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CHILDREN
 YOUTH
 EDUCATION
 SPECIAL EDITION



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COVER

Sarah Hutchison comforts her sons. In the aftermath of disaster the evidence is that negative effects of stress on young children can be buffered by responsive care giving. If carers and parents are supported as they recover, it helps them to help children cope.

Image credit: Chantelle Hutchison

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.

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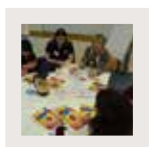
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Foreword

The Hon Michael Keenan MP, Minister for Justice



Welcome to this specially themed edition of the *Australian Journal of Emergency Management*. The devastating NSW bushfires occurred a month after my appointment as the Australian Government Minister with responsibility for emergency management, and I saw first-hand the incredible, selfless and professional efforts of our nation's emergency management sector.

It has been a busy period ever since, and I have been fortunate to participate in some key initiatives, including:

- launching the Bushfire and Natural Hazards Cooperative Research Centre
- launching the new Emergency + smartphone app
- announcing and presenting the national winners of the Resilient Australia Awards (featured in this AJEM edition)
- participating in Wear Orange Wednesday to acknowledge the work of the State Emergency Services across Australia
- co-launching with Australian Red Cross the new 'Register.Find.Reunite' service, and
- representing the Australian Government at the recent meeting of ministers responsible for policing and emergency management across the nation, held in Alice Springs.

I would like to acknowledge AJEM for its 28-year contribution to emergency management collaboration. 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.

This special edition of the Journal focuses on youth and children, who are a critical aspect of emergency management and planning. Children, with their proactive approach to problems and strong awareness of their own environment, can often be vital in leading and encouraging family members to prepare for natural disasters. For this reason we are fortunate to have the National Children's Commissioner, Megan Mitchell, provide the special foreword for this edition.

The Australian Government actively works with the states and territories to highlight the needs of youth and children in disaster situations. For example, a unique forum has been established through the work of the Attorney-General's Department, by way of the Disaster Resilient Australia School Education Network. This network brings together education departments and authorities, community engagement and school program officers from state and territory emergency service agencies, academics, non-government agencies and co-opted specialists to collaborate on disaster resilience education programs aimed at school age children.

Another innovation to reflect on is the new Emergency + smartphone app. It is no surprise that more than 65 per cent of calls to Triple Zero are made from mobile phones. Unfortunately however, this increase in mobile phone use can make it difficult for Triple Zero operators to accurately and quickly dispatch emergency services. This app addresses this issue by offering callers the ability to verbally provide emergency operators with their location information through their smartphone's GPS functionality. It also provides users with key emergency and non-emergency contact numbers, and explains who to call in certain situations.

I hope that you enjoy this special youth, children and education edition of the *Australian Journal of Emergency Management*, and wish you and your colleagues a safe summer.

**The Hon Michael Keenan MP
Minister for Justice**

Special Edition Foreword

By Megan Mitchell, National Children's Commissioner



It is more than 23 years since Australia ratified the Convention on the Rights of the Child. During this time we have seen an alarming escalation in disasters and their impacts across our nation and the world, both natural and at the hands of human beings.

We have recently witnessed the fires in the Blue Mountains west of Sydney which claimed the homes, bedrooms, backyards, possessions and pets of hundreds of families. This created confusion, grief and upheaval for many children and young people and from which they are still recovering today.

A growing body of research is recognising the particular and traumatic impact such phenomena can have on children and young people, in the moment, in the immediate aftermath and sometimes well down the track. And, as we know, the mayhem that follows an emergency can often mean that the needs of children are overlooked.

The Convention recognises a number of important and special rights that children hold, some that have particular relevance in the contexts of emergencies. These include rights to be safe and be cared for, to be heard and to have a say in decisions that affect them. The breadth of articles in this edition of the *Australian Journal of Emergency Management* goes a long way to help deepen our understanding of the importance of taking a child rights approach to disaster management.

It is pleasing to see the value of the United Nations Child Friendly Space initiative highlighted - implemented following the earthquake in Turkey in 1999 and, since, widely used by many humanitarian agencies, including in Australia to provide children with safe spaces and supervised activities during and after disasters.

Also covered are the rights of children to information and to be involved in decision-making through child-centred approaches to disaster risk reduction, especially in relation to fires and extreme weather events. And we know children can be highly capable in emergency contexts. Who could fail to be impressed by the actions of 11-year-old Lily Talbot, home alone amidst the fires in Western Sydney in September 2013, when she calmly called 000 to get help for her dad who had been knocked semi-conscious by an anxious horse.

At the same time we need to be conscious that the young brain experiences critical periods of growth and development which can be severely impeded by trauma. In adolescence the pre-frontal cortex is under rapid development which means many young people struggle to control their impulses and emotions, especially in the face of significant stress. So while we can generally rely on children to be informed and take appropriate action, they will no doubt need extra guidance, comfort and support during a disaster, and some will require sustained therapeutic interventions to fully recover. The main message is that we need to be cognisant of both the capabilities *and* vulnerabilities of our youngest citizens in preventing, preparing for and responding to emergencies.

While there is still a way to go before we genuinely put children at the centre of our thinking in emergencies and disasters, I commend the Australian Emergency Management Institute's decision to devote this entire edition to the needs and interests of children. This will make a major contribution to the growing body of evidence and good practice, as well as helping to ensure that a child-centred conversation about the rights of children in disasters and emergencies continues.

Megan Mitchell
Children's Commissioner
Australian Human Rights Commission

OPINION: Children in disasters: the way forward

Professor Beverley Raphael and Dr Penelope Burns suggest that better education for children, their parents and teachers, about disasters plays a significant role in their protection.



Children have greater vulnerability, both physically and mentally, in disasters but the ways children experience 'disasters' varies enormously. Both the impact of the disaster and the response of the child will be influenced by many factors. These include, but are not limited to, the age and developmental stage of the child, whether the child is alone or with family or trusted adults in familiar environments, and socio-demographic and cultural factors.

The particular hazard of the disaster influences the degree to which children may be affected. In Australia, natural disasters are frequent, seen in the media, and often, in ways, feel familiar to the child. But the severity and terror may be overwhelming in severe and sudden catastrophes such as Cyclones Larry and Yasi (Queensland) or the Black Saturday bushfires (Victoria). Disasters caused by human activities, such as terrorism are different and potentially threatening in other ways.

The nature of the exposure, such as the degree to which there is a threat to life of self or loved ones, the fear generated, and the consequence of loss, injury, damage and dislocation, may have on-going effects on the child and family, in terms of physical and mental health, social and economic problems.

Current education programs

Education programs for children about disasters have been implemented. These include models such as preparedness actions for cyclones with a school-based strategy planned for children, and homework planned with parents (Ronan, Crellin & Johnston 2012). More directly focused initiatives include, responding to warning messages, safety in the face of impact,

school training on evacuation, the roles of teachers in gathering and checking children, and self-protection strategies. Programs include 'Drop Down Low and Go Go Go', 'Stop Drop and Roll' (NSWRFS 2005) for fire, and 'Drop Cover and Hold' for earthquakes (NZ Government 2012). Education in understanding warning, threat, and actions to be taken for protection and safety are critical. The messages need to be clear and simple with well-defined brief action statements. Training and practice can embed survival strategies as part of the child's repertoire in a crisis.

Focusing education and training initiatives on the disasters children are most likely to experience is particularly important. In the Australian context, this includes floods, fire, cyclones, and storms. Media exposure learning may create unreal views. At one extreme there is inevitable destruction, death and helplessness, and at the other, there is invincibility. The realities of severe impacts can bring shock and fear to adults and children; and these may powerfully reverberate in times to come.

Training in context

The context of children's lives will be critical when they are exposed to disaster. The importance of early reunion with family can be a powerful force for a child's wellbeing and recovery into a safe world. Comforting children, particularly younger children, can help to settle their arousal and bring back a sense of security. Being with teachers and other known and trusted adults who are well informed in safety procedures and have educated the children in their care about what they need to do in an emergency will also be reassuring.

Calm, confident and effective action can lower arousal and give a sense that the threat can be addressed. The emergency, particularly if life-threatening, is likely to impact very significantly on children.

Younger children may not understand the finality of death but will respond to the fears of others. This reverberation may have effects that need to be addressed in recovery strategies. A young adolescent who was involved in a disaster where her own life was threatened and a friend died, stated in her distress, 'we should not have had to know we could die'. The realities and permanency of death are often difficult to know and

not easy to learn, even as one grows into adult life. The causes and threat of the emergency can directly, and indirectly, impact children of all ages and contribute to risk of post-traumatic stress symptoms or disorder, or other mental health consequences.

Similarly, the losses associated with disaster, ranging from the deaths of loved ones, including friends and pets, to the loss of home, and familiar environments, can have substantial impacts. The disruption of familiar life patterns may bring great sadness, grief and possibly mental health consequences. The parents' own distress, trauma and loss may make it more difficult to comfort a child, yet also make it more critical that affection and shared sadness can pave the way to adaptations in life for the future.

Education for recovery

Education must extend to parents and family, both for their needs, and for their children. The complexity of family structures and functions, with diverse, blended and single parent structures will need to be understood and encompassed. Such education should also include building on resilience. On-going education to assist children in their recovery is important. This needs to involve teachers in their understanding of the effects a disaster experience may have on children's educational capacities, the behaviours that may signal potential health, mental health, or behavioural problems, and whether to refer a child for assessment and possibly treatment. Important resources have been developed to assist teachers and parents to manage such issues and when to seek help (McDermott & Cobham 2013, Wraith & Australian Red Cross 2010, Raphael 2010, Kenardy *et al.* 2011, Roberts 2009). Valuable and effective school based programs have been developed, trialed and found to be effective for dealing with mental health problems that may have developed as a consequence of disaster experiences, or that reflect exacerbations of existing problems, such as anxiety disorders. These include models such as those of Pynoos, Steinberg & Brymer (2007) and the excellent Australian programs developed by McDermott and colleagues (2013). These latter have integrated assessment and treatment into school-based programs with positive outcomes that both educate and treat.

Educating children, their families, their schools and communities about disaster is important. Such education needs to be clear, practical and focused. It should aim to encourage people, including young people, to tune into their strengths as well as what they can do to protect themselves and others. It needs to be attuned to the threats and the hazards and the potential impacts. Ideally, such knowledge should include aspects of prevention, preparedness, response and recovery. Above all, actions are central: what are the actions that have priority, and how can these be learnt? There should be rote learning of the body's language of protection and response. The advanced and well-researched warning systems for bushfire risk in Australia are good indications of clear messages of protection and safety (NSWRFS 2005).

Our children are vulnerable both physically and mentally in the face of disasters. Adult support in preparing children to address the many challenges in crises is critical. To do so is not about embedding fear, but recognising and building on the strength and courage that are the core of resilience and hope for children and their parents. As suggested by indigenous Australians 'our children are our future'.

Children have died in disasters across the world including in Australia. Let us honour these children by educating and building skills and knowledge for the future of all children in the face of threat and the many hazards of life.

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This article reflects the opinions of the author and are not necessarily those of this publication.

OPINION: Solving 'wicked problems' linked to disasters, risk and uncertainty—children are truly our future

Professor Kevin R Ronan looks at reframing 'disaster' and 'threats' as 'challenges' to build resilience in adults and children.



In public policy terms, disaster management across the Prevention, Preparedness, Response, Recovery (PPRR) spectrum would qualify as a 'wicked problem' (Australian Public Policy Commission 2007). In 'wicked problem' terms, problems cannot be clearly defined nor do they have straightforward, simple cause-effect solutions. Rather, trying to solve one problem can invite others, including those that are unforeseen.

Disasters reflect numerous problems of this sort. With flooding and fires as two common hazards in Australia, problems linked to these reflect a good deal of complexity (Ronan 2013). In floods, the 'levee syndrome' is a useful example of the idea of solutions that simultaneously produce both benefits and opportunity costs, and accompanying tipping points (eg, New Orleans after *Hurricane Katrina*, Adams, Hattum & English 2009). In fires, Ashe, McAneney and colleagues at Risk Frontiers document a cascading set of linkages between phenomena linked to the interface of the physical world of fires and the social world. This includes political decisions and public policy solutions solving some problems while raising others problems linked to social equity, lack of motivation in high risk communities to prepare effectively, and a host of other issues (eg, Ashe *et al.* 2009, 2012, see also example from British Columbia, Clare *et al.* 2012, McCormick 2009).

Characteristics of 'wicked problems' as defined in APCC 2007 include:

They are difficult to define.

They have interdependencies and often are multi-causal.

Attempts to solve them often lead to unforeseen consequences.

They are often not stable.

They have no clear solution.

They are socially complex.

They rarely sit conveniently within the responsibility of any one organisation.

They involve the need to change behaviour of citizens and of government for long-term sustainability versus relying solely on increasing the regulatory environment.

Some are characterised by chronic policy failure.

It is also worth noting that the APCC (2007) publication cites the problem of the causes and solutions to climate change as an illustration of these characteristics.

In solving 'wicked problems', academics in public policy discuss advantages and disadvantages associated with various problem-solving approaches, including authoritative strategies, competitive strategies, and collaborative strategies.¹ Research supports authoritative strategies in some instances, including those relevant to disasters (during a peak crisis, APCC 2007). However, overall, the bulk of research and expert opinion (eg, Conklin 2006, Roberts 2000) support collaborative strategies, including tackling those types of problems where longer-term behaviour change is necessary (APCC 2007). Another essential

¹ Authoritative strategies involve power invested in a group, or individual, who take responsibility and others agree to abide by its solutions; competitive strategies rely on a win-lose approach that has advantages (e.g., aspects linked to tendering processes and increased quality of products) and disadvantages (conflict and stalemates that use up resources); collaborative strategies rely on networks of stakeholders across whom responsibility and decision-making power is dispersed and tend to focus on a win-win metaphor.

element necessary to solve 'wicked problems' includes the need to analyse the problem from a holistic viewpoint, getting an understanding of such a problem in systemic, interconnected and non-linear terms.

Given this backdrop, one idea threading its way through this special issue of the *Australian Journal of Emergency Management* is the role of children in promoting more collaborative and systemic solutions to problems linked to hazards and disasters. Across these papers is an underlying idea of children as vulnerable but also children being empowered through being part of collaborative, community-based solutions to a range of problems that disasters invite. Of course, educational programming and other initiatives that equip children and youth with increasingly sophisticated competencies for managing problems like disasters are part of the 'engine room' of this empowerment process. Education itself that involves horizontal (across curricula) and vertical (across years in school) integration, that helps children understand the inter-connectedness between the physical and the social, societal worlds and that helps them to develop increasingly systemic problem-solving capacities would be thought to help (Ronan 2013).

In addition to educational approaches equipping children with increasingly sophisticated knowledge and skills, a systemic approach to education would also help equip them with socio-emotional competencies. This would include helping them understand the links between thoughts, feelings, and behaviours and the links between various phenomena, people and groups. For example, when a potentially stressful event is framed as a challenge versus a threat, research shows pretty convincingly that this framing leads to increased mobilisation of inner resources that invites more motivation and 'approach behaviour' (versus avoidance) and leads to more successful resolution of the stressor (see review by Blascovich 2008). Thus, children can begin to learn that disasters and, more generally, risk and uncertainty in life are challenges and represent individual and community-based 'problems to be solved' versus insurmountable threats.

In this way, children's status as the most vulnerable in disasters (Norris *et al.* 2002) can be turned on its head. Given the reality of children's vulnerability status, including in disasters (Ronan & Johnston 2005), if we want to empower children, our first job as adults is to protect, nurture and guide them. As they grow, and as we as adults increasingly nurture, empower and help equip them with knowledge, strategies, and the confidence to approach and manage a range of 'wicked problems' including disasters, the more they will thrive and the more our society will benefit.

As the papers in this special issue attest to, this includes an increasing set of possibilities and pathways for empowering today's children that can ultimately translate into the challenge of disasters not being nearly as wicked a problem during their own adulthoods as they have proven to be at times during ours (Ronan 2013).

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Professor Kevin Ronan is Foundation Professor in Psychology in the School of Human, Health and Social Sciences at Central Queensland University. He is a clinical psychologist who specialises in hazards and disasters and problems of youth and families.

This article reflects the opinions of the author and are not necessarily those of this publication.

OPINION: Disasters, children and families: have we arrived at a comprehensive model of emotional health care?

Professor Brett McDermott explains that the emotional health of children is a key factor in resilience during and following disaster.



The emotional health care of young people and their families post disaster is still an area of response requiring attention and service delivery refinement. I conducted my first research into the impact of disasters on children's mental health following the Sydney bushfires in 1994 where I directed a project that screened 4 000 children. A smaller project was undertaken after the Canberra bushfires (2003), then major service initiatives (school based programs to identify and intervene with distressed children) followed Cyclone Larry (2006), a mini-tornado in Brisbane (2009), and the Queensland floods and Cyclone Yasi disasters (2010-2011).

The current model of emotional health care has developed out of these past events and over the last three projects, clinical psychologist Dr Vanessa Cobham, has been crucial to the development of the model. Currently, the team from the Mater Children's Hospital in Brisbane is co-ordinating the Tasmanian bushfires child and family response in a new and exciting collaboration with Beyondblue and the Australian Red Cross.

Prior to this recent model of care, child and adolescent emotional health service provision in the post-disaster setting was typified by either whole-of-community efforts (with an emphasis on a return to usual routines), promoting social connectedness, and limiting secondary impairment by encouraging social and financial recovery. Providing information was a strength of past initiatives but direct therapy for children was a secondary focus. When therapy was offered, the efforts often included the use of guided trauma workbooks.

Such initiatives were trialled for some children after Ash Wednesday and the 1994 Sydney bushfires. For occasions when expertise was sought (and this was not always the case) it was often from international experts who had few local connections and were often not mindful of local service delivery implications. However, all of these initiatives were helpful and the expertise offered was greatly appreciated.

The last decade has seen a burgeoning of local research that has informed service initiatives, including published rates of severe to very severe posttraumatic stress disorder (PTSD) after bushfires, cyclones and floods. In addition, 18-month follow-up data is available for children who experienced *Cyclone Larry*, as well as published research on resilience and family functioning in the aftermath of natural disaster. Looking forward, the next 12 months will see studies published on the effectiveness of therapy, how quality-of-life is associated with post-disaster child mental illness symptoms, and parent satisfaction with a post-disaster screening program.

A major advance in Queensland after the 2010-2011 disasters was implementing a public health intervention via a 'stepped-care' model. This approach acknowledges existing Child and Adolescent Mental Health (CAMHS) services are at capacity prior to a natural disaster and have little surge capacity to meet a sudden increase in need following a disastrous event. Further, not all individuals will require the intense interventions that are usually provided by CAMHS. A stepped-care approach is a solution which provides a range of integrated interventions across the spectrum of consumer need. In essence - wide reaching, low intensity interventions can be provided to all families, while greater intensity interventions can be reserved for those individuals with higher need.

The tiered approach

In the Queensland response (McDermott & Cobham 2012) the first tier of the model (wide reaching low intensity interventions) included a Youtube vodcast² series for school teachers, guidance offices, and

² A vodcast is a video podcast, a video broadcast over the Internet.

parents. This use of technology complimented traditional community forums and tip sheets and other paper resources detailed child and adolescent reactions, management advice for parents, and how to obtain further assistance.

The second tier was teacher training and parenting seminars. The ethos of teacher training was not to turn teachers into therapists; rather to promote the continuation of school routines. Training provided advice about communication and identification of symptoms (given the inevitability of classes with many distressed students) along with referral pathways. Another important module focused on teacher self-care. The teacher training manual and seminar was created by staff from the Centre of National Research on Disability and Rehabilitation Medicine (CONROD) led by Professor Justin Kenardy.

The response also included a parent intervention based on research that parenting can change in the aftermath of a natural disaster. If these changes persist they may provide a barrier to a child returning to their pre-disaster level of functioning. Changes in parenting include overprotection of the child, hyper-vigilance of their activities, and removal of a child's autonomy (Cobham & McDermott in press). In collaboration with Professor Matt Sanders, 'Disaster Recovery Triple P' was developed. This two-hour parenting seminar was designed to educate about these potential changes in parenting and offer practical advice about returning the family to their pre-disaster functioning.

The third tier of the model (narrow reach, highest intensity) was Trauma-Focus Cognitive Behaviour Therapy (T-F CBT). Past clinical experience, consistent with published research, has found few parents seek a mental health assessment for their child following a traumatic event. Reasons for this are multiple. For many families, there is no tradition for seeking help from a mental health professional following a disaster and some may be concerned about the stigma associated with mental illness. Many young people withhold their feelings from their parents believing their parents have enough to deal with following a natural disaster. And finally, parents themselves experiencing PTSD and/or grief may not be as adept as usual in identifying subtle differences in their child's emotions and behaviours.

In response, the Queensland approach offered school-based screening to identify children and adolescents with persistent symptoms three to four months after the natural disaster. The first stage of screening was a pencil and paper questionnaire administered in the classroom. Screening required parent consent and measures were standardised to the child's age. Our experience is that children eight years and older can complete this questionnaire without difficulty and without distress. Over the last ten years, more than 8 000 children have completed the school-based screening. If the child scores above a predetermined cut-off then a more rigorous face-to-face assessment is advised.

All cases identified by screening must ethically be offered an evidence-based intervention. The Australian Clinical Practice Guidelines³ for Posttraumatic Stress Disorder (2013) clearly establish T-F CBT as one such treatment. When providing this stepped-care model in places other than Queensland, for example parts of rural Tasmania, local practitioners have been trained in T-F CBT and remote supervision has been provided via telehealth or Skype.

To summarise, the reality is that the emotional health needs of children and adolescents after a natural disaster cannot be met by existing mental health services. Further, a public health model is the only meaningful response to a large scale event. Many years of research, service provision and collaboration with creative and resourceful colleagues has led to an integrated, increasingly evidenced-based and comprehensive post-disaster model of care for children, adolescents and families. Future directions include better awareness raising and uptake of these resources. Continuing to evaluate aspects of the model is imperative, so too is further work to establish the benefits of integrating new technologies into current interventions. A comprehensive model of emotional health care, which provides timely intervention to all children and families, should help local health providers not feel the need to 'reinvent the wheel' following a disaster.

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This article reflects the opinions of the author and are not necessarily those of this publication.

3 The Australian Clinical Practice Guidelines. At: www.clinicalguidelines.gov.au.

Opportunities for disaster resilience learning in the Australian curriculum

Neil Dufty, Molino Stewart Pty Ltd, provides a perspective on emergency preparedness education in the new Australian school curriculum and identifies opportunities for development. ®

ABSTRACT

Schools are an important avenue for youth to learn about disaster resilience. A critical success factor for the uptake of disaster resilience learning in schools is the ability to embed learning activities in school programs that are linked to relevant curriculums. With the introduction of the Australian Curriculum, it is timely to identify new opportunities for student disaster resilience learning and related curriculum development by emergency services organisations. Using a technique called 'curriculum mapping', a research project has identified disaster resilience learning opportunities and gaps across the Australian Curriculum.

Introduction

On 26 September 2004, young Tilly Smith was enjoying a Christmas vacation with her mother on Maikhao Beach in Phuket, southern Thailand. They watched as the water along the shoreline receded, exposing a great swathe of beach that left fish stranded on the sand. Looking out to the ocean they saw the sea swell and bubble. Then Tilly's mother saw a yacht tip vertically in the bay. Tilly, using learnings from her Year 6 Geography lesson on natural disasters back in England, quickly alerted her mother to the impending tsunami - 'The Boxing Day Tsunami'.

Tilly's hysterical cries finally convinced her mother to act. With her husband, mother Penny Smith began to warn sunbathers about the impending tsunami. Then grabbing their belongings they headed up the beach to their hotel, alerting the staff, who began to evacuate the rest of the beach. Many lives were saved.

Tilly's heroic story has been told several times in interviews, magazines, books (e.g. Ripley 2009) and online (e.g. Wikipedia 2013). Her story is retold here to demonstrate the potential power of disaster-related learning in schools. It should be noted that Tilly's learnings were gleaned from 'normal' class activities as required by the school curriculum.

Researchers such as Ronan and Johnston (2005 p. 5) stress the importance of school disaster education and the youth-school-family network in building community resilience to disasters. They base this view on research which demonstrates that 'youth and families comprise risk groups for increased problems following a hazardous event'. They argue that:

'a focus on educating youth, the adults of tomorrow, has considerable promise. However, in terms of more current concerns, youth also link into the family setting who, in turn, link into multiple community settings and groups'. They add that disaster education 'in schools can play a vital role in increasing a community being ready, willing, and able to do what is necessary to prepare for and respond to a disaster.' (Ronan & Johnston 2005 p. 95)

The way in which students learn about disasters and hazards – both in and out of school – has been the focus of several psychological studies. For example, Towers and Paton (2007) researched how children perceive bushfire risk and mitigation as the basis for developing more effective education strategies to increase levels of awareness and preparedness in areas susceptible to bushfires. Their research raised two significant issues:

'Firstly, children's understanding of concepts such as causality and prevention are strongly influenced by age-related changes in cognitive ability. Secondly, the acquisition of knowledge about risk and mitigation takes place in a social context, with some elements of social context exerting more influence than others.' (Towers & Paton 2007)

In acknowledgement of the importance of school disaster education, international organisations and governments around the world have developed a broad range of major initiatives and programs. For example, the World Disaster Reduction Campaign 2006-2007 used the theme 'Disaster Risk Reduction Begins at School'. This theme was chosen because:

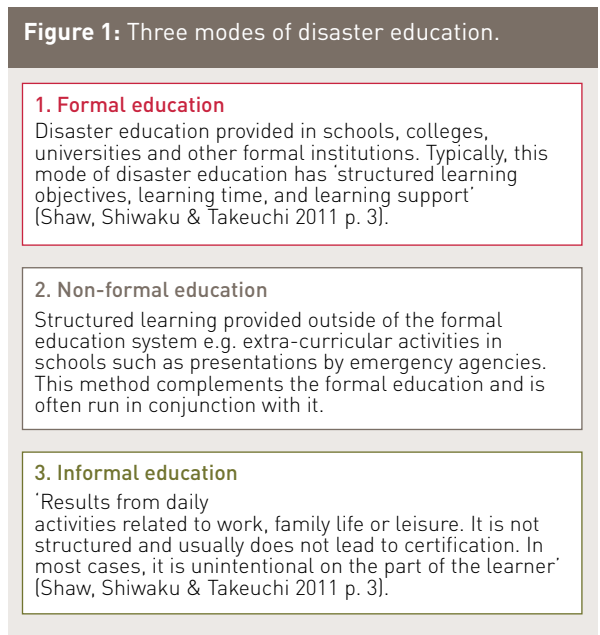
1. It was in line with the Priority 3 of the *Hyogo Framework for Action 2005-2015* 'Use knowledge, innovation and education to build a culture of safety and resilience at all levels'.
2. Schools were seen as the best venues for forging durable collective values, therefore they are

suitable for building a culture of prevention and disaster resilience.

There are also several international organisations established to promote school and youth disaster education including the Coalition for Global School Safety and Disaster Prevention Education, the Disaster Risk Reduction Education Network, and the Children and Youth in Disasters Network.

Most Australian emergency agencies and other emergency services organisations provide resources for school disaster education on their websites including units of work, lesson plans, learning activities, games and fact sheets. A notable example is the resources provided by the Australian Emergency Management Institute as part of the 'Disaster Resilience Education for Schools' program (see <http://schools.aemi.edu.au/>).

Although there is considerable Australian and worldwide promotion and support for school disaster education, there are a few cautionary points that should be considered by emergency services organisations. Firstly, according to Shaw, Shiwaku & Takeuchi (2011), disaster education can be broadly classified into three modes (see Figure 1).



This classification shows that school education is only one type of formal disaster education and is only one of the three mediums through which youth (and other members of the community) can learn. Thus, emergency services organisations should attempt to deliver across all the modes of education.

Secondly, in relation to informal education, Dufty (2009 p. 14) identified the main methods of disaster learning for youth in addition to the use of social media. These are:

- Internet
- radio

- television e.g. documentaries, advertising
- magazines and other print media
- public events e.g. agricultural shows, concerts
- billboards and other signs, and
- personal conversations e.g. with people who have experienced a natural disaster.

These methods of learning should be supported by emergency services organisations where possible.

Finally, there is a view held by some emergency agencies that 'if you educate the children, you will educate the parents', and thus the concentration for disaster education should be on school education. This idea is largely unfounded, although there is research that shows some immediate knowledge transfer between students and their parents. For example, Vaughan *et al.* (2003) found that parents and the broader community increased their learning as a result of a conservation program in Costa Rican schools. The Tilly Smith anecdote is an example of the transference of learning from students to parents at the onset of a hazard event. However, as stated, disaster education should be provided to all age groups and sectors of the community, and not be solely reliant on the student-parent learning linkage.

With these points noted, formal education through school curriculums is most likely more effective than non-formal disaster education in schools. Dufty (2009 p. 15) contends that:

'a critical success factor for the uptake of natural hazard activities in schools is the ability to embed these activities in existing school programs that are already linked to learning outcomes in curriculums and syllabuses. This helps to ensure that the school will accept the natural hazards program as a valid activity as part of its existing teaching program and not as a "one off". Moreover, as a natural hazard can occur at any time, this approach will also mean that "natural hazards" will be taught each year'.

In Australia, up until recently each state and territory had its own curriculums. There were numerous opportunities for the development of disaster education programs and activities related to these curriculums. Kriewaldt *et al.* (2003) conducted a study of disaster education across state and territory curriculums. They found that disaster education 'is evident in years 5-6 and more comprehensively addressed in years 7-10. Most education systems in Australia include study of hazards in their post-compulsory geography course'.

In December 2008, the development of the Australian Curriculum guided by the Melbourne Declaration on Educational Goals for Young Australians was adopted by the Ministerial Council. Since then, the development of the Australian Curriculum has been overseen by the Australian Curriculum, Assessment and Reporting Authority (ACARA). It is hoped that Australian schools will be implementing all learning areas (Foundation to Year 12) in the Australian Curriculum by 2016.

With the common school curriculum soon to be implemented across Australia, it is timely to identify opportunities for student disaster learning and for related curriculum development (e.g. through teaching programs and education resources) relevant to building disaster resilience as guided by the *National Strategy for Disaster Resilience*. The aim of this paper is to identify these opportunities in the Australian Curriculum.

Curriculum mapping: theory and methodology

The *National Strategy for Disaster Resilience* (Council of Australian Governments 2011 p. 4) focuses on the common characteristics of disaster resilient communities, individuals and organisations. These characteristics are:

- functioning well while under stress
- successful adaptation
- self-reliance, and
- social capacity.

‘Resilient communities also share the importance of social support systems, such as neighbourhoods, family and kinship networks, social cohesion, mutual interest groups, and mutual self-help groups.’ (Council of Australian Governments 2011 p. 4)

Using these characteristics and the results of extensive disaster psychological and sociological research, Dufty (2013) scoped potential disaster resilience learning content for learners of all ages. The research found that:

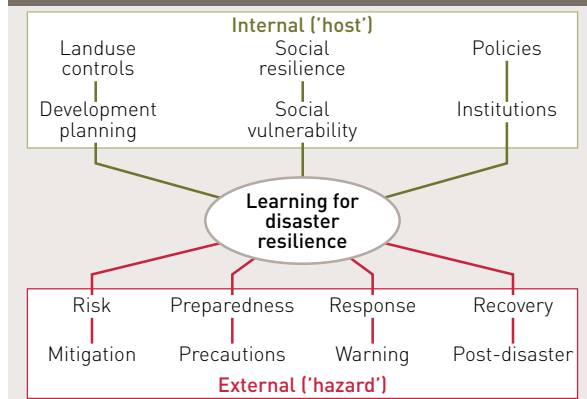
‘disaster resilience learning content should not only cover public safety aspects, but also learning about improving recovery for people, organisations (e.g. businesses) and communities. It found that disaster resilience learning should also include learning about the community itself, including how to reduce vulnerabilities and strengthen resilience by capacity building (e.g. social capital formation).’ (Dufty 2013 p. 14)

From this research, a diagram showing the main disaster resilience learning content areas was constructed (see Figure 2).

Based on the main content areas in Figure 2, a methodology called ‘curriculum mapping’ was used to identify opportunities for disaster resilience learning across the Australian Curriculum. Curriculum mapping is a ‘technique for exploring the primary elements of curriculum: what is taught; how instruction occurs; and, when instruction is delivered’ (Rubicon Atlas 2013).

Curriculum mapping can be used to ‘retrofit’ existing school teaching programs and education in line with new curriculums. The *National Emergency Management Projects – Educating the Educators* aims to develop disaster resilience within primary and secondary students by improving teacher understanding and confidence in using Disaster Resilience Education (DRE) resources from Australian sources which are explicitly linked to the Australian Curriculum. This

Figure 2: Main content areas for disaster resilience learning (Dufty 2013).



project involved reviewing a sample of 47 existing Australian DRE primary and secondary school resources gathered from a range of emergency services agencies from across Australia. These resources were mapped against the learning areas (those released prior to May 2013), the general capabilities, the cross-curriculum priorities and other criteria such as stage of schooling, target audience, and resource type. A report was released in late 2013 with the outcomes of the curriculum mapping research.

A problem with this ‘retrofitting’ approach is that there may not be a strong alignment between the new curriculum and the existing school learning resources (and thus some resources may need to be discarded or largely redesigned). On the other hand, it does enable existing resources to be used if the ‘fit’ exists, thus providing cost savings.

To value add to the NEMP research, opportunities for disaster resilience learning and further curriculum development related to the Australian Curriculum were explored and identified. This exploration was carried out primarily using key words from the content areas in Figure 2 to search across learning areas (including those of draft curriculums), the general capabilities, and cross-curriculum priorities in the Australian Curriculum website⁴. In addition, each level (Foundation to Year 12) was scanned for relevant disaster resilience learning content that may not be found using the Figure 2 key words.

Results

Apart from the key words from Figure 2, the following key words located relevant sections of the Australian Curriculum that have relevance to disaster resilience learning include safety, climate change, social connectedness, bushfire, flood, water scarcity, drought, plague, cyclone, earthquake, extreme weather, and volcanic eruptions.

A further scan of the content identified through this methodology was required as some key words located

4 Australian Curriculum website. At: www.australiancurriculum.edu.au.

sections of the curriculums that were not relevant due to an alternative meaning of the word. For example, the word 'risk' was located in the context of 'the concept of risk as applied to natural and ecological hazards', but also in terms of 'identifying potential risks to use equipment and materials safely' in experiments.

At the time of writing (October 2013), the following F-10 curriculums were finalised for implementation in Australian schools: English, Mathematics, Science, History, and Geography.

In relation to Senior Secondary (Years 11 and 12) implementation, 15 curriculums had been finalised.

As shown in the curriculum map (Table 1), the main opportunities for disaster resilience learning were found in the learning areas of Geography (F-10), Science (F-10), Health and Physical Education (F-10), Earth and Environmental Science (11-12) and Geography (11-12). There were also some opportunities in History (F-10).

The codes in the Table 1 curriculum map refer to content descriptions (codes starting with 'AC') and elaborations to content descriptions (codes including 'ELB'). The content description provides a higher level of opportunity than the elaborations. Thus, for example, there is more opportunity for curriculum development in Year 5 Geography than Year 6 Geography as the former has a content description (ACHGK030 - 'The impact of bushfires or floods on environments and communities, and how people can respond') directly pertaining to an aspect of disaster resilience learning whilst the latter only is an elaboration to a content description that is not directly related. The codes in the draft Health and Physical Education (PE) curriculum all refer to elaborations.

Using this understanding, some observations can be made in relation to Table 1:

1. As might be expected, the main curriculum development opportunities for disaster resilience learning are in Science and Geography.
2. Science - the main opportunities are in Year 6 Science (geological changes, extreme weather) and in Year 11-12 Earth and Environmental Science (the cause and impact of Earth hazards).
3. Geography - the main opportunities are in Year 5 (impact of and response to bushfires and floods), Year 7 (causes, impacts and responses to atmospheric or hydrological hazards), Year 8 (causes, impacts and responses to a geomorphological hazard), Year 9 (challenges of climate change) and Year 11-12 (natural and ecological hazards including a depth study).
4. History - the main opportunities are in studies of the Black Death plague (Year 8) and relating to environmental disasters such as Chernobyl (Year 10).
5. Health & PE - the main opportunities are across all years and relate mainly to personal resilience in adversity, safety measures in emergencies, and decision-making for safety.

Table 1. Curriculum map showing the main opportunities for disaster resilience learning in the Australian Curriculum.

Years	Science	Geography	History	Draft Health and PE
F				1.4
1				2.4, 2.5, 2.7
2		ELBH506		2.4, 2.5, 2.7
3				3.4, 3.7
4	ELBS823			3.4, 3.7
5		ACHGK030 ELBH461 ELBH551 ELBH580 ELBH609 ELBH739		4.4, 4.9
6	ACSSU096 ELBS906 ELBS907 ELBS909 ELBS910 ELBS922 ELBS924 ELBS925 ELBS931 ELBS925	ELBH656		4.4, 4.9
7		ACHGK040 ACHGK042 ACHGK046 ELBH348 ELBH416 ELBH421 ELBH437 ELBH454 ELBH458 ELBH547 ELBH574 ELBH586 ELBH690		5.4, 5.5, 5.6, 5.7
8	ELBS1065	ACHGK053 ELBH368 ELBH410 ELBH469 ELBH730	ACDSEH069 ACDSEH070 ACDSEH071 ACDSEH072 DELBH090 DELBH092 DELBH093 DELBH225	5.4, 5.5, 5.6, 5.7
9	ELBS1092 ELBS1108	ACHGK063 ELBH577		6.4, 6.5, 6.7, 6.9
10	ELBS1184 ELBS1202 ELBS 1205 ELBS1210		ACDSEH127 ACDSEH128 DELBH180	6.4, 6.5, 6.7, 6.9
11 and 12	ACSPH125 ACSBL071 ACSBL106 ACSCH123 ACSCH085 ACSES067 ACSES094 ACSES098 ACSES099 ACSES100 ACSES101 ACSES102 ACSES103 ACSES106 ACSES108	ACHGE012 ACHGE013 ACHGE014 ACHGE015 ACHGE016 ACHGE017 ACHGE018 ACHGE019 ACHGE020 ACHGE021 ACHGE022 ACHGE023 ACHGE024 ACHGE025 ACHGE026 ACHGE027		

6. From Year 5 onwards there are generally good opportunities for disaster resilience learning across the curriculums.
7. Other than a few elaborations, there are no direct opportunities for disaster resilience learning in Foundation to Year 4.

Discussion

It should be noted that as curriculums are finalised there could be further opportunities for disaster resilience learning. For example, Civics and Citizenship 3-10 may include content about disaster-related legislation, capacity building through 'active citizenship', and volunteerism.

The gap in direct disaster resilience learning in Foundation to Year 4 means that learning may need to be encouraged in other learning areas such as English and Mathematics. It also means that emergency services organisations may need to supplement this gap with extra-curricular (non-formal) activities e.g. talks, presentations.

A limitation with the curriculum mapping methodology used is that it is content based. As such, it does not identify all capabilities (e.g. skills, behaviours) required by young people for emergency preparedness, response and recovery which may be located elsewhere across the Australian Curriculum. For example, social media is heavily used by youth in emergencies (White 2012, Gupta & Brooks 2013) and learning related to social media is covered under the Information and Communication Technology capability statement. Further research is required to identify these more subtle opportunities for disaster resilience learning.

Although there are limitations to this research, it does show that emergency services organisations can add to existing education resources by new curriculum development relating to opportunities as identified in Table 1. This curriculum development could involve designing units of work, lesson plans, worksheets, fact sheets, web pages, games, case studies, simulations, digital stories, and social media sites.

Conclusion

This research, using a technique called curriculum mapping, found a range of opportunities for disaster resilience learning and possible related curriculum development across the Australian Curriculum. The greatest opportunities are in the learning areas of Geography and Science.

The research also found a gap in disaster resilience learning in Foundation to Year 4 which needs filling through learning areas such as English and Mathematics and through extra-curricular activities such as talks and presentations by emergency services organisations.

The research adds to that conducted for the NEMP and provides guidance for curriculum development related to disaster resilience learning across Australia.

Further research into disaster resilience learning opportunities is required as curriculums are finalised for implementation.


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Core principles for a community-based approach to supporting child disaster recovery

Lisa Gibbs, Melissa Di Pietro, Greg Ireton, Samantha Mordech, Michelle Roberts, Joanne Sinclair and Ruth Wraith look at disaster recovery needs for infants, children and young people. 

ABSTRACT

This paper proposes core principles for a community-based approach to supporting disaster recovery for infants, children and young people up to the age of 24 years. The principles are based on the collective expertise of the authors in child psychology, sensitive participatory research with children and families, disaster management, and clinical and service delivery expertise in post trauma situations. The alignment with existing theoretical and empirical research is also demonstrated. The core principles are relevant to service providers working in the planning and preparedness phase, the disaster response phase, and the recovery phase of a disaster. The principles take an ecological approach that recognises the important role of families, carers and the community context.

Introduction

Natural disasters are, and will continue to be, a reality for many Australians. Each year the Australian landscape and the Australian people are changed by floods, bushfires, cyclones and storms as well as other catastrophic events. The immediate, medium and long-term impact of these disasters has been the attention of increased research over the last ten years. This paper focuses attention on the needs of infants, children and young people following a disaster. Under this collective grouping we include infants, children and young people up to the age of 24 years, recognising that the United Nations defines a child up to the age of 18 years, and the World Health Organisation uses the terms 'young person' and 'youth' to refer to individuals up to 24 years. In this paper we have not defined the nature of the disaster, as the focus is on the impact the disaster has on the child, not only the physical occurrence of the disaster (Ronan & Johnston 2005). This impact includes the developmental, social, familial and educational impact on the child, as well as the impact on their wellbeing and mental health.

It is important to note that the majority of infants, children and young people will recover from a disaster experience without needing specialised support (Alisic *et al.* 2011, McDermott & Cobham 2012). However, the traumatic impact of a disaster can potentially be severe and may be long term, continuing in many and complex ways in the weeks, months and years following the event, potentially extending into adulthood (McFarlane & Van Hooff 2009). Factors that provide security to infants, children and young people may be disrupted, such as sense of safety and sense of routine. They may experience terror; the loss of loved ones or others in the community; the loss of schooling and the everyday occurrence of seeing friends; potentially the loss of pets and property and damage to their housing. Infants, children and young people are also affected by the impact the disaster has on parents, carers, teachers and their ability to respond to the child as they normally would, as they deal with the multiple losses from the impact of disaster [Department of Education and Early Childhood Development 2009].

A community-based public health approach to supporting child disaster recovery is proposed. This uses an ecological framework for understanding the impacts and needs of people affected by disasters, recommended as best practice by international disaster experts (Wessells 2009, Boothby, Strang & Wessells 2006, Trickett 1995, Trickett 2009, Masten & Obradovic 2007). An ecological framework recognises the interplay between an individual's health behaviours and outcomes and the multiple layers of influence from their physical and sociocultural environment (Kickbusch 1989). Therefore, how each child responds to and recovers from a disaster event will depend on their individual temperament, family and home environment, social and school setting, and community and response and recovery contexts. Accordingly, recovery can be a long-term process involving many levels of change. Infants, children and young people are growing and developing so recovery should be viewed through the course of the individual's life. This life-course perspective allows for the different types of impact on infants, children and young people's development and pathways to recovery.

Together the ecological framework and life-course perspective shows that responses to disaster by

infants, children and young people are contextual and dynamic. These conceptual frameworks work well with a principle-based approach, highlighting the need for a range of multi-sectoral interventions that address essential characteristics while acknowledging the variability in response.

Universal principles in responding to disasters

According to a consensus of international experts, initial responses after a disaster event need to focus on the essential elements of safety, calming, hope, connectedness, and self and collective efficacy (Hobfoll *et al.* 2007). Universal principles across the lifespan include:

- ‘do no harm’
- ensure a co-ordinated response
- understand the local context, and
- recognise the impact the external intervention may have.

Local care solutions that emerge from the community and build on existing community strengths and resources strike a balance between a deficits and resilience framework. Responses should include provision of support to the supporters and have well-trained staff who can provide a mix of universal and targeted services to ensure a comprehensive range of supports are provided⁵.

Core principles for infants, children and young people

Debunking myths about infants, children and young people in disaster contexts

There was a time, not so long ago, when it was widely believed that infants, children and young people were either not affected by frightening and overwhelming experiences or they eventually bounced back—sometimes sooner or sometimes later—regardless of what had happened to them, or what they had seen, been told, heard or smelled.

These ‘myths’ were often phrased as infants, children and young people being too young to be affected, unable to understand or appreciate what was happening to them or around them, or were naturally resilient. There was also concern that they were at risk of being ‘re-traumatised’ by talking, playing or otherwise consciously engaging with their experiences (Terr 1983, Gordon & Wraith 1991, 1993, Wraith 1995). If an infant, child or young person had reactions it was considered they would be short-lived or they would grow out of them, or forget them. In the authors’ experiences some of these attitudes remain.

It is particularly important to debunk these myths in relation to the unborn child, newborn babies, infants, toddlers and pre-school children. Infants, children and young people are never too young to be negatively impacted by disasters (Masten & Osofsky 2010). Research has shown that very stressful experiences can affect a young child’s learning, behaviour, physical and mental health (National Scientific Council on the Developing Child 2004). It is important to consider unborn children too. A number of studies have connected the mother’s stress during pregnancy to changes in babies and children, for example fearfulness in infants (Bergman *et al.* 2007) and possible delays in motor and cognitive development (Huizink *et al.* 2003).

Relationships are the key to young children’s development. Research has shown that a child’s relationships with parents, caregivers and other adults actually shapes pathways in the brain and affects future developmental outcomes (National Scientific Council on the Developing Child 2004). Infants, children and young people are alert to their physical surroundings and experiences, sensitive to their emotional and social environments, and, according to their age and personalities, will try to make sense of what is happening to them, as adults do. Consequently they need caring relationships, clear, factual information, the opportunity to ask questions, and honest straight forward explanations according to their ability to understand and without overwhelming them with detail.

Principles to guide child-specific interventions after disasters

Providing targeted services for infants, children and young people is an important means of meeting their particular post-disaster needs and building their capacities. However, there is limited evidence available about intervention effectiveness. In the absence of strong evidence, the use of core guiding principles to inform intervention development and implementation for a community-based approach to supporting child disaster recovery is proposed.

Principle 1: Restoration of safety

Restoration of safety is a fundamental component to promote recovery for infants, children and young people during disasters, from which all other core principles build. Infants, children, young people and their families should endeavour to remain together and receive support relevant to their experiences and needs. They should not be separated unless for medical or safety reasons, or unless the infant, child or young person is in a secure and familiar environment such as the school, kindergarten or childcare setting. In restoring safety, it is important to aim for stability, consistency, continuity and routine (Hobfoll *et al.* 2007). A child’s sense of safety comes from both the objective reality and perceived reality, therefore a young person not only has to *be* safe in their environment but they also need to *feel* that they are currently safe.

⁵ Adapted from IASC guidelines on mental health and psychosocial support in emergency settings (Inter-Agency Standing Committee 2007).

Research indicates that prolonged physical and psychological stress increases the chance of the development of a range of mental health concerns including Post Traumatic Stress Disorder (PTSD). Therefore restoring a sense of safety as soon as possible is vital (Hobfoll *et al.* 2007). Interventions that support the restoration of safety include:

- Moving the child/young person to an area that is safe. Make it clear that they are safe.
- Reuniting infants, children and young people with family and trusted adults and youth with friends. Reduce uncertainty about any other loved ones who the child may be concerned about. A child's worry and fears for loved ones may be greater than for the self.
- Providing safety from bad news and rumours. This does not mean exclusion from information but, rather, providing age-appropriate and accurate information.
- Providing an authoritative voice to assist with the perception of safety.
- Educating parents to limit the exposure to media, particularly repetitive images that may cause distress (Hobfoll *et al.* 2007).

Keeping familiar routines and structure will reduce unnecessary stress for the infant, child or young person and help them feel safe. Routines help to maintain consistency, even if it is just in one area of their life (for example maintaining a familiar bedtime routine). Returning to school, day care and pre-school can also assist in the restoration of predictability, social

The trauma membrane

The trauma membrane is a temporary psychosocial structure that provides a buffer or healing space for those exposed to traumatic events. It allows space for natural healing processes, mediating what comes in and out. It is this monitoring that parents and caregivers can provide to children exposed to disasters and potentially traumatic events. An example of this monitoring would be limiting the exposure to media coverage of disturbing images and sounds, protecting children from hearing details that they are unable to cope with (developmentally or psychologically), or assessing professionals who work with children post disaster for competency and appropriateness. After the 2009 Victorian bushfires, school principals realised they had a full time job in protecting students from the media, interested parties who wanted to visit the school, and counsellors who had limited experience in working with children post disaster. One principal spoke of 'drawing the wagons into a circle' to protect the school community and to form a protective shield that allowed the space and time for the community to support itself in processing the events. This membrane provides a shield from unnecessary exposure to further psychological distress.

networks and supportive structures. It must be noted that such systems may first need to be re-established to be able to provide the required environment for positive recovery (Alisic 2012, Alisic *et al.* 2012, Baum *et al.* 2009). Supporting parents and communities to establish a 'trauma membrane' (see shaded box) for infants, children and young people is vital to restoring safety and promoting recovery for this group.



Returning to school, day care and pre-school routines assists with the restoration of social networks and supportive structures.

Principle 2: Participatory approaches

The *United Nations Convention on the Rights of the Child* recognises the rights of children and their capacity to contribute to decisions affecting their lives (UNCRC 1989). When children are contributing and involved in the process, the decisions and actions that impact their lives are not only 'for' them, but also 'with' them.

There are emerging international examples demonstrating the capacity of children to make a meaningful contribution to community-level disaster recovery, with indications that there are mental health and wellbeing benefits arising from this involvement (Peek 2008, Anderson 2005, Hobfoll *et al.* 2007, Mitchell, Tanner & Haynes 2009). For example, it has been found that following severe flooding, children and young people appeared to cope better with changes to their home when they were given some involvement in the decision-making about the repairs (Walker *et al.* 2010).

Youth participation, as a concept, is not only about providing developmental opportunities for young people, it is also about improving the effectiveness of organisations. By tapping into the experiential knowledge of young people there is increased opportunity to ensure that a program is actually meaningful and operating in the best interests of the child.

Families and organisations need support to understand how children and young people can participate in ways that are appropriate to their maturity, abilities and skills. Parents and carers can encourage children and young people to join in family discussions, provide practical help at home with the clean-up, or re-establish shared and personal spaces. Children can contribute to broader community recovery and renewal projects, such as helping with delivery of supplies, providing their ideas and priorities for school and community rebuilding planning, and contributing to the development and implementation of community initiatives and events.

Organisations that traditionally work with children, such as schools, childcare settings and youth and recreational clubs, should work to involve children in decision-making processes. These organisations may also act as a resource to the community by partnering with other agencies that provide opportunities for children to contribute but may not be experienced in engaging children meaningfully.

Principle 3: Adults as advocates

While recognising the many strengths that infants, children and young people have, it is important to recognise that 'Children who are not protected at the time of disaster by effective caregivers may be particularly vulnerable to disaster effects' (Masten & Osofsky, 2010 p. 1032). This may be due to:

- the harmful impact of the disaster
- the ensuing disruption and potential instability in their lives afterwards, and
- the potential for exploitation.

Infants, children and young people need to be 'kept in mind' at all times by responsible adults in families, schools and other agencies to identify and enable both supports and opportunities.

Principle 4: Take a life-course perspective

Child development takes place through processes of progressively more complex interaction between an active child and the people, objects and symbols in their immediate environment (Bronfenbrenner 1998, McFarlane 1987, Norris *et al.* 2002, Peek 2008, Alisic *et al.* 2011). Disasters rupture and disrupt elements of that environment and have the potential to impact on the child or young person throughout the course of their life (Saltzman *et al.* 2003). The brain development of a traumatised child can be slowed down severely or stunted (Perry & Salavitz 2006) resulting in developmental and academic delays later in life (Buchanan *et al.* 2009, Osofsky 2007). Therefore, it is unrealistic to expect that children who have experienced trauma will be developmentally equivalent to their chronological age cohort (Saltzman *et al.* 2003). This does not mean that every event in early childhood invariably determines later development. However, significant events can set children on pathways that

become more difficult to change (Hertzman & Power 2003). Difficulties can appear when starting a new school or university and may happen a long time after a disaster experience increasing the risk that the post-trauma influence will be missed (Pooley & Cohen 2010). Difficulties may also emerge when there are changes in a program. A program may do fantastic work for a period of time, and then the child or young person may be moved from a program environment where they feel safe to a new environment, or relationship, or worker. These changes can interrupt recovery as the child becomes re-traumatised or experiences compounded distress.

Principle 5: Ecological model and enabling environments

The experiences, reactions and outcomes of infants, children and young people following a disaster are shaped by the quality of their social system and environment (Masten & Obradovic 2008, Weems & Overstreet 2009, Harvey 1996). Evaluating and strengthening the capacity and capability of these environments will increase the context of support for, and capacity of, these groups. This notion of thinking about the ecological context in which young people flourish has become crucial to understanding their recovery (Henley 2010, Saltzman *et al.* 2003, Weems & Overstreet 2009). Table 1 shows the influences around ecology.

If contextual factors are addressed, the capacity of infants, children and young people for resilience will likely be enhanced. If the context is damaged or impeded, the potential for resilience will likely be compromised. To map the needs and aspirations of infants, children and young people a view from their perspective is required. They can be active in this process of identifying who are the most important people in their life. Who can support them? Who empowers them? Which groups do they belong to and who is likely to provide post-intervention support? From here ways to restore balance and optimise aspects of the infant's, child's and young person's environment can be established (Department of Education and Early Childhood Development 2009). This 'enabling environments' approach builds on local capacities and strengthens the structures of support. Enabling the capacities and capabilities within each setting, and the connections between them, enhances outcomes.

The ecological approach emphasises the need to ascertain how the systems for infants, children and young people are functioning and whether each layer of their ecological environment is providing the optimal degree of support (refer Table 1). That is, asking how these environments can continue providing the necessary care and support. Invariably this calls for a layered and comprehensive range of co-ordinated and multi-sectoral supports and interventions.

Table 1: Influences around each layer of the ecology of infants, children and young people.

		Ecological environment				
		Family, carers and households	Peer relationships	Community	Organisations	Wider society
Influences	Families and immediate care networks are key to fostering the attachments, relationships and context of security and comfort that buffers the impact of adversity (Weems & Overstreet 2009, Department of Education and Early Childhood Development 2009).	The impact of disasters is mediated by providing opportunities for peer relationships. Peer relationships provide mutual encouragement and emotional support. They also play a role in the exchange of age-appropriate and meaningful information and referral. They support the development of skills that enable a person to negotiate and navigate social environments (Henley 2010).	Interactions and involvement with community activities and settings enhance positive outcomes for young people and families (Weems & Overstreet 2009). Benefits include structure and stability, sense of belonging, opportunities to 'receive' and 'give back', and increased individual and community resilience (Obrist 2006, Henley 2010, Sonn & Fisher 1998).	The trajectory for recovery of children and young people may be significantly influenced either directly via interaction between the child and organisation (e.g. a school), or indirectly through flow-on effects of an organisation's impact on a young person's environment and/or their network of support, e.g. family workplace (Weems & Overstreet 2009).	The availability and types of information, values, expectations and knowledge systems (i.e. media) operating in the wider society may influence adaptive capacity. Societal prejudices, climate of support versus isolation, government infrastructure and policies, economics and socio-political conditions can all have an impact (Masten & Obradovic 2008, Walker <i>et al.</i> 2010, Weems & Overstreet 2009).	

Principle 6: Support parents, carers and families

Reactions by parents to traumatic events have a powerful influence on how their children cope (Cohen *et al.* 2010). Parental traumatic stress is one of the key factors that determines the likelihood of a child developing PTSD (Cohen *et al.* 2010). Other factors associated with poorer outcomes for children include:

- high levels of traumatic stress in either parent
- increased parental conflict and irritability
- a lack of family cohesion or togetherness
- parental avoidance of the trauma, and
- parental suppression of awareness of the child's traumatic stress symptoms (Cohen 2009, DeVoe *et al.* 2011).

However, there's good news. The negative effects of stress on young children can be buffered by responsive care giving (National Scientific Council on the Developing Child 2004). If parents and carers are supported as they recover, it helps them to help their children cope.

Principle 7: Use child focused interventions over time

Recovery from a disaster is a journey with different needs at different times. Infants, children and young people, perhaps even more than adults, need different services and supports at different stages of their recovery. Responses can be tiered in terms of the timeframe post disaster being, immediate, short and long-term response.

Responses can also be tiered in the acknowledgement of impact for different groups, namely:

- Responses to whole-of-population with general information on the impacts of disasters on infants, children and young people over time.
- Responses to help parents, carers, and educators identify which infants, children and young people may not be coping well and may be in need of additional support.



Talking and sharing experiences include playing games and using other ways to express thoughts and feelings.



This mosaic is a feature of 'Kin Play-space' in the township of Marysville, Vic, which was devastated by the Black Saturday bushfires in 2009. The Kin Play-space is on the site of the former kindergarten and provides a place of quiet reflection and the extension of exploratory play for children.

- Responses to support and assist infants, children and young people with identified trauma response.

There needs to be an awareness and acknowledgement that, especially for infants and children, their response to a disaster may change over time as they grow older, mature and move into different developmental phases. Options for interventions vary. As for adults, children talking and sharing experiences, reactions and solutions, playing games and using other ways of expressing their thoughts and feelings, can be a helpful road to recovery. This is especially so in the context of a warm, responsive and supportive relationship, and when the child is able to manage the timing, topics and depth of connection with their experiences.

Younger children can be actively engaged in 'meaning making' and 'sense making' by providing them with accurate and abundant information. People who experienced *Hurricane Katrina* reported that providing age-relevant and developmentally appropriate information to children was one of the most helpful responses to a child's emotional and mental health needs (Fothergill & Peek 2006). Children and young people can also be encouraged to explore experiences and possibilities through play, social activities, involving them in community renewal activities, using educational curriculum that can address a sense of change or loss, and engaging them in the rebuilding and recovery of neighbourhoods and communities (Buchanan *et al.* 2009). Other options include drama (O'Connor 2013), storytelling, peer interviews, and creating beautiful shared spaces using artwork (Gibbs *et al.* 2013).

All people involved in developing and implementing interventions and responses need to be aware of and take into account the unique culture and context in which they take place. In culturally diverse communities it is important to recognise that there may be different

understandings of disasters and recovery, and different beliefs and practices. A participatory approach is still appropriate with an understanding of the added complexity arising from cross-cultural differences (Cross *et al.* 1989, National Health and Medical Research Council 2006, Gibbs *et al.* 2007). Engaging with local experience and taking time to ensure the response is appropriate to the culture and context will increase the likelihood of the success of the response.

Conclusion

There are many multi-sectoral considerations in the planning of support for infants, children and young people following a disaster. There is international consensus that the ideal focus in the immediate aftermath of an event is safety and creating a sense of calm and self efficacy. However, despite the potential for a disaster experience to impact on child mental health, development and social and learning experiences, there is limited direction for interventions. Guiding principles that are informed by evidence and practice will assist with the planning, implementation and review of interventions designed specifically for infants, children and young people. The seven principles take an ecological approach that recognises the influence of families, carers and the community context on outcomes for infants, children and young people. The importance of a life-course perspective recognises that issues may arise at different life stages. Activities that engage infants, children and young people in play, social activities, and creative expression enhances resilience and strengths and give space for expressions of vulnerability. Participatory approaches that engage infants, children and young people in community preparedness, response and recovery processes in a supported way promote a sense of self efficacy and competence that can help offset the disabling effects of exposure to disasters.

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Child Friendly Spaces: protecting and supporting children in emergency response and recovery

Susan Davie, Marie Stuart, Fiona Williams (Save the Children) and Elise Erwin (Department of Human Services) explain what child friendly spaces are and their role in emergency management planning. 

ABSTRACT

The needs of children and young people are easily overlooked in the chaos that follows an emergency or disaster event, when families have many competing priorities including sourcing food and shelter and accessing relief and recovery services. Children's experience of emergencies can be improved by the implementation of child friendly spaces, which are specific, identifiable spaces that protect children and young people from physical harm and psychosocial distress while assisting them to play and develop through participation in organised and supervised activities during emergencies. These spaces provide a safe site for all families within a highly stressful emergency environment and provide a vital link to support services. At a minimum, child friendly spaces offer a place for all children and young people to participate in supervised, safe and structured activities that integrate psychosocial support in order to strengthen resilience and wellbeing for children, young people and families.

This paper describes what child friendly spaces are and the role they play in the relief and recovery phase of Australian emergencies. Key principles of child friendly spaces are outlined along with a description of their operation their importance of incorporation into Australian emergency management plans.

Introduction

The unique vulnerabilities of children in disasters has been documented by many authors (Allen *et al.* 2007, Anderson 2005, Brandenburg & Arneson 2007, Peek 2008, Williams *et al.* 2008). The need to incorporate the unique needs of children into emergency management plans has also been documented in a wide range of literature, including Flynn & Nelson 1998, Allen *et al.* 2007, Anderson 2005, Gribble & Berry 2011, Writer 2007, Bullock, Daddow & Coppola 2011, and Ronan & Johnston 2010. To date in Australian emergency management planning, the needs of children are addressed in an *ad hoc* way with no standard practice specifically targeting the needs of children embedded into emergency management plans (Davie 2013).

Child friendly spaces have been used in a number of settings globally to care for and protect children in conflict zones and disaster areas. Following an emergency or disaster, child friendly spaces are generally a short-term response and have been recently adopted in some areas in Australia. The purpose of a child friendly space is to support the wellbeing of children in the midst of an emergency or disaster through safeguarding them by providing safe spaces with supervised activities. Child friendly spaces can be set up with minimal infrastructure. A space can be defined by simply using a mat on the floor or using chairs to provide a physical barrier in an evacuation centre. In other settings a child friendly space may be set up in its own room attached to evacuation centres. Those who operate child friendly spaces have expertise related to the physical, psychological and developmental needs of children.

Child friendly spaces are supervised by trained, pre-screened staff and volunteers and they assist in reducing a range of distressing effects that arise from a child's exposure to emergencies and disasters. Child friendly spaces are flexible and adaptable to different contexts; they are low cost and can be tailored to support children of all ages (Save the Children 2013a).

The child friendly space model is designed to identify possible risks to children, put in place mitigation strategies, and provide a much-needed link to early recovery services (The Sphere Project 2011, Metzler *et al.* 2013). Child friendly spaces provide places for

integrated play, informal education, and psychosocial support. Staff can also provide information and referral to more formal help services for children and families.

The first child friendly space was created by UNICEF in April 1999 in response to the war in Kosovo. Child friendly spaces were then implemented following the 1999 Turkey earthquake. They have since become widely used by humanitarian agencies in response to many crises. Following the 2004 Asian Tsunami hundreds of child friendly spaces were established in several countries across the region (UNICEF 2009, Ager & Metzler 2012).

A similar program was established in the United States by the Church of the Brethren in 1980 with the development of their Children's Disaster Services (CDS) program. The program was established in collaboration with child development experts and recognised the special physical and emotional needs of children. The need for a specific service for children was identified by a Church of the Brethren disaster responder who witnessed the challenges for families and children in post-disaster assistance centres. Since its inception the CDS, which operates in a similar way to child friendly spaces, have been established in response to countless man-made and natural disasters including hurricanes, aviation disasters and The World Trade Centre disaster (Peek, Sutton & Gump 2008).

Establishing child friendly spaces in the Australian setting provides a focus on the unique needs and vulnerabilities of children in emergencies. Children are easily overlooked in the chaos that follows an emergency event when families have many immediate priorities including shelter, food and accessing recovery services. Increased levels of parental stress also place some children at risk of exposure to and experience of violence (Parkinson 2011). In an emergency situation there are immediate and long-term benefits to addressing the needs of children and

young people, alleviating parental stress, and allowing other essential services to maintain focus on their activities (Dale & Wilson 2011). However, despite the benefits for children, child friendly spaces are not currently a standard inclusion in Australian emergency management plans.

Key principles of child friendly spaces

The establishment of child friendly spaces in emergencies helps to protect children from physical harm and psychosocial distress. Child friendly spaces are inclusive of all children and help to reduce a range of distressing effects of emergencies by providing a protected environment in which children can participate in age-appropriate activities under the supervision of trained staff and volunteers (UNICEF 2009, Save the Children 2013a).

Child safeguarding and identifying threats or risks to children

When operating a child friendly space in an evacuation centre, child safeguarding measures are implemented to minimise the risk of harm occurring to children. Child safeguarding is a proactive approach to creating a safe and friendly environment for children participating in a child friendly space and attending an evacuation centre. For example when Save the Children staff establish a child friendly space they conduct a risk assessment of the evacuation centre with a child-focused lens to identify possible risks to children. This includes practical assessments of physical hazards (like boiling water for tea and coffee) along with consideration of the location of children in relation to toilets and bathrooms (Save the Children 2013b).

Some of the key child safeguarding factors to promote safety and wellbeing of children and young people are:

- Pre-screening of all staff and volunteers includes a police check and current Working with Children check, if applicable to the jurisdiction.
- All staff are specifically trained in the operation of a child friendly space as well as being trained and experienced in working with children.
- All staff and volunteers know how to raise or report a concern for the safety or wellbeing of a child or young person.
- All staff and volunteers know how to raise concerns or to report any people who are displaying potentially suspicious or unsafe behaviour.
- All staff and volunteers wear identity badges or tabards.
- Child Safe Officers or staff who act as Focal Points are easily identifiable. These personnel are the main contact point for children, young people, parents, staff and volunteers if they have a concern about the safety or wellbeing of a child or young person.



Children participating in many age appropriate activities in a Child Friendly Space following Cyclone Yasi.

- All staff sign a Code of Conduct for working safely with children.
- All staff and volunteers are trained to respond appropriately to bullying, targeting or scapegoating.
- All staff are systemically appointed (there is inherent risk associated with unsolicited volunteering). While it is understood many people wish to assist and are well-meaning, it is not a risk that should be tolerated and spontaneous volunteers are invited to use established systems to register their interest.
- All parents and children/young people can report any person who is displaying potentially suspicious or unsafe behaviours or can raise a concern about the safety or wellbeing of a child/young person.
- Reporting mechanisms for concerns about a child/young person or an adult are clear to everyone in the child friendly space and evacuation centres. This includes local statutory mechanisms.
- Child Protection and Health and Safety risk analysis is conducted on the child friendly space and evacuation centre.
- All contracts, agreements or MOUs include an agreement on child safeguarding principles and procedures.
- Attendance forms are completed with parent contact details, children's food allergies, pre-existing medical conditions, and who is authorised to collect the child.

Psychosocial support

Child friendly spaces provide a space where children can receive psychosocial support amid the chaos that can ensue following a disaster. Children's perceptions about events are influenced by adults and peers, and by what they see and hear around them. Children are aware of problems that their parents face and they often modify their behaviour to decrease strain on their families (McDermott & Palmer 1999).

Simple interventions can alleviate stress and anxiety for young children (Williams *et al.* 2008, Madrid *et al.* 2006). Staff who operate child friendly spaces provide a safe environment where children can engage and express themselves in a variety of ways. This can be through play, art, and interaction with calm adults. Implementing child friendly spaces in evacuation centres ensures that mental health interventions are available immediately after a disaster. This is a practical way to address the needs of children by creating opportunities for them to express their feelings and concerns and to feel safe while establishing a sense of normality as soon as possible.

Focusing on providing support using a psychological first aid model for children ensures that appropriate activities and support can be delivered in a child friendly space. Psychological first aid is an evidence-based approach for assisting children, young people and families. It involves brief supportive interventions for children and families in the aftermath of emergencies

(ANU 2012). Employing this model in a child friendly space has the advantage of improving transition into early recovery activities for those children who may be more significantly affected by an emergency.

Child friendly spaces are also an avenue to provide support to parents, not only by giving them the space to address immediate needs, but also by providing relevant information with regard to caring for children in the aftermath of disaster. As part of the psychosocial support provided by staff in the child friendly space, general advice can be given to parents about the behavioural responses of children and young people, enabling parents to be prepared and to better understand the responses of their child or children to the emergency. As Madrid and colleagues state, 'demonstrating empathy, validating feelings, and providing psychoeducation to parents is essential in the early stages of relief'. These interactions can have a significant positive impact on children (Madrid *et al.* 2006).

Inclusive of all children

A key principle of child friendly spaces is that they are inclusive of all children regardless of age, mental or physical ability, health issues, race and ethnicity or gender. Efforts are also made to engage with marginalised groups like homeless young people.

The number of people in the community with disabilities generally is also reflected in the population of children and youth. As noted by Boon *et al.* (2011), contrary to expectations, children with disabilities do not constitute a negligible number in the Australian school population and that in 2009, 168 500 Australian children had a severe disability. Further, while schools may have a risk management plan for those with disabilities, there is no provision made (at present) to cater for these students in an evacuation or lockdown situation. Boon and colleagues also note that developed protocols will safeguard students so that appropriate responses and procedures are not left up to the staff present on the day an emergency arises who may or may not know how to manage the situation safely (Boon *et al.* 2011). The need for forward planning is equally



A child making a mask with a Save the Children staff member in the Child Friendly Space in Tully.

applicable to those managing evacuation centres who may have limited experience in dealing with children with disabilities, cognitive delays or challenging behaviours. Child friendly spaces play an essential role for children with disabilities in relief centres by assisting children and supporting parents.

Unaccompanied children and young people

It is an important priority for those working in emergency management that children are reunited with their families as soon as possible should separation occur. There is recent anecdotal evidence of children being alone at evacuation centres and unaccompanied by their primary carer. This situation may arise for a variety of reasons including separation due to the nature of the emergency or parents leaving their children unattended while they deal with pressing needs outside the evacuation centre. This situation leaves children in a particularly vulnerable situation.

Setting up child friendly spaces

A child friendly space provides an ideal place for children to be cared for by trained staff who have the capacity to care, protect and provide psychosocial support to them while the appropriate authorities undertake the task of locating carers and resolving complex issues. Child friendly spaces have been operated by staff from Save the Children who have expertise and experience with regard to their operation. However there are many professionals in communities who have the knowledge and skills to operate a child friendly space. They include teachers, child care workers, community services personnel, and health care workers.

Child friendly spaces are flexible and adaptable to different contexts. They are low cost and can be adapted to support children of all ages (Save the Children 2013a). They can be quickly and easily set up in evacuation centres and have also been set up in tents and temporary shelters. A child friendly space should be a clearly defined space for children and, depending on the situation and available resources, may be as simple as an area demarcated by a row of chairs within an evacuation centre. However the spaces can also be more sophisticated and can be supported with other resources. For example Save the Children can provide mobile play buses and mobile youth buses if it is logistically possible to make them available during an emergency response.

When a child friendly space is operated by Save the Children all children are welcomed and staff actively seek to engage with those who may be marginalised (for example children with disabilities and homeless young people). Materials to establish a child friendly space can vary depending on culture and context, however some key considerations are:

- that all forms of learning and play material is culturally-specific and appeals to both boys and girls of all ages and that are appropriate for children with disabilities and language differences
- that all resources are age and capacity appropriate
- that all resources are guaranteed safe for use by children
- that hygiene aspects of materials are considered (i.e. there are no soft toys unless given to a child to keep), and
- that consideration is given to consumables that may need to be restocked quickly (Save the Children 2013b).



Children participating in art play in a busy relief centre in Tully. These activities allow children to express themselves in the immediate aftermath of emergencies.

Exit strategy and transition to recovery

Save the Children's use of child friendly spaces in any emergency is designed to transition children from an emergency response to a self-sustaining development model if necessary. This is achieved through the active participation of the community in its own relief and recovery and is relevant in the Australian context. The needs of children, resources available, and local solutions that reflect local options will help to determine the transition or exit strategy of a child friendly space. Possible options are:

- Closing down the child friendly space by a stated time and distributing materials locally. This has been the most common scenario to date.
- Transitioning the child friendly space into community or agency supported initiatives which are incorporated into ongoing recovery programming.

Child friendly spaces in Australia

Child friendly spaces have been increasingly incorporated into emergency management response in the Australian context. This has occurred in Western Australia, Queensland, New South Wales, Victoria and Tasmania in response to recent major bushfires and floods. Child friendly spaces have been established by Save the Children, Red Cross and the Uniting Care Community (Davie 2013, Dale & Wilson 2011). The establishment of child friendly spaces has occurred due to the increasing recognition that children are vulnerable in the aftermath of emergencies. Addressing the needs of children also assists families and those who work in emergency relief and recovery. The needs of children are not currently addressed in emergency management planning in a systematic way in Australia, however planning for and establishing child friendly spaces is one key activity that can be incorporated into standard emergency management planning in the Australian context (Davie 2013).

Feedback to staff in child friendly spaces established in evacuation and recovery centres in the Blue Mountains in October 2013 includes the following:

'Respite was the top request from parents. Some were emotional and exhausted and came by the space to express that what they really need right now is "a break". One mother left her daughter for the first time since the fire affected them so she could buy groceries, saying her daughter had clung on to her since the fire but now she was at least having fun with other children.'

'A father thanked us because he was able to leave his girls with us while he went to his property alone to tear down some of the walls saying he did not want them to see their place like that.'

These comments help to illustrate the benefit of child friendly spaces to both children and parents. However, there are benefits to all who attend evacuation centres. Evacuation centre staff have described their relief at seeing children distracted from the trauma of the



Children playing calmly with play dough in a Child Friendly Space in Tully.

event. They also describe the difference between centres without a child friendly space where children were distressed and crawling over their parents and touching everything as parents tried to deal with paperwork (Dale & Wilson 2011).

Conclusion

The needs of children are largely silent in emergency management planning in the Australian context (Davie 2013). This is a gap that can go some way to being addressed by the inclusion of child friendly spaces in emergency management plans to provide a focus on the unique vulnerabilities of children in emergencies. In recent years child friendly spaces have been established following fires and floods in several Australian states by Save the Children and others in collaboration with Red Cross, local and state governments. They have been very well received by children, families and those working in emergency management (Dale & Wilson 2011). Child friendly spaces provide a number of benefits for children, parents and those who work in emergency relief and recovery. Despite this, the inclusion of child friendly spaces into emergency management plans is not currently routine practice. Expertise with child friendly spaces exists in the non-government sector in Australia as staff from organisations like Save the Children have worked to establish child friendly spaces in evacuation and recovery centres following bushfires and floods. This experience could be harnessed either directly or by seeking technical advice to ensure that child friendly spaces become standard practice to safeguard children when they are affected by emergencies and disasters in Australia.

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Child-centred disaster risk reduction in Australia: progress, gaps and opportunities

Dr Briony Towers (RMIT), Dr Katharine Haynes (Macquarie University), Fiona Sewell (Echo Youth and Family Services), Heather Bailie (Australian Red Cross), and David Cross (Victorian Department of Education and Early Childhood Development) provide review of initiatives in current day disaster risk reduction practices. 

ABSTRACT

The primary objective of child-centred disaster risk reduction (CC-DRR) is to strengthen children's skills so that they understand the risk of disasters in their communities and are able to play a role in reducing the risks and impacts of potential disasters. Historically, the approaches embodied by CC-DRR have remained on the margins of Australian disaster risk reduction (DRR) policy, research and practice. More recently CC-DRR has been recognised as a valuable component of disaster risk reduction frameworks at the local, regional and national levels and this is reflected in new initiatives in a variety of domains, including disaster resilience education, school emergency management, and community-based programming. This paper provides a progress report on some of these of these initiatives and identifies several gaps and opportunities that are still waiting to be addressed.

Introduction

Emerging as a distinct approach to disaster risk reduction over the last decade, the primary objective of child-centred disaster risk reduction is to strengthen children's skills so that they understand the risk of disasters in their communities and are able to play a role in reducing the risks and impacts of potential disasters (Benson & Bugge 2007). Underpinned by a human rights approach to community development and guided by the United Nations Convention on the Rights of the Child (United Nations 1989), CC-DRR has its origins in participatory approaches to child-centred community development (c.f. Hart 1997, Lansdown 2001, 2005) and has been championed in the

international development arena by non-government organisations such as Save the Children and Plan International (c.f. Benson & Bugge 2007, Plan-UK 2007). Historically, the approaches embodied by CC-DRR have remained on the margins of Australian DRR policy, research and practice (Towers 2012). More recently CC-DRR has been recognised as a valuable component of DRR frameworks at the local, regional and national level and this is reflected in new initiatives in a variety of domains, including disaster resilience education, school emergency management, and community-based programming.

Disaster resilience education: 'Educating the Educators' and DRASEN

In an effort to increase the uptake of Disaster Resilience Education (DRE)¹ (DRASEN 2013) in Australian schools, the Australian Red Cross, in partnership with the Australian Emergency Management Institute (AEMI), has conducted an Australian Government National Emergency Management Project titled 'Educating the Educators' (Red Cross 2013). The aim of the project is to develop teacher confidence in the effective delivery of disaster resilience education in the classroom and, by extension, build capacity for disaster resilience among primary and secondary school students. To date, the project has mapped existing Australian disaster resilience education resources from emergency management agencies and other sources to key national curriculum learning areas (i.e. English, Maths, History, Science and Geography), as well as general capabilities and cross-curricular capabilities (ACARA 2013, Red Cross 2013). The mapping report, which will be publicly available through the AEMI Knowledge Hub (AEMI 2013a) and the AEMI Schools website (AEMI 2013b) shows that there is a broad range of opportunities for teachers to

¹ As defined by DRASEN (2013) DRE 'builds knowledge, skills and confidence to problem solve and take action before, during and after a disaster. Through empowerment and motivation, Disaster Resilience Education supports the development of a culture of safety and preparedness and thus disaster resilient communities' (p.6).

incorporate DRE messages across the curriculum and it is hoped that Australian emergency management agencies will use this to inform future resource development. The report provides teachers with a valuable tool accessing and selecting DRE resources appropriate to their specific needs.

The other important focus of the project has been to raise teacher awareness of the importance of including disaster resilience education in primary and secondary school curriculum. The project teamed up with a primary school where three classes of year six students were working on a term-long integrated study inquiry project on 'Earth's natural processes and their impact on people and the environment'. Halfway through the inquiry process Red Cross, Bureau of Meteorology and AEMI personnel visited the school to address the students and be interviewed by them. The experts all commented favourably about the level of understanding demonstrated by the students through the sophistication of the questions they posed. This has developed into a valuable case study of how DRE can be incorporated into multiple learning areas for both content and skill development and provides a legacy of student created resources to promote DRE to teachers. These resources will be freely available through the AEMI Knowledge Hub and AEMI schools website.

A key factor in the success of the 'Educating the Educators' project has been the concurrent establishment of the Disaster Resilient Australia Schools Education Network (DRASEN). DRASEN was developed with support from the AEMI Board due to significant interest in embedding disaster resilience education in the new Australian Curriculum. Emergency services agencies across Australia have also expressed an interest in the facilitation of a collaborative space in which DRE programs could be discussed, informed, and critiqued (AEMI 2013c). Since its inception in late 2012, DRASEN has provided a voice for agencies and policy makers at a strategic level and acted as a national broker of engagement and strategic

advice between education professionals and emergency services agencies in all aspects of disaster resilience education (AEMI 2013c). With a membership that includes representatives from emergency management agencies, non-government organisations, education departments, subject associations, and academia, DRASEN convenes at least twice a year and maintains activity and conversation via online forums on the AEMI Knowledge Hub. The first Australian network of its kind, DRASEN is providing a key space in which DRE practitioners, researchers and policy makers can share knowledge, skills and resources and build capacity for the development and delivery of evidence-based, best-practice DRE curriculum and pedagogy in the Australian education sector.

Community-based programming for youth: the Cardinia Hills Youth Fire Readiness Project

The Cardinia Hills Youth Fire Readiness Project is a behavioural change program enabling a peer-led cultural change in the attitudes and readiness of local youth toward fire safety. The project is funded by the Department of Planning and Community Development and the Shire of Cardinia. The program has been designed to complement existing and incoming CFA *Fire Safe kids* and CFA *Fire Safe Youth* sessions and to provide meaningful community and school-based events through which participants can learn about and promote fire safety. The program targets the 11 to 17 year age group and takes an 'all hazards all agencies' approach. It is focussed on providing consistent messaging and consistent timing of events to give local, contextualised meaning to wider community fire safety campaigns. To support a trusting and engaged relationship between youth and local emergency management authorities, the program incorporates localised contact with representatives from regional and local CFA, Victoria Police, Ambulance Victoria and Shire of Cardinia emergency management staff. The



Students at Gembrook Primary School participate in a fire warden exercise.

program content is based on the rationale that in the event of a small or large scale fire, a range of skills and attributes are needed. In order to support the 'fire readiness' abilities of young people, opportunities for participants to increase their skills in areas beyond fire science and fire risk reduction are required. Hence, the program also incorporates opportunities for young people to extend their understanding of community, leadership and psychological preparedness.

While monitoring and evaluation of program outcomes is ongoing, preliminary findings indicate that the project has had a positive impact on youth knowledge, attitudes and behaviour. In particular, participants were highly motivated to create engaging fire safety activities for their peers and the wider community. When asked to identify effective activities to engage adolescents, students emphasised the importance of approaches that promote a sense of empathy and connectedness through sharing the stories and experiences of survivors and first responders. They also recommended the use of interactive social media tools—not only for the dissemination of fire safety information, but for referral to support services in the aftermath of a fire event. Importantly, however, the young people had low expectations that their views and ideas would be acted on by the wider education and emergency management sectors. This represents a major issue because such a perception could erode the motivation and commitment of youth over time. Therefore, the success of community-based programs for young people will likely be enhanced by creating formal partnerships between youth groups and emergency management agencies. Such partnerships would help to build trust, provide a formal mechanism for the implementation of youth projects and activities, and ensure that the motivation and commitment of young people is sustained over time.

Bridging a service gap: fire education for preschool children

For many years, Australian fire agencies have been delivering fire education programs in primary schools. While these programs have tended to focus on residential fire safety, information about bushfire safety has also been incorporated. Delivering information about fire safety through this mechanism with this cohort can work extremely well as they are a captive audience and normally attending registered schools aligned to a formal education network. Apart from a couple of exceptions (i.e. DFES 2013, NSW Fire and Rescue 2013), preschool children have not been catered for to the same extent as their primary-school counterparts. Given the extreme risk profile of this age-group, this represents a major gap in program delivery. Numerous Australian and international studies have found that children under the four years of age are more likely to be injured or killed in residential fires than any other age group (AFAC 2005, Byard, Lipsett & Gilbert 2000, Chen *et al.* 2009, Children's Safety Network 1991, Harrison & Steele 2006, Shai & Lupinacci 2003, Scholer *et al.* 1998, Warda *et al.* 1999). Importantly, one of the main reasons for the high incidence of fatalities among this age group is child fireplay (AFAC 2005, Chen *et al.* 2009, Everts 2011, Istre *et al.* 2002, Shai & Lupinacci 2003, Simonsen & Bullis 2001).

One reason fire safety programs have not focused more heavily on the preschool cohort relates to the perception that younger children do not have the cognitive or behavioural capacity to understand or reduce fire risk in their homes (Adler & Nunn 1993). It has also been suggested that teaching children about fire risk at this age could trigger a curiosity about fire and lead to increased levels of fireplay (Adler & Nunn 1993). However, empirical research challenges these assumptions. In one study by McConnell, Leeming & Dwyer (1996), preschool children aged 3, 4 and 5 years received an 18-week fire-safety training program. At each of the three ages, children in the treatment group showed significantly greater knowledge gains from



Senior firefighter Tim Collins demonstrates the clothing and equipment firefighters use to preschool children.

pre-test to post-test than did children in the comparison group. Interestingly, 3-year-olds showed the greatest change of any age group. These findings provide support for the value of training preschool children in fire safety as an important strategy for injury prevention in this age group. In a more recent study, Morrongiello and colleagues (2012) used a pre-post randomized design to evaluate the effectiveness of a computer game for teaching fire safety information to young children (3.5 to 6 years). The results indicated significant improvements in the children's understanding of how to react in different hazardous situations.

These studies provide an important evidence base for extending the delivery of fire education to preschool aged children. The key here is to ensure that information and activities are age appropriate and safe. While fire education in primary schools is generally delivered by fire agency personnel, the ideal people to teach preschool children about safety and hazard risk reduction are their parents and caregivers (including early childhood educators). Not only are these people best placed to present messages in a way that makes them more accessible to young children, they can also provide opportunities to practise and consolidate new knowledge and skills. Importantly, however, families and caregivers will need support in order to successfully teach these concepts. Correct and consistent information should be developed by technical experts and disseminated through trusted community networks, including emergency services organisations, and early childhood health and education services. Importantly, new programs in this realm need to be subjected to rigorous monitoring and evaluation studies to ensure they are having the intended effects and that those effects are sustained over time.

School emergency management: progress in Victoria

Following the 2009 Black Saturday bushfires the Victorian Government Department of Education and Early Childhood Development (DEECD) initiated a review of bushfire and emergency management processes and procedures. The Department took immediate steps to implement a range of initiatives to improve bushfire safety in schools in the short-term and move towards an all hazards approach to emergency planning in the longer-term.

Outcomes of the review focussed on children's services in an attempt to ensure that no child or member of staff was exposed to an unacceptable level of bushfire risk. These included the establishment of the Bushfire At-Risk Register (BARR) and a policy for pre-emptive closures on designated Code Red days of schools. In 2010 approximately 1 400 schools and licensed children's services organisations self-nominated for the register. Since the initial inception of the BARR a more methodical and rationalised approach has been developed that better reflects each facility's actual risk of bushfire. Subsequently, the number of facilities listed on the BARR has reduced from approximately 1 400 in 2009, to 562 for the 2010-11 bushfire season

(DEECD 2013). Although there were two Code Red days in January 2010, they both occurred during the school holiday period with little or no impact on schools or children's services facilities. To date there have been no Code Red days declared by the Victorian Fire Services Commissioner, and as such, DEECD has never actually implemented its Pre-Emptive Closure Procedures.

In addition to BARR, the Department has also developed a series of guides and templates to enable all schools and children's services to produce standardised, facility-based emergency management plans. The introduction of these plans was supported by training sessions and through the DEECD's regional offices. To ensure compliance in the development of these plans, all government schools and children's services on the BARR are required to review and resubmit their emergency management plan annually. Other schools and children's services are also able to submit their plans to DEECD but are not required to do so. While the initial focus of these plans was on bushfire risk, recent revisions of plans has seen them move towards an all hazards approach based on each facility's risk profile.

Government schools on the BARR have also been part of a program designed to ensure suitable shelter-in-place options are available. These have been developed through an inspection and risk assessment where suitable buildings are inspected and works undertaken to improve their fire safety. The DEECD has also engaged with the Victorian Fire Services Commissioner in a pilot program to refurbish two primary schools to act as community fire refuges for the general public should this be required in an emergency situation. This has been a very complex, ground-breaking process that has seen facilities designed and used as classrooms transformed to meet the stringent requirements of a fire refuge.

Another key innovation of the Department has been the development of EduMap, a secured web-based mapping program that brings together layers of information from a variety of data sources. This enables the location and plotting of all schools and children's services across the state. Additional features of EduMap include the ability to:

- plot the contract bus routes for all schools including government, specialist, and some catholic schools
- overlay the CFA's incidents and warnings site
- locate both private and government owned school camps, and
- access contact details for all listed facilities.

In order to ensure continuous improvement of these programs and initiatives, the DEECD has established a dedicated Emergency Management Division to constantly plan, monitor and respond to incidents and emergencies. While many of the processes and procedures implemented have not been put to the ultimate test, the preparedness of schools and children's services across the state has progressed significantly as a result of lessons learned from the Black Saturday disaster.

Child participation in policy development and decision-making

A key component of CC-DRR is child participation in policy development and decision-making (Mitchell, Tanner & Haynes 2009). Child participation in this realm is supported by Article 12 of the United Nations Convention on the Rights of the Child² which reads:

'States Parties shall assure to the child who is capable of forming his or her own views the right to express those views freely in all matters affecting the child, the views of the child being given due weight in accordance with the age and maturity of the child' and 'For this purpose the child shall in particular be provided the opportunity to be heard in any judicial and administrative proceedings affecting the child, either directly, or through a representative or appropriate body, in a manner consistent with the procedural rules of national law'.

It could be fairly argued that despite Australia being a signatory to the Convention, Australian children have not been afforded the opportunity to meaningfully participate in emergency management policy development and decision-making. However, there are two established approaches which could be employed to reliably address this gap: *consultative processes* and *participative initiatives*.

Consultative processes

Consultative processes are adult initiated and managed processes to obtain information from children with the aim of improving legislation, policies or services (Lansdown, 2001, 2005, Tisdall & Davis 2004). They involve recognition by adults in positions of power of the validity of children's experiences, that it can and does differ from the experience of adults and that it needs to inform decision-making processes (Lansdown 2001, 2005, Tisdall & Davis 2004). Traditionally, children and young people have not been consulted in the development of Australian emergency management legislation, policy or services (Davies 2013, Towers 2012). While children and young people were heavily impacted by the Black Saturday bushfires, their voices were absent from the Victorian Bushfires Royal Commission (Teague, McLeod & Pascoe 2010). Consequently, many of the policy decisions made in response to the Commission's findings were not informed by the lived experiences and perspectives of children and young people, even when the policies in question directly affected them. For example, while the school closure policy outlined above will directly affect children's exposure and vulnerability to bushfire, this group was not consulted during the policy development phase. It has been argued by various parties, including young people themselves, that excluding students from the development of the school closure policy has meant that numerous essential safety considerations have been overlooked (Piazza 2011).

Participative initiatives

Participative initiatives aim to strengthen processes of democracy and create opportunities for children to understand and apply democratic principles (Lansdown, 2001). In contrast to consultative processes, participative initiatives involve the creation of structures through which children can challenge or influence outcomes, thereby necessitating renegotiation of traditional relationships between children and adults. A striking example of participative initiatives for CC-DRR comes from the village of Santa Paz in Southern Leyte, Philippines. In 2007, the Philippine Government Mines and Geosciences Bureau identified the local school as being highly exposed to landslide hazards and recommended that it be relocated to a safer location in a neighbouring village. Although the children at the school supported the relocation, many adults in the village were against it and launched a campaign opposing the relocation. In response, the children launched a counter-campaign aimed at educating the community about landslide hazards and a referendum decided in favour of relocation (Mitchell, Tanner & Haynes 2009). While examples of participative initiatives for children and young people in the Australian emergency management domain are rare, there are various ways they could be used to increase the involvement of children to influence decision-making. At the local level, school-based student representative councils can form emergency management sub-committees responsible for ensuring that school emergency plans adequately meet the needs of children and young people. Local government can also facilitate the establishment of a formal youth committee to represent the views and perspectives of local young people.

It is important to emphasise that for consultative processes and participative initiatives to succeed, several key conditions must be met. For example, it is essential to ensure that the children and youth involved are truly representative of the local youth population in terms of age, gender, race, religion, and socio-economic status (Lansdown 2001). It is also important that there are clear principles and ground-rules to ensure that adults do not use children to promote their own agendas. This requires that children and youth are given the time and resources they need to make informed decisions and meaningfully contribute to the policy-making process. At the same time, it is important that the time spent on participatory projects does not detract from other important areas of children's lives, such as academic study, recreational activities, and household responsibilities. However, if these conditions can be met, both consultative processes and participative initiatives provide valuable opportunities for children and young people to express their views in a way that respects and protects their rights, builds their capacity to actively participate in policy development and decision-making and, most importantly, minimises their exposure and vulnerability to hazards and disasters.

² At: www.unicef.org/cbsc/files/Articles12-13-17.pdf.

Children as risk communicators

Information sharing is perhaps one of the easiest means for children and young people to participate in disaster risk reduction. One communication channel widely heralded as a means to reduce risks is between schools, children and their families. However, this assumption is based on anecdotal evidence and little, if any, robust empirical research exists. For example, in a series of subsequent survey-based correlational and quasi-experimental studies with 5 to 13-year-olds, Johnston and colleagues (Ronan & Johnston 2003, Finnis *et al.* 2010, Finnis *et al.* 2004, Ronan, Crellin & Johnston 2010, Ronan & Johnston 2001, Ronan *et al.* 2006) found that although school-based hazards education was associated with an increase in children's knowledge of DRR, evidence that it promoted increased levels of hazard mitigation and preparedness within the home was not forthcoming. Where it did have an effect, it was most often in relation to low cost, low effort adjustments such as having a torch, a radio or a first aid kit. Arguably, these are items that many households would have in their possession regardless of their exposure to hazards. Other more expensive adjustments, or those that would require technical expertise, were not related in any way to school-based hazards education. Evidence that school-based hazards education had exerted any influence in the realm of family emergency planning was also lacking with the majority of children reporting low levels of emergency planning regardless of their involvement in hazard education.

These findings are consistent with a large body of adult-based research which has failed to demonstrate any clear relationship between hazard education programs, hazard knowledge, and levels of household mitigation or preparedness (see Sims and Baumann 1983 and Solberg, Rossetto & Joffe 2010 for extensive reviews). Rather, a significant amount of research has now demonstrated that it is not knowledge deficit or 'inaccurate' risk perceptions that are the drivers of disaster risks: instead it is underlying vulnerabilities relating to a range of socio-economic and political factors such as age, gender, race, religion, and socio-economic status (Hewitt 1983, 1997, Maskrey 1989, Mustafa 1998, O'Keefe, Westgate & Wisner 1976, Oliver-Smith 1986, Whittaker, Handmer & Mercer. 2012, Wisner *et al.* 2004). Therefore, while information and knowledge are important, they alone will not reduce disasters because any increase in knowledge must be supported with the associated services, policy and practice to actively reduce risks (Wisner *et al.* 2004). Thus, although children and young people can certainly share information, research is needed in a developed world context in order to identify the best methods for doing so that effectively reduces risk.

Recent research in a developing country context is instructive in this case. In the Philippines, Haynes and Tanner (2013) examined the use of participatory videos and interactive screening workshops as a means for promoting the messages of young people further into the community and policy sphere. This method supported young people to increase their knowledge

of the disaster risks they faced and to communicate their knowledge to their peers, the wider community, and decision-makers. However, the interactive filming and screening workshops also enabled a process of advocacy, mobilisation and implementation to actually bring about policy and procedural changes to reduce risks. For example, one of the films the children produced explored the issue of chromite mining near their village. The children interviewed a range of community members, including those who were involved in the mining and those who were not. They identified that the flood risk to their village had increased due to the mining because the land had been denuded of forest cover, the river had become silted, and old mining pits were left full of water. The children called a local and regional community meeting to discuss these issues and they used their film to educate the wider community on their discoveries. Much of the discussion centred on livelihoods and the need for the chromite mining to support families within the village. However, the focus of the meetings, which were led by the children, was on solutions and positive actions that children, adults and policy makers could undertake. The village leaders agreed to support a tree planting campaign, to stop mining near the village, to fill in old mining pits, and to support livelihood diversification. In addition to managing the tree planting scheme and assisting with filling in the mining pits the children also began an education campaign to increase awareness of flood risks. The benefits of the participatory video and community screening process went beyond education and awareness and the children were able to advocate for, and take part in, actions that actually reduced disaster risks.

There is significant scope for the use of participatory video in an Australian educational context. However, several caveats are in order. First, it is clear from the Philippines project that the success of participatory video work depends heavily on the ability of the adults involved to *guide* the children without *directing* them. This requires that adults are well-trained in the design and implementation of participatory video projects and are able to leave their own agendas to one side for the duration of the project. Second, and most challenging of all, is that the underlying causes of the local disaster risk are often deeply rooted. For example, in the Philippines, policy makers benefit both legally and illegally from mining activities. Arguably, the extent to which children and young people can challenge the kinds of longstanding governance issues that enable corruption is limited. Therefore it is essential that the expectations of the children and adults are carefully managed and project goals are framed as long-term pursuits. With these caveats in mind, Australian educators and researchers are encouraged to explore the possibilities of participatory video as a tool for capitalising on the energy and enthusiasm of children and youth in the DRR sphere.

Conclusion

This paper has provided a progress report on some recent CC-DRR initiatives and identified some of the gaps that prevail in the Australian context. Major progress is being made in the realms of school-based disaster resilience education and school emergency management. There has also been some progress in the field of community-based programming for youth. Taken together, these developments represent a significant step forward. Yet, certain gaps remain—specifically, fire education for preschool children, and child participation in policy development, decision-making, and risk communication. Importantly, filling these gaps requires that researchers, policy-makers and practitioners work together to develop programs and initiatives that are based on all available evidence. It is also advisable that any new programs incorporate a rigorous monitoring and evaluation component so that the evidence-base can continue to evolve and support continuous improvement of CC-DRR for Australian children and youth. One of the major impediments to developing evidence-based CC-DRR policy and practice is a lack of reliable empirical data. This should be made a major priority for those working in this newly emerging field.

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Children's perceptions and adaptive behaviours in response to seasonal change and extreme weather in Broome, Western Australia

Dr Sharon Harwood (James Cook University), Dr Katharine Haynes and Dr Deanne Bird (Risk Frontiers, Macquarie University), and Jeanie Govan (Charles Darwin University) use a case study of a WA primary and secondary college to examine children's perceptions of emergency impacts. [®]

ABSTRACT

To exclude children and young people from disaster planning processes undermines their safety when a disaster strikes. Moreover, this exclusion ignores the potential communication opportunities for risk reduction between emergency and disaster management agencies and families. This research applied a child-centred approach to the collection of data regarding children's perceptions of how the wet and dry season affects the young people in Broome, particularly where they play, how they get to school and where they live. The research, which was conducted with assistance from the Principal, staff and students of St Mary's Catholic College in Broome Western Australia, also asked students to describe the adaptive and mitigative actions they believed would alleviate the negative impacts of seasonal changes on their lives.

assumed to have the capacity and will to ensure the safety of children (Tanner 2010, Mitchell *et al.* 2008).

Alongside women and the elderly, children are often the most vulnerable in disasters (Peek 2008, Mitchell *et al.* 2008, Fordham 1999). A considerable amount of work has and continues to be conducted on the physical and mental health impacts of disasters on children and the recovery process (Norris, Friedman & Watson 2002). Research is now beginning to circulate which demonstrates that if children are provided with appropriate support they have a unique capacity to understand, problem solve, communicate and take action to reduce risks (Tanner 2010, Haynes & Tanner 2014). To date, this research is predominantly from developing countries and has been championed by child-focused humanitarian organisations with a firm awareness of and appreciation for the UN Convention for the Rights of the Child (CRC) (Benson & Bugge 2007, Plan-UK 2007, Mitchell *et al.* 2008). Although the CRC does not specify natural disasters or emergency management, Article 12 notes the importance of the participation of children in decisions which affect their lives (for a full description of this see Mitchell *et al.* 2008). Child-centred Disaster Risk Reduction (CC-DRR) is therefore an approach that invests in young people and encourages them to reclaim their rights, as effective recipients and sources of risk information as well as active agents of change (Mitchell *et al.* 2008, Peek 2008, Tanner *et al.* 2009, Tanner 2010, Haynes & Tanner 2014).

Introduction

Disaster management in Australia, until recently, has been dominated by a technocratic approach with a focus on hazards and top-down policy responses. There is now increasing recognition worldwide of the importance of community-based methods that aim to reduce underlying vulnerabilities (Wisner, Gaillard & Kelman 2012). However, this remains largely adult-centric and, within Australia, the specific role that children and young people can play in making their communities safer has largely been ignored (Towers 2012). Children are seen as passive victims, while risk reduction efforts remain targeted at adults who are

CC-DRR in Australia is a new concept, particularly within Indigenous communities where woefully inadequate top-down policy unsuited to community needs remains the status quo (Bird *et al.* 2013). Within marginalised communities it is especially difficult for children to have their voices heard and valued by decision makers (Bartlett 2008). It is therefore imperative to investigate how CC-DRR can best be supported to enable children and young adults to participate and reduce their risks. The first step is to understand how children and young people

currently understand and contextualise their climatic environment and its extremes.

In light of the above, this paper, which draws on data contained within Bird *et al.* (2013), aims to:

- determine how the seasons affect young people in Broome, particularly where they play, how they get to school and where they live, and
- identify the range of adaptation and mitigation strategies the young people would undertake if they were able to control the decision making.

Case study location

Broome is located in the tropics on the Dampier Peninsula on the northern coast of Western Australia (Figure 1). Being within the tropics typically means that the community experience two distinct seasons, namely the 'wet' (November to April) and the 'dry' (April to November). The Traditional Owners of the Broome area are the Yawuru people. Today, however, a diverse range of Aboriginal groups and a large non-Indigenous population occupy Broome. The urban centre of Broome, where this research was conducted, had a 2011 population of 12 766 of which, 2 873 or 22.5 per cent of the population identified themselves as Aboriginal or Torres Strait Islander people (ABS 2013).



Broome's mean monthly maximum and minimum temperatures are 34.3°C (April) and 13.7°C (July), respectively. January is the wettest month with a mean rainfall of 179.6mm, while September and October are the driest with only 1.4mm of rainfall (BoM 2012). Storm surges and flooding are common in the Broome area between December and April each year. The region is also vulnerable to bushfires, extreme heat, lightning, severe storms and intense cyclones (categories 4 and 5) with the most recent event, *Cyclone Rosita*, a Category 5 storm making landfall 40km south of Broome, in 2000.

Methods

The research was conducted in November 2012, with the assistance of the Principal, staff and students of St Mary's Catholic College in Broome. Data was collected on the premises of the college during discussions in nine class room sessions with approximately 180 students from grades 4 to 7 (aged 10 to 14 years). In line with the demographic profile of Broome, each class contained children of Indigenous and non-Indigenous heritage. All children were treated identically in the data collection methods, as per James Cook University's Human Research Ethics Committee protocol (HREC Approval #H4850).

An informal and relaxed participatory workshop was used to collect data with each child having the right and ability to express their own views on what they perceived as the best and worst aspects of each season. An illustration activity was also used with children in grades 4 to 6. The researchers let the student participants decide at what age they felt this activity was most appropriate and the children in Grade 7 identified themselves as 'too old' to be engaged in drawing exercises. Children participated in the workshop as part of their class activities. They were invited to participate and their teachers were present to support those who chose not to contribute. The children were not required to identify themselves and results were aggregated in summary format.

The data collection workshop commenced with a warm up activity that focused on creating a general discussion about the weather to determine if the students noted any differences from one part of the year to another. The students were asked to discuss the best and worst things about the wet and dry seasons. While it is acknowledged that there are many seasons recognised in Broome and the Kimberley region, researchers simplified these to the two predominant seasons—wet and dry. This was followed by a discussion or illustration, depending on age, about possible adaptive or mitigative measures that could be undertaken to reduce risks and improve quality of life. Further details on the research aims and methods, and in particular the phrasing of the questions asked, are outlined in Table 1.

All the discussion comments were noted on butchers paper and the researchers asked the children to make a note of the content of their illustrations in order to reduce interpretive bias in the analysis. Where possible, the age and gender of the child was also recorded on their illustration to enable further analysis at a later date. The comments and illustrations were analysed using content analysis to identify the main themes. Examples of the illustrations and comments are provided within the results section.

Results

Various themes emerged from the data garnered from each of the research activities. These themes included cyclones, severe storms, health issues, leisure

Table 1: Research Aims, Methods and Analysis

	Workshop 1	Workshop 2
Research Aim	How do the seasons affect children in Broome, particularly where they play, how they get to school and where they live?	Identify the range of adaptation and mitigation strategies that young people would undertake if they were able to control the decision making.
Method	Open classroom workshop. Students were asked: 'What are the best and worst aspects of the wet and dry seasons?'	Workshop and illustration. Students are asked 'If you were the Mayor of Broome what would you do to make things better for you and your community?'
Completion Time	15 minutes each class	30 minutes each class
Analysis Methods	Content analysis by classroom/age	Content analysis by classroom/age

activities, infrastructure, migration, food, animal/insect life, and tourists. The results are presented relating to disaster mitigation and emergency management (full analysis of results see Chapter 11 in Bird *et al.* (2013)). That is, the experiences, behaviours and perceptions of the children in relation to the wet season and, in particular, severe storms and cyclones. In order to fully explore these impacts a comparison is made between the activities children can undertake during the 'wet' and 'dry'. Detail is also provided on the specific impacts the wet season, cyclones and severe storms have on health and infrastructure.

How the seasons affect children in Broome

Wet season, severe storms and cyclones

The children discussed and illustrated both positive and negative experiences and perceptions of the wet season, severe storms and cyclones. They maintained that the worst things about severe storms were related to post-storm garden clean ups, fears of trees falling on houses and having to rake the backyard of leaves and tree branches. Other negatives included shop and road closures, power outages and big winds. Some children also believed that the storms and wind 'can be scary'.

In comparison, however, most children agreed that 'storms, rain and thunder are exciting'. One child commented that the wind during large storms was fun because they would make sails and use the wind to push them along on their skateboards. Another child commented 'the dam next door overflows and then we can get our mud skimming boards to surf the water'. Other activities included mud skipping, having paper boat races in the gutters, boogie boarding on flooded roads and getting splashed by cars as they drive through flooded roads.

Another positive about the storms related to infrastructure. It enabled them to 'drive along flooded roads' and resulted in the closure of schools (although some viewed this as a negative). The children also had positive recollections of the inundation of the central business district (Chinatown) that brought a crocodile to the main street and saw mangoes floating on the flood waters.

Although a cyclone has not made landfall in the Broome area since 2000, some of the students believed they had experienced one. However, the age group of the sample precluded this. Nevertheless, Broome has experienced many severe storms in the years since 2000, so it is likely that students confused these with cyclones. In addition, several students made reference to yellow alerts and red zones – but these were not explained, rather they described the implications for their activities such as the red zone meant that you couldn't see friends but you could fly kites, whereas the yellow alert meant that school would be closed. This would indicate that there is some understanding of emergency warnings but that the association between coloured alerts and zones was confused.

From the children's discussions it was clear that the positive aspects of the wet season, cyclones and severe storms outweighed the negative, which may reflect the fact that they have not experienced the more negative aspects of a cyclone. Students appreciated the temperature change brought by the rain and wind and enjoyed watching lightning. As rain events are rare in Broome and temperatures very high in summer, students welcomed the water within their play environments and enjoyed splashing in the puddles, and swimming in floodways, parks and roads.

Health

There were no health issues reported by the students that related specifically to the dry season. However, there was a range of health conditions related to the wet season. The students identified several concerns associated with rain events, such as worms getting into their skin, getting ringworms from 'playing on flooded road', meliodosis, becoming sick from playing in the rain, or contracting meningococcal if they accidentally consumed the water (while playing outside). One child commented that 'parents think you're going to get sick in the wet'. Another child added that flooding brings 'ticks and mosquitoes'.

Infrastructure

Road accessibility is the primary infrastructure issue that affects the lives of the students, followed by power loss in the wet season. The students spoke positively about infrastructure in the dry season, as they are able to access camping spots, which are inaccessible during the wet season when roads are closed. However, one child stated that in the dry time 'tourists come and they are road hogs'.

The negatives associated with infrastructure in the wet included the dangers of driving on flooded roads

with one child stating that ‘strong currents can pull the car off the road’ and another added that vehicles are vulnerable to ‘skidding off the road’. Children were also concerned about flooding in the central business district area. However, as noted, this was thought of as a positive by other children because of the appearance of a crocodile and floating mangoes.

Power failure during cyclones and storms was also a concern. One child commented that the wet season was good as they ‘stay in and play video games’ but another contested this statement because they experience ‘lots of electricity disruption’, which prevents them from doing this. Some believed that power cuts occur during the wet season because ‘it’s so hot’.

Adaptive and mitigating changes children want

Five themes emerged from this activity and they were broadly described as infrastructure improvements, leisure infrastructure, environmental interventions, emergency management and weather changing interventions. For the purposes of this paper, the mitigative and adaptive responses associated with infrastructure improvements and emergency management are described.

Infrastructure improvements

The discussion comments and the content of the illustrations varied significantly within this theme. Three themes emerged that are of relevance to this article, namely roads, health and electricity.

Roads — Illustrations and discussions included details of road infrastructure upgrades to incorporate storm water drainage to remove the surface water from the roads. One student stated ‘cleaning the roads [of water] so that you can go camping’. Another suggested that Broome should ‘collect rainwater to drink’, in an effort to alleviate flooding. While a third proposed that to stop water from flooding everywhere, more drains were needed on the streets so that ‘all the water can get all the way to the ocean’.



Health — The students believed that the tourists coming to Broome in the dry season brought illnesses that, in turn, infected the local community and created imposts on the hospital. The solution to this concern was to ‘undertake a quarantine check on people who enter Broome so that they don’t bring bugs and sickness’ into the community.

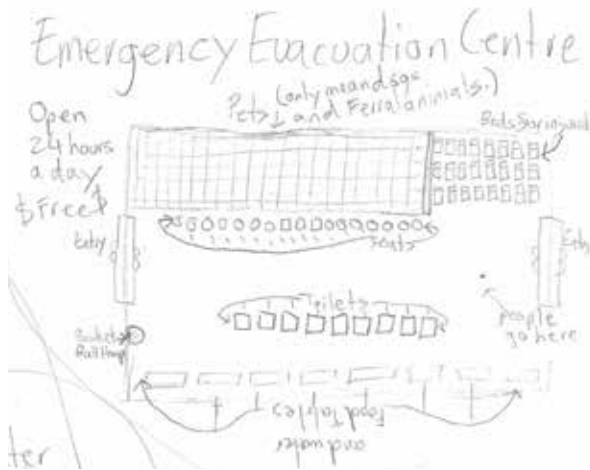


Electricity — Students felt that the loss of power in the wet season should be addressed. Solutions included relocating power lines underground or building ‘power stations on a higher slab so there would be less power outages’. Another child believed that making ‘Broome a clean energy area’ and stopping the reliance on fossil fuels would be a reliable solution to power outages.



Emergency management

Responses summarised under this theme indicate that the students have concerns regarding the design and capacity of the evacuation centre. The children felt that the current centre was not large enough to cope with the population in an emergency situation, more specifically that there needed to be more beds. In addition, students identified a range of activities and services to be provided at the evacuation centre. Some of these included a place for pets, a play area, a safe place for ‘lost kids’, a medical centre, and a telephone room.



Discussion and conclusion

This research sought to investigate how the seasons affect the lives of young people of Broome and to identify the range of solutions they would implement if they had the opportunity to be involved in the decision-making process.

The research identified that the students engaged in distinctly different behaviours during the dry and wet season. These behaviours are a response to extreme seasonal variations and weather events. The children identified a number of unique activities that can only be undertaken in the dry (e.g. camping) or the wet season (e.g. skim boarding). They described the positive and negative impacts of extreme weather events (heavy rain, cyclones and storms) including a number of health risks during the wet season. These results came from a variety of age groups and would need to be further explored to determine the validity and prevalence of these illnesses, particularly the notion that you could get worms from playing in floodwater.

There were many comments indicating that the students play in flooded drains. Playing in flood waters is the dominant cause of recent child and youth flood mortality in Australia (Haynes *et al.* 2009, Coates 1999). It is therefore very important that a storm water safety education strategy is developed in partnership with children to inform and educate young people about safe play in rain and flooded areas. The dangers of playing in flood waters was the focus of the 2013 Victorian SES FloodSafe campaign, where the flood waters were compared to a floating sewage and garbage dump (Victorian SES 2013).

There are no free swimming facilities in Broome so playing in water in the wet season is a rare treat for young people and will be a hard habit to break. It would be far safer and more equitable for the local government to investigate free and safe swimming options during the wet season.

Of particular concern to emergency management is the confusion regarding the expected behaviour response to the different coloured alerts associated with the community cyclone alert system in Western

Australia. One comment regarding flying kites during the red alert, which should be when people are seeking immediate shelter, indicates that there may be confusion about what is life threatening compared to windy conditions. Further research is needed to determine if the children's parents also share the same misunderstandings. It would be interesting to explore the communications between adults and children and identify what risk reduction information, if any, is discussed and how aware parents are of their children's activities in floodwaters.

The information garnered from the illustrations and discussions around civil infrastructure (roads, drains, electricity) and emergency management facilities, suggests that the students have a comprehensive understanding of some of the necessary activities to address their concerns. Most if not all of these activities are within the jurisdiction of the local government. In Broome, the roads are currently the drainage system and the Shire of Broome is seeking funds to construct a storm water system to drain the water from the roads and to harden (concrete) the dirt drainage system that is currently in place.

A CC-DRR approach requires an understanding of how young people conceptualise their environment, including weather patterns, to enable targeted messages to be delivered. Furthermore, a CC-DRR approach must reinforce appropriate and safe behaviours which should be adopted prior to, during and after a disaster.

The results from this research indicate that the young people of Broome are very aware of how the changing seasons and extreme weather events impact their lives and have developed adaptive behaviours in response. The results also indicate that the young people have a sophisticated understanding of some of the necessary actions and policy changes needed to mitigate these impacts. However, the greatest contribution that the results provide is an understanding of children's unique knowledge, perceptions and experiences. Based on this, education programs must involve young people in order to tailor the information to their needs. In particular, urgent work is needed to improve the communication of the Broome cyclone alert warning system, safe behaviour in flood waters, and public health risks associated with rain events.

However, the involvement of the young people of Broome, and indeed all young people in Australia, should go further than simply identifying their vulnerabilities and information needs. Research has demonstrated that children who are informed and involved in risk reduction activities can play an important role in reducing risks to their whole communities through communication, advocacy and direct action (Mitchell *et al.* 2008, Tanner *et al.* 2009, Tanner 2010, Haynes & Tanner 2014). It is also important to note that children are not gender neutral and, in many contexts, girls will differ to boys and demonstrate a heightened vulnerability and resilience to disaster risk. Thus, programs need to be gender sensitive (Haynes, Lassa & Towers 2010).

Although this research is an important first step, further work is required to determine the best ways for young people, and particularly Indigenous children, to be supported to claim their right to safety and be fully involved in CC-DRR programs.

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Emergency planning for students with disabilities: a survey of Australian schools

Dr Helen Boon, Dr Lawrence Brown and Dr Paul Pagliano (James Cook University) outline recent research into the inclusiveness of school emergency management plans for children with disability. [®]

ABSTRACT

Children with disabilities and special needs are among the most vulnerable when disaster strikes. Schools can play an effective role in mitigating the effects of natural disasters on students and their families through disaster preparedness and community-based risk reduction. However, recent research indicates that insufficient consideration is being given to the needs of students with disabilities in disaster management plans and policies of Australian education departments. This study involved a postal survey of schools in Western Australia (n= 45) and South Australia (n=35) to review the emergency management policies and plans in place with respect to students with disabilities. The results indicated that most schools had disaster management plans but not all plans made provision for students with disabilities, although the results varied according to the disability and the disaster envisaged. Moreover, most schools were not represented at Local Disaster Management Groups. This paper advocates for better preparedness in schools to support their students with disabilities and their families during natural disasters.

Introduction

Children with disabilities including chronic medical conditions and special health care needs, are among the most vulnerable to natural disasters (Balbus & Malina 2009). Many find it difficult to cope when their environment, and support systems are dramatically altered, especially those with limited understanding of the level of danger they are in during and after a disaster event (Kailes & Enders 2007) or who become anxious and confused in response to emergency signals (Scotti *et al.* 2007). Children require more preparation and assistance to fully participate in

emergency evacuation plans or to move quickly from an area likely to be affected by a disaster (Peek & Stough 2010). Van Willigen *et al.* (2002) found that the evacuation rates were 9.25 per cent lower in households where one family member had a disability compared with other households in the aftermath of hurricanes Bonnie, Dennis and Floyd in the United States. Transportation issues and the lack of accessible shelters were reported as factors contributing to the decision not to evacuate.

Vulnerability may be compounded by social, structural and financial disadvantage. Frequently, children with disabilities lack adequate access to social and economic resources and possess limited levels of social capital, power and autonomy (Peek & Stough 2010). According to the Australian Institute of Health and Welfare (AIHW 2009), an estimated 168 500 Australian children had a severe disability in 2009, with the proportion of children with severe disabilities being highest amongst low-income households (29 per cent) and lowest amongst high-income households (7 per cent).

Schools can play an effective role in mitigating the effects of natural disasters on all students and their families including the most vulnerable (Ronan & Johnston 2005). For example, recent research in New Zealand illustrated how a school-based hazards education program increased knowledge and preparedness among students (Ronan, Crellin & Johnston 2012). According to recent Australian estimates, 10.6 per cent of all children under 18 have a schooling restriction (ABS 2009). The most prevalent disabilities among children are intellectual/learning disabilities, estimated at 166 700 of children under 18 (4.3 per cent) and physical/diverse disabilities, estimated at 162 800 of children under 18 (4.2 per cent) (AIHW 2009). Despite these numbers, little is known about the effectiveness of Australian school emergency planning for students with disabilities (Boon *et al.* 2011). The unique needs of these students are noted in all Australian state and territory government education emergency planning policies except for Tasmania and the Australian Capital Territory (Boon *et al.* 2012). However, there has been no systematic evaluation of the extent to which the particular needs of these students are addressed in disaster planning among Australian schools. Planning for the needs of

students with disabilities is of particular importance, not only because of their vulnerability, but also because of predicted climate change related increases in the severity and frequency of some natural disaster events across Australia (CSIRO 2011).

This study examined school-level emergency management and disaster policies and plans in Australia to determine the extent to which they consider the specific needs of students with disabilities and special needs.

Methodology

The present study involved a random postal survey of Australian schools in two states: Western Australia and South Australia. The aim of the project was to look at a range of schools across Australia. However, only the Education Departments in Western Australia and South Australia granted permission to conduct the survey with their schools and staff, despite ethics approval from the authors' university. Approximately 450 surveys were distributed to administrators in these two school systems.

The survey was constructed to reflect the authors' knowledge of how the specific needs of students vary according to their particular disability or special needs, and how these have a unique impact on the capacity of each student to evacuate safely during various emergency situations and to comprehend and recover from particular emergencies. For example, an evacuation plan for a school should address the needs of a student with visual impairment very differently to those of a student with an intellectual disability. Similarly, school policies to manage emergency and disaster situations would be expected to assist staff in their efforts to help students with disabilities recover from their experiences, and to understand how the particular special need of the student could impact on this recovery.

The survey was structured to obtain information about school planning for each disability type in each of the anticipatory, acute, and recovery phases of an emergency. The anticipatory phase reflects the period of time when an emergency or disaster is anticipated but has not yet occurred. The acute phase includes the period of the emergency or disaster and its immediate aftermath. The recovery phase is the period of time beyond the acute phase of the emergency or disaster, where the school is seeking to return to 'business as usual'.

Results

A total of 80 survey responses were received. This comprised 45 schools from Western Australia and 35 schools from South Australia. The response rate (18 per cent) to the survey is consistent with results obtained from postal surveys, commonly found to range between 15-50 per cent (Burns 2000).

Tables 1a–c provide an outline of the demographic characteristics of the responding schools. Most schools were rural schools and the surveys were generally

completed by principals or deputy principals. On average, approximately 5 per cent of students in each school had a verified disability, and 10.3 per cent of students had verified special needs such as Attention Deficit Hyperactivity Disorder (ADHD) or dyslexia, results reflecting lower than average rates in Australia¹ (ABS, 2009).

Table 1a: Demographic Characteristics of the Responding Schools—Description of the School

Category	Characteristic	Percentage of respondents
State	WA	56.3%
	SA	43.8%
Respondent Role	Principal / Deputy Principal	84.8%
	Teacher	6.3%
	Other	8.9%
Type of School	Primary School	38.0%
	Middle School	2.5%
	Secondary School	35.4%
	P-10 or P-12	16.4%
	Senior	3.8%
	Secondary and Senior	3.8%
Location	Metropolitan	34.2%
	Urban Regional	19.0%
	Rural	46.8%

Table 1b: Demographic Characteristics of the Responding Schools—Staff and Student Population

Category	Mean +/- Standard Deviation	Median (Inter-quartile Range)	Minimum	Maximum
Number of Staff	86 +/- 150	49 (29; 80)	5	950
Student Population	468 +/- 363	350 (191; 672)	16	1730
% of Students with Verified Disability	5.0% +/- 4.9%	3.0% (2.0%; 6.0%)	0.2%	25.0%
% of Students with Verified Special Needs	10.3% +/- 15.2%	5.5% (3.0%; 10.0%)	0.4%	90.0%

¹ The ABS and other bodies reporting on disabilities only count disabilities such as Down Syndrome, intellectual impairment and visual impairment and so on. Special needs such as ADHD and dyslexia, and chronic illness which do not carry extra funding, are not 'counted'. It has been estimated that 18 per cent of all children have special educational needs.

Table 1c: Demographic Characteristics of the Responding Schools—Events Experienced

Event	Percentage of respondents
Bushfire / Wildfire	35.9%
Building Fire	50.0%
Flash Flood	10.4%
Cyclone	11.7%
Violent Intruder	39.0%
Flood	14.3%
Pandemic / Disease Outbreak	18.2%
Heat Emergency	28.6%
At Least One of the Above	77.5%

The results indicated that 77.5 per cent of all respondent schools had experienced a disaster, with fire (bush fire or building fire) being the most common.

Table 2 indicates the status of school disaster plans. Most schools (96.3 per cent) had a plan in place and most of these plans (73.8 per cent) had been updated within the last year. Despite the prevalence and currency of these plans, most schools were not represented at the local Disaster Management Group meetings.

Table 2: Status of School Disaster Plans

Measure	Status	Percentage of respondents
Type of School Disaster Plan	Any Plan	96.3%
	Generic District / System-Wide Plan	15%
	Generic District / System-Wide Plan with Modifications	51.9%
	A Unique School-Specific Plan	37.5%
Currency of Plan(s)	Updated within Last Year	73.8%
	Updated within Last 5 Years	15.0%
	Updated in Last 6 to 10 Years	5.0%
	Unknown	6.3%
School Represented at Local Disaster Management Group	Yes	27.6%
	No	56.6%
	Unknown	15.8%

Table 3 provides details of the disaster plans of respondents. As noted, a distinction was made between the anticipatory, acute and recovery phase of hazards, which were defined in the school surveys.

The percentage of respondents reporting having disaster plans varied according to the type of disaster and disaster phase, reflecting in part that not all schools were at risk of all disasters. For example, 51.3 per cent of respondents reported having a disaster plan that specifically addressed the acute phase of a bushfire/wildfire but only 15.0 per cent of respondents had a disaster plan that addressed the acute phase of a cyclone, as many of the responding schools were located far inland from the coast.

When the needs of students with disabilities were considered, these varied according to the type of disability. For example, 27.5 per cent of respondents reported that their bushfire/wildfire plan specifically addressed the issues of children with physical or mobility impairments in the acute phase compared to 26.3 per cent for students with sensory impairments and 30.0 per cent for students with emotional or behavioural disabilities. Nonetheless, across all disasters and disaster phases, less than one-third of school disaster plans specifically addressed the needs of students with disabilities—for some hazards, as few as 10 per cent to 15 per cent of disaster plans specifically addressed the needs of students with disabilities.

Table 4 outlines the results of respondent needs for additional resources, infrastructure or professional advice. Approximately a quarter of respondents indicated they needed additional resources, infrastructure or professional advice on disaster planning across all hazards.

Discussion

The above results reflect the views of respondents on how students with disabilities including those with special needs are incorporated into school emergency planning. While it is acknowledged that the results do not adequately represent all Australian state and territory schools, the results nonetheless provide some understanding of how school emergency plans reflect the needs of students with disabilities and perhaps also how state education policies are implemented at a local level.

It appears that the needs of students with disabilities are not adequately reflected in school emergency plans although the extent to which this occurs varies according to the disaster and disability type. It is axiomatic that not all schools would be at risk of all disasters. Accordingly, the results indicate differences between the percentages of respondents having emergency plans for each disaster. However, we believe that all Australian schools should make provision for children with disabilities and special needs in their emergency plans for each disaster, as advocated in other countries (Save the Children USA 2012). While children with disabilities and special needs on average represented 5 per cent and 10 per cent respectively of the student population among respondents, these students are among the most vulnerable to disasters. These students require inclusive emergency plans to be developed and implemented at the school level because

Table 3: Percentage of Schools with Disaster Plans Addressing Each Disaster Phase and Provisions for Students with Disabilities

Plan	Phase	Plan specifically addresses Hazard	Plan makes provisions for students with ...				
			Physical/Mobility Impairment	Chronic Conditions/Special Needs	Sensory Impairments	Emotional/Behavioural Disability	Cognitive Impairment
Bushfire/Wildfire	Anticipatory	50.0%	27.5%	31.3%	26.3%	30.0%	31.3%
	Acute	51.3%	27.5%	30.0%	26.3%	30.0%	30.0%
	Recovery	46.3%	25.0%	28.8%	25.0%	27.5%	28.8%
Cyclone	Anticipatory	13.8%	11.3%	12.5%	11.3%	12.5%	12.5%
	Acute	15.0%	11.3%	12.5%	11.3%	12.5%	12.5%
	Recovery	12.5%	10.0%	10.0%	8.8%	10.0%	10.0%
Flood/Flash Flood	Anticipatory	22.5%	15.0%	17.5%	15.0%	13.8%	15.0%
	Acute	21.3%	13.8%	16.3%	13.8%	12.5%	13.8%
	Recovery	15.0%	10.0%	12.5%	10.0%	8.8%	10.0%
Pandemic/Disease	Anticipatory	21.3%	15.0%	16.3%	12.5%	15.0%	16.3%
	Acute	18.8%	13.8%	15.0%	11.3%	13.8%	15.0%
	Recovery	17.5%	12.5%	13.8%	10.0%	12.5%	13.8%
Heat Wave	Anticipatory	31.3%	25.0%	26.3%	21.3%	23.8%	26.3%
	Acute	28.8%	25.0%	27.5%	22.5%	25.0%	27.5%
	Recovery	25.0%	23.8%	26.3%	21.3%	22.5%	26.3%

Table 4: Schools Reporting a Need for Additional Resources, Infrastructure, or Professional Advice on Disaster Planning

Plan	Generally	Specifically regarding provisions for students with ...				
		Physical/Mobility Impairment	Chronic Conditions/Special Needs	Sensory Impairments	Emotional/Behavioural Disability	Cognitive Impairment
All Hazards	25.0%	26.3%	26.3%	25.0%	23.8%	23.8%
Bushfire/Wildfire	21.3%	17.5%	16.3%	16.3%	16.3%	16.3%
Cyclone	13.8%	12.5%	12.5%	10.0%	11.3%	11.3%
Flood/Flash Flood	12.5%	7.5%	7.5%	6.3%	6.3%	5.0%
Pandemic/Disease	17.5%	11.3%	11.3%	10.0%	11.3%	11.3%
Heat Wave	16.3%	10.0%	8.8%	8.8%	8.8%	8.8%

the context of the school will, in part, determine the support necessary for each student’s needs. The child and his or her carers and families should also be actively involved in developing these emergency plans as they will best understand what their child’s needs may be and how they may be accommodated.

Emergency planning needs to occur for all phases of a disaster from disaster preparedness through to disaster recovery. Preparedness and evacuation responses need to be practised by persons with disabilities and those who are responsible for assisting

them. For example, the International Federation of Red Cross and Red Crescent Societies (2007) noted that the Associated Blind Organisation had developed and practiced an evacuation plan and drill for its visually impaired staff with the help of the New York City Fire Department. This plan and its practice were instrumental in the safe evacuation of the Associated Blind Organisation’s staff from the 11 September 2011 attack on the World Trade Center in New York. In the case where a school building is damaged by a weather disaster and becomes unusable for a period of time, as occurred after *Cyclone Yasi* and the Brisbane floods,

it is important that contingency plans be in place to ensure that the students, especially those who have a disability, are not excluded. The loss of schools, both in terms of the physical building and the educational access that the institution provides, can be particularly problematic for students with disabilities, as they face many barriers in accessing education on a day-to-day basis and their home environment might be ill prepared to substitute the educational impact that they miss from school (International Federation of Red Cross and Red Crescent Societies 2007).

It is noteworthy that the majority of respondents indicated that their school was not represented at the local Disaster Management Group or that they did not know whether or not this was the case. Given that local Disaster Management Groups are responsible for planning all aspects of disaster mitigation, prevention, preparedness and response in a local area, the absence of a school representative is significant in terms of ensuring that the school is adequately informed about disaster preparedness and that the needs of its students are addressed and integrated into community-wide disaster planning.

It would be useful to extend the results of the present study by continuing its application in other states and territories. Further, qualitative research with school management personnel may provide further insight into how schools are able to prepare for emergencies with respect to students with disabilities and to corroborate these research results by reviewing some of the emergency plans for each school. Up to a quarter of all respondents indicated that they would like additional resources, infrastructure or professional advice on disaster planning. Perhaps the school resources available through the Australian Emergency Management Institute Disaster Resilience Education for Schools website² could be brought to the attention of teachers, or it could be that these resources are not suitable for use within the current school curriculums. Additional research may help elucidate how schools can be better integrated into disaster planning structures and be able to care for all students in disaster settings including the most vulnerable.

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2 Disaster Resilience Education for Schools website. At: <http://schools.aemi.edu.au>.

How the children coped with the April 2010 Eyjafjallajökull eruption in Iceland

Deanne Bird, Risk Frontiers, Macquarie University, and Guðrún Gísladóttir, University of Iceland, report on research into the use of storytelling and art to help children cope with disaster. 

ABSTRACT

The Eyjafjallajökull eruption in April 2010 caused severe and long-lasting impacts throughout southern Iceland. This paper explores some of the strategies implemented by adults to help children cope with the ongoing effects. These strategies included reinstating routines and providing activities such as storytelling and art to help children communicate and process their experiences.

Introduction

Ash fall from the April 2010 Eyjafjallajökull eruption in southern Iceland caused significant economic impacts internationally, with at least a 3.3 billion Euro loss by the airline industry alone (Mazzocchi, Hansstein & Ragona 2010). The eruption, which was located under the glacier also known as Eyjafjallajökull, lasted for 39 days. In addition to ash fall, localised hazards included glacial outburst floods, lightning, rockslides, lahars, and the remobilisation of ash.

While much research has been conducted on the physical attributes of the summit eruption (e.g. Gíslason *et al.* 2011, Gudmundsson *et al.* 2012), few researchers (e.g. Bird & Gísladóttir 2012, Briem 2010) have investigated the societal impacts within Iceland. Moreover, very little has been documented on how children in effected communities coped with the ongoing threat from the volcano. To address this gap, this paper examines strategies implemented by adults to help children cope, prior to, during and after the 2010 Eyjafjallajökull eruption in southern Iceland.

Children are one of the most vulnerable groups in disaster situations (Haynes & Tanner 2014, Ronan, Crellin & Johnston 2012). It is therefore imperative that child-focused disaster risk reduction activities are undertaken to ensure their health, safety and wellbeing. However, children should not be seen as passive victims. Children have the capacity to enact change within the family home (King & Tarrant 2013, Ronan, Crellin & Johnston. 2010, 2012, Ronan

& Johnston 2001, 2003) and the wider community (Haynes, Lassa & Towers 2010, Haynes & Tanner 2014, Mitchell *et al.* 2008, Mitchell, Tanner & Haynes 2009). Moreover, research by Ronan and colleagues has shown that children who have been involved in hazard education campaigns have more realistic perceptions of risk, reduced fears of hazards and increased knowledge of protective behaviours. Furthermore, children who are involved in multiple hazard education campaigns over time are more knowledgeable than those who are involved in just one program (King & Tarrant 2013, Ronan & Johnston 2001).

In the community of Vík in southern Iceland (Figure 1), school hazard education is carried out annually with respect to a Katla eruption. The Katla volcano lies approximately 25km east of Eyjafjallajökull and has produced more catastrophic eruptions since settlement in Iceland than its now infamous neighbour. Like Eyjafjallajökull, Katla lies underneath a glacier and as a result, produces glacial outburst floods, lightning and ash fall, in addition to tsunami that can impact the southern coast of Iceland. The school in Vík is the only elementary school in the southern region required to evacuate during an eruption, as it is located in the tsunami hazard zone. The school in Vík practices its evacuation procedures annually. This involves the children walking hand-in-hand up to higher ground.

In commemoration of Katla's last major eruption in 1918, the school hosted 90th anniversary activities in October 2009, including art (see Figure 2) and a play and musical performances that mimicked the sounds emanated during an eruption.

A full-scale evacuation exercise for communities surrounding the Eyjafjallajökull and Katla volcanoes was last conducted in 2006. With unrest in Eyjafjallajökull in 2009 and 2010, regional hazard and response information meetings were held in March 2010 (Bird, Gísladóttir & Dominey-Howes 2009, 2011, Bird & Gísladóttir 2012).

Katla is well known throughout the region, with many residents having knowledge of past eruptions from stories that have been passed down from generation to generation (Bird, Gísladóttir & Dominey-Howes 2011, Jóhannesdóttir 2005; Jóhannesdóttir & Gísladóttir 2010). Moreover, many people know the legend of

Figure 1: Map showing southern Iceland.

The community of Vík is centrally located south of the Mýrdalsjökull glacier, which covers the Katla volcano. Farms depicted on the map were included in the survey undertaken in August 2010. This region includes 558 adults and 141 children under the age of 18 years (Registers Iceland 2010, Statistics Iceland, 2013).

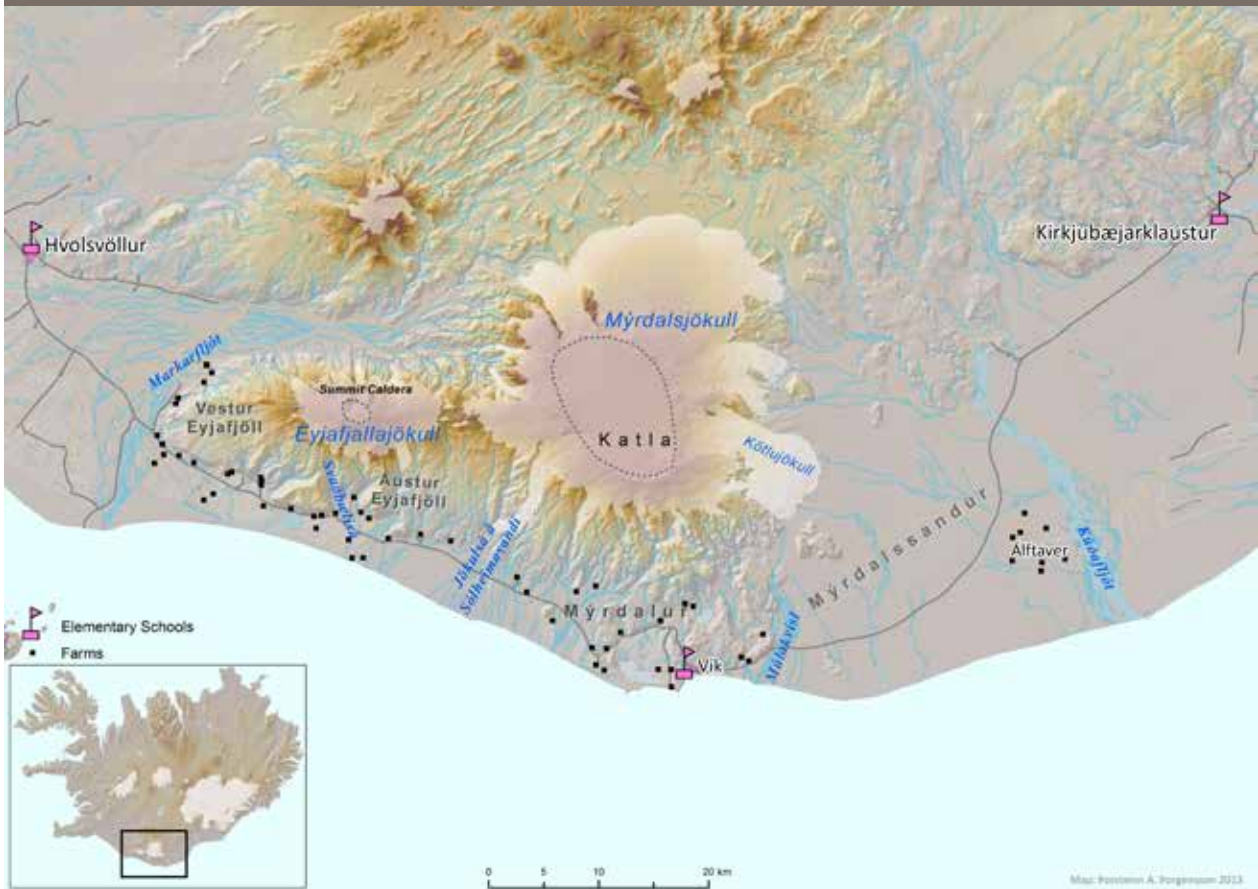


Figure 2: Art produced by the children.

The children of Vík used art to commemorate the last major eruption in 1918.



Katla—the wicked female cook (Figure 3) who lived in a monastery located in Álftaver (see Figure 1):

‘She had magic trousers enabling her to run fast and without a break. When she discovered that a shepherd had misused her priceless belongings, she killed him and hid him in a big barrel of whey. When confronted

with the revelation of her crime as the whey was slowly being used up, she fled in the trousers up to the mountains and flung herself into a dark crevasse in the ice cap. Ever since, according to tales, she avenges her fate by pouring fire and water onto the nearby regions.’ (Guðmundsson 1996 pp. 61-62).

This paper examines the various child-specific activities undertaken to ensure the health, safety and wellbeing of children living within close proximity to the Eyjafjallajökull eruption in 2010.

Methods

The research, completed in August 2010, involved three methods of inquiry:

1. open interviewing
2. semi-structured interviewing, and
3. self-completed questionnaires.

Children under the age of 18 years were not directly involved in the study. However, general data about the household was gathered which included personal experience prior to and during the eruptions, affects of the eruptions on individuals, family, property and businesses (agriculture and tourism), and the use of various media sources to acquire information. Adult

Figure 3: Art by school children in Vík.

Artwork of the wicked female cook, Katla, hiding her victim in a barrel of whey. This piece was on display for the Katla 90th anniversary celebrations in October 2009.



respondents and interviewees including information on the experience of children prior to, during, and after the eruption, where appropriate.

Interviews were conducted in both Icelandic and English languages with local residents, government officials, and health care, school and emergency management personnel. Interviews were generally one hour in length although some were shorter while others lasted several hours. Questionnaires, which were distributed door-to-door and either collected the following day or returned by post, took about 30-45 minutes to complete.

Overall, 12 interviews were conducted and 59 questionnaires were distributed to households in the rural areas where farming is the predominant occupation. There was a 95 per cent response rate with 57 completed questionnaires being returned. Most respondents (78 per cent) had lived in the region for three or more generations. In total, 138 adults and 37 children were living in the 57 households covered by the survey. A further 66 children were registered as attending the school in Vík. Interviews were taken with several key stakeholders tasked with the care of children in their everyday lives. Household questionnaires in the urban area of Vík are not included in this analysis.

In order to provide context to the research, the following provides an overview of the eruption's impacts on households in general.

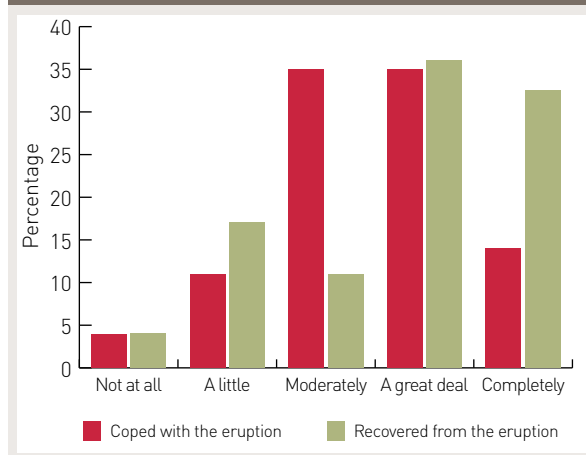
Results

Less than half (39 per cent) of the respondent householders evacuated during the April 2010 eruption

of Eyjafjallajökull but three-quarters (75 per cent) reported that the eruption impacted their home. These impacts were almost exclusively related to ash fall. A further 60 per cent and 76 per cent reported some level of impact on their or their family's health and emotions, respectively.

When asked how they and their family coped with and recovered from the eruption, the majority of respondents indicated 'moderately' to 'a great deal' and 'a great deal' to 'completely', respectively (Figure 4).

Figure 4: Responses to the questions: how well do you think you and your family coped with the eruption; and, how well do you think you and your family recovered from the eruption.



Child-focused preparedness, response and recovery

In addition to the annual evacuation exercise at the school in Vík, an evacuation exercise was arranged some weeks prior to the Eyjafjallajökull eruption. This was done in response to emergency management meetings, which were held in March 2010 to discuss increased seismicity in Eyjafjallajökull. According to a school official, the children 'love the evacuation exercise; they are not scared'.

In the initial days of the eruption, some children were shocked to see heavy ash fall and they believed they would run out of air to breathe. Moreover, the noise coming from the eruption was exceptionally loud in some areas and children, along with parents, found it difficult to sleep. As a result, the general consensus was that children should have been evacuated from areas experiencing heavy ash fall and noise: 'It would be good for the children to get out of the ash and heavy sound'.

The noise from the eruption caused cupboards to constantly shake in homes within close proximity to the volcano and this terrified the children, along with the darkness caused by heavy ash fall: 'You cannot offer your children to stay in the darkness and the hell'. As a result, many families sent their children away to stay with family members out of the hazard zone. If the weather was calm and the eruption could not be seen

or heard, some families took their children home in order to restore some normality. It was believed that this action helped the children adjust and ensured they were happy to return to their home permanently when the worst of the eruption was over.

However, not all parents were able to send their children away. In these instances, parents tried their best not to show their own fear and worry and many noted that they did not discuss the eruption in front of their children. Moreover, parents were conscious of the negative effect that news media may have on themselves and their children. Many respondents believed that local and international media agencies were sensationalising the impacts and making matters worse by stating that the Eyjafjallajökull eruption was 'a show and nothing in comparison to what Katla can do'.

Despite families being encouraged to take holidays, the school in Vík remained opened during almost all of the eruption (it was only closed for two days in order to clean up the ash). This was considered as extremely important to ensure routine in the children's lives, especially since many remained in the community. Other efforts to ensure normality included holding confirmation ceremonies for local teenagers despite the ash fall, as these are a very important part of Icelandic culture.

To the east of Vík in Álftaver, the children were unable to attend school because the school bus could not provide transport for them through the ash. Similarly, children who lived on the western-side of Eyjafjallajökull were unable to attend school for 10 days as they were advised by the school to stay home due to ash fall. However, the parents thought this period was too long as the children lost a connection with their fellow students. In addition, they were unable to maintain any sort of routine in their lives. Not only did this impact the children at home, but it also impacted the children at the school with reports circulating that one of the girls had perished in the eruption since she had not been attending school.

Parents of children who were kept at home during the worst of the eruption organised fun activities for them to do as a distraction and as a method to help them communicate and process their experiences and emotions. Some families collected ash for volcanologists to collect. Others chose to document the ash fall in the hope that local media would publish their story.

'I said "let's go out and take a photo and send it to [the national news media agency], and then you'll write an article and all of you can write what you think". That's what we did but nothing was published except the photo but this took their minds off the issue, then they started talking about how they felt and they opened up.'

One family created a story about a troll that was sleeping in Eyjafjallajökull and how his snoring generated the loud noise. Other families encouraged their children to paint or draw pictures of the volcano (Figure 5).

After the worst of the eruption, other activities were organised for children living within the major ash

Figure 5: A girl's painting of Eyjafjallajökull erupting.

This artwork shows a bright sunny day with plenty of green vegetation surrounding the volcano.



fall areas. These included adventure activity days organised by the scouts from Reykjavik and gifts sent to the children, which included books on nature from a publishing house.

To help the children and their families cope with and adapt to the eruption, health care professionals initiated and organised a meeting in early autumn 2010 for all families from the worst affected areas. The meeting, which was very well attended, focused on how children experienced the eruption, how they dealt with it, and how they managed through it. Follow-up discussions were held with those who could not or did not want to attend to ensure those who needed help received it. Health care professionals also published health advice through various forms of media.

In general, it appeared that most children were not afraid during the eruption and that they adapted to the situation very well. This was attributed to their:

- parents remaining calm and providing actions and distractions that helped the children process what was going on around them
- exposure to education about volcanic eruptions through evacuation exercises and commemoration activities, and importantly,
- ability to evacuate from the hazard zone.

One official believed that the psychological impacts would not be a significant issue since people were able to leave the hazard area during the height of the disaster. 'They had a chance to get away, not like what happened in past Katla eruptions when the people were stuck in the homes and darkness for weeks'.

Nevertheless, health care professionals revealed that a few families and children were suffering from Post Traumatic Stress Disorder (PTSD). Officials were of the opinion that PTSD in adults had manifested from ongoing issues that became magnified during the eruption. These people received individual attention through personal meetings. Health care professionals were also concerned that the children were now more aware of the potential risk of Katla erupting after experiencing Eyjafjallajökull.

It was recognised that they ‘have to be prepared. We can’t pretend that Katla isn’t here but we have to be aware of how [the children] can think’.

‘What we know about children is when they feel bad and when they are worried they don’t really talk about it. So it’s very important to take good notice and to follow up. [The children] keep it by themselves if they are really worried because they don’t want to make mom worry more.’

Discussion and conclusion

Actions undertaken by caregivers enhance the ability of children to cope with disaster situations (Clettenberg *et al.* 2011, La Greca *et al.* 2001, Prinstein *et al.* 1996). This research has described various activities, mostly undertaken spontaneously, to help children cope with disaster in Iceland. These activities included reinstating routines and providing activities to help children communicate and process their experiences. While it appeared that PTSD was generally not an issue, officials are aware that some people may endure ill effects and were being monitored accordingly.

Research has shown that PTSD is exacerbated by the extent and degree of exposure to the destructive forces of a hazard event, degree of damage to the home and other familiar infrastructure, continued displacement, separation from social networks, and level of trait anxiety of children and their parents (Evans & Oehler-Stinnett 2006, Lonigan *et al.* 1991, Lonigan *et al.* 1994, Mohay & Forbes 2009). PTSD can be reduced through social support and coping strategies, alongside enhancing a child’s sense of control over a situation by providing them with experience and information (Ronan & Johnston 1999).

In Iceland, preparations for Katla and Eyjafjallajökull eruptions have focused on glacial outburst floods and tsunami. They have not included ash fall, which was the predominant hazard effecting southern Iceland during the 2010 eruption. It is therefore understandable that children were initially frightened when unusual darkness and noise befell their community. Moreover, peripheral impacts and vicarious traumatisation via the

media affected children outside of the declared hazard zones. This highlights the need to educate children about all hazards, in all areas.

The lessons learnt from the Iceland experience can be applied to other hazard regions around the world, including Australia. At the time of writing (2013), bushfires are impacting many communities across New South Wales. Although the fires are isolated to specific areas, the smoke is impacting the greater Sydney region and causing health issues for people with breathing difficulties who have been advised to take extra precautions.

It is therefore imperative that child-focused disaster risk reduction activities encompass all regions. Schools and parents need to provide children with the basic details of hazard impacts to ensure they are aware of what is happening around them and empower them with actions to assist themselves, their families, and others in their community. Excellent examples of this occurred during the 2010-11 Queensland floods with schools in New South Wales signing up to assist Queensland schools through ‘School Aid’¹. Reciprocal aid between schools internationally has also been established, e.g. the school in Villiers-Bretonneau in France with Victorian schools devastated during the Black Saturday bushfires in 2009 (Figure 6).

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¹ ‘School Aid’, pers. comm., Quakers Hill East School Principal. At: www.schoolaid.org.au.



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Macedon Ranges youth experiences in emergency management planning

Angus Hocking (Gisborne Secondary School), Bethany Taylor (Kyneton Secondary School), and Kylie Tupek (Save the Children) explain why perspectives of younger people are valuable in emergency management planning.

Background

Prior to the 2009 Victorian bushfires, the Macedon Ranges Shire, like many municipalities across Victoria, did not actively engage young people and children in its emergency management planning or frameworks. Emergency management and recovery plans for the municipality did not separately identify unique needs and requirements of young people, but rather, identified them as part of the broader needs of all those affected in an emergency. As a result, young people have had little engagement with emergency management planning within the Shire, as well as little education or input into the issues that may affect them during an emergency.

In 2012, the Macedon Ranges Shire Youth Service Development Unit and the Macedon Ranges Shire Emergency Management Unit hosted a Youth Emergency Management Workshop. Young people, many from schools within the municipality, came together to identify and discuss emergency management issues focusing on areas that concern young people.

The purpose of the workshop was to establish a link between young people living in the shire and the emergency management planning process. The Municipal Emergency Management Planning Committee endorsed the workshop as a way to consult with young residents regarding the local emergency management plan. The Youth Services Development Unit at the Shire attracted young people via a Facebook page and also made contact with local schools where students could nominate themselves to take part. Fourteen young people aged between 16 and 23 years participated in the workshop.

The workshop experience

The workshop presentations provided good information and attendees began to understand the areas of emergency management. For most young people in attendance, this was the first time their opinions had been sought by older people and it was a great opportunity and experience to have thoughts and ideas tabled and valued.

Some time was needed to bring the young people to a common understanding of current emergency management practice. Mutual respect and trust were important values underpinning the day.

Throughout the workshop, young people identified key issues that were of concern and provided the Youth Services Development Unit and Emergency Management Unit with suggestions, direction and actions that could be addressed to improve community preparedness, resilience, and recovery in emergency situations.

There were some key areas that attendees identified, which included the following three areas.

Emergency management knowledge

Attendees were able to identify that young people generally may not have experienced an emergency situation or have a full understanding of consequences or the possible roles they could play. Aspects of life experience and understanding what a disaster means were discussed and it was felt that it would be good to have ways to learn from other young people who have lived through disasters.

Some of the ideas to share knowledge developed during the workshop included joining with several schools in the area to help raise knowledge and awareness about emergency situations. This could be organised by young people with support from local SES, police, fire agencies, ambulance and the Red Cross.

How do young people have their voices heard?

Attendees indicated that young people don't think they have a voice in emergency management and the group suggested the formation of a formal youth emergency management committee that includes students from a range of schools in the Shire. It was suggested that students from secondary schools across the shire could participate in the youth committee with the meetings being facilitated by the Youth Services Development Unit and the Emergency Management Unit. The Shire's emergency management committee had expressed an interest in gaining the views of young people by conducting the workshop and setting up a more formal

committee would ensure that young people could engage with the process in an ongoing way.

Peer-to-peer training

Attendees identified that early planning and being prepared are key success factors for resilience in emergency situations and disasters. Joining with peers to explore scenarios, recognise and understand what might play out in a community during an emergency response, and what effective roles they could play in relation to emergency preparedness and what to expect in emergency recovery, was a strong consideration.



Group discussions allowed opportunity to have thoughts and ideas tabled.

Activities for young people

The workshop participants identified a number of activities that would help increase their understanding and effective participation. These are listed in Table 1.

After the workshop, the Youth Services Development Unit and the Emergency Management Unit used ideas identified in the workshop to formulate a plan for future action, as well as developing key learnings on how to discuss emergency management issues with young people.

Recognising the important contribution young people can make to the ongoing development of the community, the Youth Services Development Unit worked to increase the Shire’s engagement and support of young people in the area of emergency management. The Municipal Emergency Management Planning Committee (MEMPC) received a recommendation that a youth sub-committee be formed to bring ideas forward to discuss the needs and concerns youth and children have in relation to emergencies. The purpose of the youth sub-committee was to examine how younger people are considered in emergency preparedness and training and then to be a representative voice for how the Shire supports children and youth during and after an emergency. The sub committee’s formation was enthusiastically adopted by the MEMPC, which suggested that the Youth Sub-Committee report to the Committee at each meeting. This will keep the MEMPC informed of the concerns, recommendations and findings of the youth sub-committee.

Table 1. Suggestions of activities younger people can do to prepare for emergencies.

Phase	Activities
Prepare	<ul style="list-style-type: none"> Working bees in classes or groups to help the community prepare for emergencies. This could help elderly people in the community. Teen mental health support training. This could include peer-to-peer support training. Set up a Facebook page that is ready to roll out in the event of an emergency. Since the workshop the Shire has set up a Facebook page called Macedon Ranges Emergency Alerts. Being connected to the emergency management team means that young people can use this established page to access information that is relevant. Tap into the interests of young people as they may be able to contribute by volunteering in a variety of ways. While some members of the group already volunteer with agencies like the Country Fire Authority, there may be others who would want to help out if the community was affected by an emergency. The need to undertake training was discussed and this is something that the group will explore in the future.
Recover	<ul style="list-style-type: none"> School curriculum and education programs, especially hospitality, could be included in recovery plans. Investigate ways where young people can contribute (eg. in relief centres and recovery activities). This could include assisting in clean-up activities. Organise or participate in activities to raise funds for recovery.

The MEMPC recommended that two youth members be appointed to the committee to bring a youth voice to emergency management planning activities. This will bring insights into discussions where youth engagement would not have previously been sought. This has been adopted by the MEMPC and the authors, two secondary school students, are the first regular young members of the MEMPC.

Anne Louise Linder, Shire Municipal Emergency Response Officer, said ‘Having young members on the committee means that the needs of children and young people are front and centre, and you can’t help but to give consideration to their requirements. One of the direct outcomes of engaging with the students has been the review and update of our relief centre planning to include a dedicated space for youth. This was done with direct consultation with the young people so that they had a say in how relief centre plans would reflect their needs.’

Changing perspectives

As a result of increased engagement with young people in the community, many stakeholders, including the Shire Council, schools, and local emergency services

organisations have come to regard the ideas of young people as having a valid contribution to emergency management planning and response. Key to this were the efforts of people within Council and local community organisations who championed the need for greater youth engagement in emergency management activities and who were supportive of young people driving change and establishing a voice.

It is understandable that some members of the emergency management committee may have been uncertain about what young people could offer and how young people could contribute to important discussions about emergency management planning and response. However, community and council members have been positive regarding the contributions made during initial discussions with young people. Pauline Neil, Manager Youth Development said, 'We are actively engaging with young people in many aspects of council and community life. We are thrilled that young people are eager to participate in forums such as emergency management. We value and respect the input and time young people have given to this process so far and look forward to watching this unfold.'

Young people are already mobilising to support recovery efforts and address problems during an emergency. One example of this is the Student Volunteer Army that was formed via a Facebook page and responded to community needs following the earthquakes in Christchurch, New Zealand in 2010 and 2011. The SVA used everyday technology to co-ordinate thousands of volunteers to clear tens of thousands of tonnes of mud and soil, deliver clean water, and direct community members to recovery services. They worked closely with many organisations to deliver pamphlets, lay sandbags and man call centres. Closer to home, the Facebook page, 'Tassie Fires We Can Help', which was set up during the January 2013 fires in Tasmania is another example. Its creator, Melanie Irons, was not from a fire-affected area but she wanted to help and realised she could use technology to connect those who needed assistance with those who could help. Melanie co-ordinated a huge recovery effort and has made a significant contribution to the communities that were affected by fires along with contributing to emergency management planning for Tasmania.

Outcomes

Including young people early in emergency management planning means young people are aware of the official channels and resources available during an emergency and throughout the recovery phase. This helps with co-ordination of activities if emergencies or disasters strike local communities and ensures that the energy and enthusiasm of young people is harnessed in emergency management activities.

While still in its initial stages, the youth sub-committee is working to engage young people to ensure sustainability of the youth sub-committee and continuous adaptation of emergency management planning to meet the evolving needs of children and young people in the Macedon Ranges communities.

Points to consider

- Young people may want to get involved and make a difference to their communities, but generally don't know how to get involved in emergency management activities and don't believe their views will be taken seriously.
- It is important to engage with young people from a diverse cross-section of the community—from different areas, and who are involved in different activities.
- Engagement needs to be ongoing and regular to build trust and provide support so young people feel confident to express ideas. This can be supported by working with both the youth unit and emergency management staff within local councils.
- Young people can make good contributions to emergency management broadly and it is important that there are fora where they can express their views and contribute to emergency management planning.

Conclusion

Being asked for opinions and providing a youth perspective regarding emergency management planning was a new and exciting experience. It has helped build confidence and provided an appreciation that a youth perspective is respected and considered. To be included on the MEMPC also shows young people that their voices are included and that they can make a positive contribution to their community. Local government emergency management planning committees are encouraged to consider giving young members of their community a voice in their emergency management planning.

About the authors

Angus Hocking is a year 11 student at Gisborne Secondary College. He is an active volunteer involved in 'Music in the Sticks', a local FReeZA initiative, for the last five years. Gus has attended a Disaster Resilient Australian Schools Education Network meeting where he contributed to small group discussions about disaster education.

Bethany Taylor is a year 11 student at Kyneton Secondary College and has been a CFA volunteer for more than three years. Beth wants to make a contribution to her community by making positive changes for young people.

Kylie Tupek is the Philanthropic Grants Coordinator at Save the Children Australia, where she has worked for over five years. She has a Bachelor of Arts (International Studies) and is currently studying law at RMIT University.

This paper was developed at the Paper-in-a-Day workshop held in August 2013. The authors worked alongside a staff member from Save the Children who assisted them with documenting their thoughts and experiences in emergency management planning.

Recognising the vulnerability and capacities of young people

Dr Lori Peek talks with Kate Lahey about the importance of engaging young people in disaster preparedness and recovery.



Dr Lori Peek, Co-Director of the Centre for Disaster and Risk Analysis, Colorado State University

‘People would rush up to me, after I’d give a talk — even in Australia in fact — and somebody rushed up and said, “I wonder if I could make a little child-sized shovel they could use?”’

Dr Lori Peek is Associate Professor of Sociology and Co-Director of the Centre for Disaster and Risk Analysis at Colorado State University and her paper, *Children and Disasters: Understanding Vulnerability, Developing Capacities, and Promoting Resilience — An Introduction*¹, was first published in 2008. Since then, young people have invented for themselves some extraordinary contributions to disaster recovery, from mobile phone apps to organised, volunteer workforces. Yet this is a field that Dr Peek says needs more discussion.

Much of the research into youth and disasters has focused on the ways in which young people suffer; psychologically, physically and through disruptions to education. However, less is understood about the best ways to allow and encourage young people to take part in the recovery process so they can help rebuild not just their communities, but their own lives, Dr Peek said.

Dr Peek studies vulnerable populations in disaster, particularly low-income families, racial and ethnic minorities, women, and children and youth. She is the author of *Behind the Backlash: Muslim Americans*

after 9/11², co-author of *Children of Katrina*³, and co-editor of *Displaced: Life in the Katrina Diaspora*⁴. She also serves as Associate Chair of the Social Science Research Council Task Force on Hurricane Katrina and Rebuilding the Gulf Coast.

Her research into young people and disasters has included tracking a group of children and young people for seven years who were displaced following *Hurricane Katrina*. Many of the children she studied, as well as thousands of others who experienced *Hurricane Katrina*, never returned to New Orleans.

Some changed schools multiple times in the years after the disaster as their families tried to resettle. Some never finished school.

Dr Peek said disruption to education was unique to children in a disaster and could have lifelong consequences. ‘I think that connection between disaster disruption and educational attainment is still something we’re only beginning to understand but I think it’s one of the most critical issues.

‘We actually lost track. We don’t have great numbers on how many kids did not attain degrees because of *Katrina*. I think this is one of the biggest questions we need to pursue more aggressively: How do we get kids into that normal situation, even if nothing else is normal in their lives? How can we prioritise education?’ she said.

Dr Peek has visited Australia three times, most recently in 2012. She sees strong similarities in the work that both the USA and Australia are doing with youth in this field.

‘Right now in Australia and in the United States, we are kind of running on parallel tracks in that we have a lot of really engaged researchers and practitioners who are trying to get children and youth at the table, literally,’ she said.

Both countries were also working towards integrating child and youth issues into various emergency management contexts, she said. Dr Peek explained that some of the work the USA has done is to try to

1 At: www.colorado.edu/cgi-bin/cgi-proxy/plan/housing-info/child/noteadd.cgi?title=Children+and+Disasters:+Understanding+Vulnerability,+Developing+Capacities,+and+Promoting+Resilience+-+An+Introduction&author=Peek+Lori.

2 Temple University Press, 2011.

3 University of Texas Press, 2014.

4 University of Texas Press, 2012.

anticipate the needs of young people in disasters and address them. She also described some of the ways young people themselves have been preparing for and responding to disasters and the danger of the 'pendulum' that swings between caring for vulnerable young people and allowing them to contribute, to realise their 'infinite' potential.

Dr Peek believes one of the major contributions to this work in recent years has been the USA's National Commission on Children and Disasters. In 2010, the Commission released its report⁵ with more than 100 recommendations for ways to ensure children are better protected. The report found 'serious deficiencies in each functional area, where children were more often an afterthought than a priority' (p. iii).

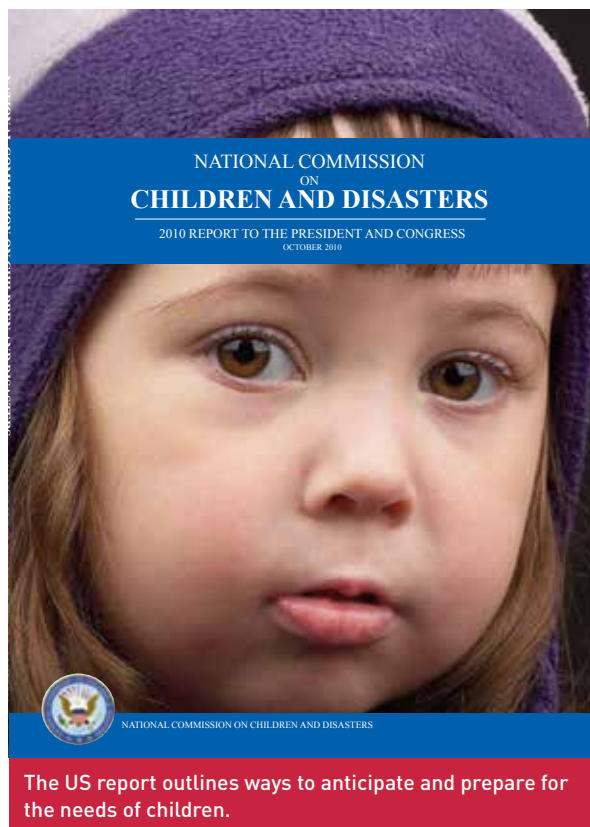
In response, the Federal Emergency Management Agency set up a working group for policy on children and disasters. It has since formed a Youth Preparedness Council.

In its final report, the Commission noted that other progress had been made, such as recognising childcare as an essential disaster service. The Commission noted that 67 million children in the USA were in schools and childcare on any given weekday, 'a time when children are most vulnerable because they are away from their families' (p. iv). Despite this, only a handful of states in the US required basic school evacuation and family reunification plans.

Further, just six per cent of hospital emergency departments had the supplies and equipment to treat children. The Strategic National Stockpile⁶ (intended to provide medical supplies in the event of a public health emergency) was 'woefully under-stocked with medical countermeasures for children' (p. iv).

The Commission spelled out its concerns for children in disasters:

- 'Children may experience long-lasting effects such as academic failure, post-traumatic stress disorder, depression, anxiety, bereavement, and other behavioural problems such as delinquency and substance abuse.
- Children are more susceptible to chemical, biological, radiological, and nuclear threats and require different medications, dosages, and delivery systems than adults.
- During disasters, young children may not be able to escape danger, identify themselves, and make critical decisions.
- Children are dependent on adults for care, shelter, transportation, and protection from predators.
- Children are often away from parents, in the care of schools, child care providers, Head Start or other child congregate care environments, which must be prepared to ensure children's safety.



- Children must be expeditiously reunified with their legal guardians if separated from them during a disaster.
- Children in disaster shelters require age-appropriate supplies such as diapers, cribs, baby formula, and food.' (p. 20)

The Commission's report stated that disaster management agencies should 'place a specific and sustained focus on children in their daily and disaster response activities' (p. 21).

Dr Peek said the report represented a major change in the way children and young people's needs were recognised. But she said, 'it's a difficult question to answer' as to how well authorities anticipated those needs in practice.

'The identification is obviously important, this focus is very important, but it's only the first step. We're talking about these issues, writing about these issues. Every time I go to a meeting people are talking more about children and youth—but is it actually translating to change on the ground?

'Do our ambulances today actually have the pediatric medical items that we need to respond to children and youth in an emergency? The answer to that is "no". We're doing a good job of anticipating these needs but there's still a lot of ground to be covered,' she said.

In September 2013, the organisation Save the Children released a 'disaster report card'⁷ which found most US

5 2010 Report to the President and Congress. At: <http://archive.ahrq.gov/prep/nccdreport/index.html>.

6 See www.cdc.gov/phpr/stockpile/stockpile.htm.

7 Save the Children 2013, Is America prepared to protect its children? At: www.savethechildren.org/site/c.8rKLIXMG1pI4E/b.8777053/k.F31D/Get_Ready_Get_Safe_Disaster_Report_Card.htm.

states were still failing to meet the basic child-safety measures endorsed by the Commission.

Save the Children tested the states on four standards. It expects US states to require:

- all childcare centres to have an evacuation plan, a family reunification plan, and a plan for children with special needs, and
- all schools to have disaster plans that account for multiple types of hazards.

In 2013, 28 US states plus the District of Columbia (the nation's capital) failed to meet all four of the standards, according to Save the Children.

Dr Peek's 2008 paper argued that to improve children's resilience to disasters, 'we must improve their access to resources, empower them by encouraging their participation, offer support, and ensure equitable treatment' (p. 1).

Many children and young people needed little encouragement to participate, and some persisted, even when they had been discouraged at first, Dr Peek said. They were often an untapped resource. 'They're imaginative, they're creative, they have energy, they have strength and they also often have time—something that adults don't always have,' she said.

After the BP oil spill in the Gulf of Mexico in 2010, a group of teenagers in Lafourche, Louisiana offered to help in the clean up but were turned away as authorities did not want them to be exposed to the oil. The teenagers tried to volunteer in an office instead, but were again rejected. According to one, Alex Naquin, who was 16 at the time, 'They said, "no, we can't have you, it's too much of a liability". I mean, paper cuts? You think we're going to sue you all for paper cuts? It just baffled us and it really upset us,' he said.

Mr Naquin said it was hard to see so many parents—including his own—lose their jobs as a result of the spill, and he was frustrated when he felt he couldn't do anything. He and his friend, Caroline Guidry, decided to form a not-for-profit organisation to lend credibility to their offers of help. The group, Sassafras Louisiana⁸, became a voice for local young people and gave them access to meetings about the spill and the recovery process as the area's youth representatives. It has since mobilised forces of young people to help replant the marshes that were damaged by the spill and work as volunteers on other projects. The group also works to restore and preserve the local wetlands. Its major annual fundraiser is the Nutria Rodeo, which encourages local residents to hunt invasive nutria rats and awards prizes for the heaviest rat (current record is around 14kg).

'We didn't realise how excited people would get about it,' Mr Naquin said.

Mr Naquin, now 19 and a freshman at Louisiana State University, described his group as 'the file to the

gumbo,' the spice that thickens the stew—hence the name 'Sassafras'.

'Governments and big organisations have the rules and funding, but young people have the power and energy. As an organisation, we try to connect the youth to the government or to the organisations that need the help,' he said. He hopes his group will inspire other young people. Resilience, he says, is all about seeing the positives. 'Yes, it sucked. But we didn't look at that part,' he said.

After *Superstorm Sandy* hit the east coast of the USA in 2012, the Rockaway Youth Taskforce—a group of people in Queens, New York, aged 15-29—began delivering food and essential items to people stranded in high-rise buildings, carrying goods up staircases, and knocking on doors. The group attracted national media attention for the crucial role it played in helping survivors.

In Monson, Massachusetts, in 2011, teenager Laura Sauriol was taking shelter from a tornado in her basement when she set up a Facebook group for everyone in the town to share information and support. It continues today with 1880 members. Recent posts on the page include storm warnings, information about reconstruction and continuing requests for help in recovering from the 2011 tornado.

Dr Peek co-edited the book *Displaced: Life in the Katrina Diaspora*⁹ with Lynn Weber, and contributed a chapter with co-author, Alice Fothergill. The chapter details some of the stories of children who helped save the lives of their relatives when New Orleans flooded. Stories included that of a young teenage boy who knew his uncle couldn't swim. The boy found a piece of Styrofoam and took it to his uncle, so he could move through the water to safety.

'I will never forget that boy's face and I will never forget what he did. In *Katrina* there were definitely a lot of stories like that of children who were rescuing people,' Dr Peek said.

Other ways children and young people help might seem mundane but were significant, she said. 'Like the girls we would see in shelters who would take care of babies, or would play with other children, or sit down and do homework with boys and girls so their parents could go stand in the lines. There are endless stories of things like that, things that children just do because they see a need,' she said.

Dr Peek visited New Zealand after the 2011 Christchurch earthquake and said the response of young people to that disaster, in establishing the Student Volunteer Army and offering a mobile app to streamline requests for help, was widely recognised for its contribution to the relief effort. The Christchurch example showed young people were increasingly leading the way in providing tools to help communities recover, particularly through technology and social media, Dr Peek said.

8 See www.sassafrasla.org.

9 See <http://utpress.utexas.edu/index.php/books/webdis>.

However, not every young person 'desperate to help' was able to find a way to do that, and that, in itself, could affect how well that young person recovered, Dr Peek explained. Her research has included a collaborative project with Robin Cox and Jennifer Tobin-Gurley on children's recovery after the Joplin tornado in Missouri in 2011.

'I have talked to young people who didn't get to help. Even years after a disaster happens that still stands out to them as a real wound,' Dr Peek said. Protecting children and young people after a disaster is, of course, essential, but preventing them from helping could actually make them feel worse.

'Often, once they've made it through that most dramatic moment of the disaster what has been most challenging and harmful and hurtful was how badly they wanted to be engaged in the response and recovery efforts and how much it hurt to be turned away,' she said. Dr Peek believes there are many ways young people can contribute.

But this raises questions such as: Who decides what role young people can play in response and recovery? Do young people have a say in whether, how and when they can help? To start to answer these questions, Dr Peek said countries like Australia and the USA could look to developing countries.

'In a lot of ways, we in developed countries are sort of playing catch up with what's been going on in developing countries.

'In some of these countries there is no choice but to engage children and youth. This isn't a luxury of "maybe we'll let them in". Children and youth in many of these developing countries make up the majority of the population,' she said.

The development agency, Plan¹⁰, tells a story on its USA website of a group of high school children in the Philippines who lobbied to have their school moved. The country's Mines and Geosciences Bureau had assessed the Santa Paz National High School in Southern Leyte as high-risk, in a region prone to earthquakes and landslides.

The students, with Plan and others, defied the wishes of many parents and community members and won a vote to move their school to a safe location. The new school was built with some funding from Plan and includes toilets in each classroom as schools are often used as evacuation shelters.

Dr Peek said this way of engaging young people in the 'front end' process of building stronger communities was very important. So was keeping sight of their vulnerability, amid all the excitement about how capable children can be when disasters strike.

'That's a concern of mine, making sure we keep a balance. That we recognise there are still children and youth today who are suffering profound effects

from *Katrina* and other major disasters. It is important to not lose sight of this, while thinking about ways to engage children and youth in recovery. I don't think of those two things as separate. I think they're intimately intertwined,' she said.

Authorities should also think more about ways to engage young people both at the front end as well as after a disaster strikes. 'Starting to think about it in that sort of life-cycle way, I think, is really, really important,' she said.

Dr Peek praises the education programs run in Australian, New Zealand and American schools but adds that being educated is not always the same as being prepared.

'We know that knowledge does not always spark action, that there are many people who are risk-aware but they are risk-trapped. You may have all the information and knowledge in the world but if you don't have the resources and the capacity, the access to capital to be able to act on reducing your risk, then you are risk-trapped.

'Having a child at the table isn't enough, we also need to make sure that children are going to schools in safe places and in buildings that aren't going to fall down or be flooded. Those are the sorts of things children and youth may be able to advocate for but at the end of the day, someone needs to pay to retrofit schools, or to build safe schools,' said Dr Peek.

Dr Peek has spent the past year in New York at National Centre for Disaster Preparedness at Columbia University. She is working on a youth empowerment project called SHOREline, with project director David Abramson, for young people in Louisiana, Mississippi and Alabama. The project grew from research on the Gulf Coast after *Hurricane Katrina* and the BP oil spill. The program is designed to assist young people to help themselves and their communities to recover from disaster, and to provide ways to help others in a similar situation.

'That's what we heard from the young people: "What would help me the most is if I could take all these bad things I've gone through and help somebody else". This is an idea that Dr Peek believes could take off.

'Children and youth want to help in other areas. The Joplin kids wanted to help in *Superstorm Sandy*. We're looking at creating a national youth network, perhaps even an international youth network,' she said.

Such a network is yet to be built, but if anyone can do it, it is arguably today's young people.

'Children and youth, I just think they have infinite potential, infinite, unrecognised potential,' Dr Peek said.

¹⁰ See www.planusa.org

Youth Preparedness Council

Kate Lahey speaks to some of the members of FEMA's Youth Preparedness Council about the ways they are helping to make the USA more resilient to disasters.

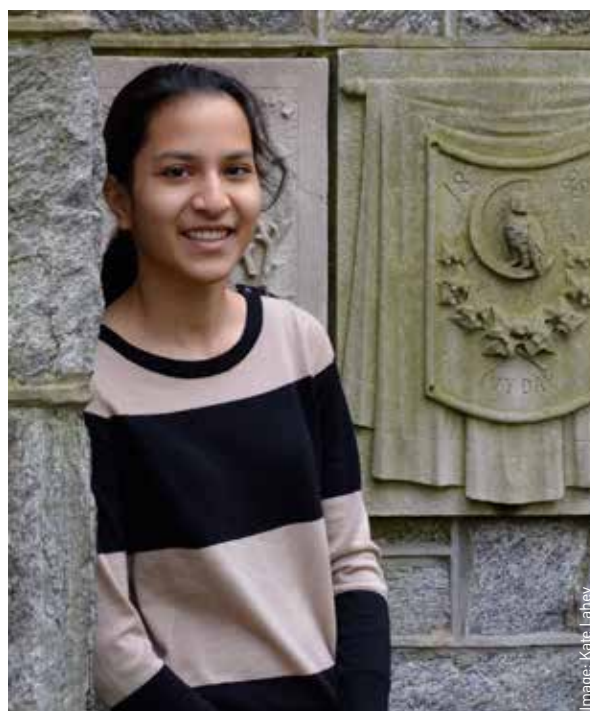
The USA's Federal Emergency Management Agency (FEMA) has some astute new advisors. They boast backgrounds in search and rescue, volunteerism, disaster recovery, emergency medical aid and operations centre communications among other things, and they're providing expert guidance on how to better prepare the nation for disasters. All of them are aged between 13 and 18.

They meet in Washington DC annually for a summit, communicate via conference calls every six weeks, and use other technology for the rest of the year. The 15 members of FEMA's Youth Preparedness Council take part in four standing committees, give presentations at conferences, and help spread the preparedness message. They also work on their own disaster-readiness projects in their regions—with FEMA's backing.¹

The council, formed in 2012, is now in its second year. The members were nominated by people who could attest to their work in preparing for disaster, and their resumes are wide and accomplished. Nimansha Jain, 18, is in her freshman year at the University of Pennsylvania. She provides input to the youth pages on FEMA's Ready Kids website as a subject matter expert, and she is developing a website about preparedness, which will include basic tips, blog posts and information about the council's activities.²

Over the past few months, as a member of the council, she has been working to pioneer a Community Emergency Response Team for her college campus. Known as a CERT, these teams are part of an existing FEMA program to train civilians to meet their immediate life-saving and life-sustaining needs in an emergency. The program is based on the assumption that when a major disaster happens, professional first responders will not be able to meet demand.³

Ms Jain, who is trained in CPR and has worked to promote public health and preparedness messages to teenagers in her home state of Nebraska, said campus



Nimansha Jain.

CERTs existed in other parts of the country, but not in Philadelphia, where her college is based.

'It is going to be one of the first piloted programs at a university and we're hoping in the next few years to actually show the impact of this,' she said.

She hopes to see it extended to other colleges and universities in the area.

Knowing that FEMA was behind her was a big source of motivation for her projects, she said.

'The opportunity to be on this national preparedness council is an honour and I think having that support from FEMA makes us realise, definitely, what we're doing is being supported.

'It gives us the push to continue this further and continue working on our projects.' Ms Jain said.

1 At: [/www.ready.gov/youth-preparedness](http://www.ready.gov/youth-preparedness).

2 At: www.ready.gov/kids.

3 At: www.fema.gov/community-emergency-response-teams.

FEMA's Youth Preparedness Director, Regina Moran, said the council was formed to allow young people to speak and act for themselves on emergency preparedness issues.

'My job is largely to make sure the youth community is represented in preparedness activities and that we push forward that movement and, truthfully, it felt uncomfortable doing so without the actual youth perspective, which is sort of what started the idea around the council.

'They represent a youth perspective on emergency preparedness. They're a great resource to us and provide their opinions, share their experiences and they recommend solutions to issues that we have,' Ms Moran said.

Those issues include ways to engage young people, ways to better incorporate a youth perspective into programming and, critically, ways to get messages home to parents and the rest of the community.

'All of our 15 members have projects that drill down into their communities and help to advocate—to promulgate the message about youth preparedness and get more kids engaged. They also reach students in a way that a large federal agency has a harder time doing. They really help us to push our message and that's largely the purpose of the council,' she said.

As well as their individual projects, the council members work on preparedness projects as a team. Two council members recently joined a FEMA panel to update a youth preparedness program that operates in some schools.

The program managers found the young people's input very valuable as they were hearing from the kind of students who would be doing the program, or who would have just come out of a program like that, Ms Moran said.

'That kind of advice and that kind of perspective is really invaluable to us. It's something that's very unique because of their age but also their experiences.'

Ms Moran said selecting the members of the council was the hardest part of managing it. 'I usually spend those weeks in tears because it generally means that hundreds and hundreds of really awesome, great applicants aren't selected,' she said.

Last year the council had 12 members, this year it has 15 from across FEMA's ten regions. 'They represent very different communities and I think that's really important,' Ms Moran said.

The chairman of the council is 18-year-old Jason Reed. He is the cadet commander for his Civil Air Patrol squadron in Indiana and has served for several years with the squadron as a search-and-rescue ground team member.

He was a first responder after tornadoes struck his area in March 2012. He conducted health and wellness checks, created perimeters around damaged areas and

distributed supplies to those affected by the storm. He received state-level recognition for his efforts.

In his first year on the council he organised a group of young people to provide feedback on a FEMA student program, which some of the young people had previously done.

'I re-put them back through the program, even though they're much older now, and asked them for their feedback on changes,' he said.

Now his role is to oversee the council's projects, including its four standing committees:

1. Constitution and Bylaws - to establish rules for how the council works and conducts its business.
2. Public Affairs - to help with publicity about the council.
3. Cooperative Affairs - to deal with requests from organisations such as the American Red Cross.
4. Preparedness Ambassadors Program - to develop a merit program for other young people to earn recognition as FEMA preparedness experts.

Mr Reed said the ambassadors program committee was trying to create a new, prestigious award for people under 25 who would complete a list of strenuous requirements with FEMA.

'That's kind of a new initiative that I helped design with some of the members and we're really hoping it takes off. There'll be separate levels like a basic senior and master level to the program, but it's meant to be similar to the Boy Scouts' Eagle Scout.

'I'm hoping it will take that hold in the emergency management community to where, when people walk up and they say "I'm a preparedness ambassador from FEMA," people understand their background, they understand where they're coming from,' he said.

Mr Reed said the combined experience of the council members and the fact that FEMA was behind them meant that the collective voice of the 15 young people was taken seriously.

'When we say something, the agency's right there to back it up. We don't have to worry about it being 15 of us just saying something. We have the backing of the agency and the Department of Homeland Security. It's really a great way for youth preparedness to come from youth,' he said.

Daniel Wernsman, 16, has been involved in youth preparedness for four years, through a READY Club (Responding to Emergencies and Disasters with Youth) in his state of Wisconsin. He is now working to expand the READY program into his school and wants to extend it to other states in his region.

Daniel said his involvement on the council itself, and his attendance at the summit, was helping to raise awareness about disaster preparedness among his friends.



FEMA's Youth preparedness council members including Nimansha Jain, Daniel Wernsman and Jason Reed (back row: second, fifth and final from left).

'When I first came back I was really excited and I'd just met a whole bunch of new people and I just kept talking about it with my different friends and I was posting things on my Facebook. Lots of the ways that I get out what I've learned with my preparedness and my experience in Washington is through social media,' he said.

FEMA provides personal support, advice on funding sources and other help to council members for projects like Daniel's. Members are assigned to a community preparedness officer in each of their regional offices.

'Those people are meant to be sounding boards and mentors for the member's time on the council,' Ms Moran said. They can also work with Ms Moran herself and draw on FEMA's technical assistance program.

'As they encounter issues with either volunteer engagement or interest or perhaps even funding, the technical assistance program provides support, advice, connects them with programs that have already encountered that issue and figured out a way to address it; any sort of technical assistance that we can help them with.' The technical assistance program was available to others outside the council too, she said.

Shortly after the council formed in 2012, *Superstorm Sandy* hit the east coast of the USA and one council member became a FEMA applicant for disaster relief. But more than that, the young member organised a coalition of young volunteers to help with the relief effort, Ms Moran said.

Ms Moran expects much of what the council achieves will happen slowly. As Mr Reed told a recent think tank on the subject; reaching this generation of young people was critical to creating life-long changes in behaviour.

Ms Moran said, 'It's a slow moving process, but that's an incredibly critical element to overall preparedness. I've long quoted that, "while parents might make the rules in a household, the kids set the priorities". When they come home, it's what they want to do and what they're talking about and what they've learned at school.

'So, while it's a very nice thing that we're getting their perspective, it's also something that's incredibly necessary as a strategy for getting messaging home to working parents and guardians,' Ms Moran says.

Applicants to the council must be aged between 13–17 years and serve a two-year term. Among the criteria on which they're chosen is their dedication to public service, their potential to be advocates for youth preparedness, and their individual efforts to make a difference.

Children's understanding of natural hazards in Christchurch: reflecting on a 2003 study

David Johnston, Kevin Ronan and Sarah Standing revisit their 2003 study and reflect on its continued relevance 10 years on.



In 2003 Cobham Intermediate School student, Sarah Standing, teamed up with our research team as part of her school science project, to collect data on her fellow students understanding of natural hazards in Christchurch (Finnis *et al.* 2004). Using a questionnaire that had recently been used in an Auckland study, she surveyed over 100 of her classmates to investigate natural hazards risk perceptions, levels of preparedness and participation in hazards education programs. The results of the Cobham survey showed students had high awareness of many hazards, with over half ranking earthquakes as one of the two most likely. Over three quarters reported having felt an earthquake in the past.

The school had an on-going hazards education programme and students displayed good knowledge of corrective actions to take during an earthquake. Two thirds of the students identified 'drop, cover and hold' as an action to take during earthquake shaking. We concluded back in 2004 that the school had done well

but there was a continuing need for hazard education that increased understanding of different hazard types, the impacts on the community and, in so doing, this would help improve further household preparedness. Further research in Christchurch prior to the 2010-2011 earthquakes highlighted some community awareness of the potential for damaging earthquakes but less understanding of their consequences, and low levels of household preparedness (Becker 2010).

The impacts of the 2010-2011 earthquakes on the community are complex and research is on-going. Numerous researchers are exploring aspects of the impacts on children, their role in creating the narrative of the earthquake, and role of schools in the response and recovery process (e.g. Taylor 2011 and Much 2013). Much of this research is still incomplete, unpublished or still being designed and implemented. Building on this early research done by Sarah and the rest of us, provides much of the evidence base to further develop effective school-based education programmes to help children and young people prepare for and respond to future hazard events.

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About the authors

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Notes from the Field

The Australian Disaster Forum, October 2013

‘Stories capture hearts and minds, hold valuable lessons and also save lives.’

This message was the driving force of the inaugural Australian Disaster Forum held at Questacon in Canberra on 14 October 2013. Surf Life Saving Australia, in association with the Attorney-General’s Department, presented the forum which explored key themes of:

- Disasters will happen.
- Disaster resilience is your business.
- Connected communities are resilient communities.
- Know your risk.
- Get ready – then act.
- Learn from experience.

The forum brought together 11 experts and eyewitnesses from across Australia who related stories, lessons and ideas from several hazards including tsunami, bushfire, severe storm and flood.

Following the contemporary philosophy of TED conferences, the forum was fast-paced and ran without an emcee. The presentations were succinct, personal and highly visual and featured compelling ideas that are worth sharing. They were designed to work equally as live presentations as well as videos.

Speakers were encouraged to share what they had learned from their personal experience of disasters. Emergency management professionals and students considered aspects of disaster resilience and built a better understanding of disasters through the experience of others.

The speakers included representatives from government, emergency management sectors, science organisations, as well as volunteer surf lifesavers and survivors of disaster events. The keynote speaker was Anna Bligh, former Premier of Queensland, who spoke about her experience in the Queensland floods and severe storms of 2011. One thing she particularly emphasised was the importance of building resilient communities. Other presenters told inspiring stories of survival, community unity and recovery from the 2009 Black Saturday bushfires, the 2004 Indian Ocean tsunami, the 2011 Japanese tsunami, and the 2013 Bundaberg floods.

Presentations also included stories from school children and firefighters who experienced the Black Saturday bushfires in Victoria in 2009 and the Lennox Head tornado in 2010. The stories were digitally produced by the Attorney-General’s Department and the Australian Centre for the Moving Image as part

of the *Living with Disaster* series¹ to promote learning about disasters through the experiences of others.

More than 120 people attended the forum—predominantly high-school students and emergency management professionals. The feedback from attendees was overwhelmingly positive.

Mr Cameron Foster, a teacher from Alfred Deakin High School in Canberra, said his students responded particularly strongly to the moving story told by 15-year-old Matilda Heselev. Matilda survived the Indian Ocean tsunami in Sri Lanka and her family has established a charity to assist with the recovery. She described the tsunami as the best worst thing that ever happened to her. She says ‘It taught me lessons no teacher could have ... how rewarding it can be to help others.’

The Australian Disaster Forum promoted ideas and provided the emergency management community with a face-to-face opportunity for dialogue. Attendees made new connections and deeper understandings of the devastation that natural disasters can wreck and how important it is to be prepared. The stories of the destruction caused by the Indian Ocean tsunami compounded by the lack of a warning system highlighted this point most strongly. Out of such adversity, however, came good will and spirited international collaboration that ultimately lead to the establishment of the Indian Ocean Tsunami Warning and Mitigation System².

The forum was produced as part of the *National Tsunami Community Education Strategy*³ under the *National Strategy for Disaster Resilience*. The presentations were filmed and are available on the Australian Emergency Management Institute’s Knowledge Hub at www.emknowledge.gov.au.

Acknowledgement

Article supplied by Sarah Anderson, Public Safety Project Coordinator, Surf Life Saving Australia.

- 1 Living with Disaster series. At: www.em.gov.au/sites/schools/Teach/Resources/Livingwithdisasterdigitalstories/Pages/default.aspx.
- 2 Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System. At: www.ioc-tsunami.org/index.php?option=com_content&view=article&id=8&Itemid=13&lang=en
- 3 National Tsunami Community Education Strategy. At: www.em.gov.au/Fundinginitiatives/NationalEmergencyManagementProjects/NationalEmergencyManagementProjects20102011/Pages/NationalTsunamiCommunityEducationStrategy.aspx

Notes from the Field

Establishing a Children and Disasters Community of Practice

Over the last several years the focus on children's needs in emergencies and disasters has increased dramatically, both in Australia and internationally. As a result, the number of professionals working within this space has also increased. In early 2012 it was recognised that there was no forum for these professionals to share their knowledge or expertise and that such a forum would facilitate the development of better research, policy, and practice. To address this need a children and disasters community of practice¹ (CaDCoP) was established in Melbourne in May that year.

The initial CaDCoP meetings focussed on setting terms of reference regarding what the members of the group saw as the primary reasons for establishing the community of practice. The group agreed that guiding documents used as reference material for CaDCoP members should include:

- *The United Nations Convention on the Rights of the Child* (UN, 2013)
- *Hyogo Framework for Action* (UNISDR, 2007)
- *The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response* (Sphere, 2011)
- *National Strategy for Disaster Resilience* (Governments, 2011), and
- *The Children's Charter: An action plan for disaster risk reduction for children by children* (UNICEF, 2011).

The group acknowledged that the CaDCoP could provide a platform to connect people and facilitate dialogue, stimulate learning, provide a shared context, capture diverse knowledge, and introduce a collaborative process to generate new information.

Key areas of the CaDCoP focus

Using the *Community of Practice Design Guide* (Cambridge, Kaplan & Suter 2005), the group came to a consensus on four key areas to focus on:

- Building relationships of trust, mutual respect, reciprocity and commitment which encourage a willingness to share ideas, expose one's ignorance, ask difficult questions, and listen carefully.
- Learning and developing practices based on existing bodies of knowledge and acknowledging that successful practice depends on a balance between the production of 'things' (eg documents or tools) and the deep learning experiences of community members.

- Taking purposeful action as a community by undertaking small group projects to help members create personal relationships and produce the resources for developing best practice (eg cases, effective practices, tools, methods, articles, lessons learned, databases, heuristics, models, web sites).
- Creating information in the domain and going beyond current practice to innovate. The CaDCoP may redefine its boundaries and membership and foster boundary-crossing opportunities, possibly working with people from other communities, to explore emerging technologies, practices, and ideas.

These key areas were supported by the generosity of members being willing to collaborate and share their knowledge and experiences freely with other group members.

The CaDCoP members

Members of the community of practice work in a wide range of professions and contexts. Although the group is based in Melbourne, group members work in many locations across Australia as well as internationally. From the small number of people who initially met to establish the CaDCoP, current membership has grown to 70.

Membership of the CaDCoP currently includes:

- academic institutions
- education departments
- emergency service organisations
- federal, state and territory, and local governments
- health providers (child psychologists and paediatricians)
- humanitarian organisations
- not for profit organisations, and
- schools.

Membership of CaDCoP is open to anyone who has an interest in any aspect of children in emergencies and disasters.

Keeping in touch

The group communicates via an online closed forum on the Australian Emergency Management Institute Knowledge Hub website, a web-based Diigo² group, and regular email correspondence. Email has proved

¹ A community of practice brings people together who share a common concern, set of problems or interest in a topic (Cambridge, Kaplan & Suter 2005).

² Diigo is a social bookmarking website which allows signed-up users to bookmark and tag web-pages (see <https://www.diigo.com>).



Community of practice members participated in the children and emergency management paper-in-a-day workshop in August 2013.

to be an effective way to keep in touch with group members to share information and ask questions. This has allowed those from farther afield to participate in the CaDCoP and make connections with others who share the common interest. There are also face-to-face meetings in Melbourne a few times a year with a guest speaker at each meeting.

In the first 12 months since the establishment of the CaDCoP there has been substantial progress in the group's key focus areas. For example, there is now a connected community of professionals who have a common interest in children and disasters. This has been achieved by reaching out to those who have an interest in the field using the existing networks of group members. In addition, purposeful action and sharing of knowledge has been achieved with many CaDCoP members participating in the 'Children and Youth Paper in a Day Workshop' in August 2013. The workshop provided a valuable opportunity to make a positive contribution to the literature on children and emergency management in Australia.

Future focus for the CaDCoP

Some of the initial objectives established by the group which members are keen to develop include:

- advocacy for the needs of children when disasters and emergencies affect their communities
- re-defining children's roles in emergency management activities (children are not passive members of the community and should be engaged in emergency management activities)
- building capacity for child-centred disaster risk reduction within Australia, and
- promoting the engagement of children and young people in emergency management to give them a voice in this field.

The establishment of the CaDCoP has provided a forum for many professionals with a common interest

in children and disasters to connect with each other, share their knowledge, and build collaborative partnerships. Many CaDCoP members are willing to connect with emergency management practitioners to provide technical advice to ensure that the unique needs of children are addressed in appropriate ways in future emergency management practice in Australia. As such, CaDCoP represents a major step forward in addressing the needs of children in emergency management.

People interested in finding out more about CaDCoP can contact Dr Briony Towers, briony.towers@rmit.com.au.

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Australian & New Zealand Disaster and Emergency Management Conference

The 2014 Australian & New Zealand Disaster and Emergency Management Conference will examine what we have learnt in the past few years and provide a comprehensive forum that shines a light on resilience and offers professionals an opportunity to examine the expertise, competencies and systems relating to the preparedness for future disasters, emergencies and hazards and the ability to recover from them quickly and efficiently.

The event will bring together key stakeholders involved in the prevention, management and recovery of major disastrous events, a forum to examine the issues surrounding natural and man-made hazards.

■ Keynote Speakers include

Associate Professor Brett Aimers OSTJ, FRCNA (VIC)
Chief Nurse, St John Ambulance Australia

Mr Neil Comrie AO, APM
Bushfires Royal Commission Implementation Monitor

Mr Mark Crossweller AFSM
Director General, Emergency Management Australia

Mr Murray Kear AFSM
Commissioner, State Emergency Service NSW

Major General Stuart Smith DSC, AM
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Australian War Memorial, Canberra - 5 December 2013



The Hon. Michael Keenan MP, Minister for Justice attended the Awards ceremony to congratulate award recipients.

'The Resilient Australia Awards cover all aspects of disaster management including risk assessment and mitigation, education, training and research, community awareness and engagement and response and recovery.

'Projects are undertaken all over the country and they come from many sectors of society. These awards provide a rare opportunity to acknowledge this work. Importantly, when we acknowledge the work, we share the different things we've learnt in the different parts of our country. And that is one of the important things these awards contribute to.

'This year marks the highest number of applications we've received. One hundred and seventy submissions were made and that is up significantly from previous years. I'd like to acknowledge the substantial contribution that all award applicants have made to their local communities and, on behalf of the Australian Government, thank you very much for all you do.

'Congratulations to everyone recognised here today. It is a great pleasure for me to be a part of it,' said Minister Keenan.



Firefoxes Australia 'Creating a New Normal'

Firefoxes (a group formed in the Kinglake Ranges post-Black Saturday) is building community connections in disaster-affected areas. In 2011, they began visiting cyclone and flood affected areas of Queensland to share the often untold story of disaster recovery - the highs and lows, unofficial timelines, the personal and communal recovery process. This has provided hope for the future and connected community with government, industry and agencies. The electronic resources they have developed and distributed, including 'Creating a New Normal' are now being used world-wide by agencies, communities and educational institutions.

The Hon Michael Keenan MP, Kate Riddell and Jemima Richards

Not for Profit



St John Ambulance (ACT) Project Survival

St John Ambulance is committed to making first aid a part of everybody's life. Project Survival focuses on providing first aid training to school students, providing first aid skills to vulnerable people in the community, and delivers community CPR workshops.

The Hon Michael Keenan MP, Keturah Whitford and Kym Schmid

Education and Research



Restore Your Business Community

Restore Your Business Community Practitioner's Handbook

The *Restore Your Business Community Practitioner's Handbook* is a welcome toolkit stepping practitioners through crisis planning and preparation, and response and recovery. The handbook is a unique resource and documents a range of complex information in a readily accessible way.

The Hon Michael Keenan MP and Sandra Slatter

Private Sector

Northern Grampians Shire Council

Stawell Steps/Monash Steps

The Northern Grampians Shire Council is embedding disaster mitigation into public infrastructure. The Stawell Steps/ Monash Steps are a large-scale community space on the banks of Cato Lake in Victoria. More than a practical solution to a water management problem, the Steps act as a spillway, providing an innovative approach to solve problem flooding, while creating something unique in the local setting. The Steps are a partnership between 11 organisations including Council, metropolitan and rural people, a local brick manufacturer, and Monash University architecture students.



17 Queensland Councils with support from Queensland Government and the Local Government Association of Queensland Community Development Engagement Initiative

The Community Development Engagement Initiative was designed to assist communities beyond the rebuilding and repairing of physical infrastructure and homes. Recognising that people should be at the centre of recovery it focuses on the long-term restoration of a community's emotional, social economic and physical wellbeing. Seventeen local government areas across Queensland which were hardest hit by the floods and cyclone disasters that occurred during the 2010-11 summer season were involved. A series of case studies has been developed to share the learnings and celebrate the success of the project.



Above: The Hon Michael Keenan MP, Greg Little, Kevin Erwin and Jim Nolan.

Below: The Hon Michael Keenan MP, Brett Reeman, Katie Edmiston and Tanya Milligan

Local Government





Government of South Australia and Local Government Association of South Australia South Australian Climate Change Adaptation Program

The South Australian Climate Change Adaptation Program has developed practical tools to integrate climate change risk and vulnerability assessments into local council operational and financial management plans. It assists the emergency management sector by bringing them together with regional bodies tackling climate change at the local level. Engagement activities including seminars, forums, workshops, training sessions, online information, collaborative projects, participation on boards and committees and joint funding proposals have brought the emergency management sector and regional bodies together at the local level to tackle climate change.



Tasmania Fire Service Community Protection Planning

The Tasmania Fire Service is making emergency management planning a community consultative process. The Service's Community Protection Planning improves community bushfire safety through a shift from an internal agency (response) focus to a community-centred (building community capacity and resilience) focus. The initiative applies a risk assessment methodology and tailors risk treatments through planning and preparation.

State and Territory Government

Above: The Hon Michael Keenan MP, Rohan Hamden and Adam Gray
Below: The Hon Michael Keenan MP, Chris Collins and Damien Killalea

ABC (Local Radio) Emergency Broadcasting

ABC Local Radio is the principal source of warnings in regional and metropolitan Australia. The ABC has established universal platforms for emergency agencies to issue all warnings in any place, at any time, on any media platform. Emergency broadcasting gives communities information 'to survive and recover'.



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The Hon Michael Keenan MP, Jocelyn Nettlefold and Ian Mannix





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- 25-28 February Community in emergency management (PERTH)
- 03-06 March Coordinate resources for a multi-agency incident
- 04-07 March Conducting and managing evaluations
- 11-13 March Manage recovery functions and services
- 31 Mar -03 Apr Develop and maintain business continuity plans
- 07-11 April Facilitate emergency risk management
- 08-10 April Facilitate emergency planning processes (PERTH)
- 22-24 April Develop and use political nous
- 22-24 April Develop and organise public safety awareness programs
- 07-08 May Establish and manage a recovery centre
- 05-09 May Facilitate emergency risk management
- 26-29 May Coordinate resources for a multi-agency incident
- 27-30 May Community in emergency management
- 10-13 June Designing and managing exercises
- 17-19 June Facilitate emergency planning processes
- 02-04 July Manage recovery functions and services
- 21-24 July Develop and maintain business continuity plans



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