian emergency management and, hence, guide research and policy analysis. The term 'emergency' is used hereafter to represent the spectrum of incidents from minor to catastrophic (see Attorney-General's Department 2014) as it is envisaged that public–private partnerships potentially play roles across the breadth of incident intensities.

The efficacy of public–private partnerships for emergency management and resilience-building has been established across the range of socio-economic and hazard settings (United Nations 2008, Business Civic Leadership Centre 2010, United States Chamber of Commerce Foundation 2014). Successful partnerships have facilitated the organisation, exchange and use of capital and cash, equipment, labour, services, infrastructure, expertise, training and more. They allow governments to access the resources, capabilities and logistic networks available in the private sector and hence to concentrate on their own priorities and avoid the inefficiencies of duplication. Meanwhile, the private sector can be rewarded directly with business and through the development of trusted networks and community exposure (National Research Council of the National Academies 2011, Busch & Givens 2013). The contemporary operational emphasis is on identifying 'good practices' for public–private partnership initiation and maintenance, and establishing effective supporting structures of co-ordination and governance.

## Conceptualising public-private partnerships

In its compendium of public-private partnership case studies in emergency management and resilience-building, the *International Strategy for Disaster Risk Reduction* (United Nations 2008) broadly conceptualised public-private partnerships in terms of their goals and outcomes, being advocacy and awareness, social investment and philanthropy, and core business partnerships.

This and similar collections (e.g. as previously cited) highlight the diversity of public-private partnership participants and arrangements that have successfully achieved such outcomes. In attempting to synthesise the real world experiences, analyses by Abou-bakr (2012), and Chen and colleagues (2013) yielded public-private partnership frameworks that rationalised stakeholder participation, arrangements and roles in the emergency management context.

Drawing on this work, a general framework is proposed as a basis for conceptualising public-private partnerships for emergency management in Australia (see Figure 1). The broad structure of the framework follows Chen and colleagues (2013) who suggest a taxonomy of public-private partnership arrangements that broadly identifies sector involvement, partnership arrangements and purpose (linked to emergency management phases). The latter is refined by adopting the classification by Abou-bakr (2012) who delineated 'strategic policy-orientation' and 'responsive' partnerships (the former being long-term arrangements that seek to mitigate crises and disasters, while the latter tends to be driven in the response and recovery phases by a shared sense of urgency and the perception of mutual gain). The sub-elements of the framework reflect the Australian political and business landscape and are briefly outlined below.

### Sector types – public and private sectors

The National Research Council of the National Academies (2011) recommends representation from the full fabric of society for sustainable and effective resilience-focused collaboration. In this framework, and consistent with Chen and colleagues (2013), public, private and non-government sectors are included.

The public sector comprises the three tiers of government (Commonwealth, state and local) and recognises government-based emergency services within these as potential partners.

The private sector is divided into the business sector and the non-government and community sectors, which broadly aligns to the familiar 'profit' and 'not-for-profit' delineation. Within the business sector, business size and type are identified as important variables as they potentially reflect the nature and magnitude of possible contributions to emergency management efforts (refer to case studies from the United States Chamber of Commerce Foundation 2014).

The non-government, not-for-profit and community sectors comprise the recognised components of voluntary services, humanitarian non-government organisations (NGOs) and local community groups, all of which have established roles in emergency management (e.g. Queensland Government 2013). Type and size of the operations are acknowledged, including the specific differentiation between local community-based groups and humanitarian NGOs that are relatively large national and international organisations.

By way of the arrows encircling each sector type in Figure 1, the framework observes that partnerships are not only inter-sectorial, but also occur within the sector types. For example, levels of government can have internal and hierarchical co-operative arrangements, as can businesses or NGOs.

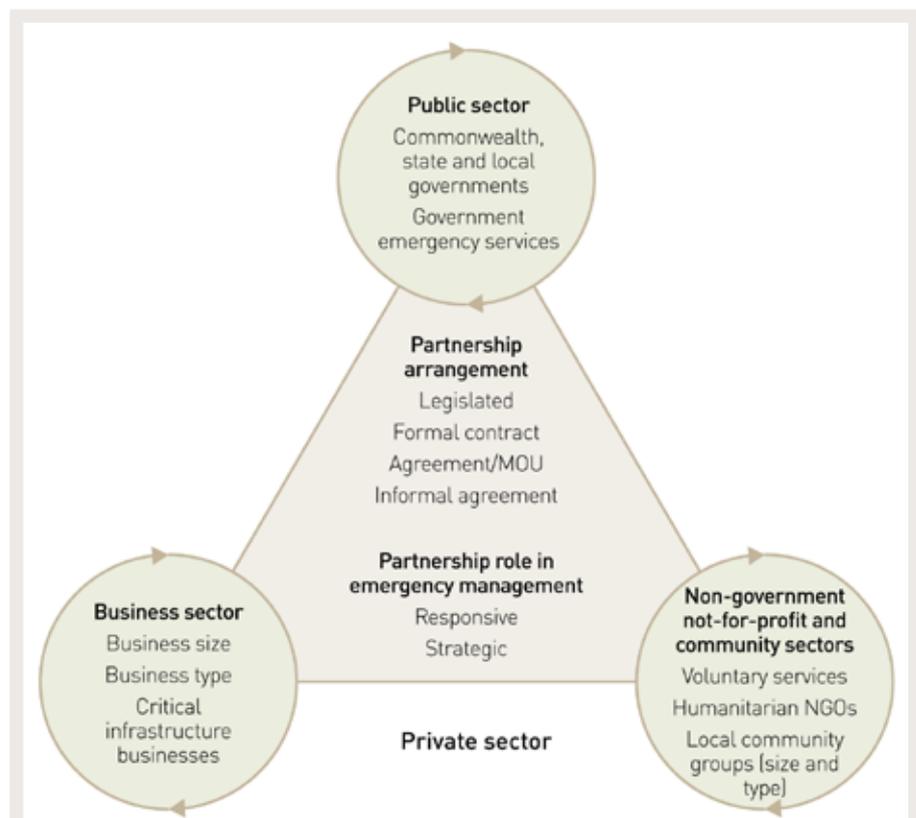


Figure 1: Proposed conceptual model for public-private partnerships in emergency management.

## Partnership arrangements

The legal mechanism underpinning partnerships is seen as an important characteristic as it defines the degree of legal robustness in the relationship and may reflect levels of commitment and, therefore, the certainty and enforceability of realising anticipated co-operation. Partnership arrangements ranging from formal (legislated and formal contracts) to less formal and informal agreements are delineated in a hierarchical sub-categorisation.

## Role of partnerships

Finally, the role of partnerships in emergency management and resilience-building is classified as either strategic (aimed at prevention and preparedness activities) or responsive (aimed toward response and recovery operations) following Abou-bakr (2012) classifications. This provides an analytical framework with which to investigate partnership objectives and biases with reference to the comprehensive emergency management approach.

## Partnerships during the 2010–11 Queensland floods

The following illustrates the application of the framework to conceptualise and describe some of the public–private partnerships operating during the Queensland and Brisbane flood disasters of 2010–11. A detailed account of the events is not provided here, but is available in the Queensland Floods Commission of Inquiry final report<sup>1</sup>. Evidence of public–private partnerships were identified by reviewing publicly-available sources including the Queensland Flood Commission of Inquiry publications, company reports and company media releases, local government communications and non-government sector reports dealing with the disaster and its aftermath. Prominent, sourced examples of partnership types are collated into Table 1, which is formatted to reflect the framework. It is not intended to be a comprehensive account.

The examples in Table 1 are biased towards reporting partnerships involving larger enterprises. These are more readily identifiable from publicly available information perhaps because larger entities have the resources, media access and motivation to publicly promote their support of the community. Conversely, capturing accounts of partnerships featuring smaller businesses and community-based organisations was difficult as few instances had been publicly reported.

A diversity of emergency management public–private partnerships is identified, including strategic and responsive partnerships between governments, NGOs and businesses of various types and sizes. Partnership mechanisms and governance range from legislation and formal contracts to *ad hoc* informal understandings. The following describes some examples of public–private partnerships that can be

conceptualised under the framework by classifying sector involvement, partnership arrangements and partnership roles.

### Government–private sector partnerships: legislated and contractual, responsive and strategic

Formal, strategic public–private sector partnerships are established between government and critical infrastructure and service providers, notably at the Queensland state government level. For example, Energex (electricity distributor) has responsibilities under Queensland's *Disaster Management Act 2003* and nominates representatives to participate in local, district and state emergency management groups (Energex n.d.). Further facilitating public–private partnerships at this level, the *Queensland State Disaster Management Plan* (Queensland Government 2013) specifies other possible non-government members of the state's peak disaster co-ordination group, including larger state and nation-wide organisations such as the Red Cross, Surf Life Saving Queensland, large utility companies, the Insurance Council of Australia and others. Oloruntobo (2010) previously observed that the Queensland Government had integrated effectively with the private sector (including larger businesses and NGOs) in the aftermath of *Cyclone Larry*, citing the successes of logistical support from private businesses on the basis of unspecified pre-emergency agreements (not specified).

### Government–private sector partnerships: MOU and agreement-based, responsive and strategic

At local and regional levels and less formally, Queensland local councils have entered into agreements with the Red Cross, usually in the form of Memoranda of Understanding (MOUs), to manage and operate local evacuation centres. Red Cross itself partners with other organisations and Queensland government departments (e.g. Lifeline and Queensland Department of Police, Fire and Emergency Services, formerly Department of Communities, Child Safety and Disabilities) to provide community outreach services. Red Cross also contributes to emergency management planning and policy through committee representation at all levels of government (Red Cross 2011).

A significant outcome of the 2010–11 floods was the engagement between the insurance industry and some Queensland local governments, including the Balonne and Murweh shire councils, to address the issues of flood insurance access and affordability (e.g. Balonne Shire Council 2014, Suncorp Insurance 2013). Agreements (formality not indicated) encouraged investment in risk assessment, hazard mitigation and subsequent risk-information disclosure by local councils in return for insurance reassessments, potentially resulting in sustainable, more affordable insurance coverage for community members. Access to insurance and premium reductions have eventuated in some cases. This provides quantitatively definable

1 Queensland Floods Commission of Inquiry report. At: [www.floodcommission.qld.gov.au/publications/final-report/](http://www.floodcommission.qld.gov.au/publications/final-report/).

economic and community benefits for mitigation investment (Suncorp Insurance 2013).

**Government-private sector partnerships: informal, responsive and strategic**

The Queensland flood disaster was also a catalyst for relatively informal *ad hoc* public-private partnerships during the response and recovery phases. Table 1 outlines some of these, which commonly feature

opportunistic donations of cash and supply of labour, goods and equipment by the private sector. At state government level a policy was established to guide this aspect of disaster response and recovery (*Queensland Policy for Offers of Assistance, Donations, Volunteers and Goods in Disasters*) (Queensland Government n.d.). However, contemporary state emergency management policy and guidelines, including the *Queensland Local Disaster Management Guidelines* (Queensland Government 2012), do not provide *specific* guidance

**Table 1:** Examples of the range of public-private partnerships evident in the Queensland and Brisbane flood of 2010-11.

Partnership type	Partnership example	Activity	Partnership arrangement	Partnership role in emergency management and resilience building
<b>Public Sector with Business Sector</b>	State government with critical infrastructure providers  e.g. Queensland Government and Energex  (Energex n.d.)	Maintain electricity supply.	State Legislation: Energex has responsibilities under the <i>Queensland Disaster Management Act 2003</i> . Energex nominates representatives to all levels of government.	Response and recovery.
	State government with large businesses  e.g. Queensland Government with a range of mining, retail, financial and other large businesses  (Burke 2011, Wesfarmers 2011)	Cash donations to the Queensland Premier’s Flood Appeal.	Agreement: donation pledges.	Response and recovery.
		Large retailers provide and modify logistical support (freight services, warehousing and distribution) to ensure supply of essential items to disaster zones.	Not determined.	
	State government with all businesses  e.g. Queensland Government with a range of businesses  (Queensland Government 2014)	Business relief and recovery assistance.	Legislation and contracts: loans, subsidies, tax concessions.	Response and recovery.
		Provision of instructional materials and templates to facilitate business continuity planning (including for specific natural hazard types).	Informal: information provision only.	Strategic resilience-building.
	Local government with large businesses  e.g. Queensland local governments with the insurance industry  (Suncorp Insurance 2013)	Local government undertaking mitigation and sharing risk information with industry to encourage re-assessment of risk and hence insurance product accessibility and lower cost.	Informal.	Strategic resilience-building.
Local government with small-medium businesses  e.g. Brisbane City Council with private plant and machinery contractors  (Brisbane City Council 2011)	In the response phase, council actively solicited contract plant and machinery operators (in the case of Brisbane City Council, through social media), to assist in the post-flood cleanup.	Council procurement processes.	Response and recovery.	

continued

Table 1: (continued)

Partnership type	Partnership example	Activity	Partnership arrangement	Partnership role in emergency management and resilience building
<b>Public sector with the non-Government and Community sector</b>	Local government with NGOs e.g. Brisbane City Council Ipswich Regional Council with Australian Red Cross (Brisbane City Council 2011)	Management of evacuation centres, registration and social support (Red Cross).	Memorandum of Understanding.	Response and recovery. Strategic resilience-building.
	Local government with community groups e.g. Gold Coast City Council with Varsity Lakes Community Group (Bajracharya <i>et al.</i> 2012)	Gold Coast City Council advised the community group to enhance preparedness for future emergencies.	Informal, non-contractual..	Strategic resilience-building.
<b>Private Sector with the non-Government and Community Sectors</b>	Businesses with NGOs e.g. major retailer and the Salvation Army (Luscombe 2011)	A major retailer collecting and matching donations for the Salvation Army flood appeal.	Not determined.	Response and recovery.
<b>Intra-sector partnerships</b>	Intra-business partnerships e.g. Ergon with Energex and interstate entities  e.g. Queensland Urban Utilities with Unity Water, Sydney Water Corporation and Aliconnex (Queensland Floods Commission of Inquiry 2011)	Resource sharing during severe weather events.	Memorandum of Understanding and Mutual Aid Guidelines for the water sector.	Response and recovery. Strategic resilience-building.
<b>Complex community-based partnerships</b>	Government with business and the non-government, community sectors  e.g. various locations with retail chains and mining companies, NGOs, community centres and state and local Governments  (Bourke 2011, Queensland Resources Council 2011, Luscombe 2011, Wesfarmers 2011)	Retailer donations of essential goods and social support to the public, emergency teams and evacuation centres, e.g. supply of essential items, labour, clean-up goods, back-to-school supplies, photocopy/ office services, sausage sizzle events.  Mining company assistance to Emerald by allowing their local workforce to assist in local flood preparations (e.g. sandbagging).  Mining company accommodating evacuated Theodore residents in their mine camps.  Mining company supply of a helicopter for rescues.	Informal, opportunistic donations and services.	Response and recovery.
	Neighbourhood and community centres  e.g. Brisbane Neighbourhood and Community Centres with Brisbane City Council, Queensland Government, private enterprise and NGOs  (West End Community House 2011)	In liaison with a range of public and private sector stakeholders, neighbourhood and community centres performed a range of social support and recovery roles including relief co-ordination, outreach, local intelligence, counselling and evacuation centre support.	Not determined.	Response and recovery.



Energex representatives participate in local, district and state emergency management groups in Queensland.

on the development of strategic or responsive public-private partnerships involving small to medium private sector organisations, or even large, 'less-critical' private enterprises (e.g. the mining industry). The emphasis is on broad procurement protocols (e.g. for evacuation centre and emergency supplies), general community-building and individual business continuity.

### All sectors: informal agreements, strategic and responsive

The establishment of *ad hoc* public-private partnership arrangements is notable at the local level. The West End Community House report, on behalf of several Brisbane community-based organisations, described the reality of public-private partnerships at this level as being one of complex patterns of (often) informal and dynamic arrangements between larger NGOs, smaller community groups, businesses and local and state government, particularly in the response and recovery phases. The report recommended greater clarity in defining roles and protocols (i.e. partnership arrangements) for community and neighbourhood centres within emergency and recovery plans at all levels of government (West End Community House 2011).

### Cautionary note

This paper reported public-private partnerships that have generally proven to be useful in building resilience. There are, however, significant challenges to establishing and maintaining effective public-private partnerships in this context. Reconciling the

diverging interests and expectations of partners (e.g. duty of care versus profitability), problems of spanning organisational boundaries and scales, managing perceived roles and outcomes, negotiating information-sharing, establishing trust and certainty in service delivery, and challenges in maintaining active partnerships are some of the issues that can temper the development of successful public-private partnerships (National Research Council of the National Academies 2011, Chen *et al.* 2013, Busch & Givens 2013).

### Conclusion

The conceptualisation of public-private sector partnerships for emergency management seeks to prompt discussion and exploration of such public-private partnerships and could be refined for use as a broad analytical framework in this field. This paper briefly outlined the diversity and scope of public-private partnerships in terms of stakeholder participation and partnership aims, operation and outcomes.

Further research is needed across Australia to identify and describe public-private partnerships for emergency management, particularly at the local level where they have not been well-documented and may be underpinned by relatively informal agreements of unknown efficacy. Analyses and evaluation of public-private partnership arrangements may then be applied to distinguish 'good practices' that encourage both responsive and strategic partnerships across a range of situations.

There are also issues to be investigated concerning the balance and dynamics of power and resources among the stakeholders in public-private partnerships. Formal attribution of responsibilities in developing and maintaining relationships, and their governance, may not be addressed in detail by emergency management policy and guidance, notably at the local levels of business and government.

## References

Abou-bakr AJ 2012, *Managing Disasters through Public-private Partnerships (Public Management and Change series)* Georgetown University Press, Washington D.C.

Attorney-General's Department 2014, *Australian Emergency Management Arrangements, Handbook 9, Australian Emergency Management Handbook Series.*

Bajracharya B, Hastings P, Childs I & McNamee P 2012, *Public-private partnership in disaster management: a case study of the Gold Coast, Australian Journal of Emergency Management*, vol. 27, no.3, pp. 27-33.

Balonne Shire Council 2014, *Thumbs Up for Levee as Insurance Set to Go Down (News)*. At: [www.balonne.qld.gov.au/news/index.shtml/-/asset\\_publisher/Keo8/content/media-release-thumbs-up-for-levee-as-insurance-set-to-go-down](http://www.balonne.qld.gov.au/news/index.shtml/-/asset_publisher/Keo8/content/media-release-thumbs-up-for-levee-as-insurance-set-to-go-down).

Brisbane City Council 2011, *Brisbane City Council Initial Submission, Queensland Floods Commission of Inquiry*. At: [www.floodcommission.qld.gov.au/\\_data/assets/file/0020/8363/BCC\\_Brisbane\\_City\\_Council\\_11.03.11.pdf](http://www.floodcommission.qld.gov.au/_data/assets/file/0020/8363/BCC_Brisbane_City_Council_11.03.11.pdf).

Burke J 2011, *Miners Give Big to Qld Flood Victims, Australian Mining, January 2011.*

Busch NE & Givens AD 2013, *Achieving Resilience in Disaster Management: The Role of Public-private Partnerships, Journal of Strategic Security*, vol. 6, no 2, pp. 1-19.

Business Civic Leadership Center (BCLC) 2010, *A Decade of Disasters, United States Chamber of Commerce.*

Chen J, Hsuan Yun Chen T, Vertinsky I, Yumagulova L & Chansoo P 2013, *Public-Private Partnerships for the Development of Disaster Resilient Communities, Journal of Contingencies and Crisis Management*, vol. 21, no 3, pp. 130-143.

Commonwealth of Australia 2010, *Critical Infrastructure Resilience Strategy, Commonwealth of Australia.*

Commonwealth of Australia 2008, *National public-private partnerships guidelines overview, Infrastructure Australia.*

Energex n.d, *Energex Flood Risk Management Plan 2013-14*. At: [www.energex.com.au/\\_data/assets/pdf\\_file/0010/57529/Flood-Risk-Management-Plan-2013-14.pdf](http://www.energex.com.au/_data/assets/pdf_file/0010/57529/Flood-Risk-Management-Plan-2013-14.pdf).

Luscombe M 2011, *The Salvation Army Flood Appeal (Woolworths media release)* At: [www.woolworths.com.au/wps/wcm/connect/website/woolworths/about-us/woolworths-news/the+salvation+army+flood+appeal](http://www.woolworths.com.au/wps/wcm/connect/website/woolworths/about-us/woolworths-news/the+salvation+army+flood+appeal).

National Research Council of the National Academies 2011, *Building Community Disaster Resilience through Private-Public Collaboration, The National Academies Press, Washington D.C.*

Oloruntopo R 2010, *An Analysis of the Cyclone Larry Emergency Relief Chain: some key success factors, International Journal of Production Economics*, vol. 126, pp. 85-101.

Queensland Floods Commission of Inquiry 2011, *Interim Report, August 2011*. At: [www.floodcommission.qld.gov.au/publications/interim-report/](http://www.floodcommission.qld.gov.au/publications/interim-report/).

Queensland Government n.d., *Queensland Policy for Offers of Assistance, Donations, Volunteers and Goods in Disasters, State Disaster Management Group.*

Queensland Government 2012, *Queensland Local Disaster Management Guidelines*, At: [www.disaster.qld.gov.au/Disaster-Resources/Documents/Queensland%20Local%20Disaster%20Management%20Guidelines.pdf](http://www.disaster.qld.gov.au/Disaster-Resources/Documents/Queensland%20Local%20Disaster%20Management%20Guidelines.pdf).

Queensland Government 2013, *2013-2014 Queensland State Disaster Management Plan*, [www.disaster.qld.gov.au/Disaster-Resources/Documents/State-Disaster-Management-Plan\\_WEB.pdf](http://www.disaster.qld.gov.au/Disaster-Resources/Documents/State-Disaster-Management-Plan_WEB.pdf).

Queensland Government 2014, *Business Industry Portal, Disaster Resilience and Recovery*, [www.business.qld.gov.au/business/running/disaster-resilience-and-recovery](http://www.business.qld.gov.au/business/running/disaster-resilience-and-recovery).

Queensland Resources Council 2011, *Submission to the Queensland Floods Commission of Inquiry, Queensland Floods Commission of Inquiry*. At: [www.floodcommission.qld.gov.au/\\_data/assets/file/0018/6174/Queensland-Resources-Council.pdf](http://www.floodcommission.qld.gov.au/_data/assets/file/0018/6174/Queensland-Resources-Council.pdf).

Red Cross 2011, *Submission to the Queensland Floods Commission of Inquiry, 10 March, 2011, Queensland Floods Commission of Inquiry*. At: [www.floodcommission.qld.gov.au/\\_data/assets/file/0019/4258/Australian\\_Red\\_Cross.pdf](http://www.floodcommission.qld.gov.au/_data/assets/file/0019/4258/Australian_Red_Cross.pdf).

Suncorp Insurance 2013, *Suncorp Starts Writing New Business as Roma Levee Kicks Off (News)*. At: [www.suncorpgroup.com.au/sites/default/files/pdf/news/Media%20Release%20and%20Infographic%20-%20Roma%20sod%20turning%20-%20FINAL.pdf](http://www.suncorpgroup.com.au/sites/default/files/pdf/news/Media%20Release%20and%20Infographic%20-%20Roma%20sod%20turning%20-%20FINAL.pdf).

United Nations 2008, *International Strategy for Disaster Reduction, Private Sector Activities in Disaster Risk Reduction, Good Practices and Lessons Learned, United Nations.*

United States Chamber of Commerce Foundation 2014, *Changing the Game: how business innovations reduce the impact of disasters, United States Chamber of Commerce.*

Wesfarmers 2011, *Queensland flood disaster – how Wesfarmers helped (News)*. At: [http://media.corporate-ir.net/media\\_files/IROL/14/144042/RBA003\\_6854\\_site/queensland-flood-disaster.html](http://media.corporate-ir.net/media_files/IROL/14/144042/RBA003_6854_site/queensland-flood-disaster.html).

West End Community House 2011, *Strengthening People and Places: the role and value of neighbourhood community centres*. At: [www.communityindicatorsqld.org.au/sites/default/files/Role%20of%20community%20centres.pdf](http://www.communityindicatorsqld.org.au/sites/default/files/Role%20of%20community%20centres.pdf).

### About the authors

**Bhishna Bajracharya** is an Associate Professor of Urban Planning at Bond University. He has conducted research on public-private partnership in master-planned communities as well as on disaster management in Queensland.

**Dr Peter Hastings** is a researcher at Bond University. He is involved in geography teaching and hazard research at the University of Queensland, the University of New England and the Queensland University of Technology.

# Different but also the same: mental illness and bushfire planning, preparation and response

Dr Danielle Every, Appleton Institute, University of Central Queensland, examines data from bushfire research to explore special needs of people with a mental illness to prepare for emergencies. 

## ABSTRACT

At some point in their lives, almost half the Australian population experiences a mental illness that can affect how they think and feel, their relationships, and their social and economic status (Department of Health and Ageing 2012). They can be uniquely vulnerable to disaster risks because of these symptoms, widespread stigma, their reliance on health services, or their social and economic marginalisation. The South Australia Department of Communities and Social Inclusion Vulnerable Persons project (2013) identified that including this group in future capacity-building programs was a high priority. However, very little is known about the unique needs of people experiencing a mental illness during emergencies, nor about interventions that can increase their resilience to natural disasters. In an exploratory study of five households during the 2014 bushfires in South Australia, those who experienced a more severe illness that effected their social connections and income were more vulnerable. Carers with multiple responsibilities were also more vulnerable. However, those who had a realistic assessment of bushfire risk (similar to the wider population) and had access to bushfire safety information were better prepared physically and psychologically. The interviews suggest that bushfire safety was helped by early evacuation to calming places, audio-visual materials and face-to-face education on bushfire safety, and community connections.

## Mental illness and natural disasters

*[After Hurricane Katrina] people with psychiatric disabilities had difficulty comprehending the evacuation messages and other essential*

*communications and some were treated roughly because they could not follow the instructions...nine out of ten residents at a group [psychiatric] home in Mississippi still cannot be found...evacuees with psychiatric disabilities were arrested and jailed, sometimes dragged out of shelters and other times removed from the streets. (National Council on Disability 2006, pp. 16-21)*

As this experience during *Hurricane Katrina* suggests, mental illness can affect an individual's responses to disaster and the community's responses to them with terrible consequences. In Australia, at some time in their lives, almost half the population will experience a mental illness, 'a health problem that significantly affects how a person feels, thinks, behaves and interacts with other people' (Department of Health and Ageing 2012). The most common mental illnesses are depression and anxiety, while about three per cent of adults are affected by psychotic disorders of schizophrenia and bipolar mood disorder (Department of Health and Ageing 2012).

Mental illness is a broad term encompassing a variety of experiences from difficulty leaving one's home to losing touch with reality. It is not homogenous in terms of its severity. In 2007, 2-3 per cent of people experienced a persistent and severe disorder of ongoing intensity with significant disability, 4-6 per cent of people reported moderate disorders, and 9-12 per cent experienced mild disorders (ABS 2007). People experiencing mental illness live in a variety of circumstances. Some may be treated within acute care wards while others live in specialised accommodation or in the community with and without carers (Department of Health and Ageing 2012).

Depending on symptoms, severity, and living circumstances, emergency planning, response and recovery can be negatively affected by fewer social networks, poverty, stigma and misunderstanding (Cutter, Boruff & Shirley 2004, Maguire & Cartwright 2008, Tierney 2006, Wisner 1998). Initial research in the U.S. suggests that people may be unfamiliar with emergency language and personnel and are more likely to react negatively to seeing people in safety gear; they may not interact well with unknown people nor respond to demands (SAMHSA 2007). They also may be less likely to have specific supplies in readiness for an emergency (Eisenman *et al.* 2009). A disaster or

emergency may trigger the onset of new or recurrent symptoms (Fornili 2006). Each of these circumstances can increase a person's risk of injury and fatality and create significant financial and social costs for the person, their families, communities and service providers (Wisner 1998).

People experiencing a mental illness are identified as a vulnerable group for emergency management planners. The recent analysis of vulnerability and disaster programs in South Australia noted 'finding some way of including this group in future programs should be considered a high priority' (DCSI 2013). However, there is no existing data on the particular vulnerability factors in relation to mental illness or on potential capacity-building interventions. This paper explores the planning, preparation and responses of households including a person experiencing a mental illness.

## Method

This paper draws on data gathered by Trigg and colleagues for a large project on bushfire behaviour and decision-making during the 2014 bushfires in South Australia (Trigg *et al.* 2015).

## Background

In January 2014, 236 fire events occurred across South Australia. A major research project (Trigg *et al.* 2015) involved fieldwork in three sites affected by some of the largest fires. These were Rockleigh to the north behind the Adelaide Hills (the Murraylands), Eden Valley in the Barossa, and Bangor in the southern Flinders Ranges. These sites represented three different types of fire events, being repeat fire incidents (Rockleigh), a rapid-onset fire (Eden Valley), and a long-campaign fire (Bangor). They were also fires that were particularly demanding of Country Fire Service resources. While there was extensive damage to land and some structures, no lives were lost.

## Data collection

Data was collected through semi-structured face-to-face or phone interviews (n=171). These were recorded and also summarised with an interview checklist. The interviews covered demographics such as age and disability, community connections, risk perception and awareness, preparation and planning, awareness of emergency warnings and responses to the fires. Interviewees were also asked to 'walk' the researcher through what happened on the day(s) of the fire, detailing what they had done, and why.

## Participants

The interview included a question about whether the person lived with someone with a disability or if they themselves experienced a disability. The interview did not prompt people to identify as having particular psychiatric disabilities as the project was not specifically targeting this population. So the sampling for this current research paper was opportunistic, capturing people who voluntarily stated that they or

someone else had a mental illness. Given this, it is possible that there were more people who completed the interview who could have identified as having a mental illness. Of the 171 interviews, five people identified as having a psychiatric disability or illness, or as caring for someone who does.

Households included people experiencing Aspergers syndrome, ADHD, schizophrenia and substance abuse disorders. Ages ranged from 10 to 50 years. Three households were located on large working farms, one on a small bush block, and one on a residential block. Three of the properties sustained damage during the fires.

## Data analysis

Using thematic analysis (Braun & Clark 2006), the interviews were analysed for:

- the impacts of mental illness on risk perception, preparation, planning and response
- what individual and social factors shaped people's perceptions and actions and made people more or less vulnerable
- how they managed bushfire risk in relation to mental illness.

## Findings

### Vulnerability factors: type of illness, severity, social connections, multiple responsibilities

The interviews revealed that the effects of mental illness on people's bushfire planning, preparation and responses were varied. The information gathered suggests that it is when a mental illness creates or co-exists with other vulnerabilities that it can adversely affect bushfire safety. Those who had the most difficult experiences in the bushfires were a child in a family isolated from their community, a man experiencing a more severe psychotic illness that affected his income and social connections, and a carer with multiple responsibilities.

In the first of these three instances a mother and her young child with an unspecified mental illness found themselves at home alone on the day of the fire. The mother and daughter retreated inside, while the property burned around them. Almost 80 per cent of their land including all fences and 30 stock were burned. Their bushfire plan had relied on the father to stay and defend the property: however he was unable to return home, having been away for work. The family was socially isolated and had few connections in the surrounding community. These factors combined to create a situation of extreme distress and danger. After this experience, the mother reflected on the unpredictability and rapid spread of the fire and how they would change their plan to evacuate their daughter.

*...as soon as I knew there was a fire, just so close in the area, it was just like panic, panic, panic. And it was over here in a flash. They were fighting and the wind*

*just whooshed up, and they knew, at that moment, that they'd lost it. [...] It was just a feeling like, "There's no one coming to help." [...] you couldn't see out the windows here—it was just all orange smoke, but there were big raindrops – just a few of them – hitting the glass. So it was really like a storm. [...] It would be ideal, ideally, if I knew there was going to be a fire that day—if I had seen my—I would have left my—I would have taken my daughter into town and had her babysat in [nearby town]. (Interviewee #1)*

Children are more vulnerable in disasters (Ronan & Johnson 2005) and those with a disability even more so (Boon, Brown & Pagliano 2014). The difficulties for this family were compounded by a plan that relied on both parents being home. Their physical isolation meant they had no other pre-established means of support.

In the second of these instances, a young man with schizophrenia defended his property with buckets of water in the ever-increasing heat and with no power. He couldn't receive fire information after his phone lost service. While he had a close relationship with the owner of the property he lived on, he had been harassed in the past by other people living nearby, and was thus wary of interacting with neighbours.

*There used to be a mob up the hill that used to hassle me all the time but they've left. (Interviewee #2)*

The young man left when the police arrived as the fire began to burn the property. He had no insurance and, if the fire had burned the house, he would have lost his home and all his possessions with little chance of recovery.

Illnesses such as schizophrenia and substance abuse can include difficulties in connecting with others, losing touch with reality, and difficulty looking after one's self and one's property. It can also be stigmatised and people with schizophrenia often find themselves misunderstood, feared and rejected (Department of Health 2010). These circumstances had, for this young man, culminated in very isolated living circumstances, being unable to afford preparation supplies or materials such as backup water and power sources, and having little knowledge about bushfires and preparation.

In the third instance, a family with a young child with a mental illness indicated that being a parent and a carer also increased their sense of vulnerability, particularly how it impacted on their ability to make quick decisions for each of the people they were responsible for. This carer reflected on feeling pulled in multiple directions.

*I probably would have got the kids out of here into a safer place, and I probably would have come back and actually stayed and helped. [But] because I was a bit pulled between people, my kids were saying "no no, please don't go mum, don't you leave us because dad's already out [fighting fires] and I don't want you to be gone as well as him", so I was a bit torn in that way. And I would have told my parents to get out a hell of a lot earlier than they did too. It was very concerning yeah to have a lot of loved ones around you and not be*

*able to have any control over where or what they were doing. (Interviewee #3)*

These three examples suggest that the impacts of mental illness on people's bushfire safety readiness may be greater when living in isolation and unable to access resources to prepare a property or caring for multiple people.

However, families and people with a mental illness can prepare and adapt their plans prior to the fire to accommodate the illness and increase their safety.

### Planning and preparation: what worked

The interviewees spoke about three factors that assisted them in making plans and preparing for bushfire. These were adapting to particular symptoms, managing anxiety, and using visual educational material.

For a child with Aspergers syndrome, early packing for evacuation was found to be more effective if it was 'packed but not packed'.

*I had my important paperwork in one pile...so they can just be grabbed... if you've just got to go very quickly... It's important he stays calm, because otherwise he will be going in and out of the bag all the time, wanting to repack or redo. [...] It's just all there otherwise it would have to be redone' (Interviewee #4)*

For two families, plans and preparation that included ways to manage anxiety were also important. The most important of these was early evacuation, particularly evacuation to a known calm place. For example, people in care for substance abuse were driven by bus to the river in a nearby town well before the fire threatened their property.

The family with a child with Aspergers syndrome also noted, in terms of communication, that visual rather than written information was more useful.

*After the big fires in Victoria, the CFS sent out a DVD and that was a few years back, and we put that on every year. [...] I think that DVD just kind of reminded everybody, and especially with my son, because he has ADHD. For him you can talk until you're blue in the face sometimes but a visual reminder just works a lot better than anything else. (Interviewee #4)*

For the man experiencing schizophrenia, personal connection rather than written material was more useful. Although he did not take fire safety brochures because he already felt overwhelmed with reading material and advice, he was open to speaking with the police and fire services on the day of the fire.

These examples suggest that adapting plans, information for managing anxiety, and visual or face-to-face communication, may be useful for people in the community experiencing mental illness. The interviews also revealed that, although preparing for a bushfire requires some adaptation for people with a mental illness, there are also protective factors that are the same for the general population.

### Protective factors: different but also the same

Although mental illness can require different approaches to preparation and planning, the factors that increased safety were the same as those for the wider population, being a realistic assessment of fire risk and good knowledge of fire safety (Whittaker & Handmer 2010). The householders who were well prepared both physically and psychologically also perceived that there was a real fire risk in their area. Those who were less well prepared believed that there was a low fire risk. For example, one interviewee who was directly affected by the fire, when asked about her level of concern prior to the fire, responded: 'Not concerned at all'. Those who had accessed available fire information prior to the fire, particularly in the form of DVDs about bushfire safety or through contact with the Country Fire Service, were also better prepared and had developed plans that included early evacuation rather than to stay and defend or wait and see.

Householders experiencing a mental illness also accessed the same information that others accessed—primarily from the internet and the radio. They identified similar, specific issues as others in relation to bushfire information: that of accuracy and relevance (e.g. street and area names), device failure or signal blackspots, and receiving late messages (Trigg *et al.* 2015, Boon 2014).

Although experiencing challenges specific to the type, severity and effects of a mental illness, these interviews suggest that previous experience of fires and understanding bushfire risk are the same as for other people in the community.

### Conclusion

Mental illness can be a risk factor for fatalities, injuries, property damage and post-recovery trauma in bushfire management (e.g. Fornilli 2006). This exploratory South Australian research found that those with mental illness have extra challenges when facing a bushfire emergency when the illness creates or co-exists with other vulnerability factors such as isolation.

Households that were better prepared had previous experience of bushfires and a realistic assessment of risk in their area, which are protective factors for the general population as well. Their plans all involved early evacuation. This was the primary way to keep calm and reduce anxiety. Symptom-specific preparation and planning, such as 'packing but not packing', was useful for those with ADHD and Aspergers syndrome.

This research (with its opportunistic sample) cannot be generalised due to its small sample size. However, it is useful for highlighting areas of further research with people experiencing a mental illness in relation to natural disasters. This might focus on the impact of multiple vulnerability factors that co-exist with mental illness, particularly for children. Further research may also trial and evaluate the effectiveness of using visual materials of bushfire safety on DVDs, and developing bushfire plans that use anxiety-reducing activities to encourage the early evacuation to places of calm and reassurance.

### References

- Australian Bureau of Statistics (ABS) 2008, *National Survey of Mental Health and Wellbeing 2007*. Canberra, Australia.
- Boon HJ 2014, *Investigating rural community communication for flood and bushfire preparedness*. *Australian Journal of Emergency Management*, vol. 29, no. 4, pp. 17-25.
- Boon H, Brown L & Pagliano P 2014, *Emergency planning for students with disabilities: a survey of Australian schools*. *Australian Journal of Emergency Management*, vol. 29, no. 1, pp. 45-49.
- Braun V & Clarke V 2006, *Using thematic analysis in psychology*. *Qualitative Research in Psychology*, vol. 3, no. 2, pp. 77-101.
- Cutter, SL, Boruff BJ & Shirley WL 2003, *Social Vulnerability to Environmental Hazards*. *Social Science Quarterly*, vol. 84, no. 2, pp. 242-61.
- Department of Communities and Social Inclusion (DCSI) 2013, *People with vulnerabilities in disasters. Environmental scan and gap analysis of projects/programs for people with vulnerabilities in disasters 2013*. State Recovery Office, DCSI. At: [www.dcsi.sa.gov.au/\\_\\_data/assets/pdf\\_file/0017/11852/VPID-REPORT-final-approved-updated-version-Aug-13.pdf](http://www.dcsi.sa.gov.au/__data/assets/pdf_file/0017/11852/VPID-REPORT-final-approved-updated-version-Aug-13.pdf).
- Department of Health and Ageing 2012, *What is mental illness?* Canberra: Department of Health and Ageing.
- Eisenman D, Zhou Q, Ong M, Asch S, Glik D & Long A 2009, *Variations in disaster preparedness by mental health, perceived general health, and disability status*. *Disaster Medicine and Public Health preparedness*, vol. 3, no. 1, pp. 33-41.
- Fornilli K 2006, *Disasters and substance use disorders: response and responsibility*. *Journal of Addictions Nursing*, vol. 17, pp. 71-77.
- Maguire B & Cartwright S 2008, *Assessing a community's capacity to manage change: A resilience approach to social assessment report*. Australian Government Bureau of Rural Sciences, Canberra.
- Ronan K & Johnston D 2005, *Promoting Community Resilience in Disasters: The Role for Schools, Youth, and Families*, Springer, NY.
- Substance Abuse and Mental Health Services Administration (SAMHSA) 2007, *Building Bridges: Mental Health Consumers and Representatives of the Disaster Response Community in Dialogue*. HHS Pub. No. 4250. Rockville, MD: Center for Mental Health Services.
- Trigg J, Rainbird S, Thompson K, Bearman C, Wright L & McLennan J 2015, *South Australian Bushfires January 2014*. South Australia Country Fire Services.
- Tierney K 2006, *Social inequality, hazards and disasters*. In: R. Daniels DK, Kunreuther H, editors. *On Risk and Disaster: Lessons from Hurricane Katrina*. University of Pennsylvania Press, Philadelphia.
- Victorian Council of Social Service (VCOSS) 2014, *Disaster and disadvantage: Social vulnerability in emergency management*. VCOSS, Melbourne, Vic. At: [http://vcoss.org.au/documents/2014/06/VCOSS\\_Disadvantage-and-disaster\\_2014.pdf](http://vcoss.org.au/documents/2014/06/VCOSS_Disadvantage-and-disaster_2014.pdf) [13 October 2014].
- Whittaker J & Handmer J 2010, *Community bushfire safety: a review of post-Black Saturday research*. *Australian Journal of Emergency Management*, vol. 25, no. 2, pp. 7-13.
- Wisner B, Blaikie P, Cannon T & Davis I 2004, *At risk: Natural hazards, people's vulnerability, and disasters*. 2nd ed. Routledge, NY.

### About the author

**Dr Danielle Every** is a social psychologist specialising in research of social inclusion for vulnerable groups, particularly refugees, people experiencing homelessness, and women and children in the aftermath of violence.

# Improving our capability to better plan for, respond to, and recover from severe-to-catastrophic level disasters

By Mark Croweller AFSM, Director General,  
Emergency Management Australia

## Introduction

Catastrophic disasters present a substantial challenge for governments and emergency managers. Better understanding of the 'problems' they present before attempting to improve our ability to mitigate their consequences is critical. To address this, Emergency Management Australia held a Thought Leadership Workshop. The workshop provided a high level, initial assessment of gaps identified in our national approach to manage severe-to-catastrophic events, and to alert key decision-makers to the issues. The workshop investigated strategies and opportunities to improve Australia's capacity to better plan, respond to, and recover from severe-to-catastrophic disasters. This included whether arrangements for catastrophic should be progressed, the key issues that need to be considered, and how we might move this issue forward. The workshop is an important step in understanding how Australia might improve its ability to deal with the consequences of events with a severity beyond our existing individual knowledge, skills, experience, imagination and, collectively, beyond our existing resources, practices and preparations.

## Overview

Two of the most detailed, recent and relevant reviews of international catastrophic disaster effectiveness have taken place in the United States following the 9/11 terrorist attacks and *Hurricane Katrina*. The 9/11 analysis has been characterised as a 'failure of imagination', and the *Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*<sup>1</sup> was billed as 'a failure of initiative'. Its Preface states:

'Government failed because it did not learn from past experiences, or because lessons thought to be learned were somehow not implemented. If 9/11 was a failure of imagination, then Katrina was a failure of initiative. It was a failure of leadership.'

Key characteristics of the 9/11 event that inform our thinking about catastrophic events are those where simply applying more of the same is either not possible, not enough, may make little impact or wholly unavailable; more people, more vehicles, more information, and more command and control is *not* more effective. The usual 'requests for assistance' are no longer of benefit. In fact, more of the same may well be counter-productive to actual needs. Success in these events will be characterised by more effectively dealing with high degrees of complexity; understanding and managing new, competing and rapidly-emerging priorities and overcoming unanticipated blockages.

Catastrophic events demand new thinking and approaches to meet the needs of affected communities and the expectations of a watching world. They will be events where the trust and confidence vested in us by communities will be rigorously tested and intensely monitored. Success requires leadership, imagination, creativity, innovation, initiative and compassion before, during and after these inevitable events. Delivering a practical and productive outcome requires honesty and humility in our assessments of capability; in our determination of what is possible; and in our community engagement as we collectively determine how to best deal with adversity.

While it is important that Australian governments continue to invest in enhancing operational capability and capacity in emergency and disaster management, it is also vital that more effort be directed toward how we deal – as a nation – with catastrophic events. When capacity is overwhelmed, when systems and processes become ineffective, as is likely in a catastrophic event, the solution relies on leadership capability and initiative – through collective imagination – to heighten awareness and enact creativity and innovation.

Australia should enhance its leadership capacity, foster all means for innovation, create the frameworks and culture to nurture that thinking, and support subsequent initiatives that improve capability to plan, respond and recover from severe-to-catastrophic disasters. Building Australia's disaster resilience is not only the *responsibility* of governments and emergency managers, but the responsibility of each member of the community. It is vital to remember this collective responsibility when an inevitable inquiry to a future

<sup>1</sup> *Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*. At: [www.uscg.mil/history/katrina/docs/USHouseOfRepKatrina2006MainR1eport.pdf](http://www.uscg.mil/history/katrina/docs/USHouseOfRepKatrina2006MainR1eport.pdf).

catastrophic event concludes so that Australia is not found wanting through a failure of leadership, imagination or initiative!

## General observations from workshop participants

### Defining 'catastrophic'

Workshop participants identified that significant confusion and subjectivity surround the term 'catastrophic'. Many definitions and measurement criteria are used across the emergency management (EM) sector to suit needs and responsibilities. What may be catastrophic for one community may not be for others. Measures to define the term 'catastrophic' should not only be about death toll or the cost of damage, but should capture the impact on the affected community.

### Leadership

Agencies spend significant time, energy and resources preparing, responding and recovering from low-to-medium impact events. Rarely do they invest sufficient time in preparing for a severe-to-catastrophic event that appears to be improbable. This history of performance falsely suggests that success will be achieved by scaling up current arrangements.

Progressing our capacity to better prepare, respond to, and recover from severe-to-catastrophic disasters is about initiative, imagination, creativity and innovation, as well as developing frameworks and practices for support, collaboration and co-ordination. Improving resilience is *not* about increasing operational capability, but about developing leadership that recognises and delivers on this change of narrative to meet unimaginable challenges. Initiatives to improve capability must extend beyond current plans and thinking. It should engage all levels of government and be grounded in reality. We must highlight the need and responsibility to *explicitly* acknowledge and *address* improvements in capability. We must learn from previous failures to progress. Emergency managers, correctly, seek to exert control over the impacted environment. However, catastrophic disasters remove us from the comfort of what we know, control and are able to surely communicate, shifting the narrative to the uncontrollable. This is often an anathema to emergency managers and requires strong leadership to overcome. Catastrophic disaster recovery may benefit from an enhanced command-and-control approach. However, the complex multidimensional environment requires leadership to navigate the high levels of agency co-ordination required for a response.

### Education

Most leaders will only experience one truly catastrophic event in their career. Therefore, they will not have any experiential benefit to assist them with their decisions and responsibilities. While previous experience is important, what might be applicable at the lower end of

the disaster scale does not automatically translate to severe-to-catastrophic disasters. The rules change.

Therefore, the challenge is how we can train and educate leaders *and* create applicable 'experiences' for them to draw from. Many educational institutions address elements of catastrophic disasters, yet none proffer a holistic program to manage catastrophic events.

### Governance

While current systems, plans and approaches have evolved to meet the requirements of frequent return-period events, they insufficiently meet the more complex, flexible, and dynamic processes necessary to address severe-to-catastrophic disasters. Therefore, plans must address not only what is likely, but also what is possible, and should address what to do when the plan fails or is inadequate. They also need to anticipate with greater clarity how a community might respond to disasters.

Creating a structural connection to the Australia–New Zealand Emergency Management Committee and its national resilience agenda is important to improve capacity and capability. This relationship enables emergency managers to better manage severe-to-catastrophic disasters, as it provides a framework for accountability and governance across any agreed initiatives.

### Consequence management

Catastrophic disasters are typically defined as 'least likely' to occur but have the highest consequences. Least likely implies *not* needing to spend too much time thinking about the problem. Most consequential, however, implies the opposite. The cost of completely mitigating consequences of catastrophic events is generally unacceptable. Therefore, when a risk management process is applied to any given community where a severe-to-catastrophic risk is identified, we should commit more time and effort in trying to understand how to manage the consequences; keeping in mind that we have only mitigated at a lower end of the scale where results are more affordable and achievable.

Consequence management differs from other elements of disaster management as an event's impact is accepted as certain. The focus is to ensure that response and recovery efforts not only deliver positive outcomes but that action – or inaction – does not exacerbate adverse consequences.

Workshop delegates generally felt that 'structured consequence management' was a poorly-understood concept in Australia, although extremely relevant to catastrophic disaster management. Leadership must conceptually foster and exercise decision-making far more often than currently occurs. Consequence management is based on the well-established EM principles of prevention, preparedness, response and recovery. Consequence management is the framework for managing the residual risk of any

potential hazard, including measures to protect public health and safety and restoration of essential services. It also provides emergency relief to governments, businesses and individuals affected by consequences of a natural or human-caused hazard. Initiatives must positively 'close the gap of surprise' that all too often occurs during large and complex disaster events. To some extent this is driven by the limitations of enacting a risk management *only* approach to planning and preparation. Being ready for catastrophic disasters is about both risk management *and* consequence management.

The U.S.A's experience has raised practical concerns in relation to the distinctions between separate functions of crisis and consequence management. Evidence exists that these concerns have created artificial barriers, inefficiency, confusion and inertia in responding to events. Changes have seen a consolidation of the previously separate functions into a single approach. Drawing on the experience of others, Australian work in risk management (i.e. via *National Emergency Risk Assessment Guidelines*) must be connected to any work proposed in consequence management. Communities must accept that they cannot adequately avoid, treat or transfer risks. Catastrophic events *will* happen, and those accountable *must* be ready to address the consequences. True consequence management is not just an EM function, it is also a function of leadership, overlapping the usual EM plans, arrangements, responsibilities and even borders. Consequence management must be sufficiently flexible and robust to operate when 'business as usual' is not sufficient, and when the 'rules of the game' have fundamentally changed. Planning and arrangements must account for this need. Operational agencies – police, fire and emergency services – interpret consequence management as their responsibility. However, the medium to long term challenges associated with catastrophic events recovery go well beyond agency responsibilities.

To effectively manage the consequences of a catastrophic event, no matter its cause, it is essential that input and resources from operational, policy and service agencies is provided. It may also require co-ordination with humanitarian, not-for-profit and private sector organisations, and even foreign entities.

### Resource management

Agencies and governments tend to be subjective about their capacity and capability. Overly optimistic views of ability to manage severe-to-catastrophic events (based on performance during less intense events) become dangerous assumptions. While states and territories are aware of their emergency services capability profiles, there is little understanding of the 'national picture' those capabilities add up to. Knowing what each jurisdiction *has* does not constitute national capability. It only becomes 'national' when it can be released and used outside a home jurisdiction. In addition, knowing what capabilities exist does not necessarily translate into an understanding of inherent limitations in the face of a severe-to-catastrophic event.

Without understanding limitation, an organisation cannot innovatively surpass that limitation. The result? A significant gap between the efficacy of capability and the expectation of those receiving its benefit.

Identifying national capability also requires some level of operational governance to manage and oversee that capability. Rather than saddle this duty onto the Commonwealth from the outset, it should be viewed as a role for the emergency services collectively that *may* or *may not* involve the Commonwealth.

### Communication

While there is a legitimate concern to not unnecessarily alarm the public, we do need to be honest with stakeholders about the potential consequences major events can have on respective communities. There are clear political and operational communication risks in exploring uncertainties of the unknown (or at least the difficult to define unknowns) but that is precisely the task and expectation generating this initiative.

A number of additional entities must be directly involved in the new narrative. Non-government organisations (NGOs), not-for-profits, scientific agencies and private sector organisations must be directly involved in the new narrative. It is critical that we strengthen engagement between external agencies and the EM sector, and that we genuinely explore limitations and opportunities of capacity and capability as a national asset.

Narrative is a powerful tool in establishing and maintaining the trust and confidence of affected communities; imparting critical information, leading and guiding the actions of those in the path of disasters. Leaders must articulate a clear, honest, open and beneficial narrative to communities.

### Intelligence

Situational awareness remains problematic for most severe-to-catastrophic disasters. Technological advances are progressing rapidly but are yet to be consistently mainstreamed into disaster operations. Advanced modelling of fire behaviour and weather effects has improved significantly over recent years. The outcomes of this modelling could be used to forecast impact and more effectively direct resources than in the past. Rapid impact assessment is increasingly important for response and recovery intelligence. While some jurisdictions are progressing well, they would benefit from a more unified and consistent approach. National situational awareness of incidents has progressed with the development of the National Situational Awareness Tool. Further development of this tool would add value to strategic decisions regarding national resource deployments.

## Key insights

### Leadership

**Improve adaptive, creative and innovative thinking in senior leadership.** Severe-to-catastrophic disasters present complex challenges that require different responses to more routine operations. Up-skilling leaders to think more contingently about problems and solutions is critical in improving leadership capability.

Help leaders to 'imagine the unimaginable' and act accordingly. Failed operational outcomes can nearly always be traced back, at least in part, to a failure of imagination and initiative. Seen in hindsight, those missed opportunities *could have been* envisaged beforehand had leaders invested time and effort to trust in an imaginative approach and mustered the courage to act accordingly.

**Encourage greater integration of operational and non-operational leaders.** Long periods between severe-to-catastrophic disasters, a transient workplace, or both, tend to allow unnecessary division to flourish between policy-makers and operational leaders. This produces policies that are too altruistic and 'perfection oriented', and hampers operational effectiveness. Bringing together senior operational leaders and policymakers inherently fosters 'collective wisdom' about the 'problems' and 'solutions' *prior* to an event and can further aid in the management of severe-to-catastrophic events.

**Assess whether the command, control and co-ordination (3C) model of leadership adequately supports and enhances consequence management in a disaster.** The threshold between response and recovery is usually blurred. Arguably, they both commence simultaneously, albeit a response initially takes precedence over recovery until the incident ground is rendered 'safe' for recovery to take precedence.

Exploring the benefits and constraints of 3C leadership across response and recovery will identify beneficial attributes to both. It will also identify other attributes that may be absent but critical in ensuring a holistic management of consequences of these disasters.

**Explore the notion of ethics in leadership and how it fosters public trust and confidence.** Ethics in leadership is critical to secure public trust and confidence throughout adversity especially in acknowledging the inherent limitations (due to the nature, size and complexity) when confronting the consequences of severe-to-catastrophic disasters. Establishing and maintaining trust and confidence must be better understood and enshrined into leadership thinking and behaviour.

**Explore the idea of leadership communication.** This is how leaders develop skills to narrate a tragically unfolding story and inspire trust and confidence in helping communities survive and recover from them. Critical to the success of any disaster outcome is the capacity for a leader to 'connect' with their community

and inspire them to undertake individual and collective actions to benefit them in the short and longer terms. The narrative that a leader forms before, during and after an event is critical to achieve this outcome and cannot be overstated in its importance.

### Education

**Target education and training for severe-to-catastrophic level of disasters** (e.g. leadership, governance, planning, analysis, policy, communication and intelligence). A greater provision of education and training to specifically address challenges created by severe-to-catastrophic disasters must be enacted. The Australian Emergency Management Institute transition from Mt Macedon in Victoria to Canberra presents opportunities to establish a new education and professional development agenda that addresses many key areas of capability.

**Better understand how science can support capability and capacity improvement for severe-to-catastrophic disasters.** Research from the former Bushfire CRC and the current research agenda for the Bushfire and Natural Hazards CRC need to be properly articulated into educational institutions across the nation. Long-term strategy and supporting governance must take account for this knowledge transfer, and educational and training pathways should absorb the research into their doctrinal base.

**Develop initiatives to improve capability that are grounded in reality, but extend beyond current plans and current thinking.** Based on work in the U.S.A. it would be sensible to look at the disaster history of a given community (long term); understand what science is saying about these disasters in terms of future frequency and intensity; identify the current land use of that community; bring together the history, science and land-use and paint a picture of current potential (the 'scenario'); expedite current policies and operational doctrine and test them against the 'scenario'; apply imagination to identify where gaps in capability might exist; and develop mechanisms to action those initiatives.

### Governance

**Improve frameworks that establish co-ordination with the humanitarian and NGO sectors.** Ties to the humanitarian and NGO sectors are well established in Australia, but a review of extant relationships – regarding potentiality of severe-to-catastrophic disasters and ensuring foreseeable gaps are appropriately addressed – could strengthen them.

**Improve planning frameworks to develop strategies and plans for both the most likely and the most dangerous.** Planning frameworks – local through to state and up to national level plans – should properly consider not only disasters considered most likely, but also those disasters most consequential. Though a return period for a catastrophic level disaster within a known hazard profile may be long (even up to 500 years and beyond), it is still sensible to envisage such

events and properly plan for them. Failure to improve will lead to a significant capability gap. What could have otherwise been reduced will now be apparent had planners, policy makers and operational leaders considered and worked through key challenges that such events pose.

**Extend operational planning frameworks to identify and use private sector capability and capacity.** It is widely recognised that the private sector has much to offer in consequence management, however the contributions to date remain largely superficial. Enhancing operational planning to incorporate private sector capability will require agencies to think much more contingently about how to usefully deploy such capability. Courage to 'let go' of perceived controls that tend to exclude private sector participation will be imperative.

**Work to define capacity and capability and make limitations explicit.** Without understanding capability limitations, agencies cannot adequately apply the required imagination and innovation to improve performance and severe-to-catastrophic event outcomes. It is only by comprehending limitations that an organisation or community can evolve to move beyond them. In addition, any notion of limitless capability establishes a false expectation from those who are the beneficiaries of its application, resulting in an expectation much higher than feasible. The result? Disappointment, a loss of trust and confidence, and missed opportunities for innovative solutions ensues.

### Resource management

**Review the manner in which operational resources are deployed during severe-to-catastrophic events to maximise their effectiveness.** Deploying resources in a traditional manner during severe-to-catastrophic events quickly exposes limitations. However, by contingently thinking about how those resources could be better used in the protection of life, property and the environment in circumstances *prior to* the event leads to a more efficient utilisation of those resources.

**Ensure that the nation's fire and emergency services capabilities are appropriately optimised.** This can be achieved by addressing, over time, an understanding of 'national capability' across fire and emergency services. How can those capabilities be best used during times of nationally significant disaster events? What capabilities are needed in the future to further improve the effectiveness of fire and emergency services during times of nationally significant disaster events? This work is already underway between the Attorney-General's Department and the Australasian Fire Authorities Council.

### Communication

**Develop opportunities to be open and honest about severe-to-catastrophic event potential and our collective limitation in dealing with them.** Enlightening communities to a hazard's full potential, along with the limitations that all resources experience when combating them, greatly assists communities to set realistic expectations. This includes what is likely to happen (the intensity of the event), what can be

reasonably done about it (the extent and limitation of capability), and what effects are likely to occur (the extent of the consequences). Reducing the gap between expectations and eventualities contributes to minimising trauma and disappointment and assists in upholding public confidence.

**Broaden the stakeholder group to test assumptions about a community's capacity and capability to withstand consequences of severe-to-catastrophic disasters.** Once a community fully appreciates the potential of a severe-to-catastrophic event, it is important for that community to make decisions about how they will deal with the consequences.

### Intelligence

**Improve intelligence capability across the EM sector.** This is done by establishing and maintaining links between the Commonwealth and states and territories and developing products and services of mutual benefit and accessibility. Significant technological advances are being made in systems, processes and datasets across all levels of government, as well as the private and NGO sectors. Communities must be aware of the potential hazards that exist in their region and every avenue to ensure this awareness must be explored. Emergency managers *should be* able to mitigate as many risks as is reasonably possible (potential consequences), and properly plan for residual risks (resulting consequences) where mitigation is inadequate.

### The way forward

The difficulty for decision-makers is that management of major disasters is a latent and relatively low frequency issue. Keeping their threat at the forefront of thinking when there are higher frequency events and pressing issues vying for time is problematic ... until something occurs 'on your watch'. The real risk lies in a failure to envision, and then address, the consequence management issues flowing on from severe-to-catastrophic events, inevitable yet unpredictable in their arrival though they are.

The way forward must establish a national dialogue on how to best progress the development of our thinking and capability. Our objective must be to serve the community well, and avoid findings by inquiry that policy makers and practitioners lacked either imagination, initiative or both.

Insight gleaned from this workshop will refine the thinking that surrounds severe-to-catastrophic event response and will prompt leaders, decision makers and practitioners to continue developing initiatives to improve our collective mitigation.

# Emergency Response Intelligence Capability: improving situation reporting in the Australian Government Department of Human Services

Robert Power, Michael Compton, David Ratcliffe, Bella Robinson, Geoff Squire, Catherine Wise, CSIRO, and John Dickinson and Lucy Knight, Australian Government Department of Human Services, describe the development of the ERIC reporting tool.

## ABSTRACT

The Emergency Response Intelligence Capability (ERIC) is a web-based productivity tool developed by CSIRO for the Australian Government Department of Human Services (hereafter referred to as the department). ERIC automatically gathers 'live' web feed data about emergency events from authoritative Australian web sources, harmonises the information content, archives the content in a database, presents it in a map-based web application, and semi-automatically generates situation reports. This allows the department's Emergency Management Operations team to monitor events occurring around the country and provides fast and intuitive access to a wide collection of information, including demographic data from the Australian Bureau of Statistics (ABS). Information for a specific region under investigation can be extracted and collated semi-automatically to generate situation reports that include information synthesised from available datasets and augmented by user provided content. The current status of the ERIC project is provided with a focus on how it is being trialled by the department to improve the business process of creating and maintaining situation reports during emergency events.

## Introduction

The department's Emergency Management Operations team is responsible for the organisation and management of the department's resources for emergency preparedness and response. During emergency events intelligence gathering and situation reporting are key activities performed by the team. These activities are mostly manual and time consuming, and require the attention of several staff to obtain and assemble the required information into

appropriate structures and formats to produce the situation report, or SitRep. Some of these tasks can be automated allowing emergency co-ordinators to better use their time in the analysis of information.

CSIRO has developed the ERIC tool in collaboration with the Emergency Management Operations team to automate some of the intelligence-gathering and situation reporting activities performed during emergency events.

ERIC is a web-based tool that demonstrates the usefulness of data integration for emergency managers. The tool integrates dynamic information from real-time web feeds with background static data to provide a national picture. A simplified version of the ERIC tool is publicly available at <http://eric.csiro.au/>. This version demonstrates the benefits of data integration from numerous sources, but excludes data specifically relevant to the department and does not include SitRep features.

## Overview

The ERIC project began in 2012 to explore the benefits of web-based mapping and data integration for the purpose of monitoring emergency events around the country. The project also demonstrated the benefits of the rapid collation of information from a wide collection of data sources into a single, concise situation report that would be suitable for senior managers to use when making informed decisions.

Major benefits:

- **ERIC provides a consistent national picture of emergency events.**  
Emergency services organisations in most Australian states and territories have websites that provide information about emergency events. The web feeds that provide the data content for these sites use different formats and content structure. The ERIC tool standardises (harmonises) this content providing a nationally consistent data collection.
- **ERIC 'understands' the current situation so that changes can be identified over time.**  
By constantly monitoring the web feeds, ERIC identifies new events and changes to known

events, such as an emergency warning escalation or descriptive changes about the response or community impact. This new information is summarised and notified to the user as a banner on the website and via an email message. This automation removes the onus on the user to constantly maintain situational awareness about the changing status of emergency events across the country.

- **All information is recorded in a database and users can review the historical information.**

The websites of emergency services agencies provide information about current incidents, the agency’s response, and advice for people in the affected area. The aim is to publish up-to-date information. There is no easy facility for the public to find out information previously published. By recording all information in a database, the ERIC tool can be used to review what the situation was previously. This is valuable to the department’s Emergency Management Operations team when conducting post-incident reviews to establish what information was available when as evidence for decisions that were made.

ERIC has been in operation since January 2012. The primary interface is a map that allows users to navigate the information spatially. Figure 1 shows an example of the various weather and fire warnings in place at midday 23 February 2013 across Australia. While this information is reproduced from existing sources, the benefit ERIC offers is that it is available for the whole country at a single website and is available in a database so it can be reproduced when required.

The icons used in Figure 1 depict numerous fire alerts, hotspots, Bureau of Meteorology weather warnings and the path and forecast category of *Cyclone Rusty*. Further information about the events is provided in a

pop-up box by clicking on the icon. The ‘Key’ button defines what each icon means. The location of each icon is determined from the content of the web feed. In most cases, a specific co-ordinate is provided and sometimes a polygon region is described. This is the case for the warnings in South Australia and Western Australia, which are shown as the magenta regions. When a specific geographic region is not provided the icon is located in the centre of the state. The zoom level in Figure 1 results in nearby icons being aggregated and annotated with a number indicating how many icons are grouped together. This reduces the number of icons presented on the map to a visually manageable number.

The information available in ERIC can be accessed by panning and zooming the map to an area of interest, turning layers of information on or off, navigating to a specific day and time and clicking the map icons and regions to display further information. Figure 2 shows an example of the State Mine Fire in central NSW just before 1.30 pm on 21 October 2013. The extent of the fire is provided by the NSW RFS along with details of the fire that are available in a pop-up. Also shown are the satellite hotspots from Geoscience Australia. The current fire front can be seen when viewed alongside the reported burn extent of the fire.

When zooming the map, as the zoom level passes predefined levels, new geographic layers of information become accessible to the user. These layers can be enabled or disabled using the check boxes available in the ‘Region & Stats Layers’ tab. Access to the geographical layers is controlled in this way to avoid the map becoming too detailed where information cannot be easily seen. For example, the zoom level in Figure 1, which shows the whole of Australia, only allows large regions to be shown, such as state boundaries and federal electorates. As the zoom level is increased, as



**Figure 1:** Combined national weather and fire warnings for 23 February 2013.



**Figure 2:** State Mine Fire and Geoscience Australia hotspots on 21 October 2013.

is the case in Figure 2, further information is visible, such as postcodes and suburbs. Note that the 'mini map' (bottom right corner of the ERIC screen) shows further context for the map region.

Figure 3 is an example of the ABS data available in ERIC that shows the anticipated path of *Cyclone Ita* as it approaches far north Queensland in April 2014. A summary of the 2011 ABS Census information for the federal electorate of Leichhardt is shown in the pop-up.

ERIC collects data from a variety of federal and state government information sources, including weather, fire, and road closures. The list of services includes the last time an update was seen, as well as how many events from that service are currently in the map view. An example of these features is shown in Figure 4.

## Situation reporting

### Overview

The SitRep produced by the Emergency Management Operations team during an emergency, records information about all large-scale events around the country and the department's operational response. The event details include what the events are, where they are located, and the impact to the department (sites and staff affected in the region). The response information summarises the role of the relevant state, territory or federal government (in terms of assistance available or provided) and the department (staff mobilised, the impact on business-as-usual, statistics about phone calls received and claims summary). These impacts are measured and reported on during the emergency in the SitRep.

The first SitRep usually takes the longest to prepare. It includes detailed information about the event, or

events, to initially orientate the reader. Subsequent SitReps can be produced faster by starting with the previous SitRep and including the new information. This new information is highlighted, for example by marking up in italics, so the reader can quickly identify what the new information is. The reader is expected to have knowledge of the previous SitRep, however the reports include all the relevant information from the previous reports.

### Initial ERIC SitReps

The structure of a SitRep is based on a template and describes the events displayed on the map interface. To create a SitRep the user navigates the map to the area of interest, defines a region to be reported on (in terms of demographic information) such as a local government area or postcode, then creates a preliminary SitRep using the 'Report' button. The result of doing this for the region shown in Figure 4 can be seen in Figure 5. Note the report was made on the following day, Friday 11 April, as the cyclone was approaching landfall near Cooktown.

This preliminary report is populated with demographic information that was available in the map interface, including a copy of the map, and allows the user to optionally include details of relevance for the report being created. Note that most of the content of the report in Figure 5 cannot be shown due to the length of the generated form.

When the ERIC user is satisfied with the report they can publish it. The report is saved and can be viewed with its own link, but not edited. PDF and plain text versions are also generated for sharing via email. A full list of all reports saved, with their authors and dates, is available. From there the three versions, HTML, PDF and plain text, can be accessed.

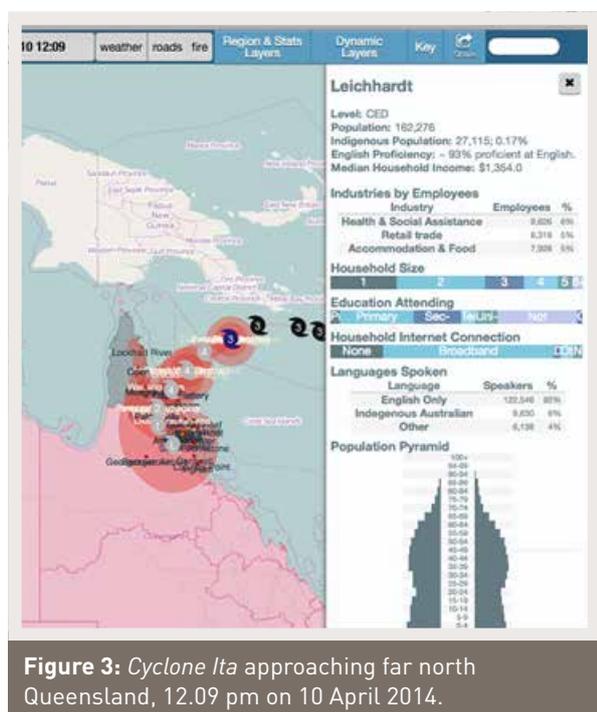


Figure 3: Cyclone Ita approaching far north Queensland, 12.09 pm on 10 April 2014.

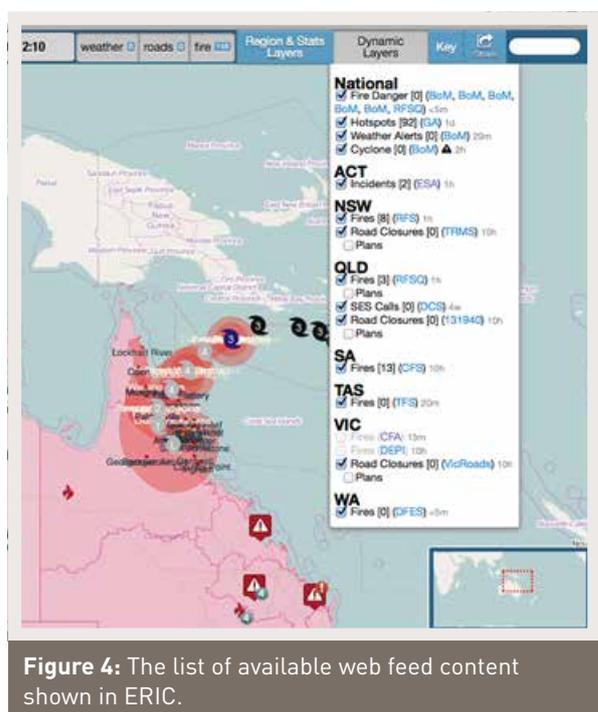


Figure 4: The list of available web feed content shown in ERIC.

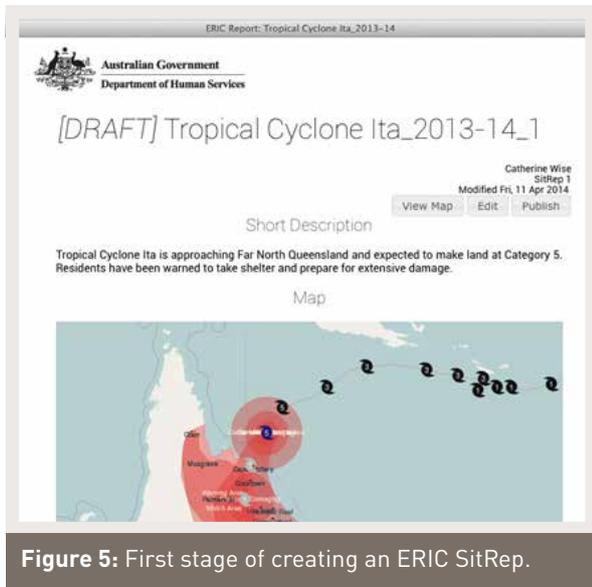


Figure 5: First stage of creating an ERIC SitRep.

### ERIC SitReps for multiple events

The first use of ERIC by the department was over the Australian summer of 2012-2013. The SitRep features were not fully implemented at the time however effort was made to fully implement the work practices of the Emergency Management Operations team. Specifically, the reports originally generated by ERIC corresponded to a single event only. Over a disaster season different events at different locations need to be reported in the same SitRep. Also, the name of the report reflects the current emergency situation and needs to change over time, while being noted as part of the same 'group' or collection of situation reports.

These issues were addressed and ERIC SitReps now follow a workflow where 'mini' SitReps may be produced for a single disaster event at a specific location affecting a community. One or more mini SitReps may be combined to form a single SitRep that describes both the combined impact to the department, in terms of the response they are actively providing, and details of the individual events occurring around the country.

This workflow allows for greater flexibility in allocating people to create and edit the reports, or approve them for publication. Each report can be created or edited by different people, so the people involved in handling an event can produce the corresponding mini report, while those responsible for higher-level reports can produce the combined SitRep. Decomposing the reporting workflow in this way allows for the mini reports to be useful in their own right as standalone reports on specific events, as well as forming the building blocks for combined SitReps. The system manages the report life cycle, and could be configured to support the allocation of specific roles and authorisations to users. It also tracks the life cycle of events, allowing users to create new reports (mini or SitRep) about an event by starting with, and automatically updating where possible, the previous report from that sequence.

ERIC continues to be tested by the department during emergency events. The process of creating, saving, publishing and distributing situation reports using ERIC is the current focus of testing and evaluation to ensure it meets the needs of the department's Emergency Management Operations team. This includes consultation with the report consumers: the senior executive decision-makers within the department.

### Future work

When ERIC is used to manage the publication of situation reports, the repository of reports and the information they contain may provide insights on the department's response activities over the course of an emergency event. Examples include the call volumes relating to an event, the deployed Point of Presence, number of staff attending evacuation and recovery centres, claims made and total payments. This information could be analysed (correlated and plotted) and used as evidence for predictive modelling of expected behaviour for future events. For example, during an emergency, the historical record could be used in conjunction with the current data for a specific event to predict what the expected call volume and payment rate will be for the next day.

Social media is playing an increasingly important role within communities. Chatfield, Scholl & Brajawidagda (2014) describe how government engaged citizens interacted through social media during and in the aftermath of the *Hurricane Sandy* emergency event and highlights the potential benefits for governments and affected communities. In a recent study Power, Robinson & Wise (2013b), information ERIC retrieved via web feeds about a significant fire emergency in Australia was compared with tweets about the same emergency. It showed that information was published on Twitter prior to the web feed, it contained more specific incident information, was updated more frequently, included information from the public as well as official sources, and was available after the web feed contents were removed. Anderson (2012) discusses the challenges emergency services organisations face when dealing with social media as not only a new source of information but also a new avenue to distribute timely information to the public. It is expected that the automatic integration of both crowd sourced and official social media information about ongoing emergency events into the ERIC tool will improve its situation awareness capabilities. This will present many research challenges such as how to identify social media posts that are relevant to particular events and filter out the large quantity of irrelevant data (Imran *et al.* 2014) and how to geo-locate the social media posts (Middleton, Middleton & Modafferi 2014).

### Conclusion

CSIRO has developed a web-based tool to demonstrate the usefulness of data integration for emergency managers. The tool combines information from real-

time web feeds with demographics data to provide a national picture that is available for historical review. The tool can identify and notify users when the current situation changes and supports the intelligence gathering and situation reporting activities performed by, in this instance, the Australian Government Department of Human Services during emergency events.

A public version of the ERIC tool was developed (available at <http://eric.csiro.au/>) with the aim of promoting it to the emergency management community in Australia. All departmental information has been removed from the public version of the tool and the situation reporting features disabled. However, the public tool still demonstrates the utility of data integration for the purposes of emergency management.

The current phase of work has refined the generation and management of situation reports. This task is one of the main activities performed by the Emergency Management Operations team during emergency events and improvements will provide more 'think' time to analyse the intelligence being gathered. The situation reporting features of the ERIC tool are being refined in preparation for the next Australian disaster season.

The ERIC project aligns with the CSIRO research capabilities of disaster management. While the ERIC tool was developed for a specific user group there are opportunities to broaden the tasks achievable using ERIC by extending the functions it can perform and to include new data items, for example historical event information and crowd sourced social media. This can be achieved by leveraging the experience gained in the Pilot Impacts Portal (Power *et al.* 2013a) and using the CSIRO Emergency Situational Awareness platform (Yin *et al.* 2012).

### Acknowledgements

This research was funded under the Human Services Delivery Research Alliance between the CSIRO and the Australian Government Department of Human Services.

### References

- Anderson M 2012, *Integrating social media into traditional emergency management command and control structures: the square peg into the round hole? Disaster and Emergency Management Conference Proceedings, 16-18 April 2012. Brisbane, Australia, pp. 18-34.*
- Chatfield AT, Scholl HJ & Brajawidagda U 2014, # *Sandy Tweets: Citizens' Co-Production of Time-Critical Information during an Unfolding Catastrophe. 47th Hawaii International Conference on System Science, January 2014, pp. 1947-1957.*
- Imran M, Castillo C, Lucas J, Meier P & Rogstadius J 2014, *Coordinating Human and Machine Intelligence to Classify Microblog Communications in Crises. Proceedings of the 11th International ISCRAM Conference, May 2014. Pennsylvania, USA.*
- Middleton S, Middleton L & Modafferi S 2014, *Real-time Crisis Mapping of Natural Disasters using Social Media. IEEE Intelligent Systems, vol. 29, no. 2, pp. 9-17.*
- Power R, Robinson B, Cameron M, Nicolopoulos N 2013a, *The Pilot Impacts Portal: experience in building an emergency management information sharing tool. Australian Journal of Emergency Management, vol. 28, no. 4, pp. 20-28.*
- Power R, Robinson B & Wise C 2013b, *Comparing Web Feeds and Tweets for Emergency Management. Social Web for Disaster Management Workshop 2013. WWW 2013 Companion, May 13-17, 2013. Rio de Janeiro, Brazil, pp. 1007-1010.*
- Yin J, Lampert A, Cameron M, Robinson B & Power R 2012, *Using Social Media to Enhance Emergency Situation Awareness, IEEE Intelligent Systems, vol. 27, no. 6, pp. 52-59.*

### About the authors

**Robert Power** is a research team leader who has been with CSIRO for over 20 years. He is currently investigating the use of social networks to aid emergency management, web interfaces to support disaster planning, and issues of data integration.

**Michael Compton** was a research scientist and has been with CSIRO for 14 years. He is currently researching semantics for emergency management, operations reasoning, provenance and sensor networks.

**David Ratcliffe** has been a software engineer with CSIRO for 10 years. He is currently pursuing a PhD with the Australian National University with a focus on data mining methods for the Semantic Web.

**Bella Robinson** is a senior software engineer who has been with CSIRO for 18 years. Her areas of interest include spatial information systems, web applications, and social media analysis.

**Geoff Squire** is a senior software engineer who has been with CSIRO for over 13 years. He is interested in the use of web technologies, semantic technologies and linked open data for discovering, exploring and integrating data and services.

**Catherine Wise** was a CSIRO software engineer working on projects researching cloud computing, geographic data aggregation, and web user experience optimisation.

**John Dickinson** was the Director of Emergency Management for the Australian Government Department of Human Services who was with the department for over 18 years.

**Lucy Knight** is the Assistant Director of Emergency Management for the Australian Government Department of Human Services and has been with the department for over 10 years.

# Development of a household resilience toolkit

Professor Paul Arbon, Professor Kristine Gebbie and Anna Hall, the Torrens Resilience Institute, Flinders University, identify the resources and actions that contribute to household resilience and the development of an assessment and referral tool.

## ABSTRACT

The resources of individuals or households and the level of preparedness (bolstered by active support networks especially in times of need) assist them to adapt, learn and recover more effectively from emergency events and disasters. Because preparedness actions take time to implement, and because emergency events are frequently of sudden onset and are unexpected, the building of household resilience must be an everyday and sustained activity.

The resilience of households will depend on a range of relatively small actions and activities that build resources, preparedness and connectedness. This project focused on identifying those resources and actions that may contribute to household resilience. This led to the development of an assessment and referral tool that can be used by householders to build an understanding of their risks and awareness of relevant resources and services; thus raising their commitment to taking positive action.

## Introduction

The *National Strategy for Disaster Resilience*<sup>1</sup>, launched in 2009 by the Council of Australian Governments (COAG), identifies the need for attention to disaster preparedness and the strengthening of resilience at all levels of our society, from governments through individual communities to households and individuals. COAG agreed to adopt a whole-of-nation resilience-based approach to disaster management to enhance Australia's capacity to withstand and recover from emergencies and disasters.

A strengthened culture of community-based disaster preparedness and self-reliance has potential to allow

families and entire communities to survive without outside assistance for many days, and to recover from an emergency event more quickly. Australia's *National Strategy for Disaster Resilience* emphasises the need for increased partnerships across communities and for relationship building across all levels of government, community groups and the organisations (both private and public) that make up communities. The strategy highlights the importance of all levels of society accepting responsibility for taking actions that build resilience in preparation for a disaster or emergency event.

The Household Disaster Resilience Project was implemented by the Torrens Resilience Institute with funding provided through the National Emergency Management Projects scheme. The Institute's mission is to assist governments, emergency services organisations and society to enhance leadership and management capabilities and prepare for and respond better to emergency events. The project developed an assessment and referral tool that promotes the participation of government, communities and organisations in supporting the improvement of household disaster resilience with the aim of having greater Australian households take more responsibility for the resilience-building process.

The tool draws on the concepts underpinning the national strategy and is particularly designed to assist those who may be considered more vulnerable in an emergency event to connect with the range of community services that contribute to household resilience. The continuous process of resilience requires action at all levels as national, community or regional resilience can only be assured if it is supported by a reasonable level of household resilience.

## Household disaster resilience

For the purposes of the project, household disaster resilience was defined as the capacity of a person, or people sharing a living arrangement to:

- sustain their household, even under stress
- adapt to changes in the physical, social and economic environment

<sup>1</sup> *National Strategy for Disaster Resilience*. At: [www.em.gov.au/Publications/Program%20publications/Pages/NationalStrategyforDisasterResilience.aspx](http://www.em.gov.au/Publications/Program%20publications/Pages/NationalStrategyforDisasterResilience.aspx).

- be self-reliant if external resources are limited or cut off
- learn from the experience to be more prepared for next time.

This definition emphasises that resilience is not simply a state to be attained so that attention can then be paid to other issues. It is an ongoing process that requires consistent and repeated reinforcement to be at a suitably high level should disaster strike.

## Project approach

The project team developed the tool from a review of current literature, with input from a Project Advisory Committee and key staff from organisations that were trialling the tool. A number of versions of the tool were developed, previewed and edited before settling on the final version.

The tool consists of two parts: Part One – Agency Resource Tool and Part Two – Household Resilience Conversation Guide. The two parts combine to provide community-based organisations (e.g. community service organisation or community club) with the materials necessary to undertake conversations about building resilience with householders. This engagement is structured to lead to householders receiving accurate and personally-relevant information about local hazards and risks, and link householders to existing community information and services that address their specific vulnerabilities and needs.

### Part 1 – Agency Resource Tool

The Agency Resource Tool is completed by the community organisation and provides an assessment of local emergency hazards and risks relevant to the target households. It depends on good advice from local emergency management agencies and local governments. It is completed by the agency as a necessary prerequisite to conversations with individual householders. When completed the tool is a guide to relevant local hazard and resource information that is essential for a consistent approach by community workers and volunteers in their dealings with householders.

The Agency Resource Tool may be of some use at the agency level, such as informing staff answering phone enquiries. However, the main purpose is to provide a resource for use in conversations with householders about what they can do to prepare adequately for an emergency event. The tool also highlights what they would do when they may not have essential services, such as electricity and water, available for a few days. This conversation is supported by community-specific information in those areas where the householder identifies potential gaps or needs and where they may be more at risk.

The completed Agency Resource Tool is also essential for training staff or volunteers conducting conversations at the household level. Consistent

information helps strengthen the community.

Discussion about resources during staff orientation and training sessions may serve to enrich the level of resource information available, as well as reinforce the focus of the intended household visits.

### Part 2 – Household Resilience Conversation Guide

Once the Agency Resource Tool is completed, an agency or organisation is in a position to identify households with which to have a conversation about resilience building. The households may be selected based on physical, socio-cultural or economic vulnerabilities or other criteria agreed on by the agency or the community. It would be useful for the agency or organisation to develop a plan for follow-up with the identified households at regular intervals to reinforce the need for action identified in the original conversation. Follow-up will be based on the objectives and resources of the agency undertaking the process.

The Household Resilience Conversation Guide provides individuals and volunteers going into households with key questions and topic areas useful to initiate a conversation about increasing resilience. In response to identified areas for action, the interviewer can provide the relevant information identified in the Agency Resource Tool (Part 1).

The conversation guide includes questions relating to:

- demographics, for example, name, address, number of people living in the household
- hazards, for example, does the person have concerns about flooding or industrial events that could potentially affect the neighbourhood or household
- health, for example, does the person have a health problem or disability that may limit mobility if there is a need to evacuate
- property, for example, is someone in the household physically able to routinely check the property for hazards, or prepare during a time of high risk
- connection to the community, for example, identify any family, friends or neighbours to call if assistance or help is needed.

Review of answers to these questions provides the basis to develop the referral information by the agency undertaking the initiative. It is important that the information about resources and contacts in the local area is developed and reviewed by a group of experienced community workers before it is provided to the householder. This ensures that good and consistent advice is provided across all participating households. Community resources identified might include local government support to eligible householders to clear debris or clean gutters in preparation for the fire season, contact details for organisations able to collect and safely dispose of old or unused gas bottles, or referral to local community groups where an individual may be relatively isolated from their community. The specific services available differ across

local government areas and communities and support services need to be identified before household visits commence.

### Testing the process and the tool

The tool was tested by two community services organisations: St John Ambulance Australia in South Australia (St John) and the Queensland Alliance for Mental Health (QAMH). St John is well known for its statutory ambulance services, first aid services provided at events and during emergencies, and public first aid training. St John also provides a non-uniformed volunteer-based program that includes services such as support for older people who live alone and to those with disabilities or who are frail and need assistance with simple tasks of daily living. St John provided the project team with opportunities to test the Agency Resource Tool using community volunteers with access to the potentially vulnerable householders in their client group.

The QAMH is a government sector organisation providing community mental health services. The QAMH expressed a desire to test the tool with community-based mental health service clients in Queensland.

The trial phase included nine St John community volunteers in South Australia visiting 20 households, and one salaried mental health worker in Queensland visiting four households. During this time there was frequent communication between the project team and the staff members co-ordinating the volunteers. Once the trial process had concluded feedback was gathered to evaluate the use of the tool.

## Evaluation

### St John Ambulance

Eight staff members who had experienced using the household resilience tool participated in a group meeting to provide feedback. The staff members had used the tool in a range of metropolitan local government council areas of South Australia.

Responses provided by St John staff members were mixed. A number of staff members indicated that initially the process was unclear and a little overwhelming. This was due to the tool instructions being considered inadequate. Changes to the instructions were made accordingly. Those who used the Household Resilience Conversation Guide without having attended the initial orientation session had a much more difficult time. For example, some of the volunteers were not clear about the objective of the household assessment and, as a result, some discussions were focused on what household members should do in the event of an emergency during the

response and recovery phases, rather than what they need to do to prepare for such events. This demonstrated the importance of a clear orientation to the resilience concept and the changing emphasis on the pre-event phase in the development of community disaster resilience. This may be especially important if current or former community emergency services workers are tasked to use the tool.

### Queensland Alliance for Mental Health

The response provided by the community care worker from the QAMH was overwhelmingly positive. While the project team had estimated an hour for the conversation, the care worker found that interviews took more than one hour due to the time taken to build rapport. The care worker suggested that locating the information sources for Part 1 had been time consuming and it was difficult to provide useful information to householders who were not accessing government Home and Community Care services or were not elderly. Middle income householders with slight mobility issues would have to pay for services.

The care worker remarked that the tool provided a good guide, although some questions were too simplistic. To combat this, the care worker re-worded some of the questions to suit the audience. The care worker stressed that it was the face-to-face conversations that were most effective in motivating householders. Generally, it was considered that families would make changes and review plans already in place as a result of using the tool.

### Disability services organisations

As an additional step, and at the recommendation of the Advisory Committee, the project team also met with a group of representatives from the disability sector (Can Do Group, Home Care, Leveta and National Disability Services). The meeting highlighted the need for increased disaster resilience for people with disabilities. The representatives mentioned that many people living with a disability may find it useful to connect with local community members. The discussion concluded that the tool would be useful, though it would need to be altered to help in households where one or several of the members have a disability.

The representatives suggested that an adapted tool may be particularly useful for people with a disability who live in a group home setting. Alterations to the tool facilitated it being administered by a care worker potentially using several modalities. The interface with disability services and an individual's home environment, including disability aids and structural improvements, were managed by the care organisation rather than the individual and would need to be taken into account.

## Outcomes of the trial

The trial confirmed the critical link in the process of building disaster resilience provided by local governments. The range of information sources available through local government varies from state to state and within local government areas, as does the communication medium by which information is disseminated. It is this information that is specific to the individual's geographic location that is essential in making the connection for a household with a question or desire to strengthen its resilience.

The participating organisations had collected their own information required for Part 1 – Agency Resource Tool of the process. This was a particular challenge to organisations that provide services across a number of different local government areas. Council websites varied in the quality of information and ease of access, with some providing detailed hazard assessments and information and others providing very little. Some of the St John community care workers had gone into council offices to ask questions about the local hazards and to collect information pamphlets before meeting with householders. Although time consuming, it was found that going into the council office often yielded better results than searching the website.

As an additional issue, access to information via the internet was not appropriate for many of the householders as they did not have access to computers. In this instance, the community care workers wrote down telephone contact numbers for available service providers and emergency services information lines. Some participants mentioned that they searched for additional information sources after completing the household conversation in order to provide more information on identified areas of weakness.

All participating representatives concurred that the household conversation covered all relevant aspects of disaster resilience. On completion of the pilot, based on feedback, wording of some of the questions was changed and examples for the questions included.

The assessment process caused householders to think about the importance of preparing for an emergency and considering what would happen if an event occurred. The community care workers mentioned that the majority of householders involved in the trial were connected with the community already and emphasised that more vulnerable householders may need to concentrate greater effort on aspects of resilience, including planning and preparing their household and surrounding environment. This project accessed clients who were receiving services from well-established community service providers. Those householders who are not connected to the community services sector may be isolated and lacking the community network and connections that are considered an essential part of disaster resilience.

## Recommendations for the future

If an organisation, whether an emergency services agency or non-government organisation, was to incorporate use of the tool into its community services activities, an orientation and training session would be required to be sure that those talking with householders are familiar with the concept of disaster resilience and how the guided conversation can help. The training session would also allow for discussion of the process and provide time for a run through of the household conversation. This orientation should be scheduled to follow completion of Part 1 of the tool so that those being oriented are able to review the relevant local resources.

To achieve the full potential of this process and assessment of household resilience an effective communication and engagement plan is required. This was beyond the brief of the current project. Engagement with local governments and with the community and emergency services sectors would assist in the uptake and use of the tool with positive benefits for resilience building.

## Conclusion

With sufficient hazard, risk and resource information there is a good opportunity for a variety of community service groups to become involved in the work of building household (and therefore community) resilience. This involvement may be directed to existing client groups that tend to be among the more vulnerable members of the community. Alternately it may be through deployment of a local volunteer workforce in a new community service activity that works from household to household through targeted local groups where the risk profile or other factors make the neighbourhood more susceptible in emergency or disaster events.

### About the authors

**Professor Paul Arbon** is the Director of the Torrens Resilience Institute at Flinders University.

**Professor Kristine Gebbie** is a Fellow of the Torrens Resilience Institute and leads research and development projects in the disaster and resilience field.

**Dr Lynette Cusack** is a Senior Lecturer of the University of Adelaide and Fellow of the Torrens Resilience Institute. She was the project leader for this Household Resilience Toolkit project.

**Anna Hall** is undertaking doctoral research in the field of bystander and community interventions in emergency situations within the Torrens Resilience Institute at Flinders University.

# The words we use and the stories we tell: the impacts language has on the actions and perceptions of emergency managers

Kate Brady, Australian Red Cross looks at the use of language to influence behaviour and actions.

## ABSTRACT

Communication is increasingly being seen as a key component of emergency management. While previously focusing on emergency warnings from official sources, there is an increasing acknowledgement that communication in emergency management, like communication generally, is a two-way process and one that is not always controlled by traditional agencies. This paper looks at the way language used to describe people involved in disasters may affect the actions of emergency managers.

## Language and communication in emergency management

Members of the public are now acknowledged as important players who can provide much of the information, context, and many of the pathways for communication around disasters. This shift is reflected in the *National Strategy for Disaster Resilience*, which states:

*In a disaster resilient context, the focus of communication requires a shift in emphasis from top-down messages to engaging individuals and communities at the grass roots level so they can understand disaster risks and share ownership of managing those risks... (National Strategy for Disaster Resilience 2011)<sup>1</sup>*

In recent years there has been an acknowledgement from leaders of response-focused organisations that communication during emergency events may be more important than the response activities themselves.

While focus on words and language and their ability to effect action has not been extensively examined in the field of emergency management, it has been in other fields such as civil rights, criminology and gender studies. Time and time again, language use has been shown to influence behaviour and actions (Alter 2013, Coates 2007).

## Do the words we use matter?

As part of a 2013 Fulbright scholarship, Bob Jensen, the former Principal Deputy Assistant Secretary of the Department of Homeland Security in the U.S.A. made a number of presentations to emergency managers in Australia, sharing his experiences from a number of different disasters when working with Federal Emergency Management Agency of the United States (FEMA). On a number of occasions he stated, 'When we [FEMA] stopped calling people "victims", it changed how we worked with them.' Jensen's point indicated that by making changes to language, substantial changes to attitude and behaviour could be achieved.

In order to explore this, a survey was designed to examine the way that language used to describe the different players in emergency situations shapes the behaviour of emergency managers. The three 'titles' tested were:

- victim
- survivor
- emergency management personnel.

These three titles, or labels, are commonly used within emergency management policy, arrangements, handbooks and training. The paper-based survey (completed anonymously) was issued to attendees at the 2014 Emergency Media and Public Affairs (EMPA) conferences in Auckland and Canberra.

The EMPA conference has been running in Australia since 2008, brought to life by public affairs and emergency communicators after *Cyclone Larry*. The conference is a forum where emergency communicators can share experiences and learn from each other. In 2014 an additional EMPA conference was held in New Zealand. Participants at these conferences were invited to complete the survey. A total of 49 were collected in Auckland and, a week later, participants at the Canberra EMPA conference completed 69 surveys. EMPA conference participants represent emergency management agencies, military, government, non-government organisations, research institutions, media organisations, and private sector organisations. Conference participants had an interest in communications and emergency management, are generally highly educated, and represented a balanced gender mix. There was no significant difference

<sup>1</sup> National Strategy for Disaster Resilience. At: [www.ag.gov.au/EmergencyManagement/About-us-emergency-management/Pages/National-strategy-for-disaster-resilience.aspx](http://www.ag.gov.au/EmergencyManagement/About-us-emergency-management/Pages/National-strategy-for-disaster-resilience.aspx).

between the responses received from New Zealand participants and those from Australia.

This activity was not designed to generate quantitative data nor to be statistically analysed. Rather, it was an engagement activity and a quick test to see if any patterns emerged. It was also an exercise for participants to actively question their attitudes and assumptions when particular words are used. The feedback from participants provided an interesting insight into some of the attitudes prevalent among those in the emergency management sector.

### Who is a victim and who is a survivor?

While the words ‘victim’ and ‘survivor’ have not been extensively debated in the emergency management context, they have been debated in relation to international development, conflict and violence. This history of the two words helps explain the narrative and character around them, which is part of everyday language.

#### Victim

The word ‘victim’ is a derivative of the Latin word *victima*, meaning sacrificial animal. The oldest record of using the word to refer to a human occurred during the Renaissance period in reference to Jesus Christ. Following this, the term began to be used more colloquially to refer to those suffering innocently from bad luck or other people’s criminal behaviours (Van Dijk 2008). The origins of some of the traits that are given to victims today—blameless, passive and needy—can be linked to this time. Many modern European, Asian and Arabic languages have more formally adopted ‘victim’ to refer to someone who has had a crime or offence perpetrated against them. While originally used in criminology as a neutral term to refer to a person who has suffered an act of crime, the word ‘victim’ has become increasingly loaded (McLeer 1998). Sexual violence activists often reject the term because of its implied passivity and weakness (Leisenring 2006) and aid agencies that portray end-users as ‘victims’ can be criticised for being paternalistic and inflammatory in their portrayal of helplessness in order to increase donations. The deliberate ‘victimisation’ of aid recipients for gain is sometimes cynically referred to as ‘poverty porn’ (Cameron & Haanstra 2008, Nathanson 2013).

#### Survivor

The term ‘survivor’ is used in many different contexts. A rise in the term ‘survivor’ was seen in the 1960s and 1970s and was used by groups of people who had previously been portrayed as weak or helpless. These included those who had survived the Holocaust, sexual assault, rape and incest, and people affected by health conditions such as cancer. In the same era the word was used increasingly in psychotherapy, where the ultimate aim of a therapist was to assist ‘victims’ to become ‘survivors’. The term ‘survivor’ has been cast as an opposing identity to that of the victim. While both

characters may have undergone something painful or traumatic that was outside of their control, the victim is seen to be immobilised and defeated by the experience, while the survivor rises above the adversity they face (Orgad 2009).

While other terms are used in emergency management, victim and survivor are two of the most prevalent. Other titles include ‘community member’, ‘resident’, ‘client’, ‘beneficiary’ and ‘service user’. Each of these terms presents their own challenges (e.g. they may not represent people who are affected by a disaster but are not living in the geographic area, people who fall outside the scope of the agency responsible for that geographic area, people who do not use [or feel as though they have benefited from] external services). Discussion regarding these terms falls outside the scope of this paper.

### What trends emerged?

EMPA conference attendees were asked to list five words or sentences that described a disaster victim, a disaster survivor, and emergency management personnel. They were then issued a list of 38 words and sentences; some describing traits or characteristics and others describing actions. They were asked to identify which of the word and sentences correlated to their understanding of the disaster victim, the disaster survivor, and emergency management personnel (Table 1).

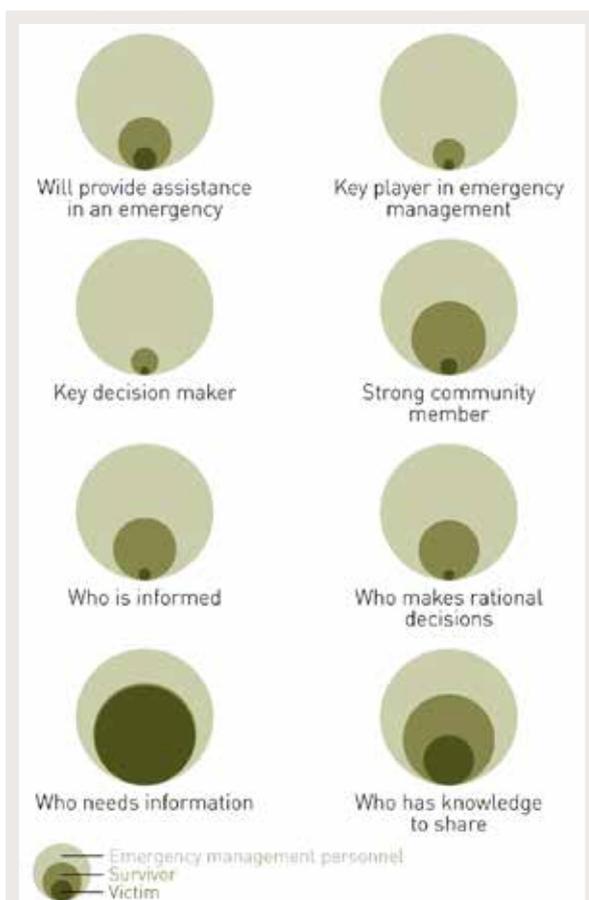
While the responses given by the participants were reasonably predictable, considering the focus of shared responsibility in Australian and New Zealand emergency management policy the trends that emerged were very interesting.

**Table 1:** Most commonly used traits when participants were asked to select words and sentences from a list to describe roles in emergency situations.

Role ‘title’	Words selected
Disaster victim	Distressed Vulnerable Traumatised Afraid Worried
Disaster survivor	Resilient Lucky Strong Resourceful Traumatised
Emergency management personnel	Action oriented Practical Resourceful Informed Capable

Figure 1 shows relational diagrams indicating responses by participants to questions about knowledge and role.

There were two main trends that emerged from the responses that warrant further investigation. The first was how differently emergency management personnel viewed themselves and their colleagues compared to victims and survivors. The results of this exercise highlight that the perception of emergency managers may still be skewed towards a belief that emergency management personnel have superior knowledge, behaviour and skills to the rest of the community. These attitudes are not reflective of the increasing focus on shared responsibility in emergency events by Australian and New Zealand emergency management leadership. Key documents such as the National Strategy for Disaster Resilience emphasise that enhanced community resilience in emergency management requires a shift from reliance on top-down official responses to increased community and grassroots-generated activity. Without dismissing the hard-earned expertise of many professionals in the field, such a dramatic difference in the regard for the skills and knowledge that others in the community can bring to these situations makes for a difficult starting position for a genuine and respectful shift from top-down directives to shared responsibility.



**Figure 1:** Diagrams showing participants' understanding of the relationship of knowledge to role in emergency situations.

The second emerging trend from the responses was the stark difference in the perception of 'victim' compared to 'survivor'. Participants consistently considered victims to be weaker, less rational, less informed and less knowledgeable than survivors. A simplified analysis would indicate that participants viewed survivors through a 'strengths-based' lens, while seeing victims through a 'deficit' lens. On an optimistic note, this may indicate that with deliberate changes to language, combined with improved education for emergency managers, and stronger community partnerships, profound shifts may be realised with reasonably small effort.

The trends that emerged from this simple activity indicate that emergency management planners, practitioners and communicators could learn from other sectors such as health and community development, where language has undergone a deliberate change.

If the emergency management sector is truly committed to sharing responsibility to encourage more resilient communities, cultural changes as to how community members are perceived by the sector will need to happen first. Sector leaders and communicators can lead these changes by reflecting the importance of working with community members as peers, acknowledging the skills and resources that people outside the sector can bring, and encouraging these changes within their organisations. Deliberate changes to the language we use may be a reasonably pain free but significant step that assists with these changes becoming reality.

## References

Alter A 2013, *The Power of Names*. The New Yorker.

Cameron J & Haanstra A 2008, *Development Made Sexy: How it happened and what it means*. *Third World Quarterly*, vol 29, no. 8, pp. 1475–1489.

Coates L 2007, *Language and Violence: Analysis of Four Discursive Operations*. *Journal of Family Violence*, vol. 22, no. 7, pp. 511–522.

Leisenring A 2006, *Confronting 'Victim' Discourses: The Identity Work of Battered Women*. *Symbolic Interaction*, vol. 29, no. 3, pp. 307–330.

McLeer A 1998, *Saving the victim: Recuperating the language of the victim and reassessing global feminism*. *Hypatia*, vol. 13, no. 1, pp. 41–55.

Nathanson J 2013, *The Pornography of Poverty: Reframing the Discourse of International Aid's Representations of Starving Children*. *Canadian Journal of Communication*, 38, pp. 103–120.

Orgad S 2009, *The survivor in contemporary culture and public discourse: A genealogy*. *The Communication Review*, vol. 12, no. 2, pp. 132–161.

## About the author

**Kate Brady** is the National Recovery Coordinator for Australian Red Cross Emergency Services. She is undertaking her PhD in disaster recovery with the University of Melbourne.

# New consortium to deliver professional development products and services

The Australasian Fire and Emergency Services Authorities Council, Australian Red Cross and Bushfire and Natural Hazards Cooperative Research Centre will work together to deliver professional development products and services on behalf of Emergency Management Australia.

Collectively, this partnership represents a wide range of emergency management expertise from operational, humanitarian and research backgrounds. It will share and build on experience in emergency management drawn from Australia and overseas.

This change in delivery will allow for professional development products and services to be delivered in more flexible and contemporary ways, with a broader national reach.

Future products and services will build on those previously delivered by the Australian Emergency Management Institute to ensure there is greater access for emergency management practitioners, innovative solutions applied to address risks and gaps, and a wider range of delivery methods.

This partnership represents a great opportunity for industry and government to work together to enhance community resilience through the delivery of professional development courses and workshops, schools education program, knowledge management services, emergency management publications and volunteer support.

The collaborative partnership will be:

- informed by contemporary research and evidence-based learnings for the benefit of ongoing professional development in emergency management
- responsive to the demands of the emergency management sector and the broader community
- maintain a professional development pathway that is informed by research and experience and is flexible, innovative and accessible
- committed to reaching a broad range of stakeholders.

It is expected that the delivery of professional development products will commence in late 2015.

This new arrangement forms the first part of establishing a collaborative partnership between the Commonwealth Government and the emergency management sector to deliver both professional development and vocational education products and services.

The Attorney-General's Department has also approached the market to develop similar arrangements for the delivery of its emergency management vocational education products and services.



# Harnessing innovation, fostering collaboration: the Young Emergency Planners Workshop

A report by the Australian Emergency Management Institute

*We [emergency management leaders] can't, as a group, sit around the table and come up with new thinking and get better at what we do, without really considering who's coming up behind us. What should be the future of this space? It needs some significantly different thinking into the future.*

**Iain Mackenzie AFSM, Inspector-General  
Emergency Management, Queensland**

## Introduction

As emergency planners face a future where the frequency and severity of disasters, both natural and human-caused, continues to increase, the need for innovative and flexible solutions becomes more prevalent. This requires increased creativity and collaboration across the sector, with a greater working knowledge of emergency management counterparts in different jurisdictions, particularly their capabilities, perspectives and resources. Similarly, developing and maintaining networks across agencies and jurisdictions is the key to maintaining and enhancing the capability to respond to disasters now and in the future. To help mitigate some of these challenges, Emergency Management Australia (EMA) developed and hosted the Young Emergency Planners Workshop as a way to harness innovation and foster crucial networks among the future leaders of the emergency management sector.

The workshop brought together 25 emergency planners, aged 35 and under, with a minimum of three years experience in emergency management, from across all levels of government and the not-for-profit and private sectors. The main aims of the workshop were to:

- achieve innovation in crisis and emergency planning
- provide a professional development opportunity to explore cross-sectoral planning issues and challenges
- facilitate networking opportunities
- establish a self-initiated mentoring arrangement between young planners and experienced emergency management personnel
- provide the basis for a post-workshop paper discussing innovation in emergency and disaster management.

## Format

Held in Canberra in July 2015, the workshop combined scene-setting presentations with group discussions and exercises. These formats were designed to broaden participant knowledge and encourage them to think creatively in identifying and addressing challenges faced by the emergency management sector. The varied presentations included environmental challenges, innovative ways to build community resilience, and decision-making in a crisis. These presentations exposed young planners to initiatives and decisions being made at higher levels within the emergency management sector.

The workshop included a scenario-based desktop exercise that allowed participants to consider flexible and innovative solutions to a real-life situation. Facilitated by a representative from Emergency Management Victoria, the exercise threw additional challenges at group members mid-way through their discussion. This was meant to resemble the real-world experiences of emergency planners who need to respond quickly and effectively under pressure.

Throughout the two days, participants also engaged in discussion exercises where they were encouraged to consider significant challenges facing the sector, develop innovative solutions for how these challenges could be addressed, and consider practical implementations. Participants worked in four groups (guided by experienced emergency management personnel) to develop solutions and prepare a presentation for the end of the workshop. The group facilitators are also available as ongoing mentors to participants.

## Observations

### Tangible vs intangible outcomes: discussion groups

One of the workshop's main objectives was for participants to apply their shared experiences and think creatively in small groups to devise innovative solutions to common problems facing emergency management planners. This was facilitated through the discussion groups.

The diversity of backgrounds and experiences among the young planners widened the group conversations, broadening the knowledge of participants and exposing

them to new ideas and initiatives. This was beneficial not only in providing a professional development opportunity for participants, but also in building an appreciation of the challenges associated with high-level collaboration and innovation.

As a result the final presentations showcased the tangible solutions that had been devised and reflected the intensive working and decision-making processes that the groups undertook. This provided valuable experience in strategic collaboration and fostering innovation.

One participant commented, 'It was really interesting to hear the different ideas raised by participants during the discussion groups. Even though agencies largely agreed on current and inevitable challenges facing the sector, the workshop really highlighted the difficulty with trying to agree on solutions across parties. This reinforces the importance of forums such as this to bring planners together to collectively and creatively tackle these issues.'

Additional feedback indicated that the ability to broaden the working knowledge of emergency management issues and gain exposure to ideas and initiatives occurring in other jurisdictions was one of the most valuable aspects of the workshop.

'It was fantastic to gain an understanding of other people's issues in the emergency management space, including everyone's past experience,' commented one participant.

'I feel the value is more than what the objectives sought—meaningful dialogue, robust discussion, education, realisation of cross-sector issues. A really thought-provoking workshop!' said another.

### Horizon scanning: the scenario-based exercise

The scenario-based exercise gave participants the opportunity to practise their decision-making in the context of a real-life disaster. In working through the exercise, participants reflected on Iain Mackenzie's earlier presentation on horizon scanning. 'That's where you will rightfully be questioned,' he told participants, speaking about royal commissions and the need for forward thinking in disaster management. 'The community has an expectation that we are prepared to handle anything, and they've got a right to think that,' he added.

Participants were encouraged to keep this in mind as they worked through the exercise, looking forward to anticipate potential risks, as well as thinking reflectively in order to justify their decisions. This particular exercise facilitated detailed operational discussions about the various challenges associated with responding to a specific natural disaster. This allowed participants to build their working knowledge of the different approaches and priorities across the variety of agencies and jurisdictions represented.

'[It] really opened my eyes to collaboration processes on large scale issues,' commented one participant. Another reflected, '[It was] very beneficial for us to meet and to discuss ideas with others across the spectrum of emergency management.'

### Building connections

Both the discussion and scenario-based exercises provided the foundations of a professional network to aid young planners in their careers. Iain Mackenzie reflected on the importance of the workshop in achieving this aim.

'It's great to see and talk to a group where I don't recognise anyone,' he commented. 'We are talking to the next generation of people who, in 15 years or less, will be at the pinnacle, will be sitting on that chief officer's strategic group and making decisions.'

In order to further enhance these professional networks, each participant was given the contact details of their group facilitator, all of whom are experienced emergency management planners. Kate Fitzgerald, Director of the Planning and Engagement section within EMA's Crisis Coordination Branch and workshop facilitator said, 'These networks give participants an ongoing source of support and professional development as their careers unfold. Not enough value can be placed on the benefit of forging strong connections and working relationships across the sector.'

### Conclusion

The Young Emergency Planners Workshop aimed to harness innovation and foster networks among future leaders of the emergency management sector. Overall, participant feedback was positive and indicated that the aims were met. The new ideas and experiences presented, combined with the opportunity to build new networks in the sector, were noted as being the most valuable aspects of the workshop.

For the workshop facilitators, some of the observed benefits extended beyond the direct aims of the workshop. The broader understanding participants gained of how their colleagues in other areas operate, their insights into innovative work currently being undertaken, as well as their first-hand experience in driving innovation and collaboration across agencies and jurisdictions, were regarded as being as valuable as the stated aims of the workshop.

EMA looks forward to seeing how this network of young planners develops as a group, and how they apply the learnings of the workshop in their respective organisations.

# #AFAC15

## The annual AFAC and Bushfire and Natural Hazards CRC conference

More than 1500 people from across emergency management converged on Adelaide from 1–4 September for the annual AFAC and Bushfire and Natural Hazards CRC conference.

Emergency managers, volunteers, researchers and other industry representatives witnessed 100 presentations over the four jam-packed days, covering all-hazards and reflecting the conference theme, *New directions in emergency management*.

Day one was devoted to research with the Bushfire and Natural Hazards CRC Research Forum showcasing the diversity of research being conducted, not just within the CRC, but by other researchers in Australia and internationally.

The five other streams in the following days covered the latest ways practitioners are working to reduce disaster risk, share responsibility with the community for disaster management, and tackle diversity and culture within emergency services.

The program was augmented by a research poster display area and a huge trade show featuring more than 100 leading industry manufacturers.

The last day of the conference featured seven professional development sessions. This was a chance for delegates to extend their learning. Sessions looked at urban fringe fire risk, flood management, and social media for community engagement.



The next generation was a focus of the conference, with Matt Masters, Marcus Collignon and Nathan Inwood from Australian Youth in Emergency Management.



The Emergency Management Spatial Information Network Australia booth was popular with a hands-on display.



Dr Rowan Douglas, CEO of Capital Science and Policy Practice at the Willis Group, delivers a keynote on the importance of the hazard and finance communities working together to increase societal resilience.

# Notes from the Field

## Building cross-cultural disaster resilience: Australia assists with wildfires in Canada

In July 2015 Emergency Management Victoria (EMV) led a 102-person national deployment of personnel to support the British Columbia province of Canada to control the escalating wildfires in the region. Crews from Victoria, New South Wales, Western Australia, Australian Capital Territory, Tasmania, Queensland, and South Australia were involved in the national deployment. The team was intended to fulfill specialist leadership roles in incident management and aircraft support among others.

The relationship between British Columbia and Australia in sharing firefighting resources has been in place for over 15 years. This agreement allows for the exchange of personnel, knowledge, skills, equipment, technology and mutual support in the event of wildfire disasters. This relationship was strengthened when firefighting personnel from British Columbia were sent to Australia in 2007 and 2009 to help during the bushfire season in Australia.

Australia is a country known for its skilled firefighters and emergency management personnel with expertise in operating specialist equipment and being able to work with international partners. This year the Australian crews in Canada battled more than 5000 wildfires, where more than three million hectares were burnt; more than double the land area affected by fires in 2014.

Darrin McKenzie, Deputy Chief Fire Officer, Department of Environment, Land, Water and Planning in Victoria was Senior Liaison Officer in Winnipeg, Manitoba. He was responsible for the deployment of personnel from Australia on behalf of EMV. Darrin also oversaw operations in Edmonton in the province of Alberta and British Columbia.

‘Australia and Canada have a lot in common as far as fires go. We both experience large bush and wildfires

that can have quite an impact on communities and property. Similar to Canada, our fires can grow large very quickly with significant risks and consequences. This is why we can integrate so well by sharing experiences and, when it comes down to it, resources and personnel,’ he said.

Initially a request came from the Canadian Interagency Forest Fire Centre (CIFFC) to Emergency Management Victoria (EMV) for the deployment of International Deployment Liaison Officers to co-ordinate the operation.

Traditionally the CIFFC measure a fire warning from one to five. When the warning reaches level four a call is made to International Deployment Officers to start co-ordinating personnel. Initially officers are sent from Victoria and South Australia. Once these officers assess the situation, they then request further personnel to be sent.

Deputy Chief Fire Officer McKenzie continued, ‘The initial request from Canada came through to EMV. EMV then passed the information on to Emergency Management Australia (EMA). EMA then led a discussion with the states and territories around recruiting personnel to go to Canada. Then EMV offered to do the co-ordination role on behalf of Australia. Given that EMV had prior experience in co-ordinating overseas deployments to Canada, most notably in 2014, the other states and territories were comfortable with this plan,’ Deputy Chief Fire Officer McKenzie said.

A range of established agreements are in place supporting the international deployment of people to fight fires in Australia and Canada. The 2014 Australian deployment to Canada occurred through an agreement between the Department of Environment, Land, Water and Planning in Victoria and British Columbia.



Alistair Drayton (left), Incident Controller, conducts a fire briefing for local firefighters.



Ian Westhorpe (centre), Air Attack Supervisor, with local aircrew.

Roughly 20 per cent of those deployed have been on previous overseas engagements. For the majority of those sent this was their first time to assist in an international engagement. The 80 per cent first-timers gained experience in leadership development.

'All Australian agencies had quite a thorough selection process vetting professionals within the field. People were selected depending on their having the right skills and the right attitude to match this deployment.

'All those who go need to be self-reliant, be able to manage their own welfare and hit the ground running. Learning new terminology and procedural processes were among the hardest challenges for those deployed. It was also about understanding and working in a new environment. There were new fuel types, different terrain and different weather patterns that played a huge part in our adapting.

'While there are a lot of similarities to firefighting in Australia, there are still quite a lot of differences in terms of fire behaviour. It took a little bit of time for our firefighters to get comfortable with these differences,' Deputy Chief Fire Officer McKenzie said.

The engagement between Canada and Australia also extends to similarities in national strategies to build disaster resilience in communities. Canada's *National Disaster Mitigation Strategy* aligns closely with the Australian *National Strategy for Disaster Resilience*.

'The two countries strategies were able to integrate well because there is a clear understanding of how to approach emergency management issues, what the risks and consequences are, and in building disaster resilience within the community. Similar to Australia, Canada also has warning systems, prepares communities and works at the local level to make sure

communities are resilient and that fire plans are in place as part of the strategy.

'It's also about building trust. Canada and Australia have a lot of mutual trust in working together after 15 years of fighting fires. This naturally builds on the international relationships and the sharing of knowledge and information and how to approach fire issues differently. The more collaboration, the more we talk and work through issues together, the more we can learn and work collectively,' Deputy Chief Fire Officer McKenzie said.

Learning opportunities from inter-country deployments is a great benefit for those involved. Among the skills learned in a different country were those relating to new fire line strategies, the use of aviation and informing communities, as well as understanding the Canadian *National Disaster Mitigation Strategy* and seeing how that is being implemented at the community level.

'For the two countries there is potential to work together in developing and sharing the lessons learned on the operational level to build and develop future resilience policy strategically. There was one guy from Australia posted at Edmonton who worked for four weeks just on strategic planning. This is a great opportunity for us to learn from each other and look to the future,' Deputy Chief Fire Officer McKenzie said.

A number of international firefighters worked alongside Canadians to battle the recent fires. This was the first time Canada welcomed resources from a large number of countries including Mexico, the U.S.A., South Africa and New Zealand. Collaboration and dialogue in cross-cultural fire management continues to build disaster management resilience worldwide.



Victorian firefighters at the Royal Canadian Mounted Police training facility in Chilliwack.

Image: Darrin McKenzie

# Notes from the Field

## Online training for volunteers builds leaders in resilience. Australian Emergency Management Volunteer Forum

Every year Australian communities face devastating losses caused by disasters including catastrophic bushfires, floods, and damaging storms. Natural disasters are common in Australia and history has shown that these catastrophic events will continue, with more extreme events predicted. Such events can have a huge impact on individuals and communities taking many years to recover.

Australia's capacity to respond to natural disasters has been built largely on a range of specialised volunteer-based emergency management organisations, each of which relies on a small team of paid staff and a much larger workforce of (unpaid) volunteers. In Australia today, there are approximately 500,000 volunteers who willingly provide their time and services to the emergency management sector.

With such large numbers of emergency management volunteers in Australia, as many volunteers as possible should have the opportunity to access leadership training. The Australian Emergency Management Volunteer Forum (AEMVF) offers the Online Introduction to Leadership Program for emergency management volunteers to help leadership capability within the sector.

In 2013, funding was awarded to the AEMVF under the National Emergency Management Projects to develop the Online Introduction to Leadership Program. The training takes 45-60 minutes and is full of useful learning tools to help students discover and extend their leadership skills. The training covers basic leadership principles and approaches and provides take-away tools to help volunteers put skills into practice.

Emergency management volunteers not only provide emergency response services during natural disasters but are also active in their local communities delivering prevention, preparedness and recovery programs. Appropriately trained emergency management volunteers help communities build resilience, including disaster response and recovery.

The AEMVF is the peak national body representing the interests of the emergency management volunteer sector in Australia. The AEMVF comprises representatives from the emergency management volunteer sector, the Australian Government and Volunteering Australia. The organisation advocates for the continual support and development of the emergency management volunteer sector. The AEMVF recognises that training and leadership is critical in the effective deployment of volunteers.

The Australian Government recognises that emergency management agencies are at the forefront of strengthening disaster resilience in Australia. The Attorney-General's Department appreciates all the dedicated work these agencies and organisations contribute to disaster resilience in the Australian community. These organisations and volunteers are critical to helping communities cope with and recover from disaster.

Introduction to Leadership Program:  
[www.ag.gov.au/EmergencyManagement/Community/Volunteers/Pages/default.aspx](http://www.ag.gov.au/EmergencyManagement/Community/Volunteers/Pages/default.aspx)



The AEMVF website is a valuable forum for volunteers.

# REVIEW:

## *Collective Conviction: The Story of Disaster Action*

by Anne Eyre and Pam Dix

Reviewed by Joshua Whittaker, RMIT University



Published by Liverpool University Press in 2014, ISBN 978-1-78138-123-6

How do survivors and bereaved people experience disasters and the aftermath? How do they cope with their experiences, seek justice for victims, and hold those responsible accountable? These are some of the questions explored by Anne Eyre and Pam Dix in *Collective Conviction: The Story of Disaster Action*.

This book tells the story of a UK charity founded in 1991 by survivors and bereaved people of disasters affecting UK citizens in the late 1980s. The organisation, Disaster Action<sup>1</sup>, has three main aims: to hold those responsible for disasters accountable, to provide support to survivors and bereaved people, and to prevent future disasters by learning from past events, campaigning for law reform, and increasing public access to safety information. Both authors are founding members of the London-based organisation. Eyre, a sociologist at the University of Leicester, survived the 1989 Hillsborough Stadium disaster in Sheffield, England. Dix, a publishing editor, writer and researcher, lost her brother in the 1988 Pan Am 103 bombing over Lockerbie, Scotland.

The book sets out the history of Disaster Action, from its origins in a number of disaster support groups, to its present-day status as an established but independent disaster organisation with strong institutional ties. Early chapters document the 'decade of disaster' that was the 1980s and the 'common bond' that brought survivors and bereaved people together for support and to campaign for corporate responsibility and law reform. This period saw an alarming number of transport and industrial disasters such as the 1987 capsizing of the *Herald of Free Enterprise* in Zeebrugge Harbour, Belgium (193 killed), the 1988 Piper Alpha oil platform explosion in the North Sea (167 killed), and the 1988 Clapham Junction rail crash in London (36 killed, 120+ injured). Middle chapters discuss the principles that guide Disaster Action's activities ('Accountability, Support, Prevention'), its engagement with disaster management organisations, and the needs and rights of those in disaster. Later chapters focus on corporate responsibility and the law, engaging the media, and Disaster Action's achievements and legacy. A significant part of the book (pp. 181-274) consists of appendices,

the majority of which is a reproduction of Disaster Action's 'When disaster strikes' and 'Guidance for responders' leaflet series.

The book will interest researchers and practitioners of emergency management, as well as those touched by disaster. As the authors point out, those without personal experiences of disaster, cannot fully comprehend the experiences, needs and challenges faced by survivors and the bereaved. The book provides examples of situations where officials have either inadvertently or wilfully neglected to listen to those affected by disaster and engage them in recovery processes. Eyre and Dix note that 'Many of us feel that however terrible the disaster that changed our lives, what happened in the aftermath has made living with it harder instead of easier' (p. 45). For example, developments in forensic science mean that relatives are rarely involved in victim identification and bodies of the deceased are often released after lengthy delays: 'Psychologically, this is too late for many relatives to spend time with the deceased and to feel part of their "final journey"' (p. 171).

The book provides insights into the 'common bond' that brings those touched by disaster together. A strong message is that people resent being told to 'move on' from their experience: 'Unlike other friends, who share your pain but wish you to feel better and get beyond it, friends from the disaster appreciate that your life has been altered forever, and that it is not possible to go back to the way you were before' (p. 19). While this may be a truism, it is an important reminder at a time when emergency management is fixated on ill-defined and poorly understood notions of resilience that emphasise self-reliance and returning to 'normal' (see Welsh<sup>2</sup> for in-depth discussions of resilience concepts and policies).

Overall, *Collective Conviction: The Story of Disaster Action* provides valuable insights into the experiences and needs of those affected by disaster. Its strengths lie in the detailed history and firsthand accounts of the organisation and its activities. Understandably, most of the material testifies to Disaster Action's value and achievements. Greater inclusion of perspectives from individuals or organisations that were initially critical of, or challenge, their activities may have provided important lessons for emergency management organisations. Despite this, the book offers profound insights into the challenges faced by those affected by disaster and the often simple things that officials can do to make the experience easier.

1 Disaster Action. At: [www.disasteraction.org.uk/](http://www.disasteraction.org.uk/).

2 Welsh M 2014, *Resilience and responsibility: governing uncertainty in a complex world*. *The Geographical Journal*, vol. 180, no. 1, pp. 15-26.

# Index of articles

## Australian Journal of Emergency Management, Volume 30, 2015

AUTHOR	ARTICLE	NO
Anderson, Sarah	Tsunami: The Ultimate Guide.	1
Anikeeva, Olga; Steenkamp, Malinda; Arbon, Paul	The future of social media use during emergencies in Australia: insights from the 2014 Australian and New Zealand Disaster and Emergency Management Conference social media workshop.	1
Arbon, Paul; Gebbie, Kristine; Hall, Anna	Development of a Household Resilience Toolkit.	4
Attorney-General's Department	Sendai Framework for Disaster Risk reduction 2015–2030.	3
Bajracharya, Bhishna; Hastings, Peter	Public–private partnerships in emergency and disaster management: examples from the Queensland floods 2010–11.	4
Belcher, Christine	Older people key to success in rebuilding Haiyan-affected communities.	1
Blau, Soren	The use of archaeologists at disaster scenes: a reflection 10 years on.	1
Brady, Kate	The words we use and the stories we tell: the impacts language has on the actions and perceptions of emergency managers.	4
Bruce, David	Post-incident research: gaining knowledge after the event.	3
Callan, Tony	<i>Exercise Odysseus</i> : the national livestock standstill exercise program.	2
Cornell, Victoria	What do older people's life experiences tell us about emergency preparedness?	1
Crowweller, Mark	Foreword	3
Crowweller, Mark	How a change in thinking might change the inevitability in disasters.	3
Crowweller, Mark	Improving our capability to better plan for, respond to, and recover from severe to catastrophic level disasters	4
Davie, Susan	Safeguarding children from animals in emergencies.	2
Dean, Sarah	Resilience in the face of disaster: evaluation of a community development and engagement initiative in Queensland.	3
Dean, Sarah	Ravenshoe café explosion: Tuesday 9 June 2015.	3
Dippy, Russell	Signing the South Australian Common Incident Management Framework – Control Agency Agreement.	1
Dufty, Neil	The use of social media in countrywide disaster risk reduction public awareness campaigns.	1
Emergency Management Australia	Australian Emergency Management Library.	3
Every, Danielle	Different but also the same: mental illness and bushfire planning, preparation and response.	4
Fowles, Dian	When humans and other animals connect: disaster narratives of fear, hope and change.	2
Garlick, Don	The Vulnerable People in Emergencies Policy: hiding vulnerable people in plain sight.	1
Gibbs, Lisa; Harms, Louise; Howell-Meurs, Sarah; Block, Karen; Lusher, Dean; Richardson, John; MacDougall, Colin; Waters, Elizabeth	Community wellbeing: applications for a disaster context.	3
Gill, Asif Qumer	Social architecture considerations in assessing social media for emergency information management applications.	1
Glasse, Steve	OPINION: Preventing 'lessons lost': is evidence-based dynamic doctrine the answer?	3
Goode, Natassia; Spencer, Caroline; McArdle, Dudley; Salmon, Paul M; Archer, Frank	Characteristics of a disaster resilient Victoria: consensus from those involved in emergency management activities.	3
Handmer, John; Towers, Briony	Progress made with public awareness-raising activities aimed at building both rural and urban disaster resilience.	1
Haworth, Billy; Bruce, Eleanor; Middleton, Peter	Emerging technologies for risk reduction: assessing the potential use of social media and VGI for increasing community engagement.	3
Ireland, Nick	An Australian contribution to the UNISDR World Conference and the <i>Post-2015 Framework for Disaster Risk Reduction</i> .	1
Jones, Pat	National Arboretum recognises Australian Fire & Rescue services.	1
Lebowitz, Adam; Clingeffer, Kelsea; Riddington, Liana; Hoare, Zara; Macintosh, Warde	Understanding risk factors in a disaster environment: evaluation of a three-week study tour of Japan.	3
Lentini, Rosemarie	The Oso mudslide: reflections of an emergency manager.	1
Lentini, Rosemarie	Strategic foresight in an age of uncertainty.	3

AUTHOR	ARTICLE	NO
Maddock, Nathan	<i>Mercury Rising</i> replay available.	1
Maddock, Nathan	Oceans on the rise.	4
Maddock, Nathan	Public event marks International Day for Disaster Risk Reduction.	1
March, Alan; Rijal, Yogita	Interdisciplinary action in urban planning and building for bushfire: the Victorian case.	
Mills, Jacqueline	Animal attachment and disaster resilience in vulnerable communities.	2
Moraitis, Chris	Foreword	1
Owen, Christine; Scott, Cameron; Adams, Richard; Parsons, David	Leadership in crisis: developing beyond command and control.	3
Parkinson, Deb; Zara, Claire; Davie, Susan	Victoria's Gender and Disaster Taskforce.	4
Pawsey, Cathy	A state plan for animal welfare in emergencies: Victoria's experience in developing and implementing a state animal welfare emergency plan.	2
Power, Robert	Emergency Response Intelligence Capability: improving situation reporting in the Australian Government Department of Human Services.	4
Resilient Australia Awards		3
Ricketts, Wayne	Achieving a global goal for the protection of animals in disasters: India's potential impact.	2
Richards, Andrew	Working from within: Uranquinty's community-led plan for disaster simulation.	3
Rogers, Jeremy; Scholz, Trent; Gillen, Amelia	Dealing with livestock affected by the 2014 bushfires in South Australia: decision-making and recovery.	2
Ronan, Kevin	Progress made with school curricula, education material and relevant training in disaster risk reduction and recovery concepts and practices.	1
Ross, Kirsten	Teaching students involved in emergency management how to use social media effectively.	4
Saaroni, Lucy	Managing spontaneous volunteers in emergencies: a local government perspective.	3
Schripp, Mark	Foreword	2
Shevellar, Lynda; Riggs, Rebecca	Understanding resistance to emergency and disaster messaging.	3
Sing-Peterson, Lila	An assessment of community disaster resilience for small, high-risk communities on the Sunshine Coast.	1
Smith, Bradley	Risk perception, preparedness and response of livestock producers to bushfires: a South Australian case study.	2
Taylor, Melanie; Lynch, Erin; Burns, Penelope; Eustance, Greg	The preparedness and evacuation behaviour of pet owners in emergencies and natural disasters.	2
Taylor, Melanie; McCarthy, Megan; Burns, Penelope; Thompson, Kirrilly; Smith, Bradley; Eustance, Greg	The challenges of managing animals and their owners in disasters: perspectives of Australian response organisations and stakeholders.	2
Thompson, Kirrilly	For pets' sake, save yourself! Motivating emergency and disaster preparedness through relations of animal guardianship.	2
Thompson, Kirrilly; Leighton, MaryAnne; Riley, Chris	Helping hands, hurting hooves: towards a multidisciplinary paradigm of large animal rescue.	2
The Hon Michael Keenan MP	Foreword	4
Trethowan, Vickie; Nursery, Jane	Helping children and adolescents recover from disaster: a review of teacher-based support programs in Victorian schools.	4
Trigg, Joshua; Smith, Bradley; Thompson, Kirrilly	Does emotional closeness to pets motivate their inclusion in bushfire survival plans? Implications for emergency communicators.	2
Westcott, Rachel	People and their animals in emergency: snapshots from past emergency events.	2
Whitehead, Jim	Search and rescue in Australia.	1
Whittaker, Josh	Review: <i>Collective Conviction: the Story of Disaster Action</i> .	4
World Animal Protection	National Planning Principles for Disasters	2
Yeo, Stephen	Lessons from the April 2015 Dungog flood.	4



# Protective Security Training College



Australian Government

Attorney-General's Department

Protective Security Training College

## *Are you interested in a tailored protective security training course?*

The Protective Security Training College (PSTC) is the Commonwealth Government's provider of protective security training. PSTC training programs are aimed at staff across all levels of government including Commonwealth, state and local governments and related sectors including financial, health and transport.

### **The College provides training in:**

- protective security
- security risk management
- personnel security (vetting)
- government investigation
- accredited training can be tailored to your organisations requirements

### **Nationally recognised qualifications**

The Australian Qualifications Framework is the national policy for regulated qualifications in Australian education and training. The PSTC can award participants nationally recognised qualifications and statements of attainment from Certificate III to Diploma level as specified in the training college's scope of registration.

Qualifications can be undertaken by participating in training programs and completing assessment requirements. Workplace projects and assignments can be completed wholly or in part through assessment by recognition.

### **Who should attend?**

- Australian government agencies
- state or territory government agencies
- local government agencies
- contractors to government or organisations that make up Australia's national critical infrastructure.



**Contact: Protective Security Training College**

**Kenneth Bailey Building**

**71 State Circle Yarralumla ACT, 2600**

**T: 02 6141 3699**

**E: [PSTC@ag.gov.au](mailto:PSTC@ag.gov.au)**

**RTO Number: 88101**

