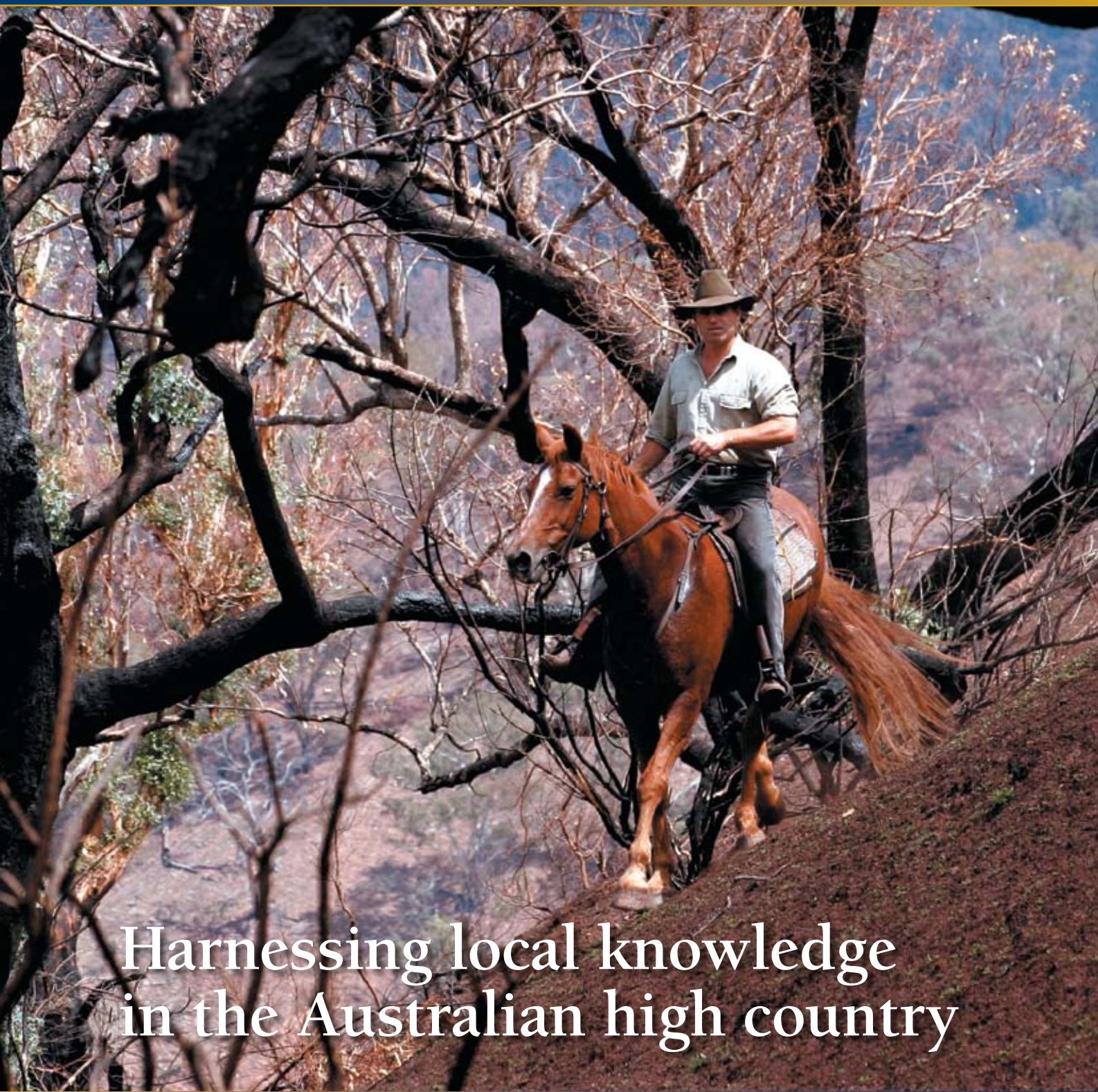
The Australian Journal of
# Emergency Management

Australian Government
Attorney-General's Department
Emergency Management Australia

EMA *'safer sustainable communities'*

Vol 22 | No 4 | **NOVEMBER** 2007



# Harnessing local knowledge in the Australian high country

Can community education contribute to effective emergency management?

How is changing technology affecting our media relationships?

The psychological experiences of volunteer firefighters

# **latest** news

## New Attorney-General takes responsibility for Emergency Management

The Hon Robert McClelland was appointed Attorney-General of Australia on 3 December 2007.

Commonwealth emergency management falls under his portfolio responsibilities as does Emergency Management Australia.

The next edition of the Australian Journal of Emergency Management will include a comprehensive profile of the Attorney and some of his thoughts on the future directions of emergency management under the new government.

*Cover shot: February 2007, Alpine National Park, Victoria. Recovery after the Victorian high country fires. © Newspix.*

EMA
'safer sustainable communities'

The Australian Journal of Emergency Management

Vol. 22 No. 4, November 2007 ISSN: 1324 1540

**PUBLISHER**
*The Australian Journal of Emergency Management* is the official journal of Emergency Management Australia, a Division of the Federal Attorney-General's Department, and is the nation's most highly rated journal in its field. The purpose of the Journal is to build capacity in the emergency management industry in Australia. It provides access to information and knowledge for an active emergency management research community and practitioners of emergency management.



**CIRCULATION**
Published on the last day of August, November, February and May each year. Copies are distributed quarterly without charge to subscribers throughout Australia and overseas.



**SUBMISSIONS**
The *Australian Journal of Emergency Management* welcomes submissions. Please contact us on ajem@ema.gov.au for a copy of our Contributors' Guidelines. Articles for publication may be forwarded to:

The Australian Journal of Emergency Management
Main Road MT MACEDON VIC 3441

**SUBSCRIPTONS & SUBSCRIPTON ENQUIRIES**
For your free subscription contact us at
Email: ajem@ema.gov.au or fax 03 5421 5272
Or visit us online at www.ema.gov.au/ajem
Changes to subscription details can be made by emailing ajem@ema.gov.au

**EDITORIAL ENQUIRIES ONLY**
Tel: (02) 6295 3662

# Contents

Vol 22 | No 4 | **November** 2007

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

# FOREWORD

*by Bruce Esplin, Emergency Services Commissioner, Victoria*

As Victoria enters the 2007-08 bushfire season the State is once again confronted with forecasts for an extreme bushfire season.

The Bureau of Meteorology anticipates over the next three months Victoria will have a 60 to 70% chance of below average rainfall and anywhere up to a 75% chance of above average temperatures. These forecasts match the climate change warnings that many scientists are predicting in papers such as the 'Bushfire Weather in Southeast Australia: Recent Trends and Projected Climate Change Impacts' report released earlier this year by the CSIRO and the Bushfire CRC.

The evidence in the report predicts an increase in the incidence of bushfires throughout Australia to the extent that it was necessary to create two new categories on the Forest Fire Danger Index. The current two highest daily fire danger ratings are 'very high' for a rating greater than 25, and 'extreme' when 50 is exceeded. The two new ratings have been defined as 'very extreme' when the rating exceeds 75 and 'catastrophic' when it exceeds 100.

It is no longer relevant to talk about above average bushfire seasons. They are starting earlier, lasting longer and include more extreme fire weather days. Drought and bushfire is becoming the norm, wet years the exception.

Currently, large parts of Victoria are facing the harsh reality of the eleventh year consecutive of drought, which has created more forest fuel and less chance for fuel reduction burning. The State has also seen substantial population growth in the urban fringes, where due to close proximity of housing and infrastructure, the emergency services face new challenges in fire risk reduction. The Melbourne urban fringes and the outskirts of provincial cities are predicted to be the high-risk zones of the coming season.

It is vital that, now more than ever before, the fire and emergency services work in partnership with the community. Victoria's emergency management arrangements are built on the premise that communities need not, indeed should not be passive recipients of services, but should be active participants in their own safety planning and decision making.

Within the mitigation, response and recovery process there needs to be flexibility and diversity, template solutions do not work. Inclusion of cultural and locally relevant issues is essential to strengthen community participation. There is a need for fluid, organic structures of communication and devolved decision making to the lowest level possible. It is essential that the community is involved in the decision making process wherever practicable. Long term plans should be built on community engagement not just community consultation. There needs to be recognition that local planning for local needs is potentially one of the best means of building communities' self-reliance and resilience and empowering their recovery process.

The fire services have made significant improvements to their capability and procedures to ensure they can play their part. It is imperative that individuals and communities in high fire risk areas are encouraged do the same. Improved community safety and resilience is about well informed communities, communities that are even better equipped to respond appropriately and safely to emergencies. It is vital the community is confident, educated and informed about decision making, so they can take the best possible course of action. Communities that are able to facilitate the success of their own mitigation, response and recovery, make the work of the multiple agencies involved with fires easier and more effective

As we look to the future and the predictions for increased large scale or 'mega fires' that no response capacity will be able to extinguish, it will be increasingly important that communities are prepared and able to play their part. When resources alone will not be enough, three things be important in determining our success: Firstly, the quality and extent of our mitigation and prevention programs. Secondly how well we work together, and most importantly how we work with communities; and thirdly how effectively we communicate — with each other, and most importantly with the community.

# Evacuation powers of emergency workers and emergency-service organisations in Australia

*Loh outlines the powers of ESOs to force evacuations during fire emergencies*


## Abstract

Every Australian State and Territory has adopted the Australasian Fire Authorities Council's 'Prepare, Stay and Defend or Leave Early' policy (the Policy) which outlines how emergency service organisations (ESOs) and their members should respond to fire emergencies. As emergency response in Australia falls within State/Territory jurisdiction, the powers given to ESOs and their members differ in each jurisdiction which means the implementation of this nationally recognised Policy will also be different in each State and Territory. How it will be implemented will depend in part on the common law and in part on what powers (in particular evacuation powers) are provided to them by their respective State/Territory legislation. This paper summarises the powers of ESOs and their members to forcibly remove people from their homes for each State and Territory in Australia. Victoria is generally described as having a pecuniary interest evacuation model and the other States and Territories as having the mandatory evacuation model. As described in the paper, such a dichotomy is simplistic.


## Introduction

The Australasian Fire Authorities Council (AFAC)'s *Position Paper on Bushfires and Community Safety* issued on 28 November 2005 which encapsulates the "Prepare, Stay and Defend or Leave Early" policy (the Policy) emphasises that in the face of a bushfire threat, the safest option is often for people to remain in their homes. This is in recognition of the fact that people who stay with their homes are able to (i) be protected from the radiant heat of the oncoming fire and (ii) take defensive measures to save their homes from being destroyed by the fire, such as by extinguishing any embers that may fall on the house. Otherwise, residents should leave early, long before the fire danger arrives, if they feel they are unable to protect their homes because of physical impairment or lack of preparedness. The policy is in recognition that the most dangerous option for the evacuee is to undertake a last minute evacuation through the fire front. Most houses are lost due to ember attack which can be controlled by able-bodied people in the building (Handmer and Tibbits, 2005, p.81).

Emergency service organisations (ESOs) and their members are given different powers by the relevant State laws. In particular, legislation in different States and Territories give ESOs and their members different 'types' of evacuation powers. What the Policy highlights, however, is that regardless of the 'type' of evacuation powers given to ESOs and their members by legislation, the decision to evacuate is in fact a discretionary choice of the ESO officer and the victim. As proposed by the Policy, ESOs should sometimes not exercise their evacuation powers as it may be safer in some circumstances not to evacuate, especially when it is to be undertaken in the 'last minute'. However, should ESOs decide that evacuating the public is the most appropriate response to a dangerous fire situation, it must then be carried out early in accordance with the Policy when the threat of the fire is not imminent. In exercising their powers of evacuation, it is important that ESOs and their members take into consideration the extent of their evacuation powers as provided to them by legislation. This paper summarise the powers of ESOs and their members to forcibly remove people from their homes in Australia in order to clarify what ESOs and their members should or should not do if it was decided that evacuation is the best course of action to take. It does not summarise the entire area of emergency law (eg. related legal liabilities) or cover the powers of ESOs and their members over Crown land (eg. State forests, national parks, public land).

## Powers to evacuate

There are generally two different types of evacuation models used to describe the evacuation powers of emergency workers. The terms "pecuniary interest evacuation model" and "mandatory evacuation model" are often used to describe the different situations when forced evacuation is or is not allowed (Karanev, 2001, p.21). The pecuniary interest evacuation model is where a person can refuse an order to evacuate on the basis of her or his pecuniary interest in land, building or goods in it. A pecuniary interest is a property right that can include goods and chattels. It is based on a principle that dates back to the Middle Ages which asserts that a person who is not a felon or is unlikely to act unlawfully can freely enjoy her or his property rights unencumbered by the state (*Balfour*, 1919, at 579). It is on this basis that an order to evacuate could historically be lawfully refused.

This right to refuse an order to evacuate has however been overridden in most States and Territories in Australia. The situation in these States and Territories is described as the 'mandatory evacuation model' as it is mandatory for a person to obey orders to evacuate despite having a pecuniary interest in the land. The pecuniary interest evacuation model is generally said to persist in Victoria with the mandatory evacuation model applying to the other States and Territories (being New South Wales, South Australia, Tasmania, Queensland, Australian Capital Territory, Western Australia and Northern Territory) (Karanev, 2001, p.21). As shown below, such a dichotomy is, however, simplistic.

## State/Territory specific legislative powers

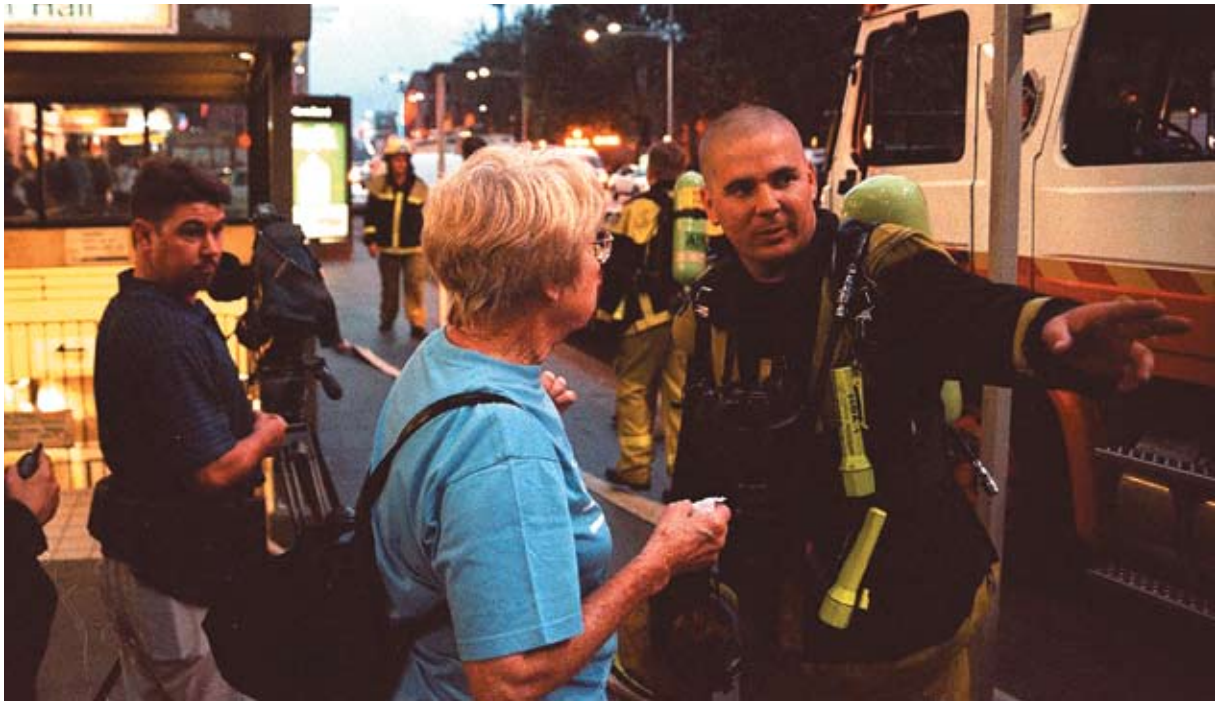
The following section summarises the various powers related to evacuation in our states and territories.

### *A. Victoria*

The Chief Officer of the Country Fire Authority ("CFA") may only remove (or order a member of the CFA to remove) a person from an area if the person is interfering with fire-fighting operations and only if that person does not have a pecuniary interest in the relevant land, building or goods in it. This is also the case for police officers within the country area acting within the *Country Fire Authority Act* 1958 (Vic).

Members of the Metropolitan Fire Brigade and police officers within a metropolitan area may only forcibly remove a person if they do not have a pecuniary interest in the land, building or goods in it. Police officers may use force to remove a person regardless of pecuniary interest (members of MFB may 'cause' such a person to be removed) if they are interfering with brigade operations within a metropolitan area and where there has been an 'alarm of fire'.

The Coordinator in Chief of Emergency Management may compel a person to evacuate from a declared 'disaster area' (as declared under section 23 of the *Emergency Management Act* 1986 (Vic)) once a declaration of a state of disaster or emergency has been made but only if they do not have a pecuniary interest. Forced evacuations most often involve interference to the evacuee's body by the rescuer which, if unlawful,



© Newspix

*Under the "mandatory evacuation model" it is mandatory for a person to obey orders to evacuate.*

is effectively an assault. As assault is a serious matter, courts may be reluctant to find an implied power to use force and only find that force can be used where legislation clearly allow for it.

The *Emergency Management Act* 1986 (Vic) allows police officers to direct a person who is out in the open or in a vehicle to leave the 'emergency area' (as declared by the most senior police officer under section 36A of the *Emergency Management Act* 1986 (Vic)) immediately. 'Reasonably necessary force' may only be used to remove persons if it is suspected that an offence against the Act is being committed. Otherwise, force may not be used. Persons with pecuniary interests may however be prohibited from entering their property and persons with pecuniary interests who are already on the property may have a condition placed on their staying. It is unclear if force can be used to remove such persons when the conditions placed on their staying are not met.

### *B. Australian Capital Territory (ACT)*

In all circumstances, whether a state of emergency has been declared or not, it appears that statutory powers privilege emergency response operations over the pecuniary interests of the owners. Nevertheless, though it is an offence for a person not to follow directions to leave a fire-affected area, the legislation does not empower fire-fighters or emergency workers to actually use force to remove people from an area unless it can be shown that they are interfering with fire-fighting operations. The legislation only empowers fire-fighters and emergency workers to 'direct' persons to leave an area during fires and to 'direct' (and/or give directions to regulate and prohibit) movements of persons during a state of emergency (see *Emergencies Act* 2004 (ACT) s67(2)(b), 68(2)(b), s163(2)(a) and (b)). It is unclear whether force could be use in performing the function of 'directing' persons.

### *C. New South Wales (NSW)*

Forced evacuations are only clearly allowed in NSW when a state of emergency has been declared by the Premier or when an area has been declared a "disaster area" by a senior police officer. During a 'state of emergency' (as declared by the Premier of NSW in accordance with section 33 of the *State Emergency and Rescue Management Act* 1989 (NSW)), only authorised "emergency service officers" may forcibly evacuate people irrespective of their pecuniary interests in the land, building or goods and only a senior police officer or an officer who has been authorised by a senior police officer may forcibly evacuate people in a specified 'disaster area' (defined in section 60KA of the *State Emergency and Rescue Management Act* 1989 (NSW) as 'the area specified by a senior police officer as the area in which an emergency is causing or threatening to cause injury or death').

Where there has not been a state of emergency or a disaster area declared (or a person interfering with work), there is only an implication in the *Fire Brigades Act* 1989 (NSW) and *Rural Fires Act* 1997 (NSW) based on the broad powers that is given to officers that forced evacuations are allowed. This, however, is still subject to interpretation as to whether these broad powers are sufficient to override the common law position that a person can freely enjoy her or his property rights unencumbered by the state and thus should not be forcibly evacuated when he or she has a pecuniary interest in the land, building or goods in question. It is noted however that the officer in charge may remove a person within a fire district under the *Fire Brigades Act* 1989 (NSW) but only if he or she is interfering with the work of the fire brigade.

### *D. Northern Territory*

The *Fire and Emergency Act* 1996 (NT) gives powers to the Incident Commander and members of the FRS and police officer (if authorised to do so, or authority cannot be practicably obtained) to order a person to vacate land. The legislation however has not given any enforcement power to this order and so it could be implied that the legislation does not give power to the relevant emergency worker to use force to remove a person who fails to comply with order. The *Fire and Emergency Act* 1996 only makes it clear that a person can be removed if the person's presence interferes with the fire-fighting operations. The *Fire and Emergency Act* 1996 (NT) also makes it an offence to interfere and obstruct fire-fighting operations.

Only broad powers are given to the fire control officer or fire warden under the *Bushfires Act* 1980 to do 'any act' necessary for or incidental to protecting property and life. It is unclear whether forced evacuation can be implied by this provision. It is only clear during a state of emergency or disaster that emergency workers have the power to evacuate and remove people from the declared area. This however can only be done if the Administrator has declared that evacuation should occur over that particular area. At all other times, it is not clear if emergency workers may forcibly evacuate people from their homes during a bushfire.

### *E. South Australia*

In both the case of a fire (generally) and when a state of emergency has been declared, statutory powers appear to privilege emergency response operations over pecuniary interests of owners. Emergency workers are given the power to 'remove' any person to a place the officer thinks fit during either of these times. They may also direct and prohibit the movement of persons and vehicles. In both instances, substantial fines of up to $20,000 are applicable should a person refuse to adhere to the instructions of an authorised fire and

emergency workers to be removed or be directed/prohibited (see Fire and Emergency Services Act 2005 (SA) s 42(4), 97(4) and s118(4), and *Emergency Management Act* 2004 (SA) s 28).

### *F. Tasmania*

It is only clear in legislation that forced evacuations (in the exercise of 'emergency powers') are allowed to be carried out if it has been specifically authorised either by the State Controller or the relevant Regional Controller. There is no 'blanket' provision in the *Fire Services Act* 1979 (Tas) or the *Emergency Management Act* 2006 (Tas) that allows for forced evacuations. There is only an implication in the *Fire Services Act* 1979 (Tas) that forced evacuations are allowed based on the broad powers that is given to fire officers. It is, however, still subject to interpretation whether these broad powers are sufficient to override the common law position. Otherwise a person can only be removed if he or she is interfering with the operations of the brigade.

Police officers on the other hand may remove persons from land or premises that are on fire or being threatened even if they are not interfering with fire-fighting operations. This may be on the police officer's own accord or upon the request by the appropriate fire officers.

### *G. Western Australia*

The Director of Operations, members of the fire brigade in charge and authorised officers of the Fire and Emergency Services Authority may order a person to withdraw from premises and may use reasonable force to ensure enforcement only when a 'rescue operation' is being carried out on the premises in gazetted fire districts under the *Fire Brigades Act* 1942 (WA). A 'rescue operation' is defined in section 4 of the *Fire Brigades Act* 1942 (WA) to mean 'the rescue and extrication of any person or property endangered as a result of an accident, explosion or other incident'. However, such an incident is not relevant to the policy context considered in this paper. Other than in 'rescue operations', legislation does not empower ESOs and their members to order people to leave or forcibly evacuate people. Emergency workers may, however, still remove persons interfering with operations of the fire brigade.

A bush fire control officer may exercise the same powers as the Director of Operations under the *Bush Fires Act* 1954 but only if it is 'necessary or expedient, for extinguishing a bush fire or for preventing the spread or extension of the fire' and an authorised Conservation and Land Management officer may also exercise the same powers of a bush fire control officer or bush fire brigade on or near Crown or forest land. Western Australia's SES and FESA units may restrict and prohibit movements of people and vehicles and to use reasonable force to ensure compliance but are not usually given the power to evacuate people in 'normal' emergency circumstances (as opposed to during a declared emergency situation or state of emergency).

Whether SES and FESA units (as well as other emergency workers) are able to evacuate people during declared emergencies will depend on whether they have been authorised to do so under section 61 of the *Emergency Management Act* 2005 (WA).

When an emergency situation or a state of emergency is declared over an area the hazard management officer, an authorised officer under section 61 of the *Emergency Management Act* 2005 (WA) and the most senior police officer present may not only direct the movements of people and vehicles in and around the emergency area, they may also direct the evacuation and removal of persons from the area. An authorised officer and the most senior police officer present many also remove any person who obstructs emergency management activities during a state of emergency.

### *H. Queensland*

It is clear in Queensland that statutory powers privilege emergency response operations power over the pecuniary interests of owners. During a fire incident or when a disaster or emergency situation has been declared, authorised persons under the *Fire and Rescue Service Act* and *Disaster Management Act* may not only evacuate people and prohibit people from remaining in a specified area but are able to use reasonable force to ensure persons comply with orders to be evacuated or excluded from an area. There are only a couple of situations where the provisions of the *Disaster Management Act* are silent as to whether force may be used to ensure compliance. An authorised rescue officer under s100 of the *Disaster Management Act* and a person authorised by the Chairperson of the State group or a district disaster coordinator under section 110 of the *Disaster Management Act* may only *direct* a person to leave. The Act in these instances only provides that it is an offence to not comply and does not clearly give powers to the emergency worker to forcibly remove people.

## Conclusion

The pecuniary interest evacuation model has been legislated in Victoria. However, it remains unclear whether it is still applicable within a declared emergency area, such as when conditions that were imposed on people in staying are breached. It is only in South Australia and in most situations in Queensland that the mandatory evacuation model (where force may be used to remove unwilling persons) clearly applies. In Tasmania, the mandatory evacuation model only applies in relation to police powers to evacuate, which means

© Newspix

*In Queensland authorised persons may not only evacuate people, they may also use reasonable force to ensure people comply with orders.*

only the police in Tasmania have the powers to use force (that is as reasonably necessary) to remove persons who are on land or premises that is burning or threatened by fire. Forced evacuations are also allowed in NSW, Northern Territory, Western Australia when a state of emergency or disaster is declared. In Tasmania, forced evacuations can only be carried out if authorised by the state controller or the relevant Regional Controller.

It is not clear whether the mandatory evacuation model applies in other contexts. Emergency workers are often given the power to *direct* people to leave and legislation may even make it an *offence to disobey* such directions but stops short at giving ESOs and their members the power to *use force* in removing people (see for example in ACT, Northern Territory). The power to use force in removing people is often restricted to when the person's presence is interfering with brigade operations (see for example in ACT, NSW, Northern Territory, Tasmania, Western Australia). Further, emergency workers in some jurisdictions (such as NSW, Northern Territory, Tasmania, Western Australia) are given broad powers to act but it is unclear whether this translates to being able to use force to remove people from their homes as this would be considered assault and battery and at odds with the common law favouring the recognition of people's pecuniary interests. Therefore, though there are clear contexts when the pecuniary interest evacuation model or the mandatory evacuation model exists, there are many other situations where it is ambiguous which model (if any) applies.

Nevertheless, even if clear powers to evacuate exist, it is important to remember that the decision to use one's power to evacuate is a *choice* and must be considered carefully as it is often an onerous, costly and dangerous task. Therefore, prior to exercising their evacuation powers, ESOs and their members should ensure that they have carefully considered their decision to evacuate (such as whether it is in accordance with the well-accepted 'Prepare, Stay and Defend or Leave Early' policy) and then to exercise their powers to the extent as provided for by legislation.

## Bibliography


### *Articles*

Handmer J. and Tibbits A., (2005) "Is staying at home the safest option during bushfires? Historical evidence for an Australian approach" 6 *Environmental Hazards* 81.

Kanarev N., (2001) "Assessing the legal liabilities of emergencies" Autumn, *Australian Journal of Emergency Management* 21.

### *Cases*

*Balfour v Balfour* [1919] 2 KB 571.


## About the Author


**Elsie Loh** is a Legal Research Officer at the Centre for Risk and Community Safety and qualified legal practitioner. This work was carried out under the funding of the Bushfire CRC and the Program C Prepare, Stay and Defend or Leave Early project.

Email: elsie.loh@rmit.edu.au

# The shelter-in-place decision – all things considered

*Glotzer, Psoter, St. Jean and Weiserbs argue that community education can contribute to effective emergency management*


## Abstract

In the event of a serious accident, or intentional chemical, or radiological incident, the emergency management system must move in a quick and coordinated manner. Furthermore, emergency management must be prepared to advise the public on how to best protect themselves, and be able to manage large number of casualties among disaster victims and the worried well. The ability of emergency management to coordinate a response is based upon their ability in pre-incident planning and preparedness education, to quickly detect an incident, to determine its impact and spread rate, and to inform the public whether the best protective action is to evacuate or to shelter-in-place. Effectiveness of the response should be optimized through community education.


## Introduction

On December 2nd and 3rd, 1984, a Union Carbide plant in Bhopal, India leaked 27 tons of the gas methyl isocyanate. None of the six safety systems designed to contain the leak were operational, allowing the gas to spread throughout the city of Bhopal (Broughton 2005). The Indian government reported that a half million people were exposed to the gas (Cassells 1996) and between 3,800 (Broughton 2005) and 10,000 (Sharma 2005) persons died in the first week after exposure to the toxic plume. In the subsequent two decades, an estimated 15,000 to 20,000 premature deaths were also attributed to methyl isocyanate exposure (Sharma 2005). While staggering, the epidemiological surveillance of respiratory, ocular, reproductive, genotoxicity and carcinogenicity, immunotoxicity, psychological and neurobehavioral, and nueromuscular toxicities (Dhara & Dhara 2002) does not portray the immense human suffering caused by this horrific industrial accident. The following anecdotal quote from the Bhopal Medical Appeal and Sambhavna Clinic, (Bhopal Medical Appeal and Sambahavna Trust 2007), a non-governmental organization whose mission is to raise awareness of the effects of the disaster and to provide free medical care for victims, addresses the human suffering caused by the disaster.

*"The poison cloud was so dense and searing that people were reduced to near blindness. As they gasped for breath, its effects grew ever more suffocating. The gases burned the tissues of their eyes and lungs and attacked their nervous systems. People lost control of their bodies. Urine and feces ran down their legs. Women lost their unborn children as they ran, their wombs spontaneously opening in a bloody abortion."*
(Bhopal Medical Appeal and Sambahavna Trust 2007, 9)

In reaction to the Bhopal disaster, in 1985 U.S. community leaders organized the National Institute for Chemical Studies (NICS) in Charleston, West Virginia to identify ways to reduce dangers posed by chemical plant operations and chemical transport. As a part of its mission, the NCIS provides training for those responsible for mitigating chemical risks. The Institute also provides a forum for the public and the chemical industry to identify safety, health and environmental dangers in order to modify and to improve current operational standards. In summary, the NCIS:

- fosters support for the continued growth and economic development of the chemical industry, while protecting public health, safety and the environment;
- serves as a national model for collaboration between the chemical industry and the American people;
- encourages chemical plants to make public their "worst-case scenarios" (based on this highly successful effort, the U.S. Clean Air Act now requires public disclosure of accident scenarios from all major industrial facilities);
- develops and promotes sheltering-in-place as an alternative to evacuation during chemical emergencies; and
- produces shelter-in-place videos to help publicize appropriate protective steps in a chemical emergency (NICS 2007).

This paper presents information regarding evacuation and sheltering-in-place decision parameters and argues that the effectiveness of these actions may be enhanced through appropriate community education.

Disasters, whether due to terrorist attacks, technology failures, or natural phenomena can happen anytime and anywhere, and without the forewarning necessary to consider all the available response options. Recent examples include the 2003 U.S. Northeast blackout, the 2005 London bombings, and severe weather events, such as hurricane Katrina in 2005 (Currier et al 2006). Although every emergency is different, the decision to evacuate or shelter-in-place is common to all disasters.

Evacuation, especially when the threat is a fire or a hurricane, is the established and instinctive method for protecting the public. Evacuation however, can be difficult, requiring the mobilization of public and private resources to undertake the enormous task of the physical movement of people (Astbury, Horsley, & Gent 1999; Southerworth 1991). Moreover, evacuation, under certain circumstances, may take excessive time and has inherent risks, such as the insurmountable problems plaguing the evacuation management of hurricane Katrina.

There are times when it is safer to stay indoors (sheltering-in-place), as the barrier of a building and the ambient building air may offer instant protection against a noxious agent until help arrives or the agent dissipates. Sheltering-in-place is a viable alternative to evacuation, an action by which exposure to the harmful effects of an agent, can be significantly reduced in both the dose and duration. There are three types of sheltering: normal, expedited, and enhanced sheltering (Sorensen 1988; Vogt et al 1999). Normal sheltering is taking refuge in an existing, unmodified building, closing all windows and doors, and turning off all heating, ventilation and air conditioning (HVAC) equipment. Expedited sheltering is taking shelter in a pre-planned site, where, in addition to normal sheltering, plastic sheeting and tape are applied to windows and doors to reduce infiltration. Enhanced sheltering further reduces infiltration by erecting permanent barriers, such as weather stripping and storm windows (Sorensen 1988; Vogt, Hardee, Sorenson, & Shumpert 1999).

One study (Prugh & Johnson 1988) demonstrated that in a modern, energy efficient building, exposure to a chemical plume was one-tenth the outside dose. The Army has also tested gas infiltration of housing structures by noxious agents such as mustard gas and sarin vapor (Blewett WK et al. 1999). Building protection varied with the air tightness of the building and the length of exposure to the hazardous plume or air movement. Studies on office buildings, especially those built after 1965 when stricter energy conservation standards were instituted, had lower air exchange rates than single story housing; understandably, the tighter the building, the lower the infiltration rate (Vogt, Hardee, Sorenson, & Shumpert 1999). Wind speed and direction, air temperature and inversion conditions contribute to the direction, speed and dispersion of the plume and effect infiltration rates (Vogt, Hardee, Sorenson, & Shumpert 1999). More importantly, for sheltering to be successful, people must have prepared, practiced and believe in the concept, they need to have faith in the recommendations of their local officials (Centers for Disease Control and Prevention 2005; Dombroski, Fischhoff, & Fischbeck 2006) and there must be adequate sheltering resources available (Sorensen, Shumpert, & Vogt 2004).

Frequently, evacuation is not even an option. Local governments may simply close all highways, major thoroughfares and public transportation during a catastrophe and people must shelter-in-place. Most U.S. federal agencies recommend an all hazards approach—planning for any type of disaster—rather than specific plans for each type of disaster, and maintaining provisions to shelter-in-place for 72 hours the average number of people involved in a facility (U.S. Department of Homeland Security 2004). This is especially true for any disaster involving hazardous chemicals or a radiological incident.

The decision to evacuate or to shelter does not occur in a vacuum. First, an official emergency plan is developed and then effectively communicated to the public. Most people even when advised by competent authority, will hesitate to shelter and with the image of the Twin Towers in their mind will instinctively want to "get the hell out". Consequently, with or without official guidance, individuals will still have to make their own decision (Fahy & Proux 1997).

The following is a summary of possible Protective Actions available to public emergency management officials in a disaster.

**Evacuation -** An order to leave a locale issued when a condition is so hazardous that sheltering-in-place would only place individuals within the area in greater danger. Evacuation instructions are usually issued by ZIP code (or postcode) area.

**Shelter-in-place -** An order issued for people to seal off a room in their business or dwelling and remain there until advised to leave. However, sheltering-in-place most likely cannot work for more than 3 days.

Note that "sufficiently downwind" is sometimes applied to orders for localities that are in the exposure path of an airborne agent, but are far enough away so that the concentration of the agent has dispersed enough to preclude serious injury. In a "sufficiently downwind" range, it is still advisable for individuals to shelter-in-place to avoid any risk of exposure to the diluted agent.

**Community Shielding -** Where a community or a government agency establishes and provides food, water and other supplies for community shelters.

**Decontamination -** The removal of contaminated clothing and showering to rinse contaminated agents from skin and hair (Edwards et al. 2006; NICS 2001).

The decision to shelter-in-place or to evacuate is complex and depends on many factors, including preplanning/preparation, the hazardous agent, the physical environment, and the social awareness of the population (Deci & Ryan 1991). As with all decision-making, one must assemble all available information, consider options, and weigh the pros and the cons of each scenario. A most effective emergency response model should recognize the public as participants in the response, rather than victims of the crisis. This fosters a culture of readiness, emphasizing the importance of good coordination and participation in pre-event drills. These activities give credibility to the agency or authority dispensing advice and helps the public realize that even the most horrendous disasters are manageable (Dombroski, Fischhoff, & Fischbeck 2006). Certainly the logistics of sheltering a population upon the release of a toxic agent becomes much more controllable with an "educated" community that understands the concept of identifying a shelter, providing emergency supplies and how to obtain sources of reliable information.

**Table 1: Factors that Lead to a Positive Shelter Decision vs. Evacuation**

| Pre-event Planning/ Preparation | Agent/Event | Physical Environmental Considerations | Social, Situational Awareness |
|---|---|---|---|
| Building known to be solid; | Chemical (solid, liquid, gas), or radiological; | Night time, visibility limited; | Population density high, urban area; |
| Designated shelter area available; | Mode of transmission unknown; | Weather dangerous; | Special needs population present (handicapped, kids, elderly); |
| Necessary supplies on hand; | Potential ability to detect presence poor; | Roads closed; Public transportation inhibited Traffic clogged; | Little advanced warning of event; |
| Practice drills held; | Persistence and volatility of agent unknown; | Fatalities, but no injuries seen; | No panic, population concurs to shelter; |
| Employees/public perception positive. | Toxic load of agent high, duration short. | Unusual odor or droplets in the air; Dead animals, birds present; Persons are geographically removed from center of event. | Family members reported safe elsewhere; Information and communication available. |

Table 1 enumerates the primary factors involved in the decision whether to shelter or to evacuate in a disaster. The table is not a dichotomous checklist, but an educational tool for identifying, many of the factors involved in the decision to shelter or to evacuate. The table also provides a framework for discussing family emergency actions, "family go-packs" (emergency supplies), and other preparatory actions of importance. It can also be used as guidance as part of developing authoritative public educational information by local and regional entities.

The decision to shelter-in-place or to evacuate primarily depends on the physical structure of the building, evaluation of the outside environment and situational factors; such as, has adequate pre-planning for an incident been conducted? Even with detailed guidelines, optimal decisions will depend on the specificity and the severity of the particular event. For example, if a chemical disaster occurs, will there be high/low levels of noxious vapors that cover a large/limited geographical area? Is the agent extremely harmful to the skin, eyes and respiratory system?

Disseminating appropriate information to emergency managers and various responsible entities beforehand, so that communities are at least minimally prepared and have an understanding of shelter-in-place and evacuation will help to ensure that the decisions of emergency managers will be acted upon and followed through with as little resistance as possible.

In the United States the Department of Homeland Security (DHS) in conjunction with other federal agencies has produced fifteen all hazards scenarios to develop national preparedness standards and the National Response Plan (NRP), which integrates all Federal government level actions into a single all hazards plan. The focus of these scenarios is on the response capabilities and the resources required in each type of incident (DHS 2004). The scenarios include a wide range of natural and man-made disasters. In each, the emergency management system must move in a quick and coordinated manner to advise the public how to best protects themselves. Interestingly to the theme of this discussion, one-third (five) of these scenarios involve a hazardous chemical release or radiation: (1) agent Yellow, a mixture of blister agents Mustard and Lewisite, (2) exploding toxic industrial chemicals (TIC), (3) a Sarin vapour nerve gas release, (4) an industrial Chlorine gas release, and (5) a 'dirty' bomb radiation exposure event.

Using these scenarios, modified for local conditions, responding agencies can explore their response tactics and identify areas in which pre-event education and support to the community would aid their reaction effectiveness. They can be used as well by individual community members to plan to take action to minimize morbidity and mortality independent of the official responder's activities.

An event involving any one of these chemical or radiological agents will strain or inhibit emergency services at all levels of government. Limited or complete cessation of transportation, communication and medical systems would further undermine response efforts and intensify the importance of the media to inform and to protect citizens. Information from emergency management officials will be vital in keeping the public informed of optimal protective and healthcare actions. Effective communication systems must exist to support the management of an incident. Pre-event communication to the community of the basic sheltering versus evacuation parameters, information/communication sources during an emergency and solid advice on basic individual needs for evacuation and sheltering-in-place should enhance the responding agencies efficacy.

It is important for emergency response agencies and media to be familiar with the different ways that people may react in an emergency. Each crisis will carry its own psychological baggage. The community officials must anticipate the mental stresses that the population will be experiencing and apply appropriate risk communication strategies. Effective communication needs a reasoned and mature approach in the selection of the message for the intended audiences. The response agencies must build the perception of competence and expertise in advance of the emergency so that the public will follow their advice. Use of effective communication techniques also allows for managing requests for information from the media, and confronting rumors and misinformation (Reynolds 2006). Along with the information presented here regarding shelter-in-place, using the scenarios may prove a more practical way for emergency planners to present information regarding shelter-in-place versus evacuation decision-making to the public in their community awareness programs.

## Conclusion

Disaster preparedness and evaluation of strategies to minimize casualties and death is complex. In order to optimize emergency management and public health outcomes, factors that help lead to a decision to evacuate or shelter-in-place, such as building type, availability of a designated shelter area and supplies, and prior disaster preparedness, are necessary. These factors should be fully assessed and prepared for prior to an actual disaster by responsible agencies and individuals educated by those agencies. This partnership between government, the private sector and individual community members should optimize the effectiveness of a disaster response. The level of education and appropriate dissemination of educational material has to be assessed for its understanding by the general population, in order to assure effective and efficient emergency responses.

## References

Astbury, J., Horsley, S., & Gent, N. (1999). Evaluation of a scheme for the pre-distribution of stable iodine (potassium iodate) to the civilian population residing within the immediate countermeasures zone of a nuclear submarine construction facility, Journal of Public Health Medicine, 21, 412-4.

Bhopal Medical Appeal and Sambahavna Trust. (2007). What Happened in Bhopal? Bhopal, India. Viewed June 13, 2007, http://www.bhopal.org/whathappened.html.

Blewett W.K., Arca V.J., Fatkin D.P., & Cannon B.D. (1999). Expedient Sheltering in Place: An Evaluation for the Chemical Stockpile Emergency Preparedness Program. Aberdeen Proving Ground, U.S. Armey ERDEC-336, 1-288. Viewed June 13, 2007, http://emc.ornl.gov/CSEPPweb/PDF/CSEPP_Blue_Book_-_1_May_03.pdf.

Broughton, E. (2005). The Bhopal disaster and its aftermath: a review, Environmental Health, 4, 1-6.

Cassells, J. (1996). Sovereign immunity: Law in an unequal world, Social and Legal Studies, vol. 5, no. 3, 431-436.

Centers for Disease Control and Prevention. (2005). Epidemiologic assessment of the impact of four

hurricanes-Florida, 2004, MMWR, 54, 28, 693-697. Viewed June 13, 2007, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5428a1.htm.

Currier, M., King, D. S., Wofford, M. R., Daniel, B. J., & Deshazo, R. (2006). A Katrina experience: Lessons learned, American Journal of Medicine, vol. 119, no. 11, 986-992.

Deci, E. & Ryan, R. (1990). A motivational approach to self: Integration in personality, in Nebraska Symposium on Motivation, R. Dienstbier, ed., Lincoln, University of Nebraska Press, 237-286.

Dhara, V. R. & Dhara, R. (2002). The Union Carbide disaster in Bhopal: A review of health effects, Archives of Environmental Health, vol. 57, no. 391-404.

Dombroski, M., Fischhoff, B., & Fischbeck, P. (2006). Predicting emergency evacuation and sheltering behavior: a structured analytical approach, Risk Analysis, vol. 26, no. 6, 1675-88.

Edwards, D., Price, P., Gordon, S., & Gadgil A. (2005). Design Guidance for Shelters and Safe Rooms, U.S. Department of Homeland Security, 1-264. Viewed June 13, 2007,

http://www.nfpa.org/assets/files//PDF/Member%20Sections/Airport_Bio-Chem_Threat_Report.pdf, SAND2005-3237.

Fahy, R. & Proux, G. (1997). Evacuation Behavior in the World Trade Center, Safety Science, in Proceedings, Fifth International Symposium, International Association for Fire Safety Science, Boston, MA, Hasemi, Y., Editor(s), 713-724. Viewed June 13, 2007, http://www.fire.nist.gov/bfrlpubs/fire97/PDF/f97061.pdf.

National Institute for Chemical Studies. (2007). NICS History. Viewed June 13, 2007, http://www.nicsinfo.org/HISTORY.htm.

National Institute for Chemical Studies. (2001). Sheltering in place as a public protective action, 1-54. Viewed June 13, 2007, http://www.nicsinfo.org/shelter%20in%20place.pdf.

Prugh, P. & Johnson, R. (1988). Mitigation of Vapor Cloud Hazards, Hoboken, John Wiley & Sons.

Reynolds, B. (2006). Crisis & Emergency Risk Communication. Atlanta, Centers for Disease Control and Prevention. Viewed June 13, 2007, http://www.bt.cdc.gov/coca/summaries/communication_050206.asp.

Sharma, D. C. (2005). Bhopal: 20 years on, Lancet, vol. 365, no. 9454, 111-2.

Sorensen, J. H. (1988). Evaluation of Warning and Protective Action Implementation Times for Chemical Weapon Accidents. AC05-84OR21400, Oak Ridge, Oak Ridge National Laboratory.

Sorensen, J. H., Shumpert, B. L., & Vogt, B. M. (2004). Planning for protective action decision making: evacuate or shelter-in-place. Journal of Hazardous Materials, vol. 109, no. 1-3, 1-11.

Southerworth, F. (1991). Regional Evacuation Modeling: A State of the Art Review. Washington, DC, US Department of the Army Office of the Assistant Secretary, Installations, Logistics and Environment. Viewed June 13, 2007, http://www.ornl.gov/~webworks/cppr/y2003/rpt/46280.pdf.

U.S. Department of Homeland Security (DHS). (2004). National Response Plan, Washington, D.C., Viewed June 13, 2007, http://www.dhs.alabama.gov/PDFs/NRPbaseplan.pdf.

Vogt, B. M., Hardee, H. K., Sorenson, J. H., & Shumpert, B. L. (1999). Assessment of housing stock age in the vicinity of chemical stockpile sites, Oak Ridge, Oak Ridge National Laboratory. Viewed June 13, 2007, http://emc.ornl.gov/EMCWeb/EMC/PDF/AssessHouseV3.pdf.

## About the Authors

**Dr. David Glotzer** is a Clinical Professor of Cariology & Operative Dentistry. His primary research areas include investigating the multifactorial process of bacterial infection and defining public health surge response to a major disaster situation.

**Dr. Walter Psoter** is a dentist and epidemiologist and is an Assistant Professor at NYU College of Dentistry. He has a Ph.D. from Yale University in chronic disease epidemiology. Dr. Psoter has extensive experience working and collaborating in the international and public health fields.

**Mr. Rudolph St. Jean** is an engineer with a master's degree in Information Systems and is an associate research scientist at the NYU College of Dentistry. Mr. St. Jean has extensive experience in project and data management.

**Dr. Kera Weiserbs** is an epidemiologist and is an associate research scientist at the NYU College of Dentistry. She completed her Ph.D. in epidemiology at John Hopkins University. Her areas of expertise include access to care and ocular epidemiology.

Email: dlg2@nyu.edu

# CALL FOR PAPERS

The Australian Journal of Emergency Management is calling for papers for a special edition of the journal with a theme of 'All hazards risk assessments' to be published in late 2008.

This special edition will focus on risk assessment and scenario development by governments in relation to the Council of Australian Government (COAG) reforms on Natural Disasters, Bushfires and Catastrophic Disasters with the aim of showcasing best practice in producing new information on risk from 'all hazards' that is leading to safer communities or to reductions in the costs of disasters.

**Papers are sought from:**

- All levels of government (Local, State and Territory, Federal)
- Academics
- Consultants
- Insurance and Reinsurance industry
- Research, scientific and information management/provision agencies

**Suggested topics include:**

- Risk management including risk assessment
- Implementing mitigation strategies – including case studies
- Development and application of information systems that capture and or deliver information on risk
- Development and application of risk assessment tools and their take up by end users
- Community involvement in managing risk
- Land use planning schemes
- Guidelines, policies and legislation

All papers should have a focus on outcomes that can be used in developing more resilient communities. This issue will showcase examples of best practice as we move into the next phase of emergency management in Australia guided by COAG recommendations.

Articles that are purely advertorials for commercial products will not be accepted for publication.

Abstracts should be submitted to ajem@ema.gov.au by 28 February 2008. Completed articles will need to be submitted by 30 May 2008 to allow for the reviewing process undertaken for all AJEM academic articles.Contributors' guidelines can be found on the EMA website at www.ema.gov.au/ajem .

For further information contact ajem@ema.gov.au.

# Bushfires and the media: a cultural perspective

*Hughes, White and Cohen look at how changing technology is forcing a new relationship between emergency management agencies and the media*

## Introduction

Thinking about bushfires needs to occur in the context of broad scale social positions which are circulating in society, of which two examples are neo liberalism and global warming; the latter of which has been on the agenda for scientists at least since the work of the Club of Rome, but is increasingly on the political agenda, most notably since the recent Stern report (Stern 2007).

How are these contexts relevant? Increasingly global warming is seen as an issue for fire and land management agencies ((Johnson and Lee 2007), and in a number of responses from the Bushfires CRC such as the 2007 forum: Are big fires inevitable?) The likely combined environmental effects of global warming are predicted to mean an increase in the incidence of fires, an increase in the severity of fires, and a decrease in the environmental resources with which to fight fires.

The neo liberal context is relevant in several ways. It has both coincided with, and been partially driven by, changing social and economic structures, the most relevant of which here are:

- in the organisation of work,
- in forms of leisure, and
- in new media structures and technologies and the ways in which these intersect with both work and leisure.

And finally, the neo liberal context is relevant because governments of all persuasions, and at all levels, in the last twenty years have accepted an economic and political agenda dominated by market economics. For the bushfire and emergency services community several features of this situation are relevant:

- A reduced willingness to spend government money on public and community services (linked to a desire always to run surplus budgets),
- an increasing emphasis on the private provision of services to the community, and
- a related emphasis on individual responsibility and self sufficiency. This is most evident in such aspects of life as education, child care and medicine.

Within this context bushfire and emergency management agencies can expect that, due to global warming, calls on their services are likely to increase, but that because of the shift away from public funding they will have less money available to provide these services.

As a consequence, in recent years, there has been a growing emphasis on community awareness of fire risk and community self sufficiency. This adds urgency to the need for community awareness and media information programs. It is argued, then, that the media have a vital role to play in risk communication. The COAG report of 2005 argued that it was important that

"All Australians understand, accept and respect bushfires and know they will continue to occur. … Communities [need to] understand that the risk, and the responsibility for bushfire mitigation and management, is shared by individuals, landholders, communities, fire and land management agencies, researchers, and governments" (Ellis, Kanowski, and Whelan 2004, ix).

The report argues that to achieve this goal it is important to understand the role of the media in the understanding of bushfires. Traditionally, the media have repeatedly been accused of generating fears and 'myths' about bushfires and other natural disasters (Blong 1985; Country Fire Authority of Victoria 2000; Goltz 1984; Quarantelli 1989). In fact this was one of the dominant patterns evident in the review of the literature on media and bushfires which formed the first stage of our research (Hughes and White 2004).

Our review set out to find out what had been written in the following areas:

- media constructions of bushfires and bushfire risk,
- the role the media plays in shaping community responses to bushfires, and
- media relationships with fire and emergency services.

Themes emerging from this review were:

- that media reports perpetuate a number of myths, cliches and flawed thinking concerning bushfires,
- that media reports tend to portray those affected by fires as hopeless victims,
- that media reports engage in blaming and the creation of scapegoats, and
- that the presence of media at bushfires is itself a stressor, and a distractor, for fire agencies.

The claim that media perpetuate myths is a point which recurred in some of our interviews with agency personnel. It is taken for granted that the role of the media, from the point of view of the agencies, is to present accurate and timely information to the public. This is the information and warning role of the media, and raises questions about

- what are the best media to use for information and community warning?
- what are the best ways to frame messages for these media? and
- at a later level of consideration, how do members of the public understand these messages?

The focus of these questions is on the informing role of the media, a role most closely associated with journalism. Understandably agencies tend to concentrate on developing close working relationships with news media to enhance this information provision.

Another strategy has been to develop alternative means of information provision. Two examples which are relevant are the development of arrangements with ABC local radio to function as an emergency information network when necessary, and the development of agencies' own websites providing comprehensive information to the public.

It was argued in our first report, based upon this review of the literature, that it was important to understand the different time periods relevant to bushfires: the period immediately leading up to and during a fire, the recovery period and the longer term period between fires. In each case the appropriate media are different, and aspects of our research sought to understand this in more detail.

A second comment on the themes which emerged is the importance—recognised by the agencies—that the images of those affected by fires as helpless victims, and of fire-fighters as heroic saviours, both tend to work against the need to develop self sufficiency in communities.

Following this review of the literature, research was undertaken in three stages. The first two stages examined aspects of the institutional structures of media. These were:

1. research into the relationship between media and fire agencies looking at the media (Cohen, Hughes, and White 2006a; Cohen, Hughes, and White 2006b), and
2. research into the relationship between fire agencies and the media looking at the fire agencies (Cohen, Hughes, and White 2006d).

Our third stage moved the focus somewhat. We undertook research into community use of the media, looking at one community in particular. Here we were seeking to understand the ways in which members of a relatively diverse rural community made use of the media, how they made use of warnings and risk communications, and their attitudes toward these. We made the assumption in this particular project that audience members were active in their use of the media and would exhibit complex relationships with risk communication. Our findings bore this out (Cohen, Hughes, and White 2007 (Forthcoming); Cohen, Hughes, and White 2006c).

This stage of our research was motivated by the observation that both the media and the fire and emergency service agencies appeared to make certain assumptions about those addressed by risk communication and about the media. Specifically we were concerned that some of our earlier data suggested that 'the audience' for risk communication was seen as homogenous, and that there was a need to understand in more detail what the audience understood by 'the media'. Here we were moving away from institutional research, and were beginning to raise questions about how audience members interpret the material with which they are engaging.

Questions of interpretation are the basis of much of the work of media studies - the field within which we operated. A number of issues were raised by this stage of our research, but for the purpose of this paper two are particularly important. These are:

- that obtaining and maintaining the trust of the audience is a crucial matter for agencies, and that this is quite difficult, and
- that the broad context within which the audience engages with the media is important (here our research merely confirmed well established understandings within media studies).

## Learning from this initial research experience

Our experience has shown that for agencies to comprehend the relationships between understandings and action around fires and other emergencies they need to start asking new questions. The 'old' questions will keep coming up with the same answers. Our research has begun to reframe the questions and is leading to new insights. Some of those questions revolve around:

- the social and institutional forces which lead to the creation of 'messages' about bushfires,
- the ways that people incorporate media messages about bushfires before, during and after bushfires, and
- the rapidly changing nature of media industries which will ultimately lead to the undermining of 'official sources' unless fire and emergency services respond appropriately.

We believe these are particularly important areas for investigation, and might lead more specifically to investigations into:

- the potential role of new media technologies as media for dissemination of warnings,
- the popular culture context within which warnings and risk communication are interpreted, and
- media forms which are popular cultural forms in their own right, and have significant implications for the management of trust and credibility by agencies: talkback radio and current affairs television.

In the remainder of this paper we want to make some introductory comments on each of these. In doing so we also want to move away from a framework which concentrates on 'information' provision; a framework which runs the risk of seeing information in a linear and instrumental fashion. This extends our thinking in our third research stage in which we understood the media to be sites in which individual and community realities are constructed through dynamic processes of sense making. This constructivist view argues that meanings develop through social interactions and that media are themselves significant spaces of social interaction and sense making.

### *New media technologies*

The media landscape is changing very rapidly world wide. New media technologies such as mobile phones and the internet are making possible new media forms such as text messages, web pages, blogs, podcasts and video and photo sharing sites (such as Flickr and YouTube). A number of these forms are being lumped together into the envelope term Web2.0 (the subject of several presentations at the Emergency Media Conference itself). Several features of these technologies are likely to be important for agencies.

© Newspix

*The presence of media at bushfires is a stressor, and a distractor, for fire agencies.*

- They are not 'broadcast' technologies—in the sense that users need to seek them out, at least in the first instance. In the case of some they can be set automatically to download material to one's computer or mobile phone (or in the case of spam to do so without the user's permission). Such technologies have become known as 'disruptive technologies'.
- Because they are not broadcast technologies they tend to fragment audiences. It is becoming increasingly impossible to assume a mass audience for particular media forms—for example audiences for television are declining. More specifically, among particular demographics, audiences for news and current affairs are declining. Young people get much of their understanding of contemporary events from radio and TV comedy shows (such as *The Glass House* and *The Chaser's War on Everything*), while women are much less inclined to watch TV news and much more inclined to watch current affairs programming.
- A number of these technologies disrupt our understandings of time and space: people can download radio programs as podcasts and listen to them away from the radio at a time of their own choosing. So they may not be listening to the radio when warnings are being broadcast. On the other hand podcasts (and now, video podcasts) have potential as sites for longer term information provision about emergency preparedness between incidents. These technologies are providing both threats and opportunities for the provision of emergency communications.
- As we have already suggested, new media are changing the ways people interact with media, but they also reflect, and perhaps shape, new social and cultural developments. Individuals are now more able than ever before to be both consumer and producer (the term 'prosumer' has now become

a buzz word). Using blogs, video sharing sites such as YouTube and other disruptive technologies people are able to both share information and to make public comment. There is an increasing trend toward 'social networking' (eg MySpace, Facebook) and peer produced sites (Wikipedia). These developments provide a different model from the top down information provision which has tended to be favoured by emergency agencies, which often prefer more centralised control of information (to reduce the spread of 'misinformation') and to protect the brand and maintain trust and credibility. On the other hand a more open, peer produced approach to sharing information will give voice to those affected by fire and allow us to draw upon and share local knowledge.

Perhaps the most important point to be made about these new technologies is that, from the point of view of the user, they are not simply a source of information but are social and cultural spaces (Fernback 2007; Hughes 2003; White and White 2004, 2005).

### *Popular culture*

In an interview conducted by Erez Cohen, a CFA staff member who we called 'Ian', commented that 'bushfires have a particular place in the Australian people's imagination' (Cohen 2005, 4.). While this was really just a throw away comment at the time, it is an important observation. As communicators in the emergency context we need to understand more about the place of bushfires in the popular imagination, and about the ways other aspects of popular culture and the popular imaginary will interact with our attempts at risk communication.

One aspect of this is likely to be the ways in which trends in popular culture at the moment intersect with issues of trust and credibility, and also with gender.

Gender was one of the issues which emerged indirectly from listening to the recordings of our focus groups. Although it was not specifically addressed in the discussions there appeared to be some difference between the men in the groups, and the women, in terms of how they related to the media in general and to particular forms of communication. While the men (in particular one rather dominant member of one group) had quite fixed views about the appropriateness of a more focussed 'information' centred approach, and spoke quite scathingly about 'misinformation', and about emotional modes of speech, it appeared that the women were more engaged by less 'instrumental' modes of speech. This is consistent with many findings on the media, and so is no surprise. Nevertheless it may be of particular importance for risk communication. If nothing else, it points to the danger in assuming a single homogenised audience for risk communication.

© Newspix

*The changing nature of media industries will lead to the undermining of "official sources".*

As already mentioned, television industry research indicates that women are much less likely to watch news than men, and much more likely to watch current affairs programming. This is reflected in the content of current affairs programs, and in their mode of address to the audience and their emotional content.

Extending this consideration a little wider, a third issue is that of the broad cultural context within which audiences engage with our attempts at risk communication. To fully understand the likely impact of our work we need to take into account the impacts of other cultural engagements which provide the wider context. Any attempt at risk communication will be interpreted by audiences within the broad web of their media experiences, including other programs, whether information or fiction based. Much more work needs to be done not only on the range of representations of emergencies in the media, but also of representations of gender, Australianness, citizenship and risk. Current work by Peter Hughes on the 'reality TV' series *Border security* and on the documentary series *Bushfire summer* is relevant here.

The important point here is that, while it is important to understand the provision of risk communications, it is also important to go beyond this communication model to a wider consideration of the complex ways in which audiences engage with cultural representations, including risk communications.

### *Talkback radio*

The issue of trust and credibility is a significant issue. Our research has shown the emphasis placed upon 'branding' by agencies. This is an important strategy and our research confirms that it plays a significant role in the reception of information by the audience. However it is a fragile thing, especially in the current cultural context of a growing lack of trust in public institutions (Furedi 2005; Tulloch 2006; Tulloch and Lupton 2003).

An understanding of two forms of media may well be important in this area. One might well be contemporary current affairs television and another might be talkback radio. In our Grampians focus groups, and in informal discussions with a number of fire agency personnel, talkback radio has been referred to as problematic for agencies for two reasons.

3. There is some concern that people ringing talkback radio to report their observations of fire situations might spread misinformation. In our work we obtained the tapes of hours of broadcasting on ABC local radio during the Central Coast (NSW) bushfires of summer 2005/6. In separate pieces of research Tebbutt (Tebbutt 2007) and Turner (Turner 2007; Turner, Tomlinson, and Pearce 2007) have pointed to the way many callers to some talkback radio programs are ringing to share information with other listeners. It was in this spirit that callers during this incident rang to suggest alternative routes to the F3 freeway which was blocked by fire and smoke. However some of the alternatives proposed posed significant potential dangers to any motorists who might take up the suggestions.
4. While examples such as the previous case probably have little implication for warning strategies adopted by agencies, talkback radio discussions have the potential for political damage to agencies and there is potential for commentary from callers to undermine or create doubts about the credibility of fire agencies.

Graeme Turner has argued that

*"talkback radio now plays a prominent role in media strategies for managing public perceptions of issues and personalities. It also has the capacity to break away from attempts to manage it"*

and here is the particularly apposite comment:

*"we even have a name - "wildfire" - for such moments when public interest and opinion suddenly outstrip the ability of official or institutional representatives to control or shape it" (Turner, Tomlinson, and Pearce 2007, 108).*

The thrust of Turner's argument, which is taken up in a more recent article (Turner 2007), is that

*"there is not yet much of an analytic literature dealing with the appeal of particular versions of talkback, or with distinctions between iterations of the format" (Turner, Tomlinson, and Pearce 2007, 109).*

However, he argues, *"most [researchers] agree that talkback can serve a number of different cultural functions" (p 109).* He goes on to make the claim, of particular interest to emergency agencies that there seem to be significant differences between metropolitan and regional talkback programming in which a

*"more communitarian function is central to those calling up regional stations, whereas the more explicitly political function seems to be prominent for those calling up metropolitan stations"*
*(Turner, Tomlinson, and Pearce 2007, 109).*

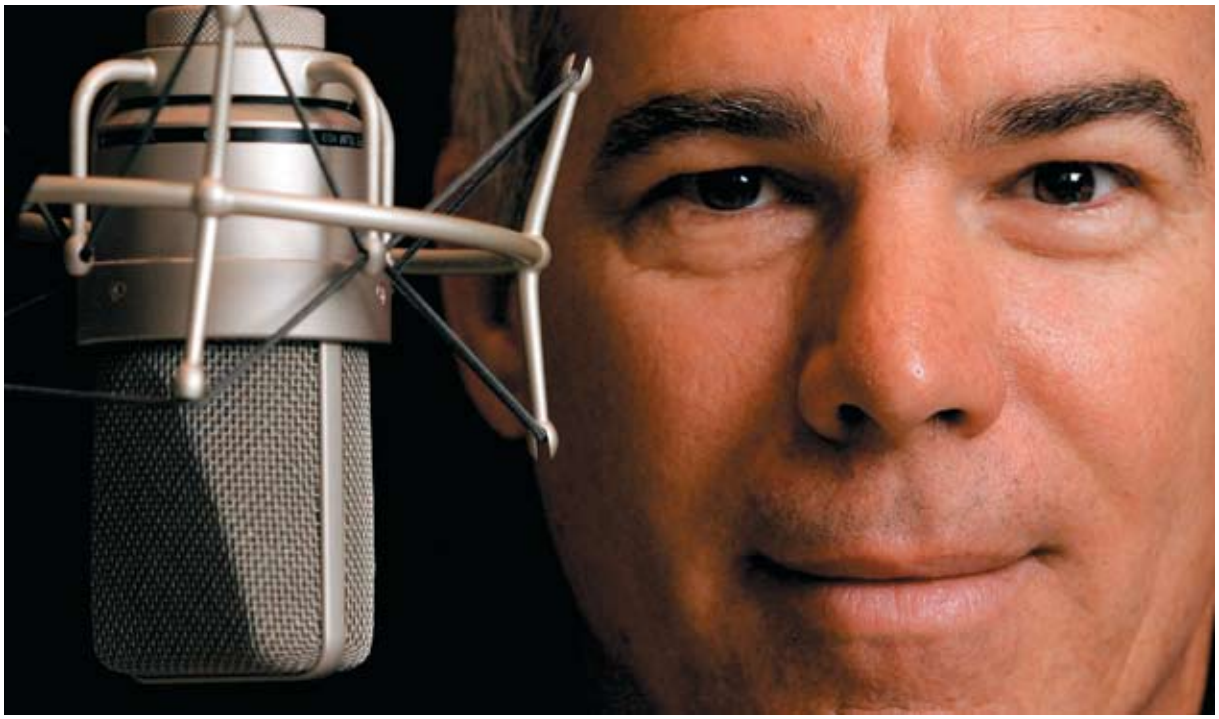
While there is some valuable work being done on talkback radio at the moment, there is scope for much more research, particularly in relation to the specific context of risk communication and to the wider cultural context in which talk back radio can be seen to constitute a space within which community concerns about safety and risk are debated.

## Conclusion

We have argued that for any student of media in the contemporary situation a number of cultural shifts are evident, several of which are relevant to emergency communication:

- A shift away from the centralised broadcast model of media and communications toward an increasingly diverse and diffused mediascape with concomitantly diverse and diffused audiences.
- New technologies of media and cultural forms which enable a more dialogic relationship between audience members and between audience and media. In particular a shift towards a break down in distinctions between producer and consumer.
- A shift away from television news and current affairs and towards other forms of programming which use a less 'information' based approach. These are being replaced by a multiplicity of sources of information and comment.

In seeking to undertake serious research on the media and bushfires, we are faced with the view that everyone is an expert on the media because they 'watch TV' or use the Internet. This ignores the fact that, in our view, the old approaches to studying media and bushfires have come to a dead end. However there is a substantial tradition in media research which can be used to contribute to understanding real world problems, and there is an increasing body of research into new directions in media and communications which can provide valuable insights for those able to draw on this research.



© Newspix

*There is a shift away from the centralised broadcast media model towards a diverse mediascape.*

## References


Blong, R.J. 1985. Public Views on Disaster Response and the News Media - Some Australian Examples. Report of proceedings of a research workshop on human behaviour in disaster in Australia. April, at Mt. Macedon. 25-27. Australian Counter Disaster College.

Cohen, Erez. 2005. Media myths or myths about the media? The COAG report and the media. Unpublished report for the Bushfires CRC.

Cohen, Erez, Peter Hughes, and Peter White. 2007 (Forthcoming). Media and bushfires: A Community Perspective of the media during the Grampians Fires 2006. *Environmental Hazard*.

Cohen, Erez, Peter Hughes, and Peter White. 2006a. Battling ferocious flames: Bushfires in the media. *The Australian Journal of Emergency Management*. 21, no. 1:50-55.

2006b. Reporting Bushfires: What motivates the media? Bundoora: La Trobe University. Available from: http://www.latrobe.edu.au/bushfires/reports.html.

2006c. Media and bushfires: a community perspective Grampians fires. Bundoora: La Trobe University. Available from: http://www.latrobe.edu.au/bushfires/reports.html.

2006d. The Media and Fire Services Public relations and community information: A Victorian view. Bundoora: La Trobe University. Available from: http://www.latrobe.edu.au/bushfires/reports.html.

Country Fire Authority of Victoria. 2000. CFA Media Forum: (Unpublished?) Macedon, Vic. Emergency Management Australia.

Ellis, Stuart; , Peter & Kanowski, and Rob; Whelan. 2004. National Inquiry on Bushfire Mitigation and Management. Canberra: Commonwealth of Australia. Available from: http://www.coagbushfireenquiry.gov.au/findings.htm.

Fernback, Jan. 2007. Beyond the diluted community concept: a symbolic interactionist perspective on online social relations. *New Media and Society*. 9, no. 1:49-69.

Füredi, Frank. 2005. *Culture of fear: risk-taking and the morality of low expectation*. Rev. ed. London: Continuum.

Goltz, J. D. 1984. Are the news media responsible for the disaster myths? A content analysis of emergency response imagery. *International Journal of Mass Emergencies and Disasters*. 2, no. 3:345-368.

Hughes, Peter. 2003. 'Self Revelation and Surveillance: Public Rehearsals of the Self on the Web'. Paper presented at *Australian International Documentary Conference* Byron Bay. 24 February.

Hughes, W. Peter, and Peter B White. 2004. 1 September. Bushfires and the media: A literature review. Bundoora: La Trobe University. Available from: http://www.latrobe.edu.au/bushfires/reports.html.

Johnson, Peter, and Barry Lee. 2007. The climate change journey. *Fire Australia*. August 2007. 22-24.

Quarantelli, E. L. 1989. The Social Sciences Study of Disasters and Mass Media. In *Bad Tidings: Communication and Catastrophe*, ed. T. Walters, L. M. Walters and L. Wilkins. Hillsdale, N.J.: L. Erlbaum. 1-19.

Stern, Nicholas. 2007. January. Stern review on the economics of climate change. HM Treasury [UK]. As a series of .pdf files available from:

http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm.

Tebbutt, John. 2007. Hanging her laundry in public: talkback radio, governmentality and the housewife, 1967-73. *Media International Australia incorporating Culture and Policy* no. 122:108-121.

Tulloch, John. 2006. *One Day in July: Experiencing 7/7*. London: Little Brown.

Tulloch, John, and Deborah Lupton. 2003. *Risk and everyday life*. London: Sage.

Turner, Graeme. 2007. Some things we should know about talkback radio. *Media International Australia incorporating Culture and Policy.* no. 122:73-80.

Turner, Graeme, Elizabeth Tomlinson, and Susan Pearce. 2007. Talkback radio: some notes on format, politics and influence. *Media International Australia incorporating Culture and Policy.* no. 122:107-119.

White, Peter, and Naomi Rosh White. 2004. Travel as transition: Identity and place. *Annals of Tourism Research.* 31, no. 1:200-218.

2005. Keeping Connected: Travelling with the mobile telephone. *Convergence: The International Journal of Research into New Media*. 11, no. 12:102-112.

## About the Authors

**Dr. Peter Hughes** lectures in Media Studies at La Trobe University. His research and teaching focuses on documentary and new media. He is co-author, with Ina Bertrand of Media research methods: institutions, texts, audiences. Basingstoke, New York: Palgrave (2005).

**Assoc. Prof. Peter B. White** is conducting research on the social implications of new media and telecommunications policy. He is the Director of the La Trobe University Online Media Program which conducts research into the uses of new media. Peter directs the Media Studies Program's television industry training program in Vietnam.

**Dr. Erez Cohen** is a social anthropologist and a postdoctoral fellow in the department of media studies at La Trobe University. He is currently conducting Bushfire CRC funded research on the relationship between emergency organisations and the media in Australia.

Email: p.hughes@latrobe.edu.au

# Megacode 2006: from concept to reality

*Moutia and Baker describe the planning of the emergency management exercise, Megacode 2006, and the lessons learned from this exercise*


## Abstract

Disaster exercises are critical in ensuring agencies are well prepared when a real incident occurs. In order to be effective, exercises need to be carefully planned and replicate the real world conditions likely to confront responding agencies. Megacode 2006 was the culmination of 8 months of careful planning and was focused upon evaluating the response of St John Ambulance volunteers to a multiple casualty incident (MCI). The exercise was well received by all attending agencies and successfully highlighted areas which challenged St John responders and which require consideration in future MCI training of St John Ambulance volunteer members and team leaders.


## Introduction

The management team of St John Ambulance Australia, Granville Division have long recognised the importance of maintaining skills through scenario-based training. This is particularly true when it comes to Multiple Casualty Incidents (MCI). Emergency services and, in particular, volunteer first responders have little exposure to MCIs and, therefore, exercises are an important training tool. Megacode was devised in response to the identified and critical need for advanced training and skills development in ensuring organisations and individuals are adequately prepared and equipped for MCIs.

Megacode is an exercise held every two years in the Sydney Olympic Park precinct. The exercise is primarily designed for St John first responders. The first Megacode exercise was conducted in 1997 and consisted of a simple motor vehicle collision. Since those humble beginnings, Megacode exercises have continued to evolve in both complexity and realism. Megacode 2004 was the most ambitious exercise to date. Simulating an improvised explosive device detonation at an Olympic Park facility, Megacode 2004 was complex and challenging for the responding and organising teams. This article will explore the Megacode 2006 exercise from its initial conception through to evaluation.

## Megacode 2006

The Megacode Organizing Committee (MOC) comprised eight individuals. Most members of the committee are active members of St John Ambulance Australia. In addition to St John representatives, the committee included several members of local emergency services, namely NSW Fire Brigade and the Ambulance Service of NSW. MOC was overseen by a steering committee that brought together senior representatives of both MOC and St John Ambulance Australia NSW state staff. The project was managed using PRINCE2 project management methodology.

As with all previous Megacode exercises, the first major hurdle was to determine an appropriately challenging scenario for the responding agencies. When considering potential scenarios, it was important to devise a full-scale, realistic and challenging exercise that tested the capabilities of all services. Following considerable consultation with all agencies, it was decided that simulating a crash between a bus and a large truck would prove challenging and would be a situation which would realistically be encountered by volunteer St John responders working in close proximity to the incident.

A collision involving a bus and truck would provide to all services the challenges associated with treating and extricating casualties. For St John first responders, managing a bus full of casualties would test their triage and treatment capabilities and as Baker (2007:232) states, “Planning, rehearsing, and exercising various scenarios encourage the flexibility, adaptability, and innovation required in disaster settings.” For the rescue services, this exercise would provide much needed experience in extricating individuals from large vehicles and often above shoulder height as well as providing teams much sought after ‘tool’ use.

## Vehicle acquisition and crash

With the scenario determined, the MOC quickly moved its attention to acquiring the necessary vehicles for the exercise. These vehicles had to be relatively undamaged so that any damage sustained on impact during the exercise would be directly related to the crash. Procuring a passenger bus and truck when the intention was to destroy them and render them unusable was a challenge in itself. MOC team members spent several weeks contacting numerous organisations nationwide. Persistence paid off when team members received good news from both Westbus and National Transport Insurance. Westbus kindly located and donated a bus for the exercise. The bus was approximately 40 years old, 9 tonne, 12.5 metres long and recently decommissioned. National Transport Insurance (NTI) also offered MOC a vehicle in the form of a 17 year old Isuzu truck which was unroadworthy due to a bent chassis rail. The truck weighed 8 tonnes and was 25 feet in length.

With the vehicles and towing secured, the next major hurdle was to crash both vehicles. MOC enlisted the assistance of RTA Crashlab. The RTA Crashlab is a business unit of the Roads and Traffic Authority of NSW and is a state of the art independent test facility. RTA Crashlab provided significant support to MOC in the form of technical advice and ultimately in physically crashing both vehicles at their Huntingwood vehicle crash test facility. The enormity of this task cannot be overstated considering that this crash would prove to be the largest crash test in Australian history and that there would be only one shot at getting this crash right.

Prior to the crash of the vehicles, it was determined that the bus was too high for the facility and, therefore, the crash could not proceed as initially planned i.e. with both vehicles moving at the time of the collision. It was decided that the only alternative was to perform a 'shoot through' crash where the truck would be propelled through the Crashlab complex and into the stationary bus parked at the back of the facility. In order to simulate a closing speed of 60 – 80kms/hr where, in fact, only one vehicle was mobile, the truck would need to be propelled at 80kms/hr and the bus would need to be lightly chocked.

The crash was conducted without incident. Once the vehicles had come to rest, the MOC team members went about the labour intensive work of cataloguing the scene. The intention was to use this data to later recreate the crash scene on the day of the exercise. Once the cataloguing was complete, the vehicles were packed and stored at RTA Crashlab.

## Casualties

Consistency of the scenario namely between the mechanism of injury and moulage, is a key consideration when it comes to Megacode exercises. Prior to specifying the injuries of the casualties, the MOC team undertook a thorough literature review. Several articles and research papers proved useful in determining the injury patterns one might expect in a head on collision between a bus and truck. Of particular interest was a series of reports by the American National Highway Traffic Safety Administration (NHTSA) documenting findings from a comprehensive series of full scale dynamic crash tests incorporating a series of sled tests.

The crash tests conducted by NHTSA focused upon American school buses which are similar to the bus donated to Megacode by Westbus. The literature review conducted by NHTSA indicated that the most significant factor in fatal "two vehicle" bus accidents was the posted road speed limit i.e. roads with a posted speed limit between 88.5 and 96.5 kms/hr and secondly accidents with heavy trucks, 83% of which were frontal impacts (Sullivan et al, 2001: 2). The literature further revealed that of those involved in school bus accidents, 86% of passengers have minor injuries, 10% are moderately injured and 4% are critically injured (Sullivan et al, 2001: 1). These statistics fitted well with our intended scenario and gave the team an early insight into the types of injuries responders would be expected to encounter.

The crash test dummies used for the school bus series represented different types of passengers. Of particular interest to MOC were the Hybrid III 50th and 5th percentile crash test dummies. The 50th percentile dummy represents the typical height and weight of an adult male whereas the 5th percentile dummy represents the typical height and weight of an adult female or adolescent passenger.

The bus procured for Megacode had no restraint systems fitted and, therefore, the unrestrained sled tests provided the most usable data for determining casualty injuries. Of particular interest was the discovery by Sullivan et al (2001: 8) that "... when an unbelted 50th male dummy was seated behind either a 5th female or another 50th male dummy, the unbelted dummy could override the seat back to strike the head or back of the dummy seated in front of it". The tests concluded that unrestrained passengers caused significant rear occupant loading and when dummies overrode the seat in front incidental contact resulted in high HIC values which indicates the risk of head and neck injuries was high (Sullivan et al, 2003, 9). Considering the low back seats in the MOC bus and the likelihood that occupants would override these seats, it was, therefore, highly

likely that a number of occupants in the scenario would suffer head, neck, chest and lower limb injuries..

With the results of the NHTSA dynamic crash tests and in consultation with RTA Crashlab, members of MOC proceeded to determine injuries and assign them to casualties in the bus. It was decided by MOC that St John Ambulance volunteers were to be used as casualties for the exercise. St John volunteers have the distinct advantage of understanding the pathology associated with injuries and would therefore act out their injuries appropriately. As St John volunteers were recruited, MOC took photos of each volunteer so later skin colour matching could be undertaken by the moulage team. Skin matching in previous exercises proved vital in ensuring prosthetics look appropriate for the casualties' complexions.

Moulage for Megacode 2006 was provided by the Art and Technology of Makeup College (3 Arts). 3 Arts has a long association with St John Ambulance Granville and has provided moulage for all previous Megacode exercises. MOC team members met with 3 Arts regularly to discuss the exercise, the specific injuries and, where appropriate, provided 3 Arts staff with technical guidance.

## The exercise day

The exercise day started with the closing of a service road in Olympic Park. The road selected for closure was chosen through close consultation with Sydney Olympic Park Authority and MOC. MOC ensured the road was consistent with the scenario and an accident where the closing speed of the vehicles of 60-80kms/hr would be realistic.

Once the road was closed, the vehicles were placed in position with the assistance of NTI. The vehicles were placed in accordance with their final resting positions as recorded by MOC at Crashlab. MOC team members spent considerable time distributing the debris as catalogued at Crashlab in order to ensure the scene was authentic. Additionally, the bus interior was modified to reflect the damage expected with rear occupant loading i.e. passengers contacting the seats immediately in front of them.

Whilst the vehicles and debris were being staged, casualties started arriving at the makeup staging facility. Injuries ranged in complexity with some casualties requiring several hours of makeup whilst others required minimal makeup time. Once all casualty moulage was completed all casualties were transported to the scene. MOC team members placed each casualty in accordance with the casualty plan.

Immediately prior to the exercise all emergency services mustered at an agreed staging/assembly area. For the purposes of the exercise, emergency services were given instructions to respond to the incident using average response times. Services involved included NSW Police, NSW Fire Brigade and the Ambulance Service of NSW. The St John teams participating in the exercise of which there were two were dispatched from local Olympic Park venues where as part of the scenario they were providing medical services. The MOC team were careful to ensure the St John teams were staffed in accordance with the type of event they were fictitiously covering. Each St John team were unaware of the other team and therefore the intent was to test inter unit coordination.

The exercise proceeded as planned. One of the St John teams had to contend with an unexpected situation when one of its members suddenly became ill and had to be removed from the exercise. The exercise lasted one and a half hours from the time the accident occurred through to the last casualty clearing the scene. The initial debriefing on the night indicated that the scenario was successful and all services felt the exercise was a worthwhile activity.

## Evaluation

A senior nurse educator and member of MOC developed the evaluation tools for the exercise and coordinated the evaluation team. The evaluation focused heavily upon measuring the response of St John Ambulance volunteers to a Multiple Casualty Incident (MCI) as well as the success of Megacode as a multi service exercise.

The evaluation team consisted of four senior individuals representing St John Ambulance Australia, the Ambulance Service of New South Wales, NSW Fire Brigade and the Department of Health. Evaluation was conducted using purpose built questionnaires as well as interviews. All casualties, responding teams, project consultants and evaluators were given the opportunity to submit comments using evaluation tools specific to their role.

### *Incident management*

Incident management is critical to MCIs and is challenging for both professional and volunteer services. The St John volunteer team leaders found incident management particularly difficult. This is not surprising considering that those members present on scene were general members. Team leaders focused upon providing immediate aid to injured passengers. This approach is a more traditional role for St John particularly when working alongside the Ambulance service. With the focus on patient care and less on scene management tasks, securing adequate scene access and appropriately siting Casualty Clearing Stations (CCS) was not a primary consideration. This focus upon treatment as opposed to scene management led to the CCS being placed too close to the bus, potentially posing difficulties


© Aris Kritikos

*The Megacode 2006 accident site.*

for the rescue effort. Megacode 2006 highlighted the need for further training of general members on the SJAPLAN and their responsibilities should they be the first teams to arrive on scene.

### *Communication*

Communication is a vital component of incident management and was another area which challenged St John responders. Whilst evaluators noted St John volunteers communicated well with Ambulance Service personnel, evaluators also identified difficulties with communications between St John members and other services such as NSW Fire Brigade. The communication difficulties observed may be due in part to a lack of familiarity between St John members and other services. St John volunteers work routinely with Ambulance Service personnel and therefore are more confident in communicating directly with these professionals. It is critical that future St John MCI training is targeted to educating team leaders on their role, the expectations of other services and development of effective communication strategies.

### *Personal protective equipment*

With the worldwide increase in terrorism-related incidents, personal protective equipment (PPE) has become very topical in the rescue community. Although Megacode was not a hazardous materials exercise, it was however useful in evaluating available PPE and its use, particularly for St John responders who may be required to respond to an MCI during the course of a normal event and with no notice.

Evaluators noted that all services used PPE appropriately where available. However, St John members did not have access to some PPE deemed necessary for management of MCIs particularly in a rescue environment. PPE selection is an ongoing challenge considering that the "one size fits all" approach is not suitable for responders who may be confronted by a number of different types of incidents and their inherent individual risks. Johnson (2006:46) suggests, "The personal protective equipment needed for disaster situations will vary according to the type of catastrophe and the extent of destruction." Since PPE requirements vary according to the type of incident, Johnson (2006:46) suggests that, prior to and during an incident, hazard assessment and reassessment should be undertaken in order to determine the appropriate PPE to be deployed. Consideration should also be given to potential hazards to rescuers with the use of PPE such as heat stress etc.

In planning for the future, Megacode has highlighted the importance of acknowledging the potential for an MCI to occur at or in close proximity to a public gathering and, therefore, consideration must be given on how best to equip St John first responders with the appropriate PPE. Consideration should be given to the development of a PPE program/tool which ensures appropriate hazard assessments and reassessments are undertaken as the incident unfolds, ensures team leaders and team members are adequately trained in selection and use of PPE and, lastly, maintenance and monitoring of PPE is rigorously managed (Understanding PPE Selection & Use During Disasters ,2006:18).



*The bus interior was modified to reflect the damage expected with rear occupant loading.*

### *Future exercises*

The evaluations revealed that all those who participated and attended Megacode 2006 felt the exercise was successful and highly realistic. Comments included, "Frightfully realistic" and "Had to keep reminding myself that it was fake". If Bruhnke's (2004:2) statement is true, "... enjoyment is probably an indicator, rather than the cause of a successful multi-agency collaboration", then Megacode was successful in establishing collaboration between all the responding services. Whilst the exercise was successful, the evaluations identified several considerations for the next Megacode exercise. Actors, in general, felt confident acting out their injuries. However, it was suggested that issuing tags to each casualty detailing their clinical presentation e.g. vital signs, symptoms and clinical progression etc would benefit the actors and would aid responding teams in making triage decisions. This suggestion will be incorporated into future exercises. Another suggestion was the expansion of the scope of the exercise to include local hospitals. Traditionally, Megacode has focused heavily upon pre-hospital management of MCIs. Historically, one of the difficulties with including local hospitals in Megacode exercises has been transport from the scene to the hospital. However Vaughan (2004:3) made a worthwhile suggestion in recommending the use of two sets of patients, one set for the incident scene and one set for the hospital. The use of two sets of patients may prove useful particularly for Megacode where as, Vaughan (2004:3) suggested, Ambulance transport is difficult to secure for a large exercise.

## Summary

Megacode 2006 was successful as an exercise and demonstrated the importance of exercises as tools for evaluating the response of services and, in this case, namely St John Ambulance, to multiple casualty incidents (MCI). In the past St John has provided a supportive role to government agencies when participating in MCIs. However, Megacode placed St John first responders at the scene of an MCI and as the initial agency responsible for provision of medical care. The Megacode scenario did reveal that communication and PPE were areas which challenged St John team leaders and members most. Training programs which focus upon equipping St John members with communication skills necessary to operate in an MCI environment should be considered. Development of a PPE program/tool should also prove useful as an aid for St John and fellow services in determining how best to approach an incident, how to re-evaluate PPE as incidents progress thus ultimately safe guarding the welfare of first responders.

Exercises continue to be vital as collectively organizations seek better ways to manage MCIs. Megacode has established itself as a unique exercise where attention to detail aims to immerse responders in the scenario. It is the hope of the Megacode team that this paper inspires fellow services and communities to undertake their own MCI exercises and share their findings with the Emergency Management community.

## References

Baker, M. (2007) 'Creating Order from Chaos: Part 1: Triage, Initial Care, and Tactical Considerations in Mass Casualty and Disaster Response', Military Medicine, vol.172, no.3, March, pp. 232-236.

Bitto, A. (2007) 'Say What? Who? Me? Right Here in the Trenches? Collaborate on What? - Seeking Common Ground in Regional All-Hazards Preparedness Training', Journal of Environmental Health, vol.69, no.6, January/ February, pp. 28-33.

Bruhnke, L. (2004) 'Disaster Exercises : Avoiding a Train Wreck', EMS Responder, vol.33, no.2, pp. 65-70, Available: http://www.emsresponder.com/publication/article.jsp?pubId=1&id=2085

Byers, G. (2003) 'Dress Rehearsal', Emergency Nurse, vol.11, no.4, pp 14-17.

Edwards, N., Caldicott, D., Eliseo, T., Pearce, A. (2006) 'Truth Hurts – hard lessons from Australia's largest mass casualty exercise with contaminated patients', Emergency Medicine Australasia, vol 18, pp. 185 – 195.

Johnson, L. (2006) 'The Right PPE for Disaster Responders', Occupational Health & Safety, vol.75, no.1, January, pp.46-50.

Kempsey Bus Accident. 1989. Canberra: Emergency Management Australia . [Video recording]

McCray, L., Barsan-Anelli (2001) ' Simulations of Large School Bus Safety Restraints - NHTSA. Paper No. 313', The 17th International Technical Conference on the Enhanced Safety of Vehicles - Conference Proceedings, Amsterdam, The Netherlands, pp. 1-14, Available: http://www-nrd.nhtsa.dot.gov/pdf/nrd-11/17ESV_313.pdf

Shover, H. (2007) 'Understanding the Chain of Communication During a Disaster', Perspectives in Psychiatric Care, vol.43, no.1, February, pp. 4-14.

St John Ambulance Australia (2006) 'State Major Incident / Disaster Plan (SJAPLAN)', Sydney: Version 2.0

Sullivan, L., Elias, J.,McCray, L. (2001) 'Large School Bus Safety Restraint Evaluation'. Paper No. 345', The 17th International Technical Conference on Enhanced Safety of Vehicles - Conference Proceedings, Amsterdam, The Netherlands, pp. 1-10, Available: http://www-nrd.nhtsa.dot.gov/pdf/nrd-01/esv/esv17/proceed/00158.pdf

Sullivan, L., McCray, L. (2003) 'Large School Bus Safety Restraint Evaluation – Phase II. Paper No. 313', The 18th International Technical Conference on Enhanced Safety of Vehicles - Conference Proceedings , Nagoya, Japan, pp. 1-11, Available: http://www-nrd.nhtsa.dot.gov/pdf/nrd-01/esv/esv18/CD/Files/18ESV-000313.pdf

Tan, R. (2006) 'The Preparation of Volunteers for Deployment in Emergencies', The Australian Journal of Emergency Management, vol.21, no.2, November, pp. 54-59.

Understanding PPE Selection & Use During Disasters (2006), Professional Safety, vol.51, no.3, March, pp. 18-19,49.

Vaughan, W. (2004) 'Mass-Casualty Exercise Design for EMS Agencies', EMS Responder, vol.33, no.2, pp. 59-63, Available: http://www.emsresponder.com/publication/article.jsp?pubId=1&id=2084

## About the Authors

**Didier Moutia** is a registered nurse with a masters degree in trauma. He is currently the divisional superintendent of St John Ambulance Australia Granville Division. He has over 22 years experience in prehospital care working with a number of prehospital agencies.

**Robert Baker** is a student health professional and is the special projects manager for St John Ambulance Australia Granville Division. He has 22 years experience in St John Ambulance Australia and has held various portfolios such as public relations, training and special projects.

Contact Details
Mr. Didier Moutia
St John Ambulance Australia Granville Division.
P.O. Box 122,
Granville NSW 2142.

Email: didier.moutia@stjohngranville.org

# The use of local knowledge in the Australian high country during the 2003 bushfires

*Jenny Indian considers the application and use of local knowledge as a tool for emergency management. She discusses the implications of such a tool using two case studies*


## Abstract

The concept of local knowledge in fire management has long been recognised as important. Rural communities carry most of the burden of bushfire and yet fire managers have often proceeded in the absence of key local knowledge held within these communities. Despite this, the significance of local knowledge in bushfire management, it's meaning and practical application remain vague. Here the role of local knowledge is discussed as a tool in fire planning and explored as a crucial part of the community engagement process, allowing rural communities the chance to play a more active role in fire management. In turn, by way of two case studies in the high country, the impact of this involvement, or otherwise, is considered in relation to the resilience of two specific rural communities.


## Introduction

The idea of local knowledge is widely embraced and recognised as important in the debate surrounding fire management (Esplin, 2003; COAG, 2004; McLeod, 2003, Parliament of the Commonwealth of Australia, 2003, Government of South Australia, 2005) particularly after the extensive 2003 fires throughout Alpine Australia. When I have been speaking to individuals with direct experience of both this fire and others, discussion often returns to the question of local knowledge, its use, dismissal or simply what it involves.

Although the term local knowledge often comes up, the concept often remains misunderstood—though initially seeming quite simple, local knowledge can present as a complex mixture of observations, thoughts and reasoning based on local experience and tradition. Interestingly, it is referred to by various Government Departments, including in Victoria the Department of Human Services and the Department of Victorian Communities, as 'local intelligence' within their research. For the purposes of this paper, local knowledge is considered as information based on tradition, personal observation and experience of a particular geographic location and how it functions as a community, both first hand and passed on.

It is important to note that this article only goes some way to exploring the concept of local knowledge. Considerably more work needs to be done into just how its use and application can aid or, as discussed, potentially hinder fire managers and agencies. The case studies are not included to provide clear cut examples of either the positive use of local knowledge or the problems encountered when it is not considered. They are more presented as examples of what can and does happen in rural communities during a major fire event—local knowledge is inherently complex and so often hard to clarify—and therefore more add to the broad picture of the use of this concept than provide immediate answers.

All knowledge has a context and, as such, who the expert is depends on the circumstance (Yli-Pelkonen & Kohl, 2005). One can delve beyond that and suggest that local knowledge involves a degree of understanding over and above simply knowledge. Information exists and is received but interpretations vary. Indeed, it has been noted that knowledge is not something an individual has 'more' or 'less' of but rather reflects the specific forms of practice undertaken in daily life; thick in some areas and thin in others, knowledge is embedded in daily political and environmental activity (Robbins, 2004). The tacit, almost elusive, nature of local knowledge is also acknowledged, contributing as it does to the inherent difficulty of isolating this concept.

Within this paper I will be explaining the methods used in researching aspects of local knowledge, considering the general idea of this concept and viewing its use and application specifically in relation to two case studies within rural communities in the high country of Victoria and NSW. Importantly, the use of this tool will also be considered in the light of its potential weaknesses and the timing of its application in relation to the varying stages of fire management.

## Methodology

The research follows a more constructionist philosophy where the social phenomena investigated may not be directly observable and perhaps only implicit and approximated (Robson, 2004). This approach favours a more sensitive anthropologically based qualitative research design involving unstructured in-depth interviews, focus groups and participant observations.

To date, extensive interviews have been conducted with individuals, local Government officers and Government and non Government agencies throughout the high country of Victoria, NSW and, to a lesser extent, the ACT. Numerous focus groups have been conducted, bringing together a range of both locals and newcomers within these communities and, with that, a diversity of thought and opinion. Participant observations have been conducted at community meetings and, in addition, current and established literature has been reviewed extensively.

## The idea of local knowledge

Traditional ecological knowledge (TEK) is one form of local knowledge as ancient as the hunter gatherers and yet the term only came into widespread use during the 1980s (Berkes, 1993). This form of knowledge represents experience acquired over perhaps thousands of years of direct human contact with the environment. TEK can be a vast accumulation of knowledge and understanding. Within the Alpine areas of Australia, for example, large fires appear to have been extremely rare before European occupation. However, the movement of Europeans into the area shows a massive increase in both the frequency and intensity of fires. Indeed, studies indicate that fire frequency and intensity in the Alps under Aboriginal management was far lower than that for the rest of south eastern Australia (Zylstra, 2006).

Local knowledge can be intensely specific, applicable only within a very small geographic area and so be potentially limited and problematic in application. However, its successful use and transfer within any district may have generic application elsewhere—verification of map accuracy, for example, with those who know the country in question. How local knowledge can be harnessed and practically applied and why this is important to the process of community engagement is at the core of a genuine understanding of this concept. However, it can be riddled with subjectivity, coloured by self interest and bring with it value-laden emotions and potential weaknesses. Further, it can be used as part of the airing of long held grudges, general distrust of authorities and personal gripes. Local knowledge is difficult to measure and test quantitatively as it involves, as noted by Howitt (2002, pg.3), "local values; anecdotal, observational experience; colloquial terminology; the all-but-invisible background of relationships, behaviours and kinship structures that shape people-environment relations".

© Newspix

*Local knowledge is invaluable for effective emergency management.*

Importantly, local knowledge need not be set up against scientific or expert knowledge but can be viewed as complementary (Mahiri, 1988). Where scientific knowledge can dictate overarching policies and practices, local knowledge can guide local, more practical applications. Herein lies the dilemma of local knowledge, its apparent weakness and inherent strength—it can underpin the knowledge interface between experts and locals and, as such, play a pivotal role in the communication process by promoting trust and cooperation. What is fundamental to the gathering and use of this tool is the acceptance and understanding that local knowledge must be subject to the same scrutiny as all knowledge collected—simply because it is deemed local knowledge does not mean that it is correct. One form of knowledge should not be privileged over another.

In considering this area of research it is tempting to indulge in lost rural traditions, glorify the past—the 'good old days'—and the demise of self-reliance amongst changing rural communities. All too often "Collective memory simplifies; sees events from a single committed perspective; is impatient with ambiguities of any kind; reduces events to mythic archetypes" (Manne quoting Bean, 2006, pg.26). The changing demographic of rural populations, the questioning of the sustainability of farming practices and perceived overarching bureaucracy and regulation can be viewed as disruptive elements to the apparent rural idyll. However—and particularly in relation to fire management—many aspects of improved scientific knowledge and technology are enormously positive, and, indeed, often enable the continued existence of isolated rural communities which may otherwise decline into oblivion. Greatly improved communication, understanding of fire behaviour and constantly updated equipment must be acknowledged as crucial to fire management.

Local knowledge is merely one tool available to fire managers and must be viewed as such—it needs to be scrutinised as any information should be when used to inform decision making. It cannot therefore necessarily inform management practices as part of a blanket approach and should not drive these decision making processes but must be viewed as situational and contextual-specific, applicable at certain times, in certain locations and in particular ways. It may not, therefore, be geographically transferable though, as noted, can have generic application (see Table1).

However, what is most disempowering for those involved in an event such as the 2003 fires is the complete dismissal of their input—the apparent lack of consideration and the acknowledgment that the knowledge and understanding they have is seen as irrelevant. Local knowledge is not a spontaneous tool and cannot be used in an ad hoc fashion. It must be part of a long term process, gathered over time and fostered from within a community. Rural communities are complex and vary enormously and, while common themes and aspects will be noted, a 'one size fit all' approach cannot be undertaken. Each region, district and every community has its own history and sense of country. This must be acknowledged and respected and the specific attributes of this knowledge and understanding be openly recognised and valued at all levels of fire management.

## Local knowledge in Australian fire management : two case studies

In times of emergency it is crucial that the confidence of locals in fire agencies and management is not compromised as this can quickly deteriorate into anxiety, uncertainty and, often, mistrust. Once this process begins further long term alienation and disquiet can occur. Innovative opportunities to harness and utilise local knowledge exist at a regional and international level for both Fire Brigades and Government departments. More obvious examples include training—for example, those from completely different geographic terrain be given training in districts very different from their own, thereby broadening experience and including local brigade personnel in the decision making process wherever possible. However, the displacement of local brigades may be part of the response depending upon the specific phase of fire management.

As outlined in Table 1, though initially very resource intensive, the accumulation of local knowledge is a long term investment which has the potential to aid all phases of fire management in particular the final, operational phase when the information is being used to reinforce community participation and engagement.

Specific examples of the use of local knowledge from the 2003 fires in the Australian high country include locals assisting with accurate mapping (particularly effective well prior to a fire), older brigade members

**Table 1:**

| Stages of fire management | Use of LK – strengths | Use of LK – weaknesses |
|---|---|---|
| | Availability of detail, ground-truthed & accurate; can give access to community | Potential to be narrow & parochial – limited & subjective |
| Listening | - early communication & contact with locals<br>- community involvement indicates a long term investment<br>- broadening of information base<br>- promotes trust and cooperation | - hard to access & verify<br>- may not be altruistic<br>- may encounter conflict from & within community<br>- resource intensive |
| Planning | - potential for new perspectives<br>- building community involvement & confidence<br>- greater confidence as decisions made based on verified/ checked LK<br>- utilising existing information, not reinventing the wheel<br>- allows early organisation of specifics eg to ensure presence of a local in IMTs<br>- may aid the application of broad government/agency policy | - limited in application; impossible on broad scale<br>- may be gaps in knowledge interface (between locals & agencies) |
| Operational Response | - taking local community with you; greater understanding of decisions made due to early inclusion<br>- increased communication & involvement resulting in better fire awareness & understanding<br>- potentially greater confidence eg when using maps checked by locals<br>- in strengthening community involvement & understanding of emergency also increasing resolve and underpinning resilience | - use of LK here less tangible/ apparent causing some lack of trust to remain |

briefing the more physically able (access, terrain, local landholders) and a list of those within a community considered more vulnerable being made available during an emergency (care must be observed here in relation to privacy). Ideally, a measured approach is to tap into and document this information well before an emergency.

### *Benambra, Victoria*

The small rural community of Benambra is located 22km north-east of Omeo and 437km east of Melbourne, Victoria. Other nearby towns include Swifts Creek, Ensay and the major town of Bairnsdale.

The town is at an altitude of approximately 700m and has a population of around 150 people, although most residents live on farms and properties out of the actual town. This is a relatively isolated community with a harsh climate—arguably factors which may contribute to the apparent strength and resourcefulness of the local community.

On 6th January 2003, an established, local landholder noted smoke west of Benambra. Having an extensive knowledge of both the country and fire history of the district, he was very concerned at the potential of this fire and local forces were marshalled to combat a fire which went on to join and become part of the Bogong East complex of fires. The nature of this blaze, given the extreme weather conditions on the day and prolonged drought leading up to that summer, caused extreme concern at a local level—action had to be taken quickly and there was little time to consult with those outside. Though support obviously came from the Department of Sustainability and Environment (DSE), Parks Victoria and the Country Fire Authority (CFA), the initial response was essentially run by and involved locals.

The local landholder is a respected leader within this district and an acknowledged key player in community matters. As such he has both the knowledge and skills to galvanize those within the community and is very aware of specific skills which individuals have to offer in a major fire event. Importantly, he also has the respect of those within the district and he, in turn, values his community and the strengths of individuals within it. It could be suggested that this goes beyond simply knowledge and involves a sense of country and a genuine understanding of its people. His wife is also highly respected within the district and, in addition to surveillance at their property throughout the fire, she also acted as a Peer with the Critical Incident Group throughout this fire event.

Examples of the application of local knowledge in this instance are many but include the use of landholders to phone in developments and monitor the fire—acting as local lookouts ('cockatoos') from their own properties and beyond. Here geographic knowledge of country and accuracy is all important as time is absolutely of the essence and decisions involving lives and property are taken based on this information. Locals were using machinery, often their own, in the construction of breaks and, again, here knowledge of country is crucial. Guided by those with extensive knowledge of fire and weather history of the region and the expected run of this fire, machinery operators worked in adjacent bush and extensive backburns were undertaken in an effort to reduce fuel for the approaching blaze.

An appreciation of the strengths and weaknesses of this community is fundamental to how a community responds in stressful circumstances. Those who were vulnerable due to age or having dependents, those who were better away from the isolation of their own property and working in the township supporting others, those physically frail but with extensive and useful knowledge—the diverse roles of individuals was acknowledged, their strengths respected and most within the community were involved.

This was an extraordinary fire effort, established very quickly and working over many weeks throughout the local district. It involved people from within the community and beyond. Aspects of the fire management established during this fire have since been adopted by various fire agencies and managers, though criticisms have also been made.

Accusations of the local response being over protective is one such criticism—something very difficult to prove or otherwise given the circumstances surrounding this particular fire. The location of the initial fire coupled with the extreme conditions led to a rapid response from those locally and 'everything was thrown at it' in an attempt to prevent its spread. In this sense people and machinery were fully concentrated on this location initially and, as the fire did spread, others were pulled in. Total concentration of all available resources initially at least would seem reasonable—arguably this focus may have been hard to change.

In speaking to members of the community about this particular time, many relate their sense of ownership of the fire effort. There is a strong feeling that they were able to be a fundamental part of the initial response and, as such, their involvement at this early stage gave the community strength to withstand the ordeal of the fire, an enormous sense of pulling together and therefore confidence to endure and work in the exhausting weeks to follow.

### *Berridale, NSW*

Berridale is a small NSW rural settlement with a population of around 800 people. It is located 436 km southwest of Sydney and 35km from Cooma and sits 860 m above sea level (ie below the snow line). Although essentially a service town for the surrounding area, Berridale is also an important stopover point for those travelling to the snowfields of Thredbo and Perisher Valley.

One particular key player within the district has played a pivotal role in previous fire events and is currently Operations Officer – Monaro Team and Fire Control Officer – Snowy River, with the Rural Fire Service (RFS), NSW. In addition, this person is a well known and respected local landholder with family residing in the district for over four generations. As is often the case in small rural communities, respected and established locals such as this tend to be sought out for advice and relied upon heavily during an event such as the 2003 fires.

However, early on during the fires in 2003 this individual was taken away from the local operations and placed at Jindabyne to act as Deputy Incident Controller/ Planning in an effort to help with the broader scale fire fight. Though this may have seemed a valid decision at the time—and no doubt contributed to the broader scale effort—RFS Group Captains and other locals involved in the fire effort were very disturbed by this move. In speaking with many involved it becomes apparent that their sense of confidence was undermined by the absence of this particular person and his capacity to communicate clearly, direct fire fighting efforts and offer support and guidance to those on the ground—his role up to that point. This sense of unease permeated well beyond just a handful of fire fighters and appears to have led to extreme disquiet amongst many within the NSW RFS in this region for the duration of the fire effort.

Those with an established and recognised knowledge of country, weather patterns and fire history are crucial to the sense of control and confidence held by local communities when those communities are under direct threat. The role of key players varies but in this instance the capacity to listen, make measured and respected decisions based on ground-truthed knowledge and understanding of both country and the people involved, discuss and offer support to those on the fire ground was fundamental to the fire effort. The removal of this respected and pivotal player completely unsettled this community, causing cynicism and a lack of trust which was—and continues to be—directed at those who came from outside the district to help with the fire effort.

Interviewees indicated that they would have felt much 'safer' and 'in better hands' had they known that this particular individual was in his usual role during a fire, that of overseeing local operations. As it was there was a general feeling of vulnerability due to the absence of this person. In speaking with the individual concerned, he too felt uncomfortable in his new role, though was able to contribute, and was trying to keep in contact with locals from his particular district to establish just how the operation was going. Should another major fire event again threaten the Berridale district, he has vowed to stay in his local district, doing 'what he does best', overseeing local operations.

Obviously, decisions are made and must be made rapidly during a fire as to placement of personnel. A key player in a particular community and one respected beyond the immediate district is a very valuable tool in the broader fire effort as well as within their own specific locality. However, at some point the value of these individuals with strong local knowledge within their own community and district must be weighed against their value when placed elsewhere. Again, the informal and elusive nature of local knowledge makes it difficult to measure this and yet lessons must be learnt from previous experience and hindsight harnessed. Those with genuine local knowledge are able to offer thoughts and advice grounded in experience and tradition and therefore underpinned by understanding. This must be respected. The dangers of dismissing this and all it has to offer include, in the short term—and, importantly, during the fire fight—a sense of ill ease and disquiet, perhaps then a lack of trust and confidence in management and potentially the long term alienation of an entire community. Genuine community involvement and engagement become virtually impossible if this scenario develops.

## Pitfalls and potential dangers of using local knowledge

Possible dangers of using local knowledge are many and varied. There may be difficulty in reaching consensus within a community because of divergent views and not everyone wanting to be involved. Is the information reliable or is it dated and based on country long gone? Is it based on opinion rather than fact and charged with emotion and sentiment? Is it totally subjective rather than objective? What is perceived as local knowledge within a community must be examined in the light of



*Respected and established locals were sought for advice and heavily relied upon during the 2003 fires.*

genuine altruism—is it coloured by self interest? Is it too narrow and, if followed, will the specific information received actually jeopardise the broader fire effort? Does the information gained actually provide a complete picture? Judge Stretton (1939) noted that:

*"The truth was hard to find. Accordingly, your Commissioner sometimes sought it (as he was entitled to do) in places other than the witness box. Much of the evidence was coloured by self interest. Much of it was quite false. Little of it was wholly truthful." (pg. 7)*

Who is to judge what is the balanced view and how can this be achieved? Outcomes from seeking local knowledge are not necessarily predictable nor tangible; verification may be very difficult and take time and resources. This is not a simple tool; in considering local knowledge one must proceed with caution.

Rural observations and use of language vary and the overuse of acronyms and scientific terms is often confusing and alienating to those unfamiliar. Language understood by all must be used and respect shown for variations; those less articulate are still worth listening to and their views must be sought with suitable methodologies. As noted by Pennesi, "The gap between information and usable knowledge can be bridged with effective communication practices that take into account a wide range of linguistic and cultural factors" (Pennesi, 2007, pg. 1034).

Local knowledge can bring with it a position of power in a community—those who have it and those who don't. This has the potential to further fracture the community which can cause those who are perhaps unsure of the worth of their knowledge to remain silent. 'Sides' may develop, become polarised and the resulting conflict can impact negatively for all. Care must be taken to ensure that prejudices don't become entrenched, dominating and distorting dialogue.

The term itself and its role can be confused and misused as something of an elixir for all the ills befalling communities before, during and after a major emergency. This can serve to deepen any apparent rifts between communities and Government agencies, causing blame and a negative backlash which, again, further complicates recovery.

## Conclusion

The use of appropriately derived local knowledge can only be beneficial to future fire management whether in the explicit transfer and use of otherwise unknown or misinterpreted local geographical knowledge or through the more general fostering of trust and cooperation between community and agencies. As noted above, in times of emergency it is crucial that the confidence of locals in fire agencies and management is not compromised as this can quickly deteriorate into anxiety, uncertainty and, often, mistrust. Once this process begins further long term alienation and disquiet can occur.

© Newspix

*Caution should be exercised in using local knowledge as it may be coloured by self-interest.*

Methods of feeding this information into the policy process must be further explored. However, as noted, the potential pitfalls of this tool must also be recognised. The use of local knowledge in fire management is both complex and controversial and, as with many aspects of community involvement and participation, it must be scrutinised thoroughly. Though initially very resource intensive, the accumulation and use of local knowledge should be acknowledged as a long term investment which has the potential to aid all phases of fire management. Talking to locals in their own environment is an obvious beginning as is providing circumstances where people can feel comfortable in coming to you—"…how citizens are invited to participate in disaster management is critical to the success of that participation." (Pearce, 2003, pg 218). It is crucial that the term and all it represents not be considered as a silver bullet which can overcome all perceived problems within fire management and changing rural communities—it is a complex area and one worthy of further research.

In taking the time, providing the resources and being involved in the use of local knowledge fire managers and agencies are investing wisely, acknowledging the wealth of experience available and developing the necessary skills to ensure the reliability and effective application of this tool. No longer can the experience and tradition found within rural communities be held at arms length—all levels of fire managers and agencies need to embrace this understanding, rub shoulders with those who have it and use it willingly and innovatively.

## References

Berkes, F., (1993) Traditional Ecological Knowledge in Perspective. Pages 1-9 In J.T. Inglis (ed) *Traditional ecological knowledge: concepts and cases*. Canadian Museum of Nature, Ottawa, Ontario, Canada.

COAG (Council of Australian Governments), (2004). Report of the National Enquiry on Bushfire Mitigation and Management. COAG, Canberra.

Esplin, B., Gill, A.M. & Enright, N., (2003) Report of the inquiry into the 2002 – 2003 Victorian Bushfires. State Government of Victoria, Melbourne.

Government of South Australia, 2005. Collaboration is the key. Lessons from the South Australian Government's recovery operation, Lower Eyre Peninsula bushfire, January 2005. Government of South Australia, Adelaide.

Grenville,K., (2005), The Secret River, Text Publishing, Melbourne.

Howitt, Richard (2003). Local and non-specialist participation in impact assessment, in: C.-Q. Liu, Z. Zhao, T. Xiao and J. Guha, Strategic Management of Environmental and Socio-Economic Issues: A Handbook. Guiyang, China, Guizhou Science and Technology Publishing House: 27-36. http://www.es.mq.edu.au/~rhowitt/SIA_00E9.HTM

Mahiri, I., (1998) Comparing transect walks with experts and local people, PLA Notes, Issue 31, pp. 4 – 8, IIED, London.

Manne, R., (2007) A Turkish Tale - Gallipoli and the Armenian Genocide, The Monthly, Feb. 2007, pg.20-28.

McLeod, R., 2003. Inquiry into the operational response to the January 2003 Bushfires in the ACT. ACT Government, Canberra.

Parliament of the Commonwealth of Australia, 2003. A Nation Charred. The Nairn Report. Parliament, Canberra.

Pearce, L., (2003) Disaster Management and Community Planning, and Public Participation: How to Achieve Sustainable Hazard Mitigation, Natural Hazards, 28, 211-228.

Pennesi, K., (2007), Improving Forecast Communication, American Meteorological Society, July 2007, pg 1033 – 1044.

Robbins, P. (2004) The politics of barstool biology: Environmental knowledge and power in greater Northern Yellowstone, Geoforum 37, 185-199.

Robson (2002). Real World Research. Blackwell.

Stretton, L.E.B., (1939) Report of the royal commission to inquire into the causes of and measures taken to prevent the bush fires of January, 1939, and to protect life and property and the measures to be taken to prevent bush fires in Victoria and to protect life and property in the event for future bush fires. Government Printer, Melbourne.

Yli-Pelkonen, V. & Kohl, J. (2005), The role of local ecological knowledge in sustainable urban planning : perspectives from Finland. Sustainability: Science, Practice and Policy, Vol 1, Issue 1 Page 2.

Zylstra, P. (2006) Fire History of the Australian Alps – Prehistory to 2003, Australian Alps Liaison Committee, NSW NPWS http://www.australianalps.deh.gov.au/publications/fire/history.html

## About the Authors

**Jenny Indian** is currently researching the resilience of rural communities to bushfire, work undertaken as a part of the Highfire Project for RMIT and the Bushfire CRC.

Email: jenny.indian@rmit.edu.au

# Coming down off the high: Firefighters experience of readjustment following deployment

*Alina Holgate and Maria Di Pietro analyse the psychological experiences of volunteer firefighters*

## Abstract

The Victoria, Australia 2006/2007 fire season was amongst the worst on record and involved the deployment of thousands of firefighters from multiple government agencies from across the State. Little research has been conducted into the typical readjustment processes of firefighters following return from deployment. There has also been little research into the emotional rewards that firefighters may experience during deployment. Sixty-six firefighting staff from an emergency response agency were interviewed about their experiences of readjustment and the subjective rewards of their tour and interview responses were content analysed using a grounded theory approach. Firefighters cited a feeling of achievement and of having made a meaningful contribution, as well as a sense of community and camaraderie, as rewards of their involvement in the firefight. Challenges to reintegration following deployment were: "coming down off the high"; feeling disoriented and detached; being cognitively preoccupied with the fires and needing to "offload". This paper argues that the typical experience of non-clinical emergency service workers: a) involves substantial emotional rewards and b) follows a typical pattern of readjustment that may present challenges to the workers reintegration into their normal life. Suggestions are made as to how managers may better assist firefighting staff to reintegrate to their normal work role following deployment to the fireground.

## Introduction

The Victoria, Australia 2006/2007 fire season was amongst the worst on record. Over a million hectares were burnt and fireground staff worked day and night as more wildfires started — mostly due to lightning strikes. Approximately 3,000 people were involved in the firefight Statewide. This included both volunteer firefighters and paid firefighters from the Country Fire Authority (CFA), The Department of Sustainability and Environment (DSE), The Department of Primary Industries (DPI) and Parks Victoria (PV), who were deployed from their normal duties to contribute to the firefight. These people typically did a rotating number of tours of duty on the fireground before returning to their normal work duties.

Much previous research has explored psychological readjustment after return from deployment to emergency work (Moran, 1998; Wagner, 2005). This research has mainly focussed on the possibility of post-traumatic stress disorder or critical incident stress as psychological sequelae of involvement in emergency work. Most emergency service agencies have set up some form of debriefing mechanism (whether chaplaincy, peer support, formal critical incident stress debriefing, etc.) to address the needs of workers whose emotional state may have been disrupted following their deployment. The efficacy of such debriefing has been questioned (see Devilly and Cotton, 2003, McNally, Bryant and Ehlers, 2003, Devilly and Cotton, 2004, Devilly, Gist & Cotton, 2006, for extensive reviews of the literature).

While there is an extensive body of research on possible pathological reactions to emergency service events there has been no reported research (as far as these authors are aware) into the normal processes of readjustment that ordinary fireground staff may face, other than research into the fatigue or work stress typically associated with emergency service activities (Takeyama et al, 2005). Cowlishaw and McLennan's (2006) review of the limited literature on the impact of fire service on families of volunteer firefighters

makes clear that firefighters are typically exposed to appalling working conditions and considerable work stress which may be carried over into the home and affect family functioning. Regehr, Dimitropoulos, Bright, George, and Henderson (2005) found that firefighters reported being disengaged and emotionally distant from family following deployment. Cowlishaw and McLennan (2006) point out that social withdrawal is a relatively common response to stress (Repetti, 1992) and Regehr (2005) found that the spouses of parademics noticed their partner's tendency to become emotionally withdrawn following stressful deployments. Roberts and Levinson (2001) found that exhaustion and work stress contributed to marital tension among police officers.

Regardless of whether fireground staff are traumatized by their emergency service experiences there is no doubt that deployment on a fireground tour is disruptive of a workers ordinary routine and functioning. An aim of the current research was to investigate the typical readjustment processes following a fireground tour among a non-clinical sample of fireground staff.

While there has been much research into the emotional costs of emergency service work, there has been little research focussing on the benefits of this work (Moran, 1998). Hetherington (1993) found that emergency medical personnel reported that their major sources of job satisfaction were: working as part of a team; use of skills; and a feeling of competency and challenge within the job. This is consistent with McLennan and Birch's (2007) findings that CFA volunteers report gaining considerable benefits from their involvement in firefighting, including contributing to the protection of the community, learning new skills and feeling like a valuable member of the community. Moran and Colless (1995) identified four dimensions of positive reactions following emergency service: exhilaration; sense of occupational achievement, enhanced appreciation of life and colleagues and a sense of control. Mouthaan, Euwema and Weerts (2005) found that among UN peacekeepers one of most commonly cited rewards of service was the social bonding that occurred during deployment which lead to these workers seeing themselves as a "band of brothers" (p.111). Research has suggested that firefighters are "a healthy group overall" (Harris, Baloglu and Stacks, 2002, p. 233) in terms of psychological resilience and positive world view. A further aim of the research was to investigate the subjective rewards of participation in fireground tours.

## Participants

A total of 66 fireground staff employed by an emergency response agency (39 males and 27 females) were interviewed. Age of participants was not recorded but ages were judged to range from 20-60 with most participants being in the 30-50 age group. Participants had served various roles on the fireground: 13 (20%) had served as general firefighters; 6 (9%) had worked in the staging area; 35 (53%) had worked in the Incident Management Team and 12 (18%) had worked in the fire recovery effort.

© Newspix

*Interviewers said the rewards of firefighting are a sense of community and camaradiere.*

## Method

Due to the exploratory nature of the research a qualitative methodology was employed. Participants were asked to respond to a number of open-ended questions about their emotional and physical reactions following their deployment to the fireground, e.g. how was your emotional state? how were your fatigue levels? did you have any general problems on your tour that made things difficult?

## Procedure

Forty participants were interviewed face-to-face at regional offices and 26 were interviewed by phone. Face-to-face interviews were tape recorded with permission of the participants and notes were taken of phone interviews. The data were gathered as part of an audit into staff well being. All participants were assured that their responses would be anonymous and confidential. Participants represented a range of regional offices across the State. A grounded theory approach was used in content analysing data (Hanley-Maxwell, Al Hano and Skivington, 2007).

## Results

### *Emotional benefits of deployment*

**A feeling of achievement and meaningful contribution**

Fireground staff reported obtaining a sense of personal achievement and mastery in their role. They felt that they had been able to make a meaningful contribution during a time of high need.

One (male) said: "I see myself as a true 'public servant' – my attitude is 'what more can I do to help the community?' Fight the fires." Another (female) commented: "It was a very positive and fulfilling experience because of the job I was doing. I really felt I was helping." Another (male) commented: "The days are long but they've got to be. You kind of get a bit proprietorial over the fires."

**A feeling of camaraderie and community**

Fireground staff were also rewarded by the feeling of camaraderie and of community spirit during the firefight. One (female) reported: "It was a very positive experience. You feel very useful. The atmosphere is really good. Everyone pulls together." Another (female) commented: "It was a positive experience. We had the same group and manager on all deployments – there's lots of camaraderie." Another (male) commented: "I was inspired by the way some people operated [on the fireground]." Another (male) said: "I was with people with an extraordinary set of skills." Another (male) reported: "I was really well mentored by a more experienced offsider. It was a great experience."

### *Challenges to reintegration*

**Coming down off the high**

Despite the positivity of their experience fireground staff reported experiencing difficulties with reintegration after their tour. One (male) said: "Good experience but had to come down off the high. While at the fires, there's no barriers to getting things done, plenty of resources. Very different to the world in the office." One (female) who was a novice to the fireground reported: "I came home on a high."

Fireground staff reported being totally absorbed during their tour. One (female) said: "Coming down off the high, it's all "fire". There's no outside world while on deployment." This experience was common regardless of fireground role. As one (female) commented: "Coming down off the high was tricky, especially for me in my role. I was shooting [badly burned] animals everyday and would sometimes wonder 'did we have to shoot that animal?'" Another (male) reported: "When you're on the longer shifts it was a bit harder to 'come down off the high' because it's so go, go, go." Another (female) commented: "I talked in my sleep about the accommodation at the fires. I've never done this before. It's hard to come down off the high."

**Disorientation, detachment and preoccupation with the fire.**

Firefighters reported feeling disoriented and detached following their tour. One (male) said: "I was walking around in a daze, not concentrating." Another (male) reported: "I was less focussed, had difficulty sleeping… irritable at home. My wife noticed I didn't seem present." Another (female) reported: "You tend to be pretty out of it for the whole week and then you start to get back on track."

Firefighters reported being preoccupied with the fires. One (male) said: "I had a bit of difficulty re-focussing on my normal job. I was still thinking about the fires. It takes some time to wean off the fires. It's difficult to apply yourself to mundane jobs." Another (male) commented: "Someone in a campaign [fire], it takes weeks for people to fully recover. It's almost like you need to be reprogrammed." The intensity of their experience lead to this preoccupation persisting over a considerable period of time. One (male) commented: "I look at guys who were at the 2003 fires and they seem not to be over it. You can see they're somehow still engaged in it. I'm not saying it's PTSD, but I do know that every time you get a few of them together, all they do is talk about the 2003 fires."

**A need to "off load".**

The intensity of their experience and preoccupation lead to a need to "offload" their experience. As one female reported: "I found I was talking about it a lot." Another (male) commented: "When I returned my manager noticed changes [in me] but probably didn't know exactly how to deal with it." For some the interview process served as an opportunity to "offload". One (female) participant said: "I've very much enjoyed being able to discuss all this [in interview] and have someone listen."

No participants reported a need for counselling, however. As one (male) commented: "Counselling is not the most effective way [to debrief]. More effective would be to utilize the older blokes who have the experience as peer support."

## Patterns of readjustment

Readjustment following deployment appeared to follow a typical pattern.

1. Immediately upon return from deployment fireground staff reported extreme physical exhaustion and a need to catch up on sleep. Most needed at least 2 days of rest immediately following deployment.



*Fireground staff reported experiencing difficulties in reintegration after their tour.*

This process was often complicated by a feeling of being on an adrenalin high.

2. A sense of detachment from others, preoccupation with the fires and a feeling of disconnection from "normal" life. They reported feeling "not there".
3. Gradual reconnection with work and family as the effects of fatigue wore off. Most participants reported that it took them at least a week to feel re-involved in their everyday lives.

One manager (male) summed up the situation: "I notice subtle changes in people returning from the fires. These changes are so subtle it seems the person themselves seems not to notice, but I can see them—things like not being focussed, a need to connect with others who've been to fires, an unsettled feeling and looking tired. As a manager I'd like to learn how to address this and manage these people effectively."

## Discussion

Interviews with fireground staff show that they gained substantial emotional benefits, at least in the short term, from their participation in the firefight. Similarly to the combat experience (Mouthaan et al., 2005) "ordeal by fire" is experienced as intensely psychologically impactful. All participants worked extremely hard and put in long hours under physiologically demanding conditions. This left them physically exhausted. Their reward, however, was a feeling of personal mastery and achievement and the feeling that they had made a meaningful contribution when it really mattered. Similarly to combat, firefighters developed a deep attachment to their comrades-in-arms and a feeling of ownership of the firefight. This is consistent with findings of of previous research (Hetherington, 1993, Moran and Colless, 1995, McLennan and Birch, 2007) that emergency service work can involve considerable rewards.

This commitment to the fireground, while promoting a "high" in participants did contribute to difficulties in reintegrating into their usual lives. All participants spoke of the "adrenalin rush" they had experienced as a result of their involvement in firefighting and many had difficulties "coming down off the high". Physiologically what goes up must come down and a consequence of falling adrenalin levels may be lethargy, fatigue and mild depression. Firefighters also had a cognitive preoccupation with the fires for some time following deployment. Their body may have been back at their desk but their mind was still at the fireground. This suggests that it may be useful for firefighters to employ short, effective interventions to assist them to re-focus their attention to regular work and life activities (Waite and Holder, 2003). None of the firefighters interviewed felt a need for counselling or other support services. They did, however, feel a need to "off load" and talk about how impactful their experience had been, even when their experience had been uniformly positive. This suggests that emergency service managers should take some time to informally debrief all staff following their tours of duty on the fireground rather than just focus on those staff who may have experienced problems with their deployment.

Firefighters interviewed had a tendency to personalise their experience (e.g. many said such things as "I don't know if it's just me, but I felt…") and didn't seem to be aware that their experience was typical and common among anyone who had participated in the firefight. Possibly emergency response agencies need to raise staff awareness of the typicality of such reactions as feelings of disorientation and detachment and emphasise to all staff that readjustment following deployment to the intense and absorbing experience of firefighting is a process that may take some time. Managers need to be aware that staff returning from deployments are unlikely to return to peak performance for 4-5 days following their return. Managers should consider restructuring work demands to accommodate staff readjustment, e.g. by assigning lighter duties, delegating or getting assistance with more demanding work tasks, encouraging taking naps if necessary, avoiding long drives and ensuring that staff get adequate sleep, hydration and nutrition.

This paper argues that the typical experience of non-clinical emergency service workers: a) involves substantial emotional rewards and b) follows a typical pattern of readjustment that may present challenges to the workers reintegration into their normal life.

## References


Cowlishaw, S., & McLennan, J. (2006). Impacts of fire service volunteering on the families of volunteers: A literature review and research agenda. *Supplement to Australian Journal on Volunteering*, 11(2), 46-55.

Hetherington, A. (1993). Psychological well-being in the accident and emergency department. *Social Science International*, 9(1-2), 1-9.

Devilly, G.J., Gist, R. and Cotton, P. (2006). Ready! Fire! Aim! The status of psychological debriefing and therapeutic interventions: In the work place and after disaster. *Review of General Psychology*, 10(4), 318-345.

Devilly, G.J. and Cotton, P. (2004). Caveat emptor, caveat venditor, and Critical Incident Stress Debriefing/ Management (CISD/M). *Australian Psychologist*, 39(1), 35-40.

Devilly, G.J. and Cotton, P. (2003). Psychological debriefing and the workplace: Defining a concept, controversies, and guidelines for intervention. *Australian Psychologist*, 38(2), 144-150.

Hanley-Maxwell, C., Al Hano, I. and Skivington, M. (2007). Qualitative research in rehabilitation counseling. *Rehabilitation Counseling Bulletin*, 50(2), 99-110.

Harris, M.B., Baloglu, M. and Stacks, J.R. (2002). Mental health of trauma-exposed firefighters and critical incident stress debriefing. *Journal of Loss and Trauma*, 7, 223-238.

McLennan, J. and Birch, A. (2007). Survey of new volunteers at twelve months: April-September 2005 entry cohorts. *Bushfire Cooperative Research Centre Volunteerism Project CFA Report No. 1: 2007*. School of Psychological Science, La Trobe University.

McNally, R.J., Bryant, R.A. and Ehlers, A. (2003). Does early psychological intervention promote recovery from posttraumatic stress. *Psychological Science in the Public Interest*, 4(2), 45-79.

Moran, C.C. (1998) Individual differences and debriefing effectiveness. *The Australasian Journal of Disaster and Trauma Studies*, 1, 14p

Moran, C. and Colless, E. (1995) Positive reactions following emergency callouts. *Disaster Management:*, 4, 55-60.

Mouthaan, J., Euwema, M.C. and Weerts, J.M.P. (2005). Band of brothers in U.N. peacekeeping: Social bonding among dutch peacekeeping veterans. *Military Psychology*, 17(2), 101-114.

Regehr, C. (2005) Bringing the trauma home: Spouses of paramedics. *Journal of Loss and Trauma*, 10, 97-114.

Regehr C, Dimitropoulos G, Bright E, George S.and Henderson J. (2005) Behind the brotherhood: Rewards and challenges for wives of firefighters. *Family Relations*, 54, 423-435.

Repetti, R.(1992). Social withdrawal as a short-term coping response to daily stressors in H Friedman (eds) Hostility, coping, and health, *American Psychological Association*, Washington

Roberts, N. and Levenson, R. (2001) The remains of the workday: Impact of job stress and exhaustion on marital interaction in police couples. *Journal of Marriage and the Family*, 63, 1052-1067.

Takeyama, H., Itani, T., Tachi, N., Sakamura, O., Murata, K., Inoue, T., Takanishi, T., Suzumura, H. and Niwa, S (2005). Effects of shift schedules on fatigue and physiological functions among firefighters during night duty. *Ergonomics*, 48(1), 1-11.

Waite, W.L. and Holder, M.D. (2003). Assessment of the Emotional Freedom Technique: An Alternative Treatment for Fear. The Scientific Review of Mental Health Practice, 2(1), unpaginated.

Wagner, S. (2005). Emergency response service personnel and the critical incident stress debriefing debate. *International Journal of Emergency Mental Health*, 7(1), 33-41.


## About the Authors

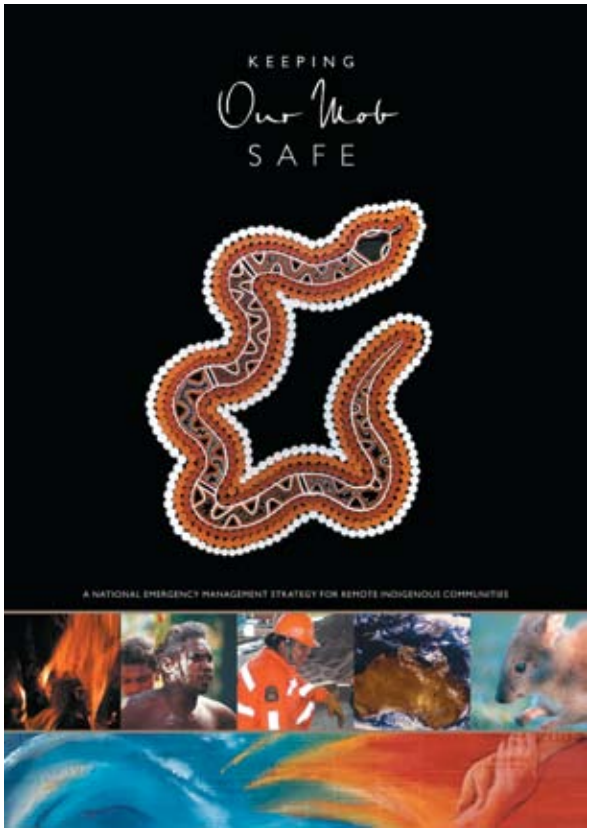

**Alina Holgate** has had a long career as an academic psychologist and is now a consultant and Manager (Research Design and Statistical Analysis) with Human Safety Systems Pty Ltd. She has researched extensively in the areas of post traumatic stress disorder, decision-making and risk perception on the fireground and regularly contributes to firefighter training.

**Maria Di Pietro** is an organisational psychologist with Mascot Solutions. She has consulted with a diverse range of organisations, including emergency services, and specialises in providing effective solutions to complex problems. She provides employee assistance programs, mediation, workplace education and training and coaching and counselling services.

Alina Holgate
Human Safety Systems Pty Ltd,
PO Box 36,
BACCHUS MARSH VIC 3340
Australia
Tel: 0425 763 775
**Email : alina@humansafetysystems.com.au**

# REPORTS

# ‘Keeping our mob safe’ A national emergency management strategy for remote indigenous communities




*The National Emergency Management Strategy document.*

The National Emergency Management Strategy for Remote Indigenous Communities: Keeping Our Mob Safe was launched by the Federal Attorney-General, the Hon. Philip Ruddock MP, at a ceremony held at the Bidyadanga Aboriginal Community, near Broome in Western Australia on 24 July 2007. The Strategy recognises the emergency management needs of remote Indigenous communities.

The aim of the Strategy is to improve community safety in remote Indigenous communities through a more coordinated approach to emergency management at local, state/territory and national levels.

The strategy provides the basis for a coordinated and cooperative approach for risk assessment, decision making and resource allocation. Its focus on preparedness and prevention enables the lack of capacity in remote Indigenous communities to be addressed by governments and organisations at all levels before communities are faced with emergencies. Among the priorities identified are training and education needs, communication and engagement issues, and building community partnerships.

The Bidyadanga Community welcomed several hundred guests from other Indigenous communities and government and non-government agencies from Western Australia, South Australia, Northern Territory, Queensland and the Australian Government. The Traditional Owners, the Karrajarri people, hosted a smoking ceremony to welcome visitors safely into their country and each of the five language groups in the community individually greeted visitors.

The Strategy was developed as a result of recommendations from the Council of Australian Governments (COAG) directed review Natural Disasters in Australia: Reforming mitigation, relief and recovery arrangements (2002).

State and Territory Emergency Services Ministers agreed to enhance efforts to build community capacity within remote Indigenous communities by the adoption of a broader, national approach to emergency risk management.

With the support of States and Territory emergency services agencies, Emergency Management Australia (EMA) facilitated a series of activities and meetings on the issues in emergency management in remote Indigenous communities.

On 4 March 2005, the Augmented Australasian Police Ministers' Council (now the Ministerial Council of Police and Emergency Management) resolved to develop a national strategy addressing emergency management in remote Indigenous communities.

Development of the Strategy was undertaken by the Remote Indigenous Communities Advisory Committee (RICAC), a sub-committee of the Australian Emergency Management Committee (AEMC). It was funded by a grant from the Australian Government's 'Working Together to Manage Emergencies' initiative.

A collaborative approach to emergency management across the jurisdictions together with local government and remote Indigenous communities and relevant community leaders and organisations involved workshops and questionnaires to obtain views across the country.

The Strategy was endorsed by the ministers responsible for emergency management and Indigenous affairs for the RICAC member states/territories (NSW, QLD, SA, WA, NT) and at AEMC level in the non-member states/territories. It was also supported by the National Indigenous Council.

"Working with their Indigenous communities, State and Territory Governments will lead the implementation of the Strategy" said Mr Ruddock. "And the Australian Government will continue investing in community disaster preparedness and prevention."

The participating jurisdictions are now looking to progress capability development to match the needs expressed by each region. The RICAC will oversee the implementation of Strategy and will report on progress to the Ministerial Council through the AEMC.

The National Emergency Management Strategy for Remote Indigenous Communities: 'Keeping Our Mob Safe' is accessible on the EMA website at www.ema.gov.au.

*The aim of the strategy is to improve community safety in remote indigenous communities.*

# Government and Communities Working Together to Manage Emergencies

**The Australian Government, through Emergency Management Australia (EMA), will soon be seeking grant applications from eligible organisations for funding available under the 'Working Together to Manage Emergencies' initiative.**

Of increasing and vital importance is our national pool of volunteers who represent a critical element of emergency management capability and who play a significant role in assisting communities in response to and recovery from the impact of hazards. Some 500,000 people in Australia volunteer their services in some emergency management capacity, and 350,000 of those are directly involved in emergency first response. It is critical that these volunteer agencies maintain their current staffing and training levels and continue to address the challenge of attracting new volunteers.

Consequently this round of grants (2008/09) will focus on emergency management volunteers in recognition of their needs and the significant front line role they play in reducing vulnerability and enhancing community safety.

**Grants** will be available under the **National Emergency Volunteer Support Fund** for projects that contribute to achieving these aims.

**How to Apply**
It is anticipated that applications will be called for in the second half of December 2007. Guidelines, application forms and details on how to apply will be available on the EMA website or by contacting the "Working Together to Manage Emergencies" team after that date:

E-mail cd@ema.gov.au
Phone 02 6256 4608 or 4687
Fax 02 6256 4653
Website: www.ema.gov.au/communityengagement

The closing date for applications is Friday 7 March 2008.

# DISASTER CONFERENCE TO FOCUS ON FUTURE

The traditional emergencies for which emergency managers have planned in the past may not adequately cover the real risks that Australia may face in the future. The theme Surviving Future Risks will require delegates at the Australian Disasters Conference 2009 to project their thinking beyond this decade into the future to consider potential risks that may impact upon our communities.

The four-day conference—at the newly refurbished National Convention Centre in Canberra—will be hosted by Emergency Management Australia (EMA). The Conference, as the prime national conference event for emergency managers in Australia and our region, is expected to attract more than 500 domestic and international participants from across the broad spectrum of emergency management and emergency services.

The conference theme of Surviving Future Risks reflects current trends in the emergency management field internationally. There will be four threads or sub-themes running through the conference:

- The Changing Face of Crisis Management – a convergence of Consequence Management and Crisis Management
- Global Warming - Potential impact and consequences for emergency management
- The Catastrophic Event – Identifying risks and mitigation strategies, and
- Recovery - Surviving the impact and consequences of a major disaster event.

This national Disasters Conference will provide participants with the opportunity to hear top-flight speakers from the fields of emergency management, community safety, risk management and sustainable development. All the speakers will be tasked to concentrate on future, strategic issues, rather than focus on operational issues from previous times.

**Conference Context**

The increasing severity and frequency of natural disasters, the increased occurrence and savagery of terrorist-induced emergencies and the ever-looming threat of the next pandemic suggest that past practices may not be enough to meet the challenges of the future.

Natural disasters pose an ongoing challenge for emergency managers worldwide. Data from the Centre for Research on the Epidemiology of Disasters (CRED) in Belgium shows that in 2006 there were 395 natural disasters worldwide – 88 more than the past decade's annual average.

In Australia alone, governments of all persuasions, non-government organisations, and the business community, are now considering emergency preparedness, disaster management, and business continuity as a matter of course for future sustainability.

Demographic and cultural influences are changing Australian society, while burgeoning information and other new technologies are changing the way Australians lead their lives. These changes provide both opportunities and challenges for the emergency management sector to identify and anticipate as contributors to future risks that could affect community safety and to develop targeted strategies to manage them effectively.

A new paradigm is also emerging on how social cohesion and the economic structure of a community will be influenced by disasters—either natural or human-caused:

- Can communities take responsibility for themselves?
- Are they sufficiently self-reliant to cope, when emergency services are stretched and deployed elsewhere?
- Do we understand community resilience sufficiently?
- What constitutes a catastrophic disaster?

A key role for EMA in planning the conference is to bring organisations and people together with the objective to seriously consider a number of priorities:

- the way that emergency response will develop over the next decade
- the protection of public health and safety
- the restoration of essential government services—at the three levels of government in Australia, and
- recovery in the face of competing challenges and demands.

EMA's Director General, Tony Pearce, is a firm believer in cooperative preparation for the management of emergencies:

"EMA's role in coordinating the Australian Government's support to State and Territory emergency operations, along with leading the national oversight of community safety issues, is to continue to work to build Australia's capability into the future.

"We face the need to develop greater capacity to deal with the risks inherent in major disaster events and to advance understanding of the factors that define and influence emergency management for the decades ahead," he says.

"Emergency Management is a shared responsibility," says Tony Pearce. "In order to meet current and new challenges, emergency managers and key stakeholders at the local, state and national level, volunteers, businesses and communities need to work in partnership to mitigate the impact of emergency and disaster events."

"This conference will provide a significant focal point for the emergency sector in Australia to concentrate on Surviving Future Risks."

The conference will also provide an excellent networking opportunity for those involved in the emergency sector.

For further information on the Australian Disasters Conference 2008, see EMA's website at www.ema.gov.au or contact Tonya Evans on 02 6256 4614.

# In Profile:

# Doug Angus

## Sixteen Years in Emergency Management in Queensland

Doug Angus came relatively late to emergency management, entering the field well into his thirties from concurrent careers in the Department of Forestry in Rockhampton and in the Army Reserve where he had reached the rank of Lieutenant Colonel and commanded an infantry battalion. In 1982, following completion of Joint Services Staff College, Canberra, the preceding year, he took up a job as Assistant Director (Administration and Logistics) with the Queensland State Emergency Service in Brisbane. His background as a reservist was critical to the winning of the position but the experience he had had of public service administration and structures was highly useful to his functioning in it.

At the time the permanent staff arm of the SES in Queensland was a small organisation within the Queensland Police Service. There were only about 50 in the whole organisation, with training, communications, stores and administrative functions centrally coordinated and delivered through State Headquarters in Brisbane. Regionally, seconded police sergeants filled the role of Regional Operations Officers (ROOS), with the role of providing administrative coordination, training support, resource distribution and operational reporting relative to those SES volunteer units within their region. It was the legislative responsibility of local councils, however, to raise and maintain a local SES volunteer unit. Angus found himself immersed in bringing the financial and resource management functions of the organisation into line with main stream public service requirements, while endeavoring to improve the level of such support provided to SES units. He also became involved in operations including big hailstorm operations in Brisbane in the mid 80s, fodder dropping operations during floods west of the Great Divide and 'mucking in' to whatever other operations were going on. This involvement included both the organisation and distribution of resources on a statewide basis and undertaking senior operations officer duties within the State Disaster Coordination Centre.

Late in the 1980s the SES was relocated from the Police Service to the Department of Administrative Services. There the SES had less independence than before, and Angus's job was in some danger of being absorbed into the larger entity. This would have taken him out of emergency management, but in 1990 there was another change and the SES became part of the Department of Emergency Services alongside the Queensland Fire Service and the Queensland Ambulance Service. In the new department the Director SES retained his role as Executive Officer of the State Counter Disaster Organisation, and the permanent staff of the SES continued to be utilised to coordinate overall state disaster management arrangements.

Up to this point this coordination function was heavily oriented to disaster response arrangements—the traditional 'rushing out and dealing with the crisis' model. There was little effective comprehensive planning (Prevention, Preparation, Response and Recovery) at either a local or state level, which was the dominant paradigm in the emergency services generally in Australia, as promoted by the Commonwealth Natural Disaster Organisation (later Emergency Management Australia). Angus thought the Queensland structure weak to the point of being incapable of providing the whole-of-government, multi-functional approach, which the State Counter-Disaster Organisation Act of 1975 envisaged.

An evolution beyond the response focus, and a general broadening of thinking about the purposes and methods of emergency management, was needed to bring Queensland into the world of modern emergency management.

In 1990, serious flooding in the state's west and south-west provided an opportunity and a catalyst for change. The entire business district of Charleville and almost all the dwellings in the town of 4,000 people were inundated by the Warrego River

and in effect the community lost its ability to function. Neither businesses nor institutions nor the basic services of civilised life could operate. Bob Barchard, the Deputy Director of the SES, flew over the stricken town on the morning following the nighttime inundation of the town. His observations, recommendations and timely decisions about what would be needed to mount a true whole-of-government operation involving the state departments of Works, Health, Police, Family Services, Natural Resources and Corrections as well as federal agencies like Telecom and Civil Aviation and Centrelink, laid the foundation for a very successful operation.

There was no established plan to guide him, but a sense of what was needed allowed Barchard to set up a management system to drive both the response and clean-up operations and the restoration of the town's ability to function. Community members, housed in a tent city next to the airfield, were joined by hundreds of agency personnel from Brisbane and elsewhere in the clean-up which allowed the people to return home a short time after the floodwaters had subsided.
This was part of a very big operation which extended well beyond Charleville itself. It included the need to operationally plan for the evacuation of Cunnumulla—a complex undertaking, which had to be completed in a tight time frame—and the management of the flooding of several other western towns. At one stage there were 27 aircraft to be coordinated in the area. Angus did much of the operational planning work from Brisbane before running the latter part of the Charleville operation from the control centre, which had been set up at the airfield.

© Bob Barchard

*Part of Tent City, Charleville, in 1990. About 3500 people were under canvas.*

Angus saw the chance to use the experience of the operation to reform the way disaster management was run in Queensland. He acquired funding to set up a study to address the application of all phases of the PPRR model in a flood context and to apply the emergency risk management process (through to the development of appropriate risk treatments) in the Murweh Shire which included Charleville. The study, conducted by Michael Cawood of the consulting firm Geo-Eng and with Roger Jones of the Australian Counter Disaster College (now the Emergency Management Australia Institute) as a team member, in effect led to Charleville becoming a test case to guide the management of future emergencies in the State. The study was the first application of the Risk Management Standard (AS/NZS 4360) in an emergency management context in Australia, and it delivered a methodology that could be applied in other council areas in the State. This ground-breaking initiative was the direct result of Angus's foresight.

What emerged was the evolution, for the first time in Queensland, of a comprehensive approach to dealing with disaster. All the phases of the PPRR model were addressed in what became a template for applying the risk management standard which itself was to govern the evolution of emergency management in Australia from the mid-1990s. The template was in place by the time of the next big Charleville flood in 1997, albeit one that was less severe than the event of 1990 and falling short of rendering the community incapable of operating autonomously.

In 1992, Angus had become the Director of the Queensland Disaster Management Service within the Department of Emergency Services. This gave him an across-government remit but few staff to build a genuine disaster management capability



*Drums of aviation fuel at the Charleville airfield. A DC6 and a DC3 were fully employed in transporting fuel to keep the other aircraft flying.*

for the State. Nevertheless he reactivated the Central Control Group of the State's Counter-Disaster Organisation (which had been dormant outside times of operations in the past), brought in other departments such as Local Government, Natural Resources, Works and Health, and in effect set up a state-level emergency management committee. Here he was able to set agendas, using EMA documents to legitimise the approach he was taking. There was a lack of enthusiasm from within the Department of Emergency Services—it in itself not being oriented to a whole of government approach—but Angus as secretary to the Central Control Group was instrumental in the establishment of lead agencies for the various threats and sewing together support-agency arrangements. The group became a key tool in the establishment of a comprehensive risk management approach to emergencies in the state.

Angus also spent much time talking to senior people in Emergency Management Australia, the Bureau of Meteorology, the Department of Defence and the Australian Geological Survey Organisation (now Geoscience Australia) so that the emergency management system could adequately deal with floods, tropical cyclones, and storm surges, all of them very serious threats in Queensland. Through these communications he was able to gain an enhanced appreciation of the threats and of the workings of the commonwealth-state arrangements for dealing with disasters.

In all of this work Angus became a champion of the risk management approach to emergencies. Indeed he brought Queensland, from a lagging position in the field, up to date with the leading states by the time the risk management model became the driving force in Australian emergency management.

Reflecting on his career, Angus believes that the only true disaster of his 16 years in the disaster management field was the Charleville flood of 1990. No other event in his time saw a substantial community rendered incapable of functioning: there was no water, no food, no sanitation and no communications, and the people were powerless to manage their affairs. Virtually everything had to be brought in from outside.

Such complete dysfunctionality of communities is quite rare during and after disasters. It did not characterise many of the most famous emergency events in recent Queensland history such as the Brisbane flood of 1974, the Rockhampton flood of 1993 or the impact of Cyclone Larry on Innisfail in 2006, though the last case probably came close. Cyclone Tracy at Darwin in 1974, the Ash Wednesday bush fires in parts of Victoria and South Australia in 1983 and the flood at Nyngan in 1990 were other instances in which substantial communities ceased to function for a time and became reliant on the outside world for instituting the processes of recovery and creating the means of return to normal life.

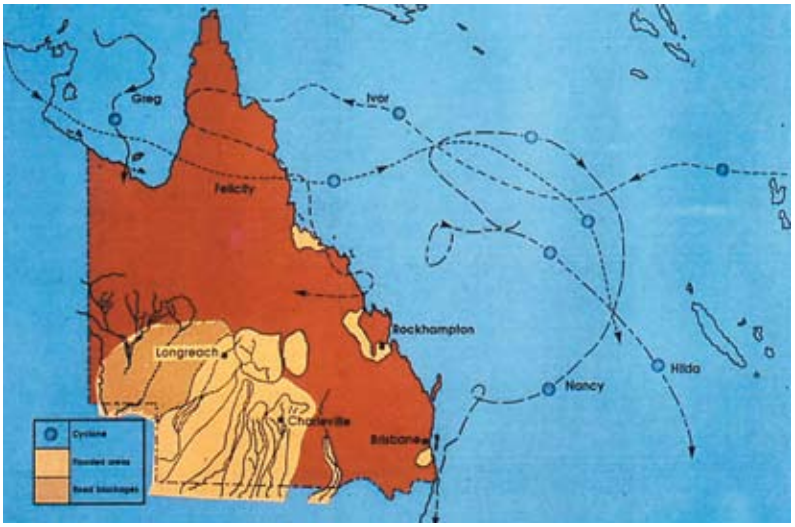
Angus also believes that the adoption of the risk management model was pivotal in changing the way in which governments (including local government councils) thought of emergency management. The model can be applied to encompass land use planning, floodplain management, engineering and the environment—indeed all of the concerns of government. Conscious decision-making about matters related to disasters begins with risk management; without it there is much less chance that decision-makers will focus on the key question of the risks their communities will have to take on as a result of particular courses of action being followed.

Councils, in particular, have been forced at executive management level (including mayors and general managers) to understand their roles in relation to the future of their communities and to treat risk as a mainstream concern rather than as a matter on the periphery of their thinking. Their strategic overviews of directions,

and therefore of managerial objectives and planning and budgeting processes, have been fundamentally altered.

Angus believes too that the thinking which was the norm in his early days in emergency management, largely founded in a concentration on particular hazards and on at-the-time responses to them, was seriously flawed. The single-hazard approach, he believes, was not helpful to the development of a whole-of-government view of disaster, and it detracted from a recognition that vulnerability is the central concern of emergency managers. Treating vulnerability, not dealing with hazards, is the core focus of the emergency management community.

Doug Angus espoused some powerful, pivotally-important ideas at a time when they were not widely accepted in the emergency management community in Queensland. In this he was a leader who promoted the emerging big picture in an era in which emergency management was undergoing fundamental and far-reaching change in Australia and when his own State was lagging behind. Most importantly, he made a major contribution to the acceptance and application of the risk management model in Queensland, and he was responsible for much of the development of the State's administrative apparatus for dealing with emergencies. On his retirement in 1990 he left behind a valuable and positive legacy.




*The parts of Queensland that experienced flooding in April 1990. A series of tropical cyclones over the preceding three months had wetted the state up, and the rain depression which had formed from the remnants of Cyclone Ivor created the floods in the southern inland of Queensland and in NSW. Nyngan had to be evacuated as well as Charleville.*

# USEFUL INFORMATION

## Australian Journal of Emergency Management

The Journal is published quarterly and is disseminated throughout the emergency management community and related disciplines, in Australia and overseas. Articles identifying and discussing issues, policies, planning or procedural concerns, research reports and any other information relevant to the emergency/disaster management community are welcome.

Refer to the EMA website (www.ema.gov.au/ajem) for current and past issues and information on how to subscribe and contribute.

## Letters to the Editor

The Journal welcomes Letters to the Editor. Please note that letters should be no more than 300 words. Letters exceeding this limit may be edited or refused. Letters must be in good taste and focus on issues of emergency management or past AJEM content.

Letters must contain a name, address and daytime phone number of the author. Unsigned letters or those submitted without a phone number will not be considered.

Regular contributors should submit letters on varied subjects. Letters by the same author that reiterate opinions previously expressed may not be published. The editor reserves the right to reject or edit any Letter to the Editor.

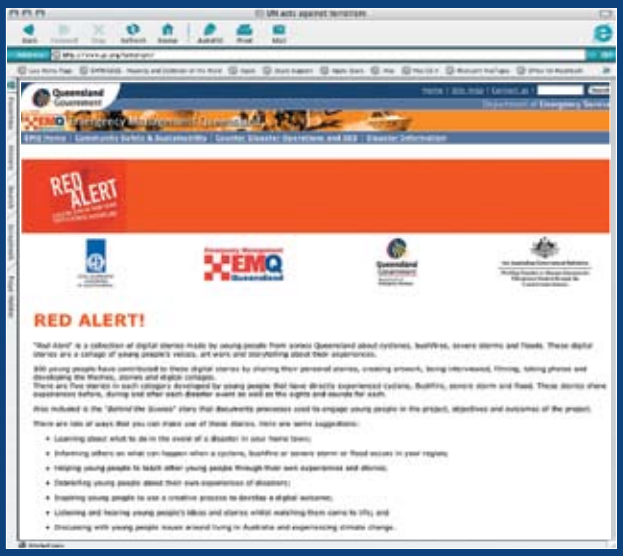
## Advertising in AJEM

Display and classified advertising may be accepted for publication with the agreement of the Editor-in-Chief. The editor reserves the right to insert the word "Advertisement" above or below any copy.

## Conference Diary

Full details of local and international conferences relating to emergency management are available from the EMA website. For information, please visit www.ema.gov.au.

# **interesting** websites




## RED ALERT!

**http://www.emergency.qld.gov.au/redalert.asp**

**"Red Alert" is a collection of digital stories made by young people from across Queensland about cyclones, bushfires, severe storms and floods. These digital stories are a collage of young people's voices, art work and storytelling about their experiences.**

**100 young people have contributed to these digital stories by sharing their personal stories, creating art-work, being interviewed, filming, taking photos and developing the themes, stories and digital collages. There are five stories in each category developed by young people that have directly experienced cyclone, Bushfire, severe storm and flood. These stories share experiences before, during and after each disaster event as well as the sights and sounds for each.**


## BUSHFIRE WEATHER

**http://www.bom.gov.au/inside/services_policy/fire_ag/bushfire/bushfire.htm**

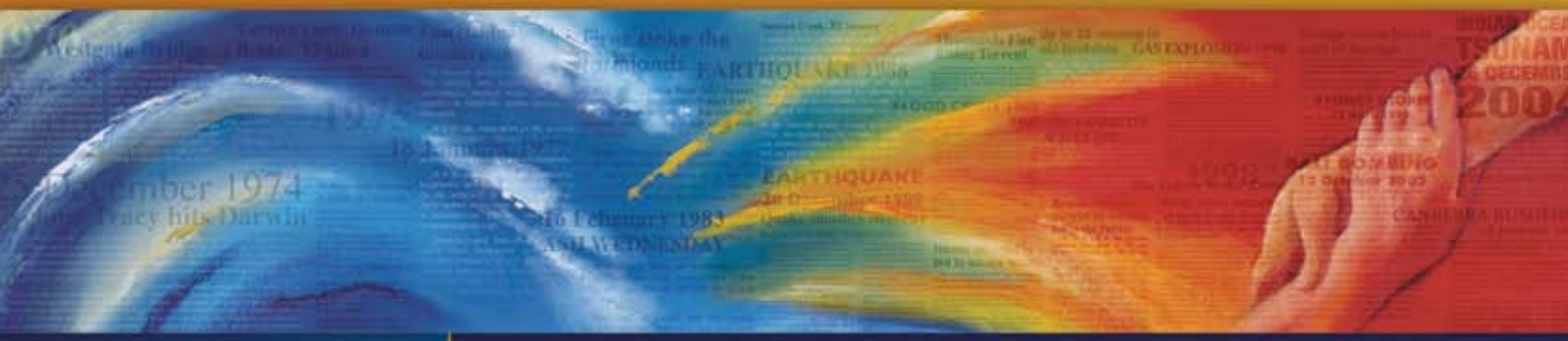
**Australia has a history of severe bushfires. Such tragedies as the Ash Wednesday fires of February 1983 (71 deaths in Victoria and South Australia), the Tasmanian fires of February 1967 (62 lives, more than 1400 houses and buildings lost) and the New South Wales bushfires of 1994, place bushfires high on the list of Australia's natural disasters.**

**The Bureau of Meteorology 'Bushfire Weather' site is part of the Bureau's e-portal and contains bushfire information on such things as the bushfire threat to Australia, weather and fire. It gives an anatomy of a fire 'Danger Day' and identifies high risk weather patterns, and provides fire weather warnings.**

Australian Government
Attorney-General's Department
Emergency Management Australia

AUSTRALIAN DISASTERS CONFERENCE 2009

# Surviving Future Risks



*EMA invites you to help shape the future of Australian emergency management.*

The traditional emergencies for which we have planned in the past may not adequately cover the real risks that Australia may face in the future.

The Australian Disasters Conference 2009 – *Surviving Future Risks* – is a major national conference, endorsed by Government, to explore the future disaster risk environment for Australia. The conference outcome is to recommend future ways to enhance mitigation and preparedness measures and build community resilience to meet these new challenges.

Expert speakers have been invited to address the four key conference sub-themes:

- **the changing face of crisis management** – a convergence of consequence management and crisis management
- **global warming** – potential impact and consequences
- **the catastrophic event** – identifying risk and mitigation strategies, and
- **recovery** – surviving the impact and consequences of a major disaster event.

This conference is designed for key stakeholders at the local, state and national level who have a role in emergency management, including government agencies, volunteers, business and industry, non-government organisations, research and professional bodies, and community organisations.

**For further information or to register on-line, visit the EMA website at: www.ema.gov.au**

Vol 22 | No 4 | NOVEMBER 2007

EMA 'safer sustainable communities'