EMA The Australian Journal of **Emergency Management**

SAFER SUSTAINABLE COMMUNITIES

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How communities experience disasters

Can we prepare minds for disaster?

Indigenous perspectives on cyclone vulnerability

Global events redefine disaster

Snapshot

Forest damage, Macedon Victoria. Ash Wednesday bushfires 1983.

Drought conditions had persisted in South-eastern Australia for several years with the 1982–83 summer being extremely hot and dry. Many small to moderate bushfires occurred in South Australia and Victoria over this period. By 16 February, Ash Wednesday, South Australia and Victoria were tinder dry and fuel loads in forests were very high.

In the 24 hours following that morning, a holocaust of bushfires erupted and in just a few days burned over 520,000 hectares across the two states. More than 3700 buildings were destroyed. Over 2400 families or individuals lost their homes, while 75 people died. Livestock losses were very high, with over 340,000 sheep and 18,000 cattle either dead or having to be destroyed. During that summer, at least a million hectares burned across South Australia and Victoria.

ATTORNEY-GENERAL'S DEPARTMENT

Cover: *Robyn Calder, Director of the ACT Bushfires Recovery Centre (January, 2003).*
– Printed with permission of *The Canberra Times*.

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

FOREWORD
EMA Training – National Best Practice

by Margery Webster

Emergency Management Australia Institute recently attained Registered Training Organisation status under the new Australian Quality Training Framework (AQTF) Standards for Registered Training Organisations, confirming the Institute's position as a national best practice provider of emergency management training and assessment.

The rigorous audit process covered all the Institute's operations, including procedures, competence of staff and the quality of learning and assessment strategies. Working towards compliance with the standards was a significant commitment involving every staff member at the Institute.

The AQTF Standards, together with nationally endorsed industry Training Packages make up the National Training Framework (NTF) for vocational education and training in Australia. The framework is designed to support the quality and consistency of training so that employers and training providers can readily recognise their industry competencies and confidently accept Statements of Attainment or qualifications issued by all Registered Training Organisations. This is particularly important for the public safety industry because as this journal goes to press, emergency management personnel are being widely deployed from around Australia to assist their interstate colleagues with the bushfire crisis.

What does this mean for EMA training?

The AQTF requires that all training for national recognition is aligned to national industry competency standards where they exist. State and territory training authorities will not accredit courses if the same outcome can be achieved through national competency standards. The Public Safety Training Package (July 2000) includes the competency standards for the emergency management sector. These describe the industry agreed skills and knowledge for effective practice in emergency management, and are packaged into the qualification *Advanced Diploma in Public Safety (Emergency Management)*.

To ensure EMA programs can be nationally recognised, the content of EMA short courses has been aligned with the emergency management competency standards and learning and assessment strategies developed to meet the competency requirements. Where there is no competency match, EMA curriculum will still be accredited through the Victorian Qualifications Authority and nationally recognised.

The good news is that in 2003 the EMA Institute will be delivering programs against five of the eleven competency standards required for the *Advanced Diploma in Public Safety (Emergency Management)* and will gradually add new competency standards to it's program of activities. Participants can gain credit (nationally recognised Statements of Attainment) for completing each unit of competency and may gradually complete additional units to eventually gain the *Advanced Diploma in Public Safety (Emergency Management)*, and/or a nationally recognised qualification in other areas of public safety. Pathways to other nationally recognised qualifications, such as in management, are also possible.

Learning and assessment EMA is incorporating more interactive methods of learning into Institute programs. The Institute is keen to make sure that training in emergency management really helps people to do their job better and places great importance on *transfer of learning*. Current research into how people learn shows that interactive teaching strategies, with a strong emphasis on moving from theory to practical application, result in the transfer of new learning into actual workplace practice. One of the main features of EMA's new teaching and learning approach is the three-stage structure of the programs:

Stage 1: Preparation

Before coming to the on-campus component, participants are required to complete preparatory work to introduce them to the content.

Stage 2: On-campus work

Here new knowledge and skills are applied in practice situations in a "safe" environment.

Stage 3: Workplace application and evidence collection

Back in the workplace participants apply what they have learnt and collect evidence to show that they have achieved the relevant competencies.

The preparatory work in stage 1 means that participants are tuned into the content of the program before commencing the on-campus component so that time on-campus is more usefully spent interacting with facilitators and fellow participants, learning through problem solving, discussion, practical exercises and sharing individual experiences. The workplace application stage ensures that new knowledge and skill enhances workplace performance and is therefore valuable to both the organisation and the participant.

Assessment

For competency assessment, participants must present evidence

which clearly demonstrates that they meet the performance criteria outlined in the particular competency standard. Participants are assessed on how they apply skills and knowledge "on the job" (or in a simulated environment where the requirements of the competency unit allow for this). People are not awarded a credit or qualification just for "time served" on the job or in training.

In the new structure, evidence collection and third party reports are essential components of the assessment process. To assist in this process EMA has produced a *Candidate Assessment Information Kit* for each program. This provides practical information for people who wish to be assessed, as well as for those completing third party reports. The kit includes templates for self-assessment, for planning evidence collection and for third-party reports.

Recognition of Prior Learning (RPL)

Formal qualifications are becoming more important for gaining employment and/or promotion in the emergency management sector. This may be an impediment for emergency management personnel who have achieved high levels of competence from on-the-job learning before emergency management credentials were available. Evidence of these achievements can now be used in the Recognition of Prior Learning (RPL) assessment process. If candidates can provide evidence to demonstrate that what they have learned from their experience meets the outcomes of units of competency they may be given formal credit.

Further information about EMA programs can be accessed at www.ema.gov.au

LETTER TO THE EDITOR

The article *Perceived change in risk of natural disasters caused by global warming* by C.R. deFreitas, (Nov, 2002) claims there is little evidence that the enhanced greenhouse effect will result in an increased risk of natural disasters.

This opinion differs on a number of issues from a more comprehensive review of the effect of climate change on extreme events by the Intergovernmental Panel on Climate Change (Houghton et al., 2001), based on contributions from 1057 scientists and reviewers. The report concludes (page 15) that climate change will lead to:

- Higher maximum temperatures and more hot days over nearly all land areas,
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas,
- Reduced diurnal temperature range over most land areas,
- Increased heat index over land areas,
- More intense precipitation events,
- Increased summer continental drying and associated risk of drought,
- Increased tropical cyclone peak wind intensities,
- Increased tropical cyclone mean and peak precipitation intensities.

Many of these changes have already been observed in the past 50 years (IPCC, 2001, pages 4–5). Collins et al. (2000) found significant increases in Australian hot days, decreases in cold nights, and decreased intra-seasonal variability. Hennessy et al. (1999) have shown increases in Australian extreme rainfall. Nicholls et al. (1998) found that while the number of cyclones around Australia decreased from 1969–1995, the number of stronger cyclones has increased. Karoly et al. (2003) concluded that the Australian drought of 2002–2003, and the associated impacts on agriculture, water resources and fire, were made more severe than past droughts due to greenhouse warming.

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Seagulls on the Airstrip: Indigenous Perspectives on Cyclone Vulnerability Awareness and Mitigation Strategies for Remote Communities in the Gulf of Carpentaria

McLachlan's study shows how understanding indigenous communities' coping mechanisms can lead to better disaster management strategies.

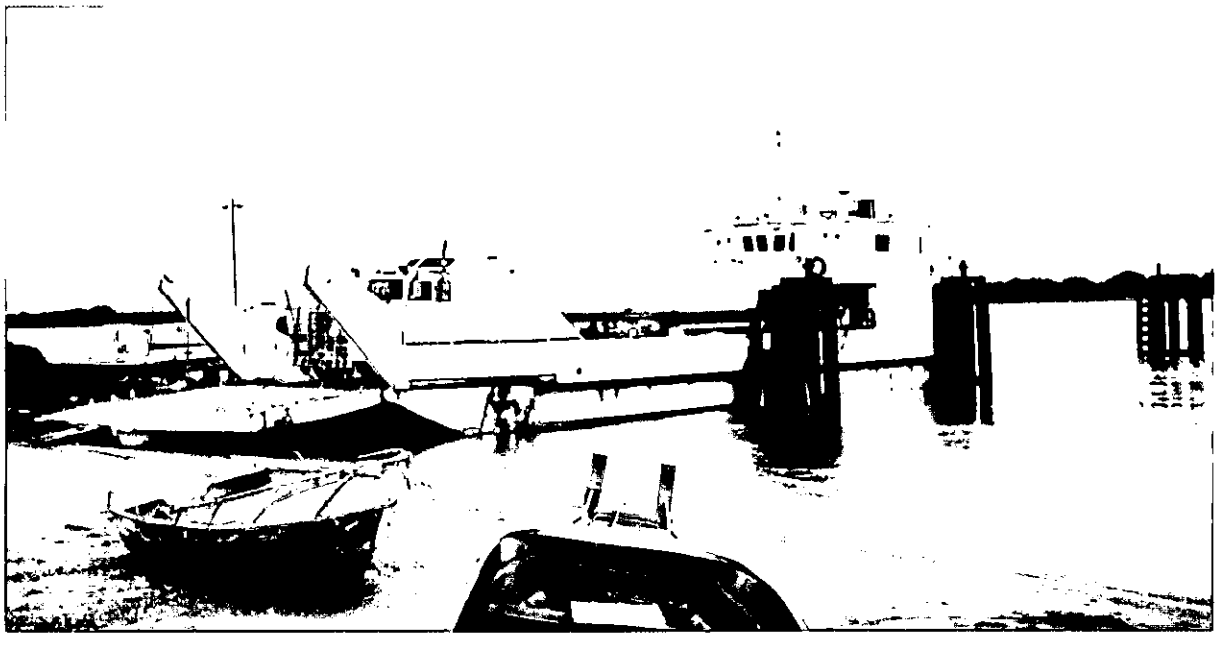
By Eddie McLachlan

On the northern coast-line of Australia, during the annual Australian wet season period–from November to March – residents of coastal towns and cities are aware of the dangers posed by natural hazards. In the area stretching from the northern west coast region of Western Australia, to the south-east corner of the Queensland coast, weather-wise, the most potentially dangerous hazard is tropical cyclones (Johnson et al 1995, Bryant 1991). Much research on tropical cyclones concerns associated effects, focusing on property damage, storm surge, floods and financial ramifications (King et al 2001, Smith 2001, Granger et. al. 1999). It is expected these hazards will continue to be the subject of future research studies, because apart from their frequency, they are also relatively predictable, and the associated dangers can be avoided with appropriate preparation.

In northern Queensland, the majority of the population is centralised on the east coast into two cities, Cairns and Townsville, and several towns in between, such as Innisfail and Ingham. Past cyclone research has been mainly confined to these urban centres, where disaster lifelines and support services have been developed. Platt gives a wide definition of lifelines as: "systems or networks which provide for the circulation of people, goods, services and information upon which health, safety, comfort and economic activity depend" (Platt 1991:173). According to Manock, "Each community has a differing view as to what type of service is essential and is classified as a lifeline" (Manock 1997:12). In this paper, a definition similar to Manock's (1997) is used, where lifelines are defined as: transport systems – namely road, air, and sea links, as well as communications such as radio, television, telephone and satellite links. All of these are vital in monitoring and assessing hazardous situations in remote communities, and more importantly, essential in supplying assistance to them.

In the Gulf of Carpentaria, and the western region of Cape York Peninsula, there is an isolated and scattered population concentrated into small towns and communities. With the exception of Weipa and Karumba, the majority of the population in most of these remote towns and communities is made up of indigenous people. In normal conditions, all are extremely isolated and their lifelines and communications are limited. On occasions when the destructive effects of wind damage and floods caused by a tropical cyclone are added to the situation, some communities' connections to the rest of the country are completely severed, often for several weeks. Essential communication like phone services are affected by destruction of poles and lines and roads are often cut by floodwaters. Some of the larger communities such as Mornington Island, Doomadgee and Normanton have established all-weather sealed airstrips, so when roads are cut, supplies can be flown in if necessary.

In cyclone research and assessment studies conducted in coastal north-east Queensland urban centres (Butterworth 1991; Granger et al. 1999), and Cape York remote communities (King et al. 2001), the main focus was



Supply ferry from Karumba docked at Gununa jetty.

damage to property, and the cost of repairs. They were part of overall damage assessment reports, and while they touched on some human aspects, they did not detail the social ramifications of the impact of the cyclones.

The strategies of cyclone awareness, preparedness and vulnerability are elements that are the main focus of authorities in the development and maintenance of disaster management in remote communities. The reports and studies from remote communities do not contain the indigenous inhabitants' views. In some of these areas, live elders whose ancestors have survived in these areas long before European's devised disaster strategies were introduced.

Given the specific parameters of the subject of this paper, there was virtually little relevant literature available for reference, so publications on natural hazards concepts and issues, in the context of disasters management, were reviewed (Smith 2001; Gough 2000; Chapman 1999; Kellert 1997; Kovach 1995; Blaike et al. 1994; Alexander 1993).

In Australia, apart from old newspapers, there is limited material available regarding cyclones and people's actual experiences of them. In 1994, Bill Bunbury released a book entitled, *Cyclone Tracy: picking up the pieces*, that "tries to tell the story of the cyclone through the eyes of people who went through it and to look at some of the issues that emerged ... " (Bunbury 1994: 12). The interesting thing about the book was that most of the text is personalised accounts that were recorded verbatim. A similar approach was used by Kevin Murphy in his 1984 publication, *Big Blow Up North*, which was primarily an "historical account highlighting the effect of tropical cyclones on the progress of settlement in the Northern Territory"(Murphy 1984: x). Like Bunbury, Murphy included numerous excerpts of recorded accounts that were taken from settlers' personal diaries and journals. Another pertinent reference was a James Cook University study by Eric Butterworth, *Cyclone Impact* (1991), which focused on the socio-economic effects of cyclone Winifred which crossed the coast near Innisfail in 1986.

A similar study to that being discussed in this article was conducted by Skertchly and Skertchly (1999), on the coast of the Northern Territory. Their project involved investigating severe natural hazards in the Australian monsoon region. They contended that over a long period of time, indigenous inhabitants of the area had developed effective methods of survival, which incorporated, "devising solutions for living and thriving in their challenging environments, and designing viable means of protection against severe natural hazards" (Skertchly and Skertchly1999: 48). Included in the study were cyclones, and the role they played in local traditional Aboriginal knowledge, in association with stories and the natural environment. This article, and others mentioned previously, suggested a need for more research based on disaster management in remote cyclone prone areas. Studies of this type could investigate survival strategies of Aboriginal people in a region such as the Gulf of Carpentaria. It may also involve examining whether traditional attitudes, stories, myths and survival techniques have been passed on, and if they play a part in any of the communities today. Most importantly, such a study could obtain an indigenous perspective on natural hazards, which may be of benefit to both disaster management authorities and local people in remote communities. The acknowledgement and inclusion of traditional Aboriginal hazard strategies in emergency management

Alma Moon and Ossie Escott, residents of Gununa.

practices could consolidate and further improve relationships between local indigenous people and authorities.

There have also been a number of projects carried out in remote communities in northern Queensland by the Centre for Disaster Studies at James Cook University in Townsville. Recent research by King and others, investigated vulnerability to cyclone and natural hazards, in indigenous remote communities of north Queensland (King et al 2001). In the final report, important disaster management issues such as preparedness, mitigation and lifelines were examined, and although acknowledged in some capacity, the inhabitants played a minor role in the studies. Of course, many reports are guided by research that prioritize other topics.

It is the author's contention that in these various research and assessment studies, whether in the large eastern coast cities (Granger et al. 1999) and towns, or the remote communities, one important element that has not been focused on, is the indigenous people. In some of these areas, live elders whose ancestors have survived in these areas long before European devised disaster strategies were introduced. During recent research fieldwork in the Gulf of Carpentaria on Mornington Island, a local elder was asked when he knew a cyclone was getting closer. He replied, "When I saw the seagulls all flying in and landing on the airstrip". He explained that it meant conditions at sea and along the coast of the island were so rough due to the approaching storm, the birds sought shelter inland. It is an example of how indigenous people in these regions employ observations of nature to forecast events, a fact that may be overlooked by authorities responsible for planning disaster management strategies for remote indigenous communities.

Mornington Island

Mornington Island is an isolated community, located in the Gulf of Carpentaria, approximately 125km northwest of Burketown, 400km west of Cairns and 444km north of Mt Isa. Comprising an area of about 700 square kilometres, it is the largest of the twenty-two islands, which form the Wellesley Islands group in the Gulf. Located reasonably close to the mainland in the southern half of the Carpentaria Gulf, the island appears to be in a relatively sheltered position. However this is not the case, as over the years Mornington has felt the direct effects of numerous tropical cyclones and has been consistently exposed to extreme weather conditions from cyclones and storms in the vicinity. The reason for the island's vulnerability is that its location is in an area that is subject to the forces of the seasonal monsoon activity that occurs in northern Australia during the annual wet season. The island is also flat – there are no mountain ranges or other significant geographic features to face the full force of strong weather conditions. The township of Gununa, which is the Lardil language name for Mornington, is located on the southern coastline of the island, in a small bay where it is somewhat sheltered from northerly winds by the island's land mass. Additionally, to the south of the township, about one kilometre across the Appel Channel, is Denham Island, offering limited protection from southerly winds. At a point where Gununa is directly opposite Denham, the channel is narrow, so it provides some protection from waves. However, the town would be extremely vulnerable to cyclone winds coming in from a westerly direction.

The island has a population of about 1200, most of whom are indigenous and reside in Gununa. The original indigenous inhabitants of Mornington were the Lardil Aboriginal people. They formed the largest tribal group formerly occupying the North Wellesley Islands, including Mornington, Sydney and Wallaby islands. However, a number of people have stated they were born in Mornington but either one or both parents were born elsewhere. Although there are many descendants of Lardil people on the island, it appears a large number of the people are descendants of Aboriginal groups from the surrounding Gulf mainland regions such as Doomadgee, Burketown, Normanton and as far north as Aurukun and Weipa. Wherever their ancestors may have come from, the local people have a long cultural history, closely linked to the physical environment of the island. Part of the adaptation to their natural surroundings, is their way of coping with the effects of cyclones.

History

A Presbyterian mission with a school was established in 1914. Four years later a dormitory system was set up for the children attending school. A few of the missionary buildings are still standing. The old missionary's residence is now a guesthouse and a community library is housed in the former church building. Many of the older people relate tales of either being part of the missionary system or living on the island in the early 1900s.

In 1978, with support of the Commonwealth Government, the community reached an agreement with the State Government for self-government via a local authority. Under this system, the community developed a series of enterprises including a cattle farm, bakery, handicrafts and a guesthouse. The cattle and bakery no longer exist however many locals currently manage services initiated by the community under the system. These services provide employment to a number of residents. Enterprises include a general store, an aged-care home, art and crafts centre and a child-care centre. Public utilities in Gununa are well developed with reticulated power, water, sewerage and storm water drainage. Education to junior secondary level is available but there is no access to TAFE or tertiary education. The majority of people are employed in community service areas. The Mornington Shire Council provides the bulk of the work for most of the men, through general labouring jobs and other specialised services such as machinery operators and truck drivers. Most men are either employed full time by the Council or partake in the local CDEP schemes where they generally work 4–5 days a week.

Cyclones

Several of the elder Aboriginal people were born and raised on Mornington, and apart from a few years away working on the mainland, have lived there all their lives. From their narratives, the author established most people had experienced a number of cyclones while on Mornington. They talked about cyclones as a way of life on the island, and some of the more senior elders commented they have experienced a number of storms. The elders maintained cyclones and storms do not necessarily pose any threat if people do the right thing and carry out pre-cyclone preparations. Early in 2002, cyclone Bernie passed to the north of the island, but did not have any significant effect on the island other than providing gusty winds and much needed rainfall. Most of the older residents spoke of past cyclones but all agreed that as far as they could remember, the last cyclone to cause significant damage was Ted in 1976.

Cyclone Ted

On Sunday 19th of December 1976, cyclone Ted, category 4, passed directly over the Gununa township, with destructive wind gusts over two-hundred kilometres per hour, and then proceeded south where it crossed the coast near Burketown in the evening. The storm caused extensive property damage estimated at about $8million, in the Mornington and Burketown communities. Although 700 people on Mornington were left homeless, fortunately there was no loss of life or sustained serious injury. Houses in the old village located along a low sandy shoreline section of the settlement were constantly subjected to annual flooding. Cyclone Ted demolished all houses in the old village resulting in a large-scale government housing project

The old Presbyterian church which is now used as the community library.

where about one hundred and twenty pre-fabricated, cyclone resistant houses were erected on the higher ground where they currently stand.

Cyclone Abigail

The most recent direct hit was in 2001, when Cyclone Abigail, rated a category 2, struck Gununa causing minimal damage to residential houses. The extent of the damage reported was confined to rooftops, where breeze-catchers and aerials were blown off, and some solar panels were broken. Many properties experienced damage to trees that either lost leaves and branches or were blown over. There were several houses where water was blown under doors and through windows causing problems with electrical goods and floor coverings. There was one building that suffered extensive damage, but it was a public facility and fortunately was not occupied at the time of the storm. The cause of the damage to the facility was a freak gust of wind, which can happen during cyclones. All residential houses lost power and water for periods ranging from a couple of hours, up to in some cases, two days. Few of the residents complained about the lack of electricity because they perceived it as a normal event during the cyclone season. The estimated damage for property was placed at approximately $245,000 for Mornington Island, and fortunately there were no fatalities or serious injuries reported.

Residents agreed that cyclones tended to bring the community together, especially family groups. For various reasons some residents stayed with relatives to sit out the storm and that time gave them the opportunity to talk and generally catch up with family matters. In the clean-up process afterwards, people helped each other clearing yards and talked about how they fared when the storm struck. A few people raised concerns that there should be more local people involved with the SES service, and that there could be more coordinated organisation by authorities in the clean up afterwards. There were some complaints about shortage of some of the equipment used in the cleaning up process, but overall, the people agreed that the

tidying up process by the local authorities was carried out effectively.

Warnings

The majority of residents received information and warnings about cyclones from household radios and television, and these people also informed family and friends who did not have these facilities, about the cyclone's movements. Many people assert that not enough local information was given in the warning messages before the cyclone impact period, and perhaps local authorities could have been more involved. They said there was no visible presence of authorities such as police or SES, and it was suggested that perhaps people from these departments could have driven around the streets and flashed their sirens or used a loud speaker to warn people to stay indoors as the cyclone approached. Council employees stated that warnings of impending bad weather were transmitted from the shire office, to two-way radios in worker's vehicles. They could then drive around to relatives and friends and notify them of the oncoming severe weather conditions.

Although the island does receive television and radio signals, these are on relay from vastly distant broadcast stations on the mainland. The three radio stations that are available are broadcast from centres on the eastern coast of north Queensland. These are, regional ABC from Cairns, on AM and FM frequencies, and 4K1G on FM from Townsville. Television programs are broadcast via IMPARJA based in Alice Springs, Channel Seven and national ABC relayed from Brisbane. There is also a Queensland Bureau of Meteorology radar station based in Gununa next to the hospital. It operates 24 hours a day and has a radius range of 256 kilometres that enables it to encompass a good view of the surrounding Gulf of Carpentaria area. The purpose of the radar is to show images of rainfall in relation to local features such as the coastline. The radar at Mornington, combined with similar facilities at Weipa and Gove in the Northern Territory, helps keep a reasonably current weather surveillance of most of the Gulf region. Images from the radar are available to Mornington Island residents via the internet, but in such a community indigenous people do not generally possess computers. However, all the local authorities such as the council, police station, hospital and the school are able to access this information through their office communications network such as computers and fax machines. The appropriate authorities can then inform residents with information about image updates of any major threatening weather features, namely severe storms and cyclones.

While these communication systems appear to be adequate for providing Mornington Island with weather information, some residents did voice concerns about the time lapses between the warnings issued. In one case, a person stated that during a cyclone, by the time they received the hourly radio update, the storm had moved much quicker than anticipated, and it was bearing down on the township midway through the scheduled warning time. In another case, residents noted that after the eye of cyclone Abigail had passed over Gununa, the winds coming from the opposite direction appeared to be noticeably stronger. This was confirmed later by weather records indicating, almost immediately after crossing Mornington, Abigail rapidly deepened to a category 3 cyclone. Those locals who noticed the increase in winds expressed some concern that perhaps the official warning system had underestimated the cyclone intensity. Despite these discrepancies, most people on the island think the television and radio warning broadcasts are reasonably accurate and sufficient. With regards to official warnings and interpretation, perhaps there could be some assistance from local authorities. For instance SES personnel could be trained to give talks or seminars to the local population on how to interpret the synoptic maps and satellite images which are shown on television.

Nature's warnings

Several people told of how past and present indigenous Mornington Islanders read warnings from nature of impending "bad weather", a local term applied to severe storms as well as cyclone conditions. The event is preceded by a sea bird seen to be flying around, as well as the sea becoming rough or referred to locally by several people as "churning up". Also, when birds called manowar, from an outlying island are observed flying over Mornington, islanders know there is either a severe storm or a cyclone approaching. A resident said that on one occasion, they noticed that when they went down to the local jetty fishing, the seawater and the caught fish were unusually warm, and the colour of the water was a deep green. Within several days, radio and television warnings were broadcast of a cyclone that had developed in the area. It is a fact that warm sea water temperatures are an integral element in the initial formation of a tropical cyclone, so once again, by reading nature's signs, people know there is going to be some change in the weather. According to locals, another reliable natural indicator of impending rain is the flying ant, which is attracted to lights at night, and comes out in swarms a few days before the event.

Pre-cyclone Preparations

Mornington Island receives advice on natural disaster procedures from the District Manager's office of the Queensland Counter Disaster and Emergency Services, which is based in Mt. Isa. The office covers most of the area in the lower Gulf of Carpentaria, including Burketown, Doomadgee and Mornington Island, and over the years a system of emergency management with Mt. Isa as the base, has been established. State, and local

governments, as well as the local community councils are involved.

Due to local knowledge, most residents expect a cyclone to either pass by or hit Mornington Island every year, so at the start of the wet season, the majority of people do make pre-cyclone preparations. Family and friends help to clear yards of loose debris, trim overhanging tree branches and carry rubbish away. A noticeable example of years of cyclone preparations are the trees in Gununa close to houses and power lines which have been dramatically cut back by workers. Most have major branches and limbs lopped off close to the trunk, and other trees have had the entire top half removed. Relatives also organise the cleaning up of properties for the elderly who are incapable of doing it themselves. Those with vehicles offer to take residents who have no transport, to the store where they can purchase emergency rations. With a cyclone imminent, those people who felt their houses would not be safe, moved into relatives with more secure buildings for the duration of the storm, then returned home after it had passed. However, as with cyclone Abigail, sometimes there are a number of residents who will wait until it was certain that the cyclone was heading towards the island before they reacted, and then implement disaster precautions like buying tinned food and candles, storing water and cleaning yards of loose rubbish.

When asked, most people said they would have evacuated their homes if they were advised to do so by authorities. Most would have preferred to move into a relative's place on the island that was in a safer location, or to a recognised evacuation centre. Surprisingly, when asked whether they knew if there was such a centre on the island, most said they did not know. Places that can be used for this purpose are the new hospital and the police station. A non-indigenous worker said they would have preferred to be flown to Normanton on the mainland, if the cyclone was particularly strong and people were asked to evacuate their homes.

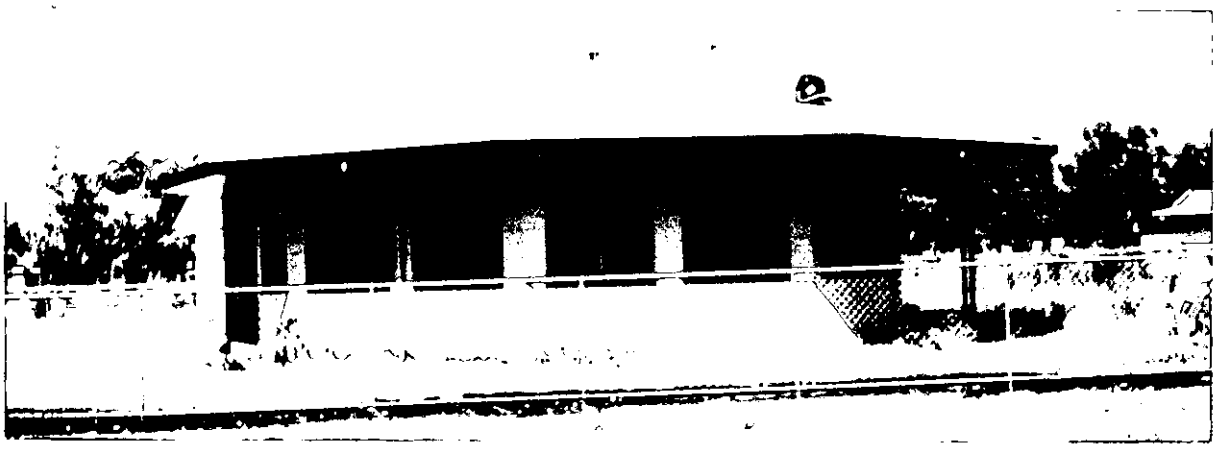
Elders told of how their ancestors prepared and coped with cyclones, utilising natural materials. An elder recalled his father telling him how in the old days, people dug large holes in the sheltered sides of sand dunes to seek refuge from cyclonic winds. They would then cover the pit with branches, leaves, and paper-bark, then cover the structure with sand, leaving a small entry space. Primarily a protection from wind and flying debris, the shelters were also claimed to keep the people reasonably dry from the rain. The knowledge of these valuable skills, including cyclone survival strategies although not practised, are maintained in the community at present. As one elder commented, even though they now live in brick, cyclone-safe houses, that can withstand a moderately strong storm, they could still utilise survival skills taught by their ancestors. For example, a participant stated that they know of shelters in low cliffs located on the north coast of the island, where Aboriginal people from the past sought cover from severe weather conditions. The person was adamant that if the situation warranted it, these rock shelters could still be used to provide refuge. Even though they may never have to revert to such measures, the Mornington people still retain and maintain this important survival knowledge.

These days, most long-term residents do not expect a storm surge to affect residential houses in the town, because all homes are now built on a high sandy ridge, located back some distance from the shoreline. They do acknowledge there is some increase in the sea height, but it does not have a great affect on the community. Although, if conditions at sea are too rough, the weekly supply barge from Karumba can be delayed.

Outstations

Outstations play a significant role in the maintenance of the traditional culture of indigenous Mornington Island people. These are homesteads that are erected on ancestral homelands on various sites around the island. Before the missionaries arrived, the Lardil group was divided into four clans residing in different areas on the island. Each of the four clans consisted of several families who owned their special piece of land within their traditional boundaries (Binnion 1987). Present day residents on outstations are descendants of those traditional owners. Most of the owners of the outstations also have relatives in the town, and usually go out to the outstations to spend time with family and practice cultural activities like hunting and fishing. A lot of the

Looking east along mainstreet. Note trees trimmed below power lines.



House built post-cyclone Ted (1976).

outstations have permanent residents who are family of the owners in town, but who do not want to be involved with the town lifestyle. They are connected by two-way radio to the town and can be reached by four-wheel drive vehicles by dirt roads. However, during the wet season some of the tracks become inaccessible, and for several weeks the outstations are isolated except by radio contact. After cyclone Abigail, some places could not be reached by vehicle for weeks, due to the boggy conditions caused by the associated rain. This does not usually pose any major problems, as people on the outstations ensure sufficient stocks of food and water are maintained. All outstations are situated in close range to a permanent water source, such as a fresh water creek or well, and water is pumped to house water tanks for human use. If there is a food shortage, stocks can be replenished by hunting nearby bush-land for traditional food sources like wallabies and goannas, and fish are caught in the creeks and along beaches. Sometimes in the cyclone season, nature provides food for people on outstations near the coast, when rough seas produced by strong winds, wash up fish, turtles and occasionally dugongs, onto the beaches. One elder recalled a story told by his elders of people's eagerness to leave their shelter after a cyclone, to go down to the shoreline and collect a variety of seafoods washed up on the sand at the height of the storm.

Mornington Island Literature

Mornington Island has been the subject of a number of studies, and though dated, there are several pieces of literature available on the island. In the 1970s John Cawte, produced two books from studies on the island: *Medicine is the Law* (1974) and *Cruel Poor and Brutal Nations* (1972). Essentially in *Medicine is the Law*, he examined sorcery and its effects on individuals and the people of Mornington as a society. The second book was an " ... assessment of mental health in an Australian Aboriginal community ... " where he examined the mental and social problems of the community. Also in the '70s Virginia Huffy, conducted research exclusively on the role of indigenous women on the island. The book she published in 1980, was *The Sweetness of the Fig*. The title comes from the Lardil word 'Labbarnor' which means sweetness of the fig, and is the traditional name of Elsie Roughsey, a Lardil woman who Huffy befriended and became close to during her time there. These books provide background material on the cultural and social side of Mornington in the 60s and 70s. In particular, they offered a brief insight into the socio-cultural changes happening at the time to the Lardil people, due to the European culture forced upon them by the missionaries. In 1999, anthropologist David McKnight, produced *People, Countries and the Rainbow Serpent*, a collection of data he gathered from visits to Mornington Island over 30 years from 1966-1996. The book is a detailed investigation of the Lardil classification system– how they classified an extensive range of subjects, such as space, people, plants, and animals. However, it is the cultural and social issues he writes about that are of most interest. When he started fieldwork on the island in 1966, Aboriginal people in their 70s spoke traditional Lardil fluently, and only understood and spoke little English, while those in their 30s normally spoke English and only a few could understand general Lardil language. Also, children spoke only English, and could not understand Lardil at all. McKnight makes the point that in 1966, " ... it was obvious that the Lardil were rapidly losing their traditional culture ... "(McKnight 1996:6). More information was contained in Paul Memmott and Robyn Horsman's 1991 text, *A Changing Culture: The Lardil Aborigines of Mornington Island*, which provides a detailed study of cultural and social changes to the Lardil before mission settlement, through to the 1980s. Even though the Laril were experiencing constant changes, they managed to keep alive stories and legends which contained important cultural information. This history was passed on from the old generation to the next by word of mouth, despite the efforts of the missionaries to ban such beliefs (Memmott and Horsman 1991). One important story to survive and is part of Lardil legend, is the flood-making ceremony.

References to cyclones have been recorded in Percy Trezise's (1993) *Dream Road*. A chapter headed, 'The floodmakers of Langu Narnji', tells about a traditional ceremony performed by certain men, to cause floods which were usually caused by the heavy rains of a cyclone.

Moon And Rainbow (1971), is an autobiography of Dick Roughsey, a Mornington Island Lardil man, who was renown nationally, for his traditional artwork. As well as telling his life story, Roughsey included also a chapter on the flood ceremony, similar to Trezise's (1993) version, but with more details. One story involves a Lardil man called Shilling and Reverend McCarthy, who was in charge of the mission in 1948. Apparently Shilling punished his wife for an indiscretion, and McCarthy made him work in the garden for a week as punishment, which he hated. When he had done his time, Shilling went to the floodmaking place and performed the traditional ceremony. A couple of weeks later, a cyclone hit the island and the mission garden was wiped out by flooding seawaters. Records show a cyclone struck Mornington in 1948, and on the island the ocean rose four metres above the highest normal tide mark (Roughsey 1971). Percy Trezise was a personal friend, instrumental in establishing Dick Roughsey's art career and bringing his paintings to public attention. Dick's Lardil name was Goobalathaldin, which roughly translated means big waves or rough sea, hence the surname.

Discussion

There are a number of issues derived from the Mornington Island fieldwork experience, and the consequent analysis of gathered data. Making initial contact with the appropriate person or people, in a community such as Mornington is highly important. Most of the males in Gununa were employed by the shire council or worked on the CDEP program, so scheduling suitable interview times with prospective participants was on occasions, difficult. After meeting at least one well-known person of the community, further introductions flowed on from that point. As it worked out, many of the female elders had some free time during the days, and were willing to sit and give interviews. By making contacts, and living in the community while conducting fieldwork, the researcher can learn how individual remote communities operate socially and politically, which can be highly beneficial to both parties. Unfortunately, there were a couple of funerals during the period of fieldwork, which naturally, were unanticipated. In a closed small community such as Gununa, where the deceased was known to every body, it would be considered extremely insensitive and culturally inappropriate to go to people's houses and ask questions until a suitable length of time had passed.

One subject of interest that emerged from the fieldwork, and is being pursued further, is the resilience of the people. The Lardil are Aboriginal people who, while not only surviving nature's hazards on a remote island, also had to adjust to dramatic changes imposed by another culture. While talking about cyclones, one old fellow said, "We live in brick houses and it's good", but he insisted that Lardil people still have the knowledge and ability to maintain their traditional culture. Cultural influences may have changed certain practices, like hunting for dugongs and turtles in motor boats, but traditional hand-made spears are still used, and the catch is divided up according to traditional law. The location of the island is probably also a big factor in helping the people remain self-reliant in times of crisis. They know that being isolated by the sea and with a small population, in times of crisis, they have to rely on each other and adapt and utilise facilities that are available to them.

An elderly woman said that she was surprised and pleased, to see that a number of young people with parents and grandparents from the island were coming back to live in Gununa. She was particularly happy to know they knew the names and language names of relatives and their skin group and totems. They were also asking questions about family connections and wanted to know and learn about the traditional Lardil culture, or as she put it, the "old ways".

Some also related stories about the times that were spent as youngsters living on the island when the mission was established. Their memories of people, places and events during those times were still easily recalled. They were able to point out where the mission vegetable garden was, the names of the missionaries, and the site where the fence was which separated their parent's camp from the mission grounds. Other details were recalled, such as the location of fresh water wells around the island that are not used any more, and where to go to catch sea turtles and dugong. In conversation, they expressed regret that the Aboriginal culture on the island, especially in the Gununa community was constantly changing. Elders also lamented that sadly, most of the younger people were being side tracked from indigenous cultural traditions by modern influences such as television, contemporary music, and alcohol. All of these factors are essential in defining what constitutes the community profile, which is important in identifying where knowledge of survival originated and how it has been passed on. Dance was an important part of Lardil culture. It provided the opportunity for the community to gather for an event that was a leisure activity as well as used to strengthen the religious, social and political customs of the people. Importantly, for the Lardil, knowledge of their traditional dances is still maintained and practised on the island, through the Mornington Island Dance Group, which is operated by the Woomera Aboriginal Corporation. Although they do most of their performances out of the community, all over Australia and the world, the dances they do are influenced by origins on the island. They learn and rehearse new and

old dances when they go back to Gununa, with the supervision and advice from elders. Young dancers are selected from within the community, so through dance, they have the opportunity to learn and maintain the culture, as well as educate audiences with performances. There is a dance performed by the local dance group telling the story of a water-spout, which occasionally forms in the Appel Channel. In the dance, a water-spout is seen heading towards a village, so to ward it off, a dancer holds a baby- which is represented by a bailer shell- towards the storm and the storm is then diverted around the village. Another dance involves a man cutting the water-spout in two with a boomerang.

Conclusion

Like many Australian indigenous communities, Mornington Island has experienced its share of dramatic changes, due to European colonisation. The original inhabitants of the island, the Lardil Aborigines, were forced to adapt to cultural changes imposed upon them by the Presbyterian mission. However, despite having the basic structure of their traditional culture dismantled by a foreign religious influence, the people have managed to maintain important traits of original Lardil culture. The strategy to survive in a cyclone prone area, is one such ability that has been passed down through generations. A vital part of their natural hazard management process, is the people's resilience. The capacity to adapt to the island's natural environment, and the climatic conditions has been instilled in the Lardil lifestyle, and may be seen as an important factor in their ability to adapt to western culture. The skill used to establish an environmental hazard strategy, and incorporating it into helping their traditional culture survive western influences, indicates Lardil resilience, which is one of many issues requiring further investigation. The findings may be significant in understanding remote indigenous communities' coping strategies for natural hazards in their regions and assist in local authorities' disaster management strategies.

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Guidelines for Emergency Managers working with Culturally and Linguistically Diverse Communities

"Minority group citizens tend to suffer disproportionately high negative consequences in connection with the impact of disasters" (Perry and Green, 1982).

By Louise Mitchell

This paper outlines some Australian examples of working with culturally and linguistically diverse communities during and prior to emergency situations. These examples reinforce the message relating to the importance of planning and prior knowledge, communication and a strategic approach involving partnerships, all of which take into account the different cultures and languages that are in a community[1]. This sentiment is reinforced in a newly published document titled "Guidelines for Emergency Managers working with Culturally and Linguistically Diverse Communities". These guidelines are based on the principle of inclusiveness, an approach that is sensitive to the differences and the similarities in our communities. The guidelines were written in an inclusive manner, with diverse representation giving input and a consultative process of development. They signify the continuing development of strategies for emergency managers to ensure the well being of all members of our communities.

The guidelines can be obtained in hard copy from Emergency Management Australia, or electronically from EMA's website http://www.ema.gov.au.

The Guidelines for Emergency Managers working with Culturally and Linguistically Diverse (CALD) Communities[2] (herein called the Guidelines) are timely given the increasing recognition amongst the emergency management industry of the importance of focussing on the relationship with community and the aspects of community vulnerability.

It has been argued in many studies[3] in the US, for example, that natural disasters[4] pose greater vulnerability and risk for racial and ethnic communities[5] than for mainstream communities. Although there are few such similar studies in Australia it is fair to assume that within the very diverse groups of Australia's culturally and linguistically diverse communities there may be vulnerable groups. Fothergill et al (1999) say that the reasons for the greater vulnerability of ethnic peoples are complex because people's vulnerability is determined not so much by the event itself but by the social, economic and political processes by which society creates different conditions for people, e.g. housing, the risk environment where they live, ability to communicate proficiently. I. Kolarik[6] commented that "for emergency services (in Australia) the immigrants and international visitors ... constitute a special risk group". He goes on to say that it is of vital importance for emergency managers to be aware of and understand culturally determined behaviour in order to be able to provide culturally relevant and sensitive services in an emergency.

1 Community is used here to refer to a group of people who live within the same territory or geographic space

2 Indigenous peoples of Australia were not included in this group as it was considered necessary to look at the groups separately. The National Studies Program on Aboriginal and Torres Strait Islander communities and emergency management is ongoing in 2002

3 Fothergill, et al, 1999

4 the guidelines uses the broader "emergencies" term which includes other disasters such as technological, biological etc.

5 seen here to be synonymous with culturally and linguistically diverse communities

6 Kolarik, I G, 1991

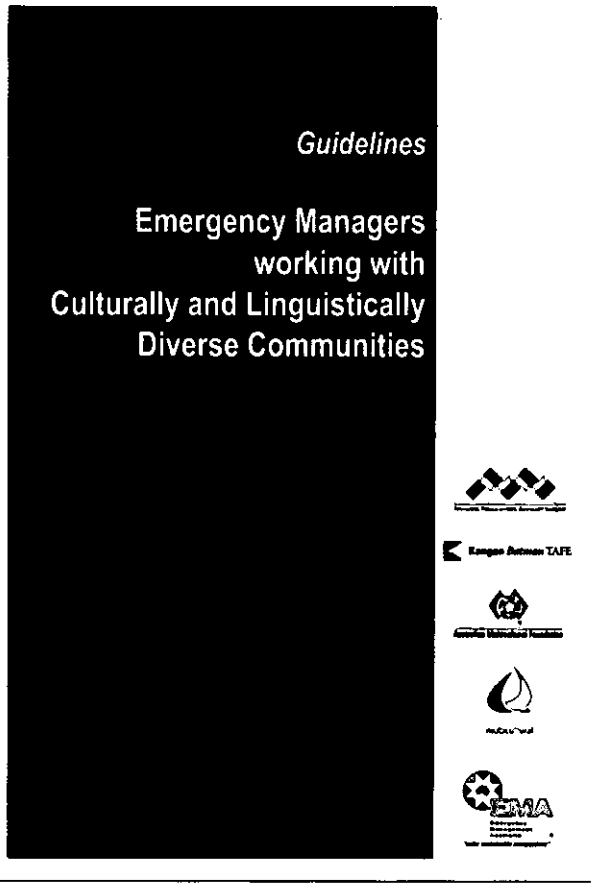
Macedonian dance troupe supporting last year's national launch of the Guidelines at Thomastown, Victoria.

The Guidelines

The Guidelines are another step toward the development of solutions to the potential vulnerabilities faced by CALD communities. Throughout the process of developing the guidelines, there was emphasis from all contributors that knowing your community is an essential first step in the provision of culturally relevant, appropriate and sensitive emergency management strategies. The guidelines encourage emergency managers to get to know their communities with suggestions for:

- identifying who is in a community;
- connecting with a community through partnerships, participation and consultation;
- communicating with a community;
- responding to communities' needs;
- education and training; and,
- monitoring and evaluation.

In these guidelines there is also an emphasis on the planning and preparation for emergency situations. "It is important that groups are not left out of the disaster-reduction (risk management) process; people who are marginalised in the early stages are marginalised later – they need to be part of planning from the beginning"[7].



7 Fothergill et al, 1999

The principle upon which the Guidelines are based is inclusiveness. What this means for emergency managers is that diversity considerations need to be integrated into the corporate management processes of the service agency and organisations. Other key points include the need for a local approach and the development of ongoing relationships, and/or formal or informal partnerships involving trust, credibility, respect for diversity and a willingness to connect[8]. Fothergill et al (1999) recommend that large-scale organisations and agencies working on disasters (emergencies) should "understand the specific diversity issues of each area, plan for changing demographics ... and ensure that members of all communities are involved in the disaster reduction process". They suggest that agencies forge connections with neighbourhood houses, churches, etc, so that the community and not outside organisations can decide on what their needs are during a disaster. A number of agencies in Australia are already working to this philosophy and the Guidelines encourage this way of working.

Examples

A number of incidents and situations in Australia and an overseas example applied to Australia give a variety of illustrations of dealing with an emergency when people from different cultures and speaking languages other than English are involved and of the provision of culturally appropriate services. The examples illustrate some of the points in the guidelines about getting to know your communities, partnerships, communication, education and cultural appropriateness. The examples given are:

- From an industry perspective in Australia:
- the tourism industry in the case of the Childers Backpacker Fire;
- the essential services industry in the case of the Sydney Water Crisis; and,
- an emergency services perspective – Fire Preparedness in the Broadmeadows Community.
- From an international perspective:
- East Timorese evacuation to Darwin; and,
- SwissAir Flight 111.

The Childers Backpacker Hostel Fire

The Childers Backpacker Hostel fire occurred at midnight on Friday 23 June 2000. Fifteen people from 6 countries died (4 Australians, 6 Britons, 2 Dutch, 1 Irish, 1 Japanese and 1 South Korean) and 69 people survived the fire[9]. The planning and preparation for this hostel fire cannot be commented on at the time of writing because the coronial inquest is still in progress.

After the fire occurred there were communication challenges, particularly from a tourism industry perspective. Strategies to assist in clear communication of information included the provision of free 1800 telephone number for enquires from local and overseas relatives. Issues such as relatives needing information on where Childers was, and the names of the dead not being released for five days, added to the stress of the relatives and to the number of telephone enquires received. The key point learned from the crisis from an industry perspective in relation to CALD communities was:

- the backpacker community uses email services prolifically and information was sent, unofficially, around Australia and overseas using this media. An official use of this media by the tourism industry may enable more effective communication. During this event, the recovery sector, specifically Lifeline, used the Web to facilitate communication.[10]

Since the fire, a number of other strategies have been implemented by different agencies, including a Backpacker Fire Safety brochure[11], which has been produced in a number of languages.[12]

Fire Preparedness in the Broadmeadows Community Metropolitan Fire Brigade, Broadmeadows, Victoria

A number of years ago, the firefighters at Broadmeadows Fire Station in Victoria, used to being perceived by the community as "the good guys" and being accepted with openness, were shocked not to feel this from the migrant community. This lack of open acceptance seemed to be based on a fear of uniform and it was a culture shock for the firefighters. In order to solve the challenge of how to change this, they looked at the demographics of the area and found a significant Turkish population.[13]

The firefighters developed a number of strategies with the aim of breaking down the relationship barriers:

- 5 firefighters began learning the Turkish language and culture (3 are continuing);
- Partnerships were fostered with the local Migrant Resource Centre, local Islam schools and Turkish media (firefighters have spoken on local Turkish radio and SBS radio);

8 Ashby, J, 2001

9 http://old.smh.com.au/news/specials/natl/backpack downloaded 22 Aug 02 3.00pm

10 Lifeline Bundaberg, Childers Palace Backpackers Fire Report.

11 http://www.fire.qld.gov.au/backpackers/bakpackmain.htm downloaded 22 Aug 02 2.00pm

12 Mitchell, L, August 2001 presentation from Koopman, D, Queensland Tourism.

13 Verbal comm Paul Scott, MFBB, Victoria.

- Information sessions and open days were conducted for Turkish elderly citizens groups at the fire station and this has been expanded to include other migrant groups such as the Arabic Community. These sessions included displays, lectures on fire safety with interpreters and fire safety demonstrations.
- The firefighters attended local festivals whenever possible with displays.

These initiatives (which are continuing) have resulted in greater trust and enhanced communication with local ethnic groups as evidenced by the following:

- During an emergency such as a kitchen fire, which is fairly routine for the firefighters, but a distressing experience for a resident, the firefighters have used the Turkish language to help to calm the situation. When the resident realised the firefighter could speak enough Turkish to communicate, the panic began to dissipate and communication was enabled[14];
- the purchase of smoke detectors by several families[15]; and,
- Less fires of a cultural nature (e.g. burning off in backyards) because of an enhanced understanding of other options.

Sydney Water Crisis

The water crisis occurred in the period July to mid-September 1998. The supplies of water to Sydney were possibly unsafe to drink at certain times in this period. Sydney has a significant multicultural community base, many of whom do not speak English. The ability to communicate with the whole population, including ethnic communities, was considered possibly a matter of life and death, and therefore critical in responding to this crisis.

Prior to the crisis, Sydney Water had worked with the Ethnic Affairs Commission as one of their key stakeholders to inform the communications for their education campaign. Some of these campaigns targeted the multicultural community. As part of their corporate communications plan, all education campaigns were and still are completed in the major community languages.

Given the previous work Sydney Water had undertaken in communicating with the multicultural community, it was considered essential to reach this group during the Crisis. Sydney Water set up a telephone hotline, staffed with bilingual people who spoke the more common languages in NSW. During the six-week period, Sydney Water constantly updated hotline information. The NSW Ethnic Affairs Commission[16] played a crucial advisory role regarding the hotline, and also in organising translations of press releases and their delivery to the ethnic press.

"The key points learned from this crisis in relation to CALD communities were:

- maintain ongoing communication lines with the Ethnic Affairs Commission who can provide links with networks in ethnic communities; and,
- organisations must respond to the whole community, including people of CALD backgrounds, through processes built into existing structures.

The NSW Premier commended Sydney Water for the way it communicated with ethnic communities during the water crisis."[17]

East Timorese Evacuation to Darwin, Tent City 1999

In September 1999, over 1800 evacuees from East Timor arrived in Darwin to be housed for an unknown time. Before they arrived, the co-ordinator of the Reception centre was appointed. He called upon the members of the East Timorese/Portuguese community on the Police Ethnic Advisory Group (PEAG) in Darwin to assist with forming a management committee to assist with the running of the Reception Centre. Through PEAG meetings on a monthly basis, partnerships, friendships and trust had developed over a two-year period with the local East Timorese/Portuguese community[18]. The Northern Territory Police Fire and Emergency Services (NT PFES), as the co-ordinating agency, wanted the Darwin East Timorese community to have a meaningful role in assisting with the reception and care of the Timorese evacuees because of their knowledge, skills and understanding of the requirements of the Timorese evacuees. Each member of the management team (elected by the Timorese/ Portuguese community) accepted specific areas of responsibility in relation to the management of the centre. Areas of responsibility included: Co-manager, Accommodation, Health, Meals, Interpreters, Logistics, and Recreation/Sports activities.[19]

In order to meet the cultural and linguistic needs of the evacuees from East Timor, consideration was given to factors such as food preparation, sleeping arrangements, religious observances, gender specific roles etc. In practical terms, this meant that upon arrival in Australia East Timorese evacuees were:

- greeted by members of the local East Timorese community

14 Verbal comm Paul Scott, MFBB, Victoria.

15 Ashby, J, February 2001.

16 A member of Sydney Water's Customer Council.

17 Ashby, J, February 2001.

18 Verbal comm Supt. Mick Van Heythuysen, NT Police

19 Verbal comm Supt. Mick Van Heythuysen, NT Police

- addressed in their native language, Tetum
- counselled by sisters from the Catholic church; and
- were spoken to by fellow countrymen during explanation sessions for accommodation arrangements, facilities and other aspects of the reception centre.

A result of the approach taken was the establishment of relationships between evacuees, the local church representatives and the local East Timorese/Portuguese community members. These provided much-needed multiple, personal and social meanings, where relationships were identified and practices and values taken into account, thus providing much-needed human interaction and cohesion.

The experience enabled the cultural and social diversity of the Northern Territory community to be embraced, and used in partnerships, to minimise the impact of the evacuation on the already affected East Timorese.[20]

SwissAir Flight 111

This disaster occurred in 1998 when the SwissAir Flight 111 plunged into the sea off Nova Scotia, Canada. 229 people lost their lives and only 69 bodies were recovered. The operation was centred around recovery rather than emergency response. The passengers on the aircraft came from 14 countries and from 4 religious backgrounds, so during the days that followed, emergency managers strove to involve all relatives and had strategies to provide information to them on a structured and regular basis.

Swissair, Air Canada, Air Nova and Delta Airlines provided trained volunteers to protect and assist the families of the crash victims. Air Nova's Care Partners program ensured that families of Swissair passengers had an advocate to provide assistance during their journey and their stay in Nova Scotia and in particular to provide emotional support. Care Partners were appropriately matched with families. Bilingual Care Partners and clergy representing all faiths were available for the families and the Swiss-German community of Nova Scotia assisted with communications.[21]

Great emphasis was placed on the importance of recognising religion, language and culture in the management of this disaster. J Whitmore from the Australian Federal Police, who studied the response to the disaster, has emphasised the importance of preparation and planning for the possibility of a disaster like this occurring in Australia: "They were confronted by many delicate problems, none more exacting than negotiating the various cultural and religious requirements of the passengers who were Christians, Jews, Muslims and Hindus"[22]. The guidelines stress the importance of emergency managers developing ongoing relationships and partnerships with all cultures and faiths in the community. This may enable community assistance to be accessed in the event a disaster like this occurred in Australia.

These few examples illustrate the importance for the emergency manager of knowing your community and fostering relationships where possible with all cultural groups in that community. In the recovery operations conducted after the Childers Backpacker Hostel Fire and SwissAir Flight 111, the cultural, linguistic and religious diversity added to the communication and logistical challenges. Building in these diversity considerations well before the recovery process, in the planning and preparation stages[23], illustrated in the Fire Preparedness in Broadmeadows, Sydney Water Crisis and East Timorese Evacuation examples appears to reduce aspects of community vulnerability as well as enabling the community to assist emergency managers, where appropriate.

For the emergency managers wanting to connect with their CALD communities, the guidelines also have a contact directory, listing agencies catering for CALD communities' needs. These agencies may be able to source local contacts. Also listed in the guidelines are a number of readily available resources for managing and understanding cultural diversity. Practical references to faith communities and religious diversity, recruitment from ethnic communities, multilingual communication guides, cultural diversity for health professionals and to death, dying and grieving can all be sourced.

Conclusion

The many diverse CALD communities and groups within communities in Australia are potentially vulnerable in the context of emergencies. Many variables may contribute to this vulnerability, including language, culture and familiarity with the environment in which they live. A set of guidelines for emergency managers, who are working with CALD communities, has been developed collaboratively as a result of a national workshop held at the Emergency Management Australia Institute in May 2001. The guidelines speak of the importance of including all groups in the community in the planning and preparation for emergencies as well as response and recovery phases. Examples from Australia and involving overseas countries illustrate the importance of knowing who is in your community and building trust and understanding through the

20 Supt. Mick Van Heythuysen, NT Police

21 Reaney, J, 1999.

22 Mayhead, G, 2000

23 in EM terminology: prevention (through education in examples) and preparedness phases

development of relationships, particularly prior to emergency events. To enable emergency managers the time to work proactively and with appropriate strategies with their diverse communities, organisations need to support and adopt key principles such as those articulated in the Guidelines around inclusiveness.

Acknowledgments

Importantly, the Guidelines were developed collaboratively and with extensive consultation and the development and production is a result of many people's efforts. They began with a three-day workshop that was held as part of the National Studies Program in May 2001 sponsored by Emergency Management Australia, in partnership with the National Police Ethnic Advisory Bureau and Kangan Batman TAFE. A steering committee set up the workshop, and participants in the workshop were invited from across Australia. They included representatives from local councils, the Red Cross, the Police, Emergency Services, Department of Immigration and Multicultural Affairs, Migrant Resource Centres, Ethnic Communities, and Tourism Authorities. During this workshop a research paper written by Jenny Ashby was presented,[24] and this identified some of the questions and challenges facing emergency managers when dealing with culturally and linguistically diverse communities. The workshop participants went on to develop draft guidelines. Following the workshop a writing team was identified and they continued with the development of this document. The draft document was distributed and comments were gratefully received from participants and wider afield. The writing team completed the first version of the Guidelines in July 2002.

The expertise, time, willingness to work toward a common goal and goodwill exhibited by all participants from the beginning of the project made the production of the guidelines possible.

As well as the National Police Ethnic Advisory Bureau and Kangan Batman TAFE , the Australian Multicultural Foundation was also actively involved in the development of the guidelines. They have been endorsed by the Council for Multicultural Australia.

Addendum to the guidelines: The reference to Jenny Ashby's research paper (no.4 in references) was omitted in error from the guidelines. It was sourced for the example on page 10 – Sydney Water Crisis, NSW, 1998, and on page 13 – Metropolitan Fire Brigade, Broadmeadows, Victoria. In addition the authorship of this paper, listed on page 28 of the guidelines should read: Ashby, J & Associates, with assistance from L Mitchell. ,

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24 Ashby, J & Associates, 2001.

Communities and their Experience of Emergencies

"Every step forward is made at the cost of mental and physical pain to someone."

Fredrich Nietzsche (1844–1900) German philosopher

By Mark Sullivan

When the Great Flood of 1993 impacted the North American Midwest, it was said that the heartland rediscovered its heart (Guillory, 1996). Midwesterners united to bring the community back from its knees and collectively engaged in the long process of recovery. On the other side of the World, in 1998, the East Gippsland region on Victoria in Southeastern Australia was also impacted by flood. However, a report prepared by the Victorian Department of Natural Resources (DNRE), et al. (1999) suggests that the residents of East Gippsland showed less evidence of the united and self-sustained approach to recovery exemplified by the American Midwesterners in 1993. These two examples serve to highlight the difference in the ways that communities can react to emergencies, particularly in terms of recovery. Indeed, the very nature of what comprises a community and its pre-emergency functioning can have significant implications in terms of the predicted reaction of communities to emergencies. Accordingly, in order to gain a realistic understanding of communities' experiences of emergencies and their recovery from emergencies, it is important to agree upon what it is that actually defines a community. Moreover, such a definition of communities should be along lines of a number of criteria. Not only would this form the basis of categorising communities but could serve as the basis of a description of the interaction between emergencies and communities. This paper will provide such a description.

To this end, a working definition of community is explored, along with a number of defining criteria. From there, the experience of emergencies in terms of recovery, and from the perspective of communities, is explored and described.

A definition of community

As alluded to earlier, the pursuit of an accepted definition of community has entertained social scientists for almost as long as there has been societies to study. Notwithstanding, it is important that community, in the context of this paper, is clarified. Rudimentary definitions of community focus on geographically defined social groups that interact and share interests (see, for example Robertson, 1987). Hillery (1955) refines this further by ranking each of these factors into the order given above, with interaction ranking the highest in terms of relevance to the definition of community.

In terms of geographic classification, the scale can vary dramatically. Moreover, this geographical taxonomy of society can be further influenced by non-geographic factors. For example, Gray (1999) describes the notion of social areas. These are geographically bounded segments of a wider community, which exhibit inequality in comparison to the broader community. These in themselves could indeed be described as communities in their own right. Nevertheless, geography, whilst a popular method of defining communities is by no means the only method, nor the most useful. In fact, the field of emergency management has devoted a substantial amount of academic rigour to the study of communities and, in so doing, has advanced several means of defining communities. Emergency Management Australia (2000) advances four means of community classification. These include geographically based groupings, shared-experience-based groupings, sector based groupings (for example, manufacturing, education, etc.) and function based groupings (for example, health service providers, telecommunication providers, etc.). Each of these are reasonably self explanatory and therefore need not be expanded upon any further. Regardless, Emergency Management Australia (2000) also acknowledges that several smaller communities can combine to form larger communities. This notion is supported by Marsh and Buckle (2001) who challenge the assumption of there being a 'single' definition of community. Further, Marsh and Buckle (2001) cite four variations of community. These include communities of affection or function, communities of competition, communities of interest and communities of status groupings. Indeed,

a community may represent a mosaic of each of these community types and furthermore may disintegrate, reform, change, decline and grow as the community context alters with time.

Clearly, taken in concert, the various notions of community seem to exhibit a degree of commonality along at least one front, that is, interaction. Regardless of how social scientists describe communities, interaction is generally a common link. There are however, exceptions. Specifically, a community may be described according to their geographical boundaries, yet never interact. Similar examples abound along a number of other criteria.

Amidst this preponderance of theory and classification, it is not difficult to lose sight of the reasons for defining community. In this instance, a definition of community that facilitates a pragmatic analysis of the effects of emergencies on communities in terms of recovery is favoured. Thus, it is the manner by which the definition of community will be used, rather than adjusting the use to suit the definition that should dictate the means by which a community is defined. In terms of emergency management, current thinking leans toward analysing elements at risk in terms of the 'triple bottom line' (Esplin, 2001). This triple bottom line comprises societal, economic and environmental consequences. If we take the societal component as being analogous to community, then a definition of community emphasising interaction is advocated, as any other definition could arguably fit into economic or environmental (assuming environment refers also to the human-made environment).

Therefore, at the risk of tendering an overly complicated definition of community, a multi-layered definition of community, based on one unifying factor is advanced. Specifically community, for the purposes of this paper will be taken as referring to a group of people who interact, but who may do so within and between a number of sub-communities, such as those referred to earlier by EMA (2000) and Marsh & Buckle (2001). The community need not be bounded by geography, but for the purposes of analysing the effects of emergencies on communities in terms of recovery, will be bounded by the impact of the emergency.

Community analysis criteria

It is not enough that community is merely defined. For the definition to be truly effective, it must be complemented by a number of evaluation criteria. Put another way, the definition determines the scope of any subsequent analysis, whereas evaluation criteria provide the mechanism by which the analysis will be conducted. Figure 1, based on Lunn (2001), will provide the foundation upon which much of the following discussion is based and are described in detail later in the paper, noting that bounding these criteria is the definition of community previously discussed.

These thirteen criteria could also be thought of as vulnerability indicators or recovery capability indicators. Notwithstanding, as the following pages will demonstrate, they are also extremely valuable tools in determining what implications an emergency event holds for a community in terms of recovery.

Implications of emergencies for communities in terms of recovery

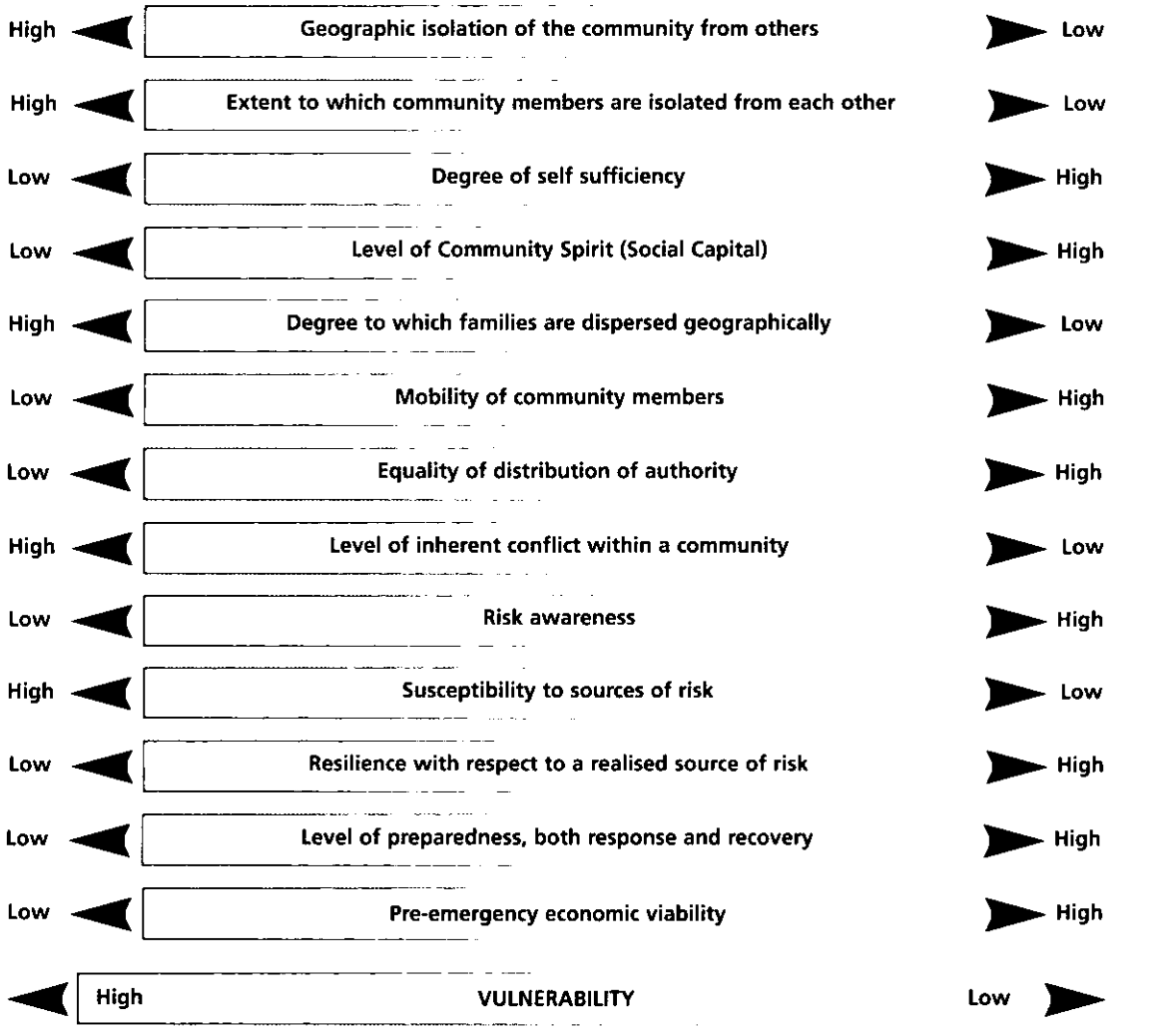
There is no question that the impacts of emergencies on communities have wide and far-reaching effects on the community. It is also true that many of these effects, such as dislocation and psychological ramifications, have a significant bearing on the community's ability to effectively recover. However, before delving into any greater detail, it is wise to first consider in general terms the effects post-impact of the emergency upon the community.

Raphael (1986) paints an extremely accurate, yet poignant picture of a community's response to emergencies. She outlines the community response in parallel with the individual response, that is, confusion and change followed by adaptation, management of the situation, reorganisation, and recovery. That is not to say that this is the accepted process of individual recovery advocated by all authorities on the subject. In fact, Carter (1991) paints a less rosy picture of the individual response to emergencies; one that is characterised by devastation, realisation, rationalisation, accusation and finally, accumulation.

What effectively happens is that the emergency serves to fundamentally alter the myriad interactions within the community, or as Gordon (1990) suggests, destroy all bonds that come into its contact. However, what is discussed here is merely an aspect of the psychosocial ramifications of the emergency. There is also a physical aspect in the sense that the community can be physically broken up, such as was the case in the Hobart Bridge Disaster, which in itself can have psychosocial implications (Raphael, 1986).

Whilst many models of recovery focus on the functional aspects of recovery, such as that advocated by Kates & Pijawka (1977), such models say very little about the processes going on inside the community. However, Raphael (1986) offers a more appropriate approach when she discusses recovery in terms of the leadership and assistance aspects of response and recovery. This approach suggests that leaders emerge from the confusion and coordinate what is essentially a process driven by post-impact altruism. This stage is sustained to a point at which former power structures reassert themselves and altruism gives way to former patterns of conflict and bureaucracy, sometimes even manifesting in turf wars between aid and recovery agencies. This approach accords with Robbins', et. al. (2000) argument that groups are in a constant state of flux, forming and

Figure 1: Vulnerability Indicators



reforming through a process of 'forming, storming, norming, performing and adjourning'. Nevertheless, the Victorian State Emergency Recovery Unit (SERU) Recovery Planning Guidelines (SERU, 2000) state that an unquestionable consequence of emergencies is a degree of community division. The degree to which this division affects the community will depend on a number of factors, many of which are discussed later, but include such things as level of social capital, isolation and resilience.

As one looks closer at what happens to communities in emergencies the real impact of emergencies on communities emerges. For example, uncertainty and complexity are cited by SERU (2000) as significant aspects of the earliest phases of recovery. This accords with Raphael's (1986) description of the '2nd Disaster', where confusion reigns supreme as a consequence of damaged communications and information dissemination mechanisms and infrastructure. This uncertainty, complexity and resulting confusion no doubt compounds the already burdensome stressors upon a community.

Another significant stressor bearing down on the recovering community is the loss of autonomy, which according to SERU (2000) can only be mitigated by encouraging a community-driven recovery process. However, as stated by Raphael (1986), the loss of dignity that goes with asking for help is also a significant stressor. It seems therefore inevitable that no matter which way the recovery of a community is facilitated, there is going to be some inherent conflict and resulting stress.

One of the key elements in mitigating the stresses of emergencies is to maintain a diverse social support network that resembles as closely as possible the one that existed prior to the event. Regrettably, as is often the case, the time and energy demands of engaging in the recovery process often leave little time for maintenance of these networks, which are so important for longer term recovery (Raphael, 1986).

A lot has been said thus far in respect of the destructive, or rather, psychosocial challenges that go with emergencies and recovery from emergencies.

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One of the key elements in mitigating the stresses of emergencies is to maintain a diverse social support network.

Interestingly, Haas, et. al. (1977) argue very convincingly that emergencies merely serve to accelerate a community's normal evolutionary progression. That is, whilst emergencies force a community to rethink and rebuild, this rethinking and rebuilding is conducted consistently with that which would have taken place in the absence of the emergency, but which would have occurred over a greater period of time.

Community characteristics as determinants of recovery capacity

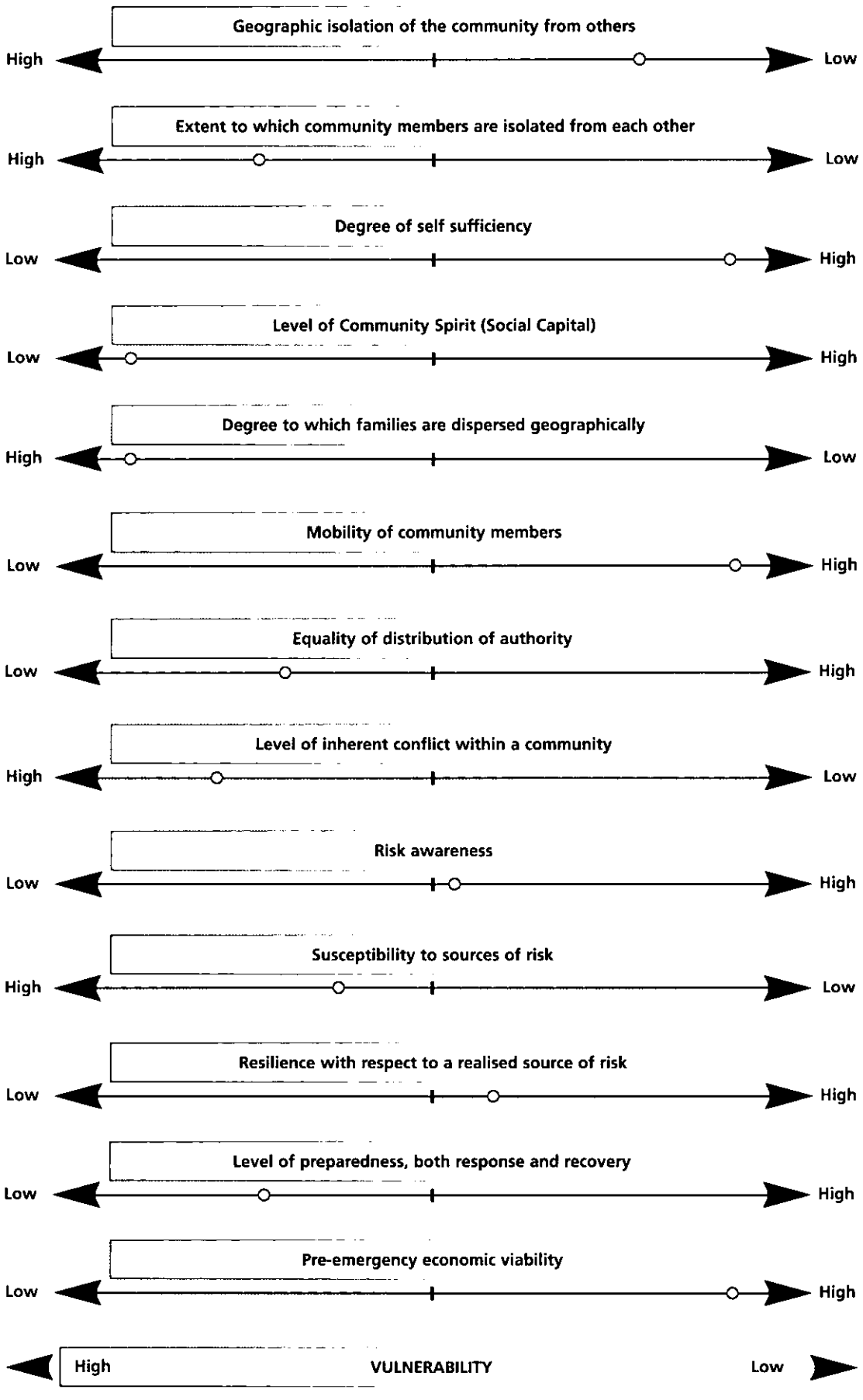
Whilst the preceding discussion offers a good generic picture of what happens to communities in emergencies, it does not address the fact that each community is different. At the start of this paper, a list of thirteen criteria were presented as possible tools in determining what implications an emergency event holds for a community in terms of recovery. In addition, these criteria might also be used to classify a community for the purposes of recovery planning. For example, Figure 2 shows how a typical city community might be classified as a step in such a process. However, it is important to note that what applies to one city does not apply to all cities. Moreover, the same analysis may only apply to one 'layer' of the community and quite possible will change over time.

Obviously such a means of classifying a community is a qualitative and possibly oversimplified model of community analysis. Nevertheless, as will be shown it can serve as an effective mechanism for describing a community's likely pattern of recovery. Hence, the following discussion will focus on how these criteria can apply in terms of the broad implications they hold for communities, particularly in terms of recovery.

Geography. The community may be either bounded geographically, such as an island community or ranging across a number of areas, such as the Anglican community. Clearly, the more geographically bounded a community is, the greater the likelihood that the entire community will be directly affected and therefore potentially less able to effect a rapid recovery. Conversely, a geographically dispersed community is more likely to be in a position to provide stable support throughout the recovery process, as only a portion is directly impacted by the emergency.

Isolation. Individuals within the community may live in relative isolation from other members of the community, such as elderly residents of a city or people of non English-speaking background. In fact, SERU (2000) cite such individuals, including the very young, very old, and people who for one reason or another maintain

Figure 2: Community Profile



A community can experience high levels of social capital.

poor social networks as particularly vulnerable to trauma as a result of emergencies. Therefore, such people are likely to demand a greater than average level of support during the recovery process.

Self sufficiency. A community may be relatively self-sufficient, as is the case for many rural communities, or rely significantly on the support of other communities. Indeed, it could be argued that the latter are becoming the norm, as suggested by Haas, et. al. (1977). Specifically, Haas, et. al. (1977) state that families are increasing becoming reliant on institutionalised support rather than traditional social support mechanisms. The same can be observed in many developing countries, hence the approach now advocated by international aid agencies to 'help nations help themselves'.

Social capital. A community may experience high levels of social capital (community spirit), evidenced by cohesion, trust and mutual support, or low levels of social capital. There is presently healthy debate in the social sciences as to whether or not levels of social capital in western society are in fact declining. Notwithstanding, it remains that the lower the level of social capital inherent within a community, the less able that community is able to pull together in support of recovery efforts. This notion is supported by SERU (2000), which advocate building of social capital as part of enhancing community preparedness.

Dispersion. Families within a community may be either relatively intact and close in physical proximity, or widely dispersed. Raphael (1986) places particular importance on the role of family in assisting recovery. However, she also acknowledges that the highly cohesive extended family units characteristic of agrarian communities are becoming less the norm, resulting in significant challenges for the modern family in developed society with respect to recovering from emergencies.

Mobility. Levels of mobility, as evidenced by the level of immigration and emigration, have an important bearing on a community's recovery from an emergency. Highly mobile or nomadic communities, such as many indigenous communities are less resistant to temporary or permanent relocation (although this is not always the case). For example, the community of Yungay, Peru was relocated subsequent to an earthquake. Rather than returning to their original home when it was safe to do so, they chose to re-establish themselves in the place to which they had be relocated (Raphael, 1986). Similarly, relatively stable communities within which individuals

can claim to have lived for most of their lives are significantly more resistant to relocation, even for a short while.

Elitism. Communities may be elitist in terms of centralisation of power to a select few, or egalitarian in the sense that power is accessed and utilised by many. This criterion is two-pronged. Firstly, challenges arise in terms of the centralisation of power within the community. Quite often, such power structures are rendered insignificant during the confusion of an emergency (Raphael, 1986). However, such centralisation of power, when it remains intact, can be a useful tool for the recovery manager in terms of community consultation by providing a discrete and recognised link to the community that also has the power and authority to implement recovery measures. Conversely, Raphael (2000) warns of a risk that elite elements of the community may utilise the circumstances to further their own interests. A more egalitarian community, on the other hand, will deliver a more balanced approach to recovery, but may do so in slower time, owing to more cumbersome decision making processes.

Conflict. The level of inherent conflict within a community, whilst generally not a major factor in the early stages of recovery, plays a major role once the altruism wears off. As mentioned earlier, high levels of conflict manifest themselves in excessive bureaucracy and turf wars, and therefore is not healthy in terms of effecting a successful recovery.

Awareness. Communities may or may not be aware and alert to the sources of risk particular to their community. As discussed by Raphael (1986), the degree to which communities have previously been exposed to emergencies can have some interesting effects. Repeated impacts may serve to heighten a community's level of preparedness, which is the ideal. Alternatively, such a level of exposure may lead a community to perceive itself as invincible and therefore ambivalent in their approach to preparedness. A similar effect may be observed in communities infrequently impacted, in that they might adopt the philosophy of 'lightning never strikes the same spot twice' – perhaps the greatest fallacy of all time. Such communities will also maintain an air of invincibility and ambivalence with respect to preparedness. The effect of this low level of preparedness is discussed below.

Preparedness. A community may or may not have a level of preparedness appropriate to the level of risk. Low levels of preparedness not only serve to compound the effects of the emergency, but also leave recovery arrangements lacking, owing to an absence of pre planned contingencies and strategies. Preparedness also plays a key role in managing the psychological impact of emergencies. Hodgkinson & Stewart (1991) devote an entire text to advocating the role proper planning can play in mitigating the traumatic effects of emergencies, an approach endorsed by SERU (2000).

Pre-emergency economic viability. Whether or not a community was economically viable prior to the emergency can have a profound effect on the community's recovery. This position is supported by Raphael (1986), who states that those in most need before an emergency are most likely to be in need well into the recovery process. For this reason SERU (2000) advocate comprehensive community planning as part of preparedness in order to highlight at-risk elements of the community, or at-risk communities. This criterion is exemplified in the case of the East Gippsland Floods of

The close physical proximity of families can significantly assist recovery.

1998, mentioned in the opening paragraphs. Owing to the drought experienced in East Gippsland prior to the floods, recovery from the floods was enormously challenging for the region, which was heavily reliant on the agriculture sector.

Susceptibility. A community may or may not be susceptible to sources of risk. This is fairly self-explanatory, suffice to say that a community's level of susceptibility is correlated with the effectiveness of prevention and mitigation measures. In terms of its relevance to recovery, it merely relates to whether or not there is likely to be an emergency to recover from.

Resilience. Whilst many of the above criteria offer an insight into a communities degree of resilience, it is important to note that a community's overall level of resilience is an important consideration. Interestingly, Haas, et. al. (1977) imply that communities in general are inherently resilient, based on the assumption that all communities impacted by an emergency experience a re-emergence of pre-disaster characteristics which determine the future in approximately the same way that it would have happened had the disaster not occurred.

Conclusion

The concept of community is, at best, an intangible and amorphous social construct to attempt to describe. When described for the purposes of examining the interaction between humans and emergencies, the task is all the more challenging. Nevertheless, what has been advanced here is a definition of community that emphasises interaction within and between a number of sub-communities and bounded by the impact of the emergency. In order to facilitate a thorough analysis of what happens to communities during emergencies it is important to consider some of the generic (and principally psychosocial) effects of emergencies. Moreover, through the utilisation of a number of criteria describing various aspects of community, it is possible to get a structured and coherent understanding of what happens to communities during emergencies. More importantly, such an approach offers an opportunity to explore the way a community might approach recovery.

It remains to be said that, just as two emergencies are never the same, so too does this apply to communities. Therefore, any analysis of an interaction between the two cannot do justice to complex interplay of variables, nor can a single model be applied successfully to all situations. Notwithstanding, when dealing with what many perceive to be a 'black art', it falls to the emergency manager to utilise the best tool available from as diverse an arsenal as possible. Thus, whilst not claiming to have identified a tool for comprehensively analysing the interaction between communities and emergencies for the purpose of a better planned recovery, this paper does advance a number of ideas that may form the framework for such a tool.

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Bringing 'complex terrorism' and 'corporate malfeasance' into a classification schema for disasters

Prof. AJW (Tony) Taylor reappraises new ways emergency management communities might view disasters in the aftermath of recent international events

This article argues that a reappraisal of emergency management systems might be of assistance to organisations concerned with risk assessment in all phases of disaster. Taylor suggests a revised classification of disasters might support risk organisations when managing the enormity and widespread effects of events such as those culminating in the terrorist attacks of September 11, 2001 and in the collapse of corporate empires. Taylor justifies his assertion by defining disasters, presenting a disaster classification system and identifying potential casualties in the aftermath of any major traumatic event.

In times of turbulence there is much to be said for putting traumatic events in appropriate context before considering their features in detail. For that reason, and if the idea is not too reprehensible to contemplate because of the negative emotions that prevail from the awareness of 2,823 fatalities, the terrorist attacks on the World Trade Centre in New York and on the Pentagon in Washington DC, and the concurrent but independent revelations of large-scale financial chicanery in the international conglomerates, can be considered in some ways, comparable catastrophes. The one can be regarded as the unlawful use of force by militant organisations for economic, ideological, political, and religious purposes, and the other as the large-scale manipulation of finance for purposes other than those approved by stakeholders.

Although the *modus operandi* of both types of calamity have yet to be unraveled, it is clear that their simplicity of conception, planning, and execution, exposed the vulnerability of the most economically and politically powerful country in the world to the depredations of a handful of militants and corrupt executives. Both had adverse effects that are still reverberating. Already they have obliged many other countries to consider how they might deal with such events were they to occur on a similar scale in their own territories (cf. *Background papers for the symposium: World terrorism and political violence: Implications for New Zealand and the South Pacific*, 2002: Monbiot, 2002). Consequently the author proposes emergency management communities might properly regard complex terrorism and corporate malfeasance as disasters – catastrophic events that seriously overtax the coping abilities of individuals, families, organisations, and wider communities.

Although terrorism has a long history, ' ... the growing technological capacity of small groups and individuals to destroy things and people, and ... the increasing vulnerability of our economic and technological systems to carefully aimed attacks' led journalist Homer-Dixon (2002) to describe terrorism's new form as 'complex terrorism'. In such matters the substantial 'David and Goliath' disparity between the resources available to the attackers and the attacked led the intelligence analysts O'Brien and Nusbaum (2002) to create the term 'asymmetrical terrorism' – but for present purposes the adjective 'complex' describing the methods of the terrorists is preferred to asymmetrical that refers to their comparative scarcity of resources.

In 1994, the International Federation of Red Cross and Red Crescent Societies (IFRC&RCS) drew attention to the 'disaster inducement' work of powerful self-promoting economic and political groups (*World Disasters Report*, 1994, p.52). A few years the organisation used the term 'disaster development' to describe the increasing alienation, degradation, famine, and poverty of people who are most vulnerable to major adversity, and it incorporated the economic component when defining disasters as 'exceptional events which suddenly kill or injure large numbers of people or cause major economic losses', and it included 'socio-economic dislocation' in its map of relief operations (*World Disasters Report*, 1998, p.12). In his introduction to the same volume, the Secretary-General of the IFRC&RCS commented 'As economic globalisation becomes a reality, and as the debate surrounding the role of civil

society evolves, opportunities are presenting themselves to governments and to other forms of civil action, to reduce risk and plan for a safer future' (*World Disasters Report*, 1998, p.8).

After September 11, several leading economists brought the economic component of terrorism centrally to attention (*LSE Magazine*, 2001), and in a flurry of expert opinions, none other than President James D.Wolfenson of the World Bank reiterated his concern that poverty and inequality were at the root of global ills that generated terrorism (Sullivan 2002). Then the World Economic Forum made terrorism the theme of its very next conference, and among its galaxy of speakers UN Secretary-General Kofi Annan (2002) appealed for the adoption of global citizenship with humanitarian as well as economic concerns to overcome 'the fragility of globalization'.

With the economic emphasis in mind, it is difficult not to think that the internal machinations of executives in bringing about the commercial collapse of certain leading international companies might rival the actions of terrorists[1]. The billionaire investors Warren Buffett and Charlie Munger, no less, are quoted as saying that they are disgusted by the way in which 'in the last few years ... shareholders have suffered billions in losses while the CEO's, promoters, and other higher-ups who fathered these *disasters* (my emphasis) have walked away with extraordinary wealth' (*Reuters* 5/3/2002). Indeed there are so many malefactors that the US Department of Justice (2001) has provided a resource handbook for their victims (with an appendix that just might give people wrong ideas about crimes they could perpetrate!).

Now the seemingly invincible auditors that earned more from advising their clients than auditing the company books are attracting the attention of regulatory agencies for the apparent conflict of interest (Hilzenrath 2001: Cohen 2002) – although the financial investigator Widlake (1995) and the criminologists Dodd (2000) and Robertson (2000) challenge their competence for the task. Relevant professional bodies of accountants and auditors are also taking rapid action to rectify matters (cf. Institute of Chartered Accountants of New Zealand, 2002). However, because of the widespread and disastrous consequences for the casualties of those involved in financial plunder, it would seem appropriate to introduce the category of 'corporate malfeasance' in the classification of types of disaster.

Disasters in general

According to the *OED* (1989, vol. 4, p.723), the word disaster came first into usage late in the 16th Century and was defined simply in astrological terms as an 'unfavourable aspect of a star or planet; an obnoxious planet'. Although today the complexity of the topic suggests that in the search for causes, any simple reliance on astrological phenomena, devilry, or divine retaliation is anachronistic, in Roman times all such calamities were attributed to the displeasure of the Gods to whom proper respect was not paid (Ogilvie, 1986, ch.4). Subsequently disasters were interpreted as divine punishments imposed for the moral transgressions of believers (cf. Bowker, 1970: Gavalya, 1987: Taylor, 1998). Nowadays some still derive support from the phrase 'acts of God' that appears as a standard feature of many commercial and insurance contracts – without realising that the term is used there legalistically rather than theologically to exclude cover of events that are unpredictable, unavoidable, and beyond the control of individuals (Williams, 1993): like the term 'force majeure', the phrase is intended to relieve designated parties of certain liabilities and obligations regarding catastrophe while still requiring them to make a reasonable attempt to overcome its consequences.

With the advance of science and technology, causative explanations other than the astrological and the metaphysical were invoked to account for disasters that arose. Such was the case when the adverse side-effects of early industrialization included numerous dam bursts, factory explosions, fires, mining tragedies, and various transport accidents (Hoehling, 1973; Perkes, 1976; Kingston & Lambert, 1980). Similar explanations were advanced for later technological developments such as the pollution of the land, sea, and air by toxic waste, with the haunting spectre of a nuclear winter affecting distant parts of the world (Taylor, 1989, chs. 7 & 8: Granot, 1998). The implication was that contemporary mankind had to shoulder responsibility for having brought tragedy about directly through incompetence, ignorance, and negligence, rather than indirectly by misfortune or moral turpitude.

Drabek (1986) gave a lead to those adopting an empirical approach when in a monumental task he scanned more than 1000 published reports of all disasters in search for their essential components. Subsequently he identified four major phases of disaster that he called preparedness, response, recovery, and mitigation – each of which he subdivided and related to

1 Consider for example the debacles of the Bank of Credit and Commerce International, the Barings Bank, and the insider trading at Lloyds in the UK, of the Allied Irish Bank, Enron Energy, Xerox, and Worldcom. in the USA, and of Ariadne, Reid Murray, and the HIH Insurance Company in Australia – to say nothing of the celebrated cases of JBL, Equity Corporation, and Ansett NZ, plus others that sailed close to the wind in the heady days of global free-market de-regulation.

The World Trade Centre burns after the terrorist attacks in September 2001.

the individual, group, organisation, community, society, and nation (Table 1). Then he went on to set priorities that he suggested others might take up – viz. automated information retrieval systems, taxonomies of disaster events and response systems, access to comparative international data bases, linking theory of human behaviour with practice, and increased practitioner/researcher interaction – and he included the mental health needs of the first responders to a disaster scene among the list of research topics requiring top priority (Drabek, 1986 ch.10).

Table 1: Phasic Responses to disaster

1. *Preparedness:*	3. *Recovery:*
a) Planning	e) Restoration
b) Warning	f) Reconstruction
2. *Response:*	4. *Mitigation:*
a) Pre-impact mobilisation	e) Hazard perceptions
b) Post-impact emergency action	f) Consequent adjustments

The present paper does no more than applaud the diligence and perspicacity of Drabek, while picking up two of the items to which he drew attention – i.e. the classification of disasters, and the mental health needs of those on the scene. Consideration of both topics should help those in positions of responsibility to put the effects of terrorism into perspective before planning organisational moves to cope with it.

Classification

Classification is at the heart of every intellectual, empirical, and pragmatic endeavour. Paradoxically it helps to establish the boundaries of a given topic and enables the whole topic to be broken into manageable parts for closer scrutiny and comparison. It is a process to be used when modeling complex problems before creating practical solutions, and is a prerequisite for considering the adequacy of resources to meet the clinical and organizational needs of any firm or community that has been affected by catastrophe.

But before using any classification scheme three warnings need to be given. The first is that some classifiers, like the contentious medieval scholars of old, have insufficient flexibility of mind either to clump or to split the components according to the pattern of material presented, and they are inclined doggedly to seek either general factors or the unique (Schachner, 1962, pp. 19–24). They are unable to accept that in some ways components are all alike, in other ways they are similar, and in other ways they are unique. The second are the assortment of prehistoric iconoclasts and the scatter-brained at work who deny the value of

classification altogether. At best they approach each situation *de novo*, and at worst they do not learn from experience – much less contribute to the training of others. The third is that the process of classification can itself become a seductive preoccupation for establishing and maintaining a reputation while avoiding the test of reality.

With regard to the classification of disasters, it might be objected that disasters are multi-causal and they do not therefore fit into neat categories. But for practical purposes it is often possible to identify a single major natural, or industrial/technological, or human trigger, cross-matched with earth, air, fire, liquid, or biological elements, with the phase of preparation, response, recovery, and mitigation at which they were researched (Table 2). But some disasters have a succession of precipitants, such as when a policy of defoliation leads sequentially to deforestation, soil erosion, landslides, the reduction of water absorption increasing run-off and causing delta floodwater problems lower downstream. Recently the paleoarcheologist Keys (1999) presented a most cogent argument for a volcanic eruption about 535/536 AD having caused the worldwide collapse of major civilisations across the world. His thesis, after considering several alternative explanations, was that a massive explosion in the Indonesian archipelago brought severe climate change, followed by food shortages that caused virulent plague to spread in North African and Mediterranean countries and led ravaging hordes from the North and East of Asia to extend their boundaries into the Balkans and Europe in a fight for political and religious survival. It is tempting to speculate on the possible recurrence of such an event, or of the effect of the earth's trajectory coinciding with that of an asteroid, but the task must be put aside for now – but like the possible ramification of nuclear disasters, or of the widespread depletion of natural resources, they cannot be ignored forever.

Table 2: A matrix of disasters

	NATURAL	INDUSTRIAL/ TECHNOLOGICAL	HUMAN
EARTH	Avalanches Earthquakes Erosions Eruptions Meteorite crash Mudflows Toxic mineral deposits	Dam failures Ecological neglect Landslides Outerspace debris fallout Radioactive substances Toxic waste disposal	Ecological Irresponsibility Road and train Accidents
AIR	Blizzards Cyclones Dust storms Hurricanes Meteorite and planetary shifts Thermal shifts Tornadoes	Acid rain Chemical pollution Explosions over and underground Radioactive cload and soot Urban smog	Aircraft accidents Hijackings Spacecraft accidents
FIRE	Lightning damage Spontaneous combustion	Boiling liquid/ expanding vapour accidents Electrical fires Hazardous chemicals	Fire-setting
LIQUID	Droughts Floods Storms Tsunamis	Effluent contamination Oil spills Waste disposal	Maritime accidents River tragedies
BIOLOGICAL ELEMENTS	Endemic disease Epidemics Famine Overpopulation Plague Pestilence	Design flaws Equipment problems Illicit manufacture and use of explosives and poisons Plant accidents	Complex terrorism Corporate malfeasance Criminal extortion by virus and poisons Guerilla warfare Hostage-taking Sports crowd-violence Warfare

Table 3: Classification of victims/casualties

1. Those adversely affected at the centre of the disaster
2. Their families and close friends
3. The emergency workers and those whose jobs oblige them to become directly involved in the rescue and recovery operations
4. The grieving community that identifies with those that are suffering
5. The psychologically troubled whose reactions are exacerbated, and the troublesome that will be inclined to exploit the situation and use it to their own advantage
6. The miscellany of other people that are adversely affected.

Victims/casualties and their psychological needs

Turning from the classification of catastrophe to a corresponding classification of victims/casualties, the word 'victim' appeared first in print in the Rhemish translation of the Bible in 1592, and it came into general currency in the 17th century to describe living creatures that were sacrificed to the deities (*OED*, 1989, vol.19, p.607). After that it was generalised to describe 'any person put to death, subjected to torture or suffering, or property loss, through cruel or oppressive treatment or a destructive agency'.

However, classification of victims began to serve a purpose other than the religious in the Napoleonic wars when front-line medical staff introduced a triage system for sorting casualties into groups of those that could recover unaided, needed help to recover, or were beyond recovery. More recently medical and social scientists have classified them by the magnitude of the external social chaos caused by disasters, the disruptive effects, and the extent of adversity experienced (Barton, 1969), by the particular methods they used for coping with such circumstances (Milne, 1979: Collins, Baum, Singer, 1983), by the extent of the personal injuries they sustained, their sickness, bereavements, and property loss (Beinin, 1985, p.10), and by their physical and emotional vulnerability (Kilijan, & Drabek, 1979: Bromet, Parkinson, Dunn, & Gondek, 1980: Lystad, 1985). Most recently the IFRC&RCS defined victims more simply as people whose basic needs for survival had to be satisfied (*DHA News*, 1994, pp. 60–61). Some individuals and some communities might also be suffering a sequence of different types of disaster with which they are still trying to cope.

For my part at the time of the Mt.Erebus plane crash in Antarctica I developed a framework simply because I wanted to bring together the many professional reports of different kinds of people that were involved in different types of disaster. With that consideration in mind, initially I prepared a six-fold classification of disaster casualties that seemed to be sufficiently comprehensive for the purpose (cf. Taylor, 1989, ch. 2, and Table 3 below). Also it raised questions about the different types of intervention and support that those in each category were likely to require (cf. Young, Ford, Ruze, Friedman, & Gusman, 1998: Raphael, 2000). Not that all people in any one of the categories necessarily call for the same kind of intervention, because their needs depend on their specific personal perceptions of the particular traumatic events they might encounter, and some might also find their suffering to have exacerbated dormant emotional problems that require attention. Nor that the categories are quite distinct, because some people such as emergency workers might have their own families also endangered, and also they might find themselves attending to casualties who are friends. But the categories seemed to provide a helpful starting point when considering the diversity of perceptions and psychological problems that the casualties might present (cf. Baum, Frederick, Frieze, Schneiderman, & Wortman, 1987).

With the given provisos, the primary victims are those who suffer directly from catastrophe. Many do not survive, but those who do and become casualties, might develop symptoms ranging from the mild to the severe that can be instant, delayed, transient, or chronic. They have to reassemble the shattered parts of their lives and satisfy their basic needs for shelter, food and drink, belonging and security, leaving aside those for self-esteem and self-actualization until the semblance of normality returns (cf. Maslow, 1954/1987). The secondary casualties are the family members and close friends of the primary victims who develop symptoms vicariously because of their emotional attachments to them. Depending on the intensity of those attachments they will need time, opportunity, and encouragement to grieve and express a mixture of feelings that include anger, distress, and despair at the tragic loss before they can pick up the threads of life again.

The tertiary casualties are the workers in all types of agency that succumb during the course of their post-impact assignments. If once they were described as the 'hidden victims' of disaster, they are now recognized more openly as being vulnerable to occupational fatigue and stress reactions. Fatigue arises from the impulse after a disaster not to impose a daily routine of a reasonable length that allows time between shifts for

Wrecked cars in the street after the Sari club bombing, Bali.

sufficient rest and recovery. Stress arises from the substantial imbalance between demands that are made and the ability of individuals to respond with the organisational support available.

To their own detriment, emergency workers sometimes identify too closely with the primary victims and lose their objectivity (Asken, 1993), and the risk is particularly acute if the work is gruesome and their own colleagues are among the victims – as is said to have happened at the World Trade Centre (McKinsey Report, 2002). At an opportune time when such feelings of grief have simmered, sensible employing organizations provide preventive training and subsequent psychological debriefing. Mental health professionals that either give psychological first-aid on the spot or take referrals of casualties later were wise to do the same, because their normal professional training does not prepare them for transient trauma recovery work.

Good preparation encourages emergency workers to develop appropriate emotional shields to use for the duration of their assignments, and the debriefing afterwards helps them to discard such necessary emotional defences and to regain their resilience for living – otherwise they would become case hardened and burnt-out. Although the proof of debriefing is still in doubt (cf. Gist & Woodall, 1998 *versus* Everly & Mitchell, 2000), at the very least it should remind emergency workers of the need for them to monitor their emotional reactions.

The quaternary group of casualties might be symptom-free, but it consists of the well-intentioned but emotionally liable people in the community at large who identify with the initial victims and come to act inappropriately themselves. It includes those who display what has been called the 'cornucopia syndrome' from opening their cupboards and their hearts without foresight to impose burdens of perishable food, inappropriate clothing, and offers of hospitality on unwilling recipients. It includes those that converge on disaster sites like the estimated 10–15 000 volunteers that turned up daily at the World Trade Center to help in the recovery of victims, most of whom complicated the operation (Rick Shivar, External Affairs Directorate, US Federal Emergency Management Agency, live video-conference 14 March 2002). This same fourth group includes those who in 1981 hammered on the door of a mortuary in Rome, demanding to see the corpse of a seven-year old boy that had died tragically after slipping down a pothole (*Paese Sera*, July 18, 1981). Thanks to the power of non-stop overnight television coverage of the scene, they identified closely with the family as the emergency services made despairing attempts to recover the boy alive. But the media that created them and sustained their level of excitation, stopped short of reversing their emotional enrolment, and as a result it left them to make intrusive claims at the mortuary on the basis of their newly acquired quasi-family status.

With the invasive power of television in particular, some of this fourth group might even experience post disaster stress by proxy from witnessing the graphic and persistent portrayal of tragedy, although not necessarily to the point of satisfying the criteria for post-traumatic stress disorder (PTSD). On this matter recently I felt obliged to question a television presenter about the wisdom of the non-stop exposure that her channel was giving to the September 11 tragedy. She considered it important for the news media to make an indelible

impression on the minds of its viewers, and had given no thought to the negative effects of witnessing the constant repetition of the plane striking the second tower and of people plunging to their deaths to avoid being burned alive – it left some viewers in such a state they were in no position to begin to think rationally of the causes and the consequences of terrorism.

The quinternary, or fifth group of disaster casualties, consists of the troubled and the troublesome with pathological proclivities that in times of phantasmagoria lose their self-control. The troubled indulge their fantasies by indulging in voyeuristic activities, collecting pictures of body parts, and even expressing necrophilic desires. Some also pretend to have been involved in any well-publicized disaster, either to play on the sympathy of donors or to seek notoriety. And it is a moot point whether this category might include the 'disasterotropic' who chase 'twisters', tsunamis, and volcanic activity to satisfy desires other than the scientific, or the surge of tourists with ghoulish tastes that visit the sites of devastation – such as those for whom the government of Honduras made provision after Hurricane 'Mitch' in 1998, or those for whom a Ukraine tourist agency is now promoting visits to the site of the leaking radioactive power station at Chernobyl.

The troublesome are those who in times of social chaos go on the rampage to loot, plunder, and riot, and their more sophisticated counterparts with greater impulse control perpetrate insurance fraud – although when the statistics are available, the actual number of crimes committed in New York after 11 September 2000 might possibly be lower than normal, because criminals were distracted by the enormity of the events, by the heightened police presence, and other extraneous factors. Yet sundry news media reports showed that a man applied for compensation claiming his wife was killed at the World Trade Centre, another posed as a firefighter to elicit donations for himself, thieves tried to stead gold from the vaults in the rubble, a photographer distributed a picture he claimed to be of the plane a few moments before the impact, and hoaxers caused bomb scares at many airports. Others played copycat roles elsewhere – for example there was said to be some 2,500 anthrax scares reported in Australia (McKinnon, 2002). At the higher end of the scale of criminality, one of the firms with offices in the World Trade Centre came under suspicion over US$105 million of investment funds that went missing soon after the catastrophe.

The final category, the sesternary, is for the miscellaneous group of casualties that has a diverse array of problems with which to cope. It includes those that but for chance would themselves have been primary victims and torment themselves constantly with questions as to why they should have been saved from such a fate. It includes those who in all innocence had persuaded their friends and acquaintances to go into a situation that subsequently became disastrous, as well as those who consider that in some way by their actions or inactions they had brought a given disaster about. It also includes researchers, who in their post-disaster work are sometimes unaware of the insidious effects of the strain and fatigue upon themselves, and had neither personal nor professional networks available to support them.

However any such schema needs to be used with care, because to be labelled a victim can induce feelings of hopelessness and create secondary problems that militate against recovery. Instead, and except for those that have either died from the calamity or have suffered irrevocably in some other significant way, the term casualty is preferred for those whose lives have been affected adversely by their exposure to catastrophe. It recognises casualties that have survived adversity, but implicitly encourages them to consider that perhaps they might even have been strengthened by the experience, and reminds them to make the best of their circumstances. It reflects the saying adapted from Nietzsche – that which does not kill me makes me strong – but retains the possibility that it might not! The axiom fosters hope for recovery, acknowledges the positive power of the *placebo effect* and the negative power of its counterpart the *nocebo effect*, encourages ultimate self-reliance, and is consistent with the thought that it is better to live in hope than to die in despair.

The orientation could induce health professionals not to pay undue attention to any in a string of symptoms that casualties might experience or signs they might display immediately after a traumatic event, but be supportive and allow casualties a few days grace in which to begin to use their inner strength and regain their composure before they intervene clinically. Initially any such symptoms can rightly be regarded as normal reactions to abnormal events – but they need to be monitored to make sure that they are transient. There is nothing more dangerous than people with diagnostic checklists who are anxious to 'pathologise and fix' anyone peremptorily at a first encounter. The time to consider pathological factors comes later should intrusive thoughts, avoidance behaviour, and a state of high arousal interfere to a serious degree with everyday living.

Summary

Complex terrorism and corporate malfeasance are included in a table for the classification of disasters to help policy analysts and emergency responders get the psychological detachment they need in coping with the consequences. Their inclusion might also help researchers to integrate reports of these pressing concerns with the reports of many other types of disaster, and suggest further avenues they might explore in the prevention and treatment of traumatic stress.

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Effects of disclosure of flood-liability on residential property values

Stephen Yeo compares the affects of flood-liability disclosure on residential property values in USA, Canada, New Zealand and Australia

By Stephen Yeo

The effect of disclosure of flood-liability on residential property values is a contested issue. Disclosure is generally taken to mean some sort of public revelation of flood-liability. Forms of disclosure in New South Wales include floodplain maps, flood markers, household information sheets and flood data downloadable from the Internet[1]. A more limited means of disclosure is via Section 149 certificates under the Environmental and Planning Assessment Act (1979), which record any flood-related development controls pertaining to a particular property.[2]

There are several advantages to the disclosure of flood information. Floodplain mapping is regarded as an essential input for sensible flood risk management, through land use planning, warning systems and public education.[3] The NSW State Emergency Service is mandated to publicly disseminate information relating to floods.[4] Local councils may consider that they have a duty of care to inform people of flood risk.[5] Property owners, potential purchasers, lending institutions and insurers all benefit by better understanding, rating and managing flood exposure.

However, the disclosure of flood risk information has led to opposition from those who perceive that such disclosure may reduce property values. This was clearly seen following the release of flood maps for Sydney's western suburbs in November 1982. A journalist suggested that to name a house as flood-prone would take an average of 30% off its value.[6] The Liberal opposition distributed a leaflet in the lead-up to the 1984 state election that claimed, 'Once the Labor Government has mapped your area ... the value of your property could be reduced by up to 50%'.[7]

Is the media, are politicians, justified in claiming such effects? Does disclosure affect property value? Is the effect of disclosure more apparent than real? Does disclosure effect all flood-liable residential property or only dwellings with the greatest exposure? Is any effect on property value long-lasting or short-lived? Concerns about property values seem rational, but are they soundly-based?

In the Australian context we don't know the answers to these questions. Despite the continuing, widespread belief that residential property values are adversely affected by disclosure of flood liability, few Australian studies have examined the issue.

However, a wealth of international publications addresses the subject. Consideration of these global research results in an Australian context provides the opportunity to examine the implications of disclosure for Australian floodplain managers. This review allows managers, politicians and communities to be informed next time some 'authority' asserts that disclosure does (or does not) influence property values.

This review is structured according to a series of questions that serve to demonstrate the spatial and temporal effects of flood disclosure. Most studies come from the United States, with lesser numbers from Canada, New Zealand and Australia. Most of these deal with disclosure that results from an actual flood event rather than disclosure as a result of floodplain

1 http://www.lismore.nsw.gov.au/content/citywks/floor_levels_jun02.pdf
2 NSW Government 2001, pp.24, L-6; cf. Bewsher et al., 1998
3 Akew and Pilgrim, 1979
4 State Emergency Service Act (1989), Section 12(3)
5 Druery et al., 2002
6 Monaghan, 1984, cited in Lambley & Cordery, 1993
7 Handmer, 1985, p.282

designation or mapping. In this review, more attention is given to the assessed rather than perceived influences of disclosure on residential property values. Seven key case studies are summarized in Boxes.

Outcomes

Does flooding affect residential property values?

A number of studies demonstrate that floods adversely affect residential property values. After flooding, average values fell by 19–26% at Oak Grove (Box 1), 30% at Wilkes-Barre (Box 3), 19% at Linda/ Olivehurst (Box 4), 9% at Te Aroha (Box 6) and 60% at Nyngan (Box 7). A slight decrease was observed for Sydney's Georges River district after the 1986 flood (Box 7).

There are several other examples, however, where flooding was not found to decrease residential property values. This was the case after the 1986 flood at Des Plaines (Box 2). After flooding at Cambridge in 1974 (Box 5) and at Paeroa and Thames in 1981 (Box 6), property values increased. No decrease occurred after flooding of Sydney's Georges River district in 1988 (Box 7). A study at Houston, Texas, found that flooding in 1979 had no direct impact on values of flooded houses, which declined only when flood insurance rates increased substantially.[8]

Does floodplain designation affect residential property values?

Many studies have found that properties situated in designated floodplains are valued less than comparable properties situated outside the floodplain (usually by 4–12%).[9] One study favored a figure of –11% for highly flood prone properties in Sydney's west, though flood prone properties in the largest data set (Toongabbie) were valued only 4% less than comparable properties situated above the 100-year flood level (Box 7).[10] Annual sales data revealed a 25% fall in floodplain property values in the Georges River catchment in 1984, which was interpreted as a response to the release of floodplain maps (Box 7)[11]. The data are of a coarse resolution, however, and show other downturns that presumably were not associated with disclosure. It is difficult to isolate the effects of disclosure due to the depressed state of most property markets in 1984.[12]

Other studies have found no significant difference between values of properties situated in and out of designated floodplains.[13] Several studies have found that floodplain designation or subsequent regulation have had no adverse effect on property values (e.g. at sites in Ontario, Box 5). Indeed, at Oak Grove (Box 1), Te Aroha (Box 6) and Bergen County, New Jersey[14], properties so designated increased in value at rates *exceeding* those that were not designated. This may reflect extraneous influences such as the premium placed on waterfront property. A finding that floodplain designation has little effect on property values matches the finding of (some) research of earthquake hazards in California, where it was concluded that surface fault rupture zonation and its disclosure by real-estate agents had no negative impact on house price levels.[15]

A pervasive feature of global inquiry into the effect of flood disclosure on property values is the contradictory nature of the results, often acknowledged in the literature. Reasons for these contradictions are explored below. But one finding on which there appears to be little disagreement is this: a flood event, rather than floodplain designation, is likely to have a greater effect on property values. This is supported by the Oregon case study (Box 1). Even studies that demonstrate an adverse response to floodplain regulation have found that flood events trigger an even more adverse response.[16] This corresponds with a number of perceptual studies, which found that assessors, realtors and lenders thought flood events had more impact than floodplain regulations in determining property prices and lending decisions.[17]

How spatially extensive are the effects of disclosure?

Common lore has it that disclosure of flood-liability, whether by flooding or floodplain mapping, should result in a differentiation of market trends between flood-liable properties and those that are not. Research provides some support for this. At Oak Grove (Box 1), Wilkes-Barre (Box 3) and Linda/ Olivehurst (Box 4), non-flooded properties experienced less severe downturns. Houses that were not flooded experienced a greater overall increase in value at Des Plaines (Box 2). There is also a hint of spatial discrimination at Thames, where flooded properties failed to increase in value at statistically significant rates (Box 6).

8 Skantz & Strickland, 1987

9 Damianos, 1975; Donnelly, 1989; Shilling et al., 1985, 1989; Speyrer & Ragas, 1991; Fridgen & Shultz, 1999; Shultz & Frigden, 2001

10 PRC, 1992

11 Lambley & Cordery, 1991, 1993

12 Handmer, 1985, p.281

13 Zimmerman, 1979; Bialaszewski & Newsome, 1990

14 Sheaffer & Greenberg, 1981, pp.118–121

15 Palm, 1982, p.265; cf. Brookshire et al., 1985

16 Warnick, 1977; Holway &Burby, 1990; Frigden & Shultz, 1999; Shultz & Frigden, 2001

17 Sheaffer & Greenberg, 1981, p.114; Shrubsole & Scherer, 1996 (Table 3)

However, rather more research indicates that flooding adversely affects whole communities, including properties that were not flooded. This occurred after the 1987 flood at Des Plaines (Box 2). It is particularly apparent following catastrophic flooding, when *proximity* to damaged property seems to affect property values almost as much as inundation (e.g. Oak Grove – Box 1, Wilkes-Barre – Box 3, Linda/ Olivehurst – Box 4, Te Aroha – Box 6). Publicity surrounding catastrophic floods probably colors perceptions of the entire locality.

What areas are most affected by disclosure?

Few studies have sufficient spatial precision to enable the assessment of areas most affected by disclosure. The degree of discounting in property values (5–14%) was found to correspond with intensity of flood risk in South Roanoke, Virginia.[18] Flood depth was directly associated with the magnitude of decline (%) and duration of recovery in property values at Wilkes-Barre (Box 3) and Linda/ Olivehurst (Box 4). Seemingly disparate findings that selling prices (Wilkes-Barre, Box 3) and rate of appreciation (Paeroa, Box 6) increase with flood depth are partly explained by the value added to properties by repairs and renovation.

Flooding at Des Plaines in 1986 and 1987 provided the opportunity to assess the effects of flood frequency on property values (Box 2). It was found that properties that were flooded twice experienced a greater decrease in prices and a longer recovery. At Thames, however, no significant differences in selling prices could be identified for properties with different flood experience – the second, larger flood did not adversely impact property values (Box 6). Similarly, no downturn in prices was apparent after the second flood in Sydney, though properties were apparently not demarcated according to flood frequency (Box 7). A study of the effects of flooding at New Orleans also implied that repeated flooding had no effect on flood insurance and hence no effect on property values.[19]

How prolonged are any effects of disclosure?

Deep, highly damaging floods have generated the longest recovery times – in excess of 10 years for parts of Linda/ Olivehurst, where abandoned houses acted as reminders of the damage (Box 4), and about 5–8 years for Oak Grove (Box 1). That property values recovered to their pre-flood levels within about two years at Wilkes-Barre (Box 3) and one year at Nyngan (Box 7) – despite severe floods – is thought to reflect the infusion of government relief funds, which speeded restoration. Adverse market effects of Te Aroha's flood and landslip had vanished after four years (Box 6). Twice-flooded houses at Des Plaines were still recovering after two years (Box 2). Any detrimental impacts of the floodplain mapping in Sydney's west had evaporated within a year (arguably, associated with the maps' removal), but the annual data are too coarse to allow confident interpretation (Box 7).

Interpretation

A review of the effect of flood disclosure on property values soon reveals the contradictory nature of much of the work. Some studies have concluded that flooding or floodplain designation negatively influences property values, while others have demonstrated the opposite. The magnitude, spatial extent and duration of any effects are also seen to vary substantially. Why are the research results so diverse?

1. Different purposes

One reason for diverse findings is the diversity of purpose. Some studies have an academic interest, others a very practical interest. Some approach the issue from a hazards framework, others from a real estate framework. Some seek to understand the interaction between people and their environment; others seek to develop more accurate means of appraising values of properties for sale.

2. Different data and methods

A second reason for diverse findings is the use of different data and methods. Most studies assess changes to developed residential property values; some focus on land values (e.g. Box 1).[20] Most studies use sales prices, some use assessed prices. Three broad methods of analysis have been used: changes in the mean value of properties, which are verified using common statistical

18 Damanios, 1975, p.127

19 Speyrer & Ragas, 1991

20 Holway & Burby, 1990

tests; multivariate regression, where an attempt is made to isolate the influence of flooding or floodplain designation/ regulation on property values from other variables; and perceptual studies.[21] It is significant that a study using a number of methods to assess the effect of floodplain regulation at one site concluded that, 'The results are mixed, inconclusive and highly dependent on the specific analytical model'.[22]

3. Different quality

Another reason for different results is the varying quality of the studies. In part this reflects the quality of the property transaction data, which change over time even at the one site. Analysis of property values in the Sydney studies is limited by small sample sizes. The sale of a particularly high or low priced property can color substantially the monthly average when few properties are sold.[23]

An important reason why conclusions have differed is an inability to control for variables other than flooding.[24] The factors influencing residential property values are numerous (and to an extent, culturally dependent): lot size; building size; construction type; building age; state of deterioration; number of bedrooms; built-in wardrobes; ensuite bathrooms; carpets; standard of kitchen; garages; swimming pool; constraints on the owners' ability to develop their home; proximity to shops, transport, schools and work; exposure to air or vehicular traffic noise; local supply and demand; mortgage interest rates; etc.[25] For this reason it is important to analyze market trends within designated submarkets that hold constant as many variables as possible – failure to consider submarkets could lead to incorrect interpretations.[26] The moderate R^2 derived for many of the studies using multiple regression is evidence for the difficulty of adequately modeling the many influences on property values.[27] A measure of the problem is obtained by realizing that a floodplain

21 Shrubsole et al., 1997

22 Schaefer, 1990, p.238

23 Lambley & Cordery, 1993, p.450

24 Tobin & Newton, 1986, p.67; Tobin & Montz, 1994, p.674

25 Schaefer, 1990; PRC, 1992; Lambley & Cordery, 1993; Page & Rabinowitz, 1993, cited in Shrubsole et al., 1997

26 Montz, 1987, 1992a, 1992b, 1993

27 Schaefer, 1990, p.329

property has both negative (flood risk) and positive (possible water views) locational attributes, which are difficult to isolate.[28] No adverse effects may be detected where the positive obscures the negative.

Another reason for diverse findings is a lack of spatial precision, which masks the complexity within floodplains.[29] Studies also vary in temporal precision – the extent of data either side of a flood event or floodplain designation/ regulation and the frequency with which property values are assessed over that time vary markedly between studies.

4. Different contexts

Probably the most important reason for the diversity of research results, and related to the inability to exclude other influences on property values, is the site-specific nature of much of the work.[30] The depth and frequency of flood experience (or flood risk) varies from site to site. But little discussed in the literature are the implications of the nature of disclosure of flood-liability, which varies according to the detail of disclosure, the timing of disclosure, the degree of publicity about disclosure, the duration of disclosure (permanent vs. temporary), and the nature and scope of any regulations attached to disclosure.[31] Perhaps disclosure at Te Aroha had no effect (Box 6) because the flood and landslip risk had already been capitalized into property values as a result of the 1985 event.

A very important, variable factor affecting market response to flood disclosure is people's perception of risk. *Unexpected* flooding following the breaching or overtopping of levees caused substantial downturns in property values at Wilkes-Barre (Box 3), Linda/ Olivehurst (Box 4), Nyngan (Box 7) and St Louis, Missouri.[32] Flooding at Des Plaines (Box 2), however, was not unexpected, resulting in little impact after the first flood. More substantial effects were recorded after the second flood, which may have changed perceptions.

Expectation is also important for understanding the effects of designation of flood-liable land. If a decline in flood-liable property values in western Sydney in 1984 were attributable to the release of floodplain maps, then a lack of flood experience and, therefore, expectation would have been influential. Here may be one example where radically changed perceptions led to an adverse market response. However, the rapid recovery of property values in 1985 (associated, perhaps, with the maps' removal) suggests that the downturn was associated more with frenzied media and political reporting than with real flood risk.

A related factor is the perceived *repeatability* of flooding. Impacts of disclosure on property values in Coromandel (Box 6) may be muted because of structural works that provide a (false) perception of security.

Extraneous factors have a variable influence. The role of relief funds in hastening recovery at Wilkes-Barre and Nyngan has been noted. Supply-demand considerations are important. The impact of flooding at Des Plaines (Box 2) may have been subdued by its situation as a suburb of Chicago, with a dynamic housing market. Flood experience had no depreciating impact at Thames (Box 6) because of strong demand from retirees moving into the community. Similarly in Sydney (Box 7), it was found that high population growth and consequent housing shortage resulted in 'a buoyant market remarkably resilient to external influence', which 'tended to obscure any serious, permanent impact upon the market'.[33] Related to supply-demand is the availability of flood-free housing. Where this is lacking, recovery of property values may be enhanced.[34]

A key study aptly summarizes the research results: residential property values reflect 'a complex interaction of spatial, temporal, economic, sociological and hydrologic variables'.[35]

Implications

Evidence for the effects of disclosure of flood-liability on residential property values is mixed. Opponents of disclosure find some support in the published research, particularly in the studies demonstrating that flood-liable properties are valued 4–12% less than comparable flood-free properties. It may be significant, however, that these studies are all taken from the USA, where the National Flood Insurance Program may act as a vehicle enhancing the capitalization of flood-liability. Studies in Canada and New Zealand (and others from the USA)

28 Babcock & Mitchell, 1980, p.536
29 Tobin & Montz, 1994, p.675; Shrubsole et al., 1997, p.170
30 Donnelly, 1989, p.585; Schaefer, 1990, p.320
31 Montz, 1992b, 1993
32 Shepard, 1994, p.44
33 Lambley & Cordery, 1997, p.6
34 Tobin & Montz, 1994, p.684
35 Tobin & Montz, 1994, p.684

have found no distinction in property values between floodplains and non-floodplains, and no distinction pre- and post- floodplain designation or regulation.

Advocates of disclosure find rather more support in the published research. Flood risk is just one of many characteristics influencing property values. House age, size and amenity – not flood hazard – explained differences in housing prices in towns in New Zealand. This compelling study concluded that, 'There are no market reasons to avoid disclosure'.[36] In fact, the evidence suggests that actual flooding is more likely to cause an adverse effect on property values than floodplain designation or regulation. Research indicates that the most severe downturns and the slowest recoveries typically are experienced by those properties flooded to the greatest depths, though even non-flooded properties are not immune from adverse effects. Again, however, flooding may have little impact where other factors dominate. In Sydney, where demand is strong, it was found that, 'The impact of flooding upon housing values ... is not as apparent as popularly believed'.[37]

The balance of evidence suggests that the grounds for refusing disclosure are weak. Even if property values are adversely affected, a pragmatist sees that designation simply brings forward the inevitable decline that would occur after a future flood. This, however, is small comfort to the present generation who may sustain a loss. People may also have less tolerance for human disclosure (i.e. a floodplain map) than for 'natural' disclosure (i.e. a flood), and may express their anger at the polls.

(1) Oak Grove, Oregon, USA
(Muckleston et al., 1981; Muckleston, 1983)

A study of assessed land values over a 23-year period demonstrates the effects of (1) a major flood in 1964 and (2) the enforcement of floodplain regulations from 1971.

- The flood had a depressing effect on land values, particularly for waterfront lots (–19% to –26%), but also for lots that apparently were not flooded (–3%).
- This depressed effect lasted for 5–8 years.
- The enforcement of floodplain regulations had no dampening effect on residential land values; indeed, the mean appreciation rates for regulated river front lots increased significantly more rapidly than those for unregulated lots.

(2) Des Plaines, Illinois, USA
(Tobin & Montz, 1990, 1994)

A study of list and sold prices over a 4-year period reveals the influence of frequent, low-magnitude floods (in Oct 1986 and Aug 1987) on property values in a suburb of Chicago.

- The first flood had a minor effect on property values, with small increases (8%) in sold prices for flooded areas (perhaps due to the value added by repairs and renovation) and small decreases (–7%) for non-flooded areas.
- The second flood (which was less extensive) had a more pronounced effect on property values, with corresponding decreases in sold prices for both flooded and non-flooded property (–15% to –21% from the preceding quarter).
- Houses that were flooded twice experienced a slow recovery (> 2 years for sold prices to recover to pre-flood values), and houses that were not flooded at all experienced a greater overall increase in value than flooded houses.

(3) Wilkes-Barre, Pennsylvania, USA
(Montz & Tobin, 1990; Tobin & Montz, 1994)

A study of list and sold prices over a 5-year period reveals the influence of a catastrophic, levee-breaking flood in 1972. About two-thirds of the city was inundated, in places to depths of more than 4 metres.

- The flood caused an immediate decline in prices across the city, though the decline in sold prices for non-flooded property was neither as severe (–11%) nor as prolonged (6 months) as for flooded properties (–30%, 2 years).
- The most severe decline in values (almost –40% for the first 6 months) and the longest recovery (30 months) was experienced by properties flooded to the greatest depths (> 4 metres – sufficient to flood second storey).
- Flooded properties were worth more than non-flooded properties, before and after the flood, due to larger floor areas and the value of improvements from repairs and renovation.

36 Montz, 1993, p.241
37 Lambley & Cordery, 1991, p.863

(4) Linda and Olivehurst, California, USA

(Montz & Tobin, 1988;
Tobin & Montz, 1988, 1994, 1997)

A study of list and sold prices over a 13-year period demonstrates the influence of a catastrophic, levee-breaking flood in 1986, which was characterized by depths of up to 3.5 metres, high initial velocities, and durations ranging from less than 2 days to more than 2 weeks.

- The flood caused an immediate decline in sold prices in flooded areas, by an average of –19% for the 6 months after the flood.
- Even sold prices for non-flooded areas showed a decline after 1 year.
- Those properties flooded to the greatest depths experienced the most severe downturns (–60% for the first quarter after the flood) and the slowest recovery (in excess of 10 years, partly due to abandoned houses serving as continuing visual reminders of the damage).
- Slightly flooded (0.5 metres) and non-flooded houses experienced less severe downturns (up to –20%) and a somewhat faster recovery (4–6 years).

(5) Ontario, Canada

(Babcock & Mitchell, 1980;
Schaefer, 1990; Shrubsole et al., 1997)

A number of studies have investigated the influence of flooding and flood disclosure at sites in Ontario Province.

- Analysis of sales prices and assessment values revealed no significant differences between flooded and non-flooded areas either before or after a major flood at Cambridge in 1974. Sales prices were significantly higher after the flood. There was no significant difference in perceived property values between flooded and non-flooded areas in 1978.
- Modeling of influences on property values at North York identified no significant relationship between floodplain designation/regulations (from 1982) and selling price of homes situated within regional floodlines.
- Analysis of asking price, selling price, assessed value and days on market for houses in London between 1978 and 1989 found no significant difference between houses situated in and out of the designated floodplain. This corresponds with the perception of most interviewed residents that floodplain regulation had no economic impact.

(6) Coromandel, New Zealand

(Montz, 1992a, 1992b, 1993)

Sales data were used to assess the effects of record flooding at Paeroa in 1981, a severe landslip and flooding at Te Aroha in 1985 and flooding at Thames in both 1981 and 1985. The impacts of later disclosure via hazard maps at Te Aroha and Thames were also evaluated.

- For the non-flood area of Paeroa, prices after the flood were significantly higher than before, but this was not sustained beyond four years. Houses that were flooded to greater depths appreciated more after the flood due to their low pre-flood values and the value added by repairs and renovation.
- At Te Aroha, immediate post-event selling prices were significantly lower than pre-event prices (–9%) for all properties in the town – including non-hazard – for up to four years.
- At Thames, property values increased after the 1981 flood, though not significantly for flooded houses. There were no significant differences in before/after selling prices for the 1985 flood. There is little apparent difference in trends experienced in and out of the floodplain.
- Disclosure had little impact on the real estate markets in Te Aroha or Thames. No downturns are attributable to the release of flood hazard maps. Spatial patterns were the opposite of what might be expected – in Te Aroha, high-hazard houses sold for more after designation, and in Thames it was the houses that were not designated as flood prone that decreased in value.

(7) Sydney and Nyngan, NSW, Australia

(PRC, 1992; Lambley & Cordery, 1991, 1993, 1997)

The effect of flooding and flood disclosure on sales prices has been investigated by three Australian studies. One of these studies evaluated the impact of floodplain mapping and flood events in the Georges R. catchment, and another evaluated the impact of a levee-breaking flood at Nyngan in 1990.

- There is weak evidence to suggest that between 1987 and 1991, properties situated on highly flood-liable land in the Upper Parramatta R. catchment (separate to the Georges R. catchment) had reduced sale prices (–11%) when compared to properties situated above the 1 in 100 year flood level.
- There is some evidence to show that the prices of flood prone properties in the Georges R. catchment fell by 25% in 1984 but recovered in 1985. This has been linked to the release then withdrawal of floodplain maps, though the depressed state of property markets may have been influential.
- There is some evidence to show that prices of flood-liable property fell 2 or 3 months after the 1986 Georges R. flood, but this was not sustained. There was no decline after the 1988 flood.
- From 1984 to 1992, the average value of flood prone properties in the Georges R. catchment fell slightly, relative to a flood free control group.
- The average price for a house in Nyngan fell from $50,000 before the flood to $20,000 eight months after the flood (–60%), but recovered within a year.

The advantages of disclosed floodplain maps for flood risk reduction are, nevertheless, undeniable. Gaining a measure of public acceptance for disclosure is the key. This requires best-practice risk assessment – unreliable maps will do nothing for public confidence. Just as important is a well thought-out plan for risk communication. This review suggests that the *timing* of disclosure is significant. The potential for adverse impacts is minimized if flood awareness is already high (e.g. Te Aroha and Thames; cf. Sydney in 1982).

Where no local floods have been experienced, remote events receiving substantial media coverage could be used (e.g. Wollongong floods as a surrogate for Sydney).

Scheduling disclosure when the property market is strong would also minimize disruption (e.g. while the first-homeowner grant is available).

The *content* of disclosure is also significant. Risk needs to be communicated in precise, understandable, succinct language.[38] 'Probability' is likely to cause less fear and confusion than 'recurrence interval'. Photos of historic floods could be used to persuade sceptical residents. With careful explanation even difficult concepts can be understood. That the flood icon at Kempsey – marking the level of the Probable Maximum Flood – has not been cut down, suggests that as a result of effective communication this means of public disclosure of flood-liability has gained community acceptance.

Nonetheless, acceptance of disclosure is contingent upon responsible reporting. The impression from Sydney in 1982–84 (Box 7) is that adverse impacts were felt, less as a result of the floodplain maps, and more due to a fearful frenzy that was induced in part by irresponsible electioneering. Perceptions do exert an influence on property values. Those who influence perceptions ought to be co-opted as partners in risk communication.

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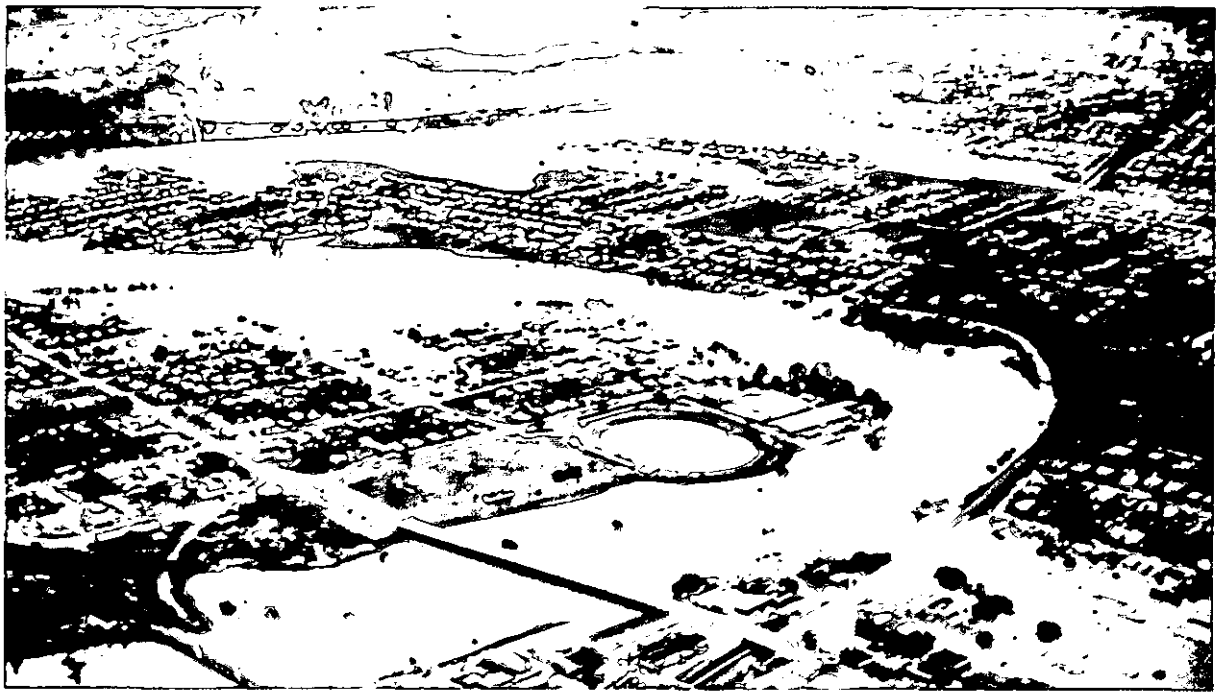
38 Bernkopf et al., 1990, p.48



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Building Safer Urban Communities in the South Pacific

By Pat Jones & Charlie Higgins

In November 2001, the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) and the South Pacific Geoscience Commission (SOPAC) organised a 2 day regional workshop on 'Building Safer Urban Communities in the South Pacific', in Suva, Fiji. A working group of the chief fire officers and other officials from Pacific Island Countries (PICs) assessed the current capacity of their countries to conduct Urban Search and Rescue (USAR) operations. They noted that this capacity is extremely limited, primarily because of a lack of awareness of the function and generally weak coordination in emergency response. The working group concluded that PICs do need their own USAR capability because of the high level of risk to their urban areas, and they outlined the next steps needed to develop such a capability.

On a global front, the International Search and Rescue Advisory Group (INSARAG) re-established itself in Asia and the Pacific during 2000. The fourth meeting of its Regional Group for Asia/Pacific was held 28–30 November 2001 in Christchurch, co-organised by the Government of New Zealand and OCHA in its capacity as the INSARAG Secretariat. OCHA sponsored the participation of the chief fire officers of Fiji and Tonga; this was the first involvement of PICs with INSARAG.

Following the INSARAG meeting, the OCHA Regional Disaster Response Adviser in Suva wrote a proposal for the development of USAR capacity in PICs. He proposed that each PIC approach the creation of national USAR capacity in four stages, with the first two stages to be addressed over the next 12 months:

1. Raise awareness of USAR amongst politicians, civil servants, and emergency response agencies including NGOs;
2. Train two fire service personnel to Category 2 level, and six personnel from a range of emergency response agencies as Category 1 trainers;
3. Prepare the countries for the rapid influx of foreign USAR teams that would occur after a disaster;
4. Create a higher level of USAR capacity, with two qualified Category 3 (managerial level) team leaders, six to twelve Category 2 members, and widespread Category 1 training of emergency response agency personnel.

The New Zealand Fire Service has already provided places to suitable candidates from PICs on its Category 2 (technician) USAR Course and Australia and Singapore have all indicated the possibility to provide places for PIC participants on their Category 2 courses in future.

At the INSARAG Meeting in Christchurch, the representatives of the Governments of Australia and New Zealand approached OCHA with a proposition to conduct a joint USAR Category 1 (responder) training course in the region, for training officers from the emergency services in a number of PICs. To follow-up on this suggestion, fire officers from Australia and New Zealand undertook a reconnaissance trip from 11–14 February 2002, and started planning for the course, assisted by the OCHA representative in Suva.

Urban Search and Rescue or USAR, as it is more commonly known, is the location and safe removal of trapped and often injured victims from partially or completely collapsed buildings, whilst providing emergency medical care to stabilise the victim. It involves the integrated response of specialised technical equipment and trained personnel from a number of different disciplines, efficient communications, effective command and control, and sufficient logistical support. The complexity of USAR requires a fully coordinated incident management system to control a multi-agency response by the police force, fire service, and ambulance service, as well as the municipal and national authorities.

The timing of the USAR course reflects growing awareness that the urban centres of some PICs are very vulnerable to structural collapse. The vulnerability is caused by the potentially lethal combination of high exposure to natural and man made hazards ranging from earthquakes, tsunamis, cyclones and floods, to fire and technological accidents, lack of urban planning and building safety standards, and poor enforcement where planning procedures and building codes do exist. Countries must be able to respond to urban building collapse incidents because of the risk both to major population concentrations, and to the vital commercial and administrative functions performed in cities. This is particularly true of most PICs, where the governmental

Courtesy of SOPAC

Storm surge TC Beni, 2003.

and economic focus is concentrated in a few urban centres. The sustainable development of these nations and the wider region therefore depends upon their continued security and prosperity.

The USAR needs in Fiji, Papua New Guinea, Samoa, Tonga, and Vanuatu are similar in scope, but differ in scale. Each of these PICs has at least some high-rise buildings in its capital and other urban areas. They may have been properly designed and built to recognised standards, but there is no guarantee of this, because building codes are not legislated or diligently enforced in any of the countries. Training in USAR was therefore seen as essential to ensure a level of capability existed should a structure collapse.

The 2002 Pacific Island Countries USAR course was a collaborative venture between organisations concerned with improving emergency management in the region – Emergency Management Australia, the New Zealand Ministry of Civil Defence and Emergency Management, the South Pacific Applied Geoscience Commission, and the United Nations Office for the Coordination of Humanitarian Affairs. Their key partner in Fiji was the National Fire Authority, which developed a practical exercise site and upgraded its existing training facilities to host the course. The course was held 24–28 June 2002, at the main fire station of the Fiji National Fire Authority, in Walu Bay, Suva.

The week-long USAR course trained five to seven man teams from the fire authorities, police forces, ambulance services, and military forces, of Fiji, Papua New Guinea, Samoa, Tonga, and Vanuatu. Twenty-nine emergency service personnel from these five countries qualified under the internationally recognised Australian standard, as USAR Category 1 responders. Instructors went beyond the syllabus: teaching participants to conduct structural assessment

of damaged buildings in a reconnaissance team in order to prioritise the subsequent USAR operation; preparing them to manage untrained volunteers at large-scale structural collapse incidents; and familiarising them with systems for more coordinated incident management, and for disaster victim identification.

The overall course objectives were to:

1. Train emergency services personnel from five Pacific Island Countries as USAR Category 1 responders.
2. Prepare participants to conduct structural assessment of damaged buildings in a major disaster as a member of a reconnaissance team, in order to prioritise the subsequent USAR operation.
3. Give guidelines to participants on how to manage untrained volunteers at large-scale structural collapse incidents.
4. Familiarise participants with systems to coordinate multi-agency emergency response operations (the Incident Control System (ICS) in Australia and the Coordinated Incident Management System (CIMS) in New Zealand).
5. Prepare participants to act as potential USAR Category 1 trainers for their respective agencies.

The main focus of the course was to provide participants with the level of competency as defined by the Australian nationally registered qualification 14097ACT Short Course in Urban Search and Rescue Category 1. This required participants to undertake a pre-course assignment that covered theoretical aspects, followed by three days of additional theory and practical training.

The classroom-based component of the course was put to the test in a field exercise based on an earthquake scenario and resulting structural collapse incidents. Course instructors drew upon the support of SOPAC's Disaster Management Unit (DMU) to identify a number of buildings in downtown Suva and develop realistic descriptions of damage that could be expected in the event of a major earthquake. The Course Management Team then inspected each building and requested permission from its owner to use it in the exercise. This activity also helped to link course participants more closely to the Disaster Management Unit staff and services, and productively employ the considerable Geographical Information System (GIS) data that it holds on Pacific cities.

On the exercise, participants were divided into four multi-national teams that were tasked to assess each damaged building and report their findings back to Fiji's National Emergency Operations Centre (NEOC), located within the National Disaster Management Office (NDMO). The teams were debriefed, and their reports were collated and analysed by an incident management team working in the NEOC, comprising staff from OCHA, SOPAC-DMU, and the NDMO. The exercise culminated in the reconnaissance teams being drawn together as a combined PIC USAR Task Force, and, based on the information they had already gathered, being tasked to perform search and rescue operations as prioritised by the incident management team.

In addition to the training, a cache of PPE and technical rescue equipment was donated by EMA, the ACT and NSW Fire Brigades, the New Zealand Fire Service and MCDEM. This equipment was left with the Fiji National Fire Authority to support development of it own stand-alone USAR capability. The equipment cache included helmets, knee and elbow pads, dust masks, gloves, goggles, ICS field kits, 'Stokes Litter' stretchers and most importantly diamond-tipped blades for cutting equipment, a core drill, and a search camera. Additional instruction was provided to training officers from the Fiji NFA in the maintenance and use of this specialist technical rescue equipment. It is hoped that Australia, New Zealand, and other countries will also help to develop the equipment capabilities of PICs beyond Fiji, by creating more USAR equipment caches.

The course was an opportunity for the newly qualified USAR team members and other stakeholders to discuss how to take forward the development of national USAR capacity in PICs. They determined that these countries should develop a basic USAR capacity, sufficient to manage a minor building collapse incident on their own. In a major disaster such as a devastating earthquake, this limited capacity will enable them to commence operations before the arrival of international USAR teams from neighbouring developed countries. At this stage, USAR Category 1 is an appropriate level of capability for PICs to aim for.

The course also identified the necessary conditions to develop USAR capacity in PICs, and how best to create greater awareness and build support for the initiative amongst the public and, more importantly, those in leadership positions. The next step is to create a cadre of USAR instructors in each country, so that training becomes self-sustaining.

There is much work still to do before the PICs can be said to have a national USAR capability, but the need for it is increasingly recognised domestically and overseas. The enthusiastic reception of this 1st Pacific USAR Course by all participants and the commitment of wider stakeholders demonstrated that the overall goal of creating a limited but sustainable capacity, is achievable.

Author
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National Earthquake Conference in Adelaide

By Allan McDougall

For some time it has been recognised that in terms of earthquake risk, many key stakeholders have been functioning in discrete "silos" Recognising the need for a collaborative approach to earthquake risk, and acting under the aegis of the Australian Earthquake Engineering Society, Professor Mike Griffith, Associate Professor, Department of Civil and Environmental Engineering, Adelaide University, headed up a team to plan for a two-day conference that was held at the University of Adelaide on 17th and 18th October 2002.

The conference, jointly organised by The University of Adelaide, Primary Industries and Resources SA, Wallbridge & Gilbert Consulting Engineers, and S.A. Disaster Management Services adopted the theme, *Total Risk Management in the Privatised Era.*

Major sponsors for the conference were SAICorp, Emergency Management Australia and Seismology Research Centre, a division of Environmental Systems and Services.

Bruce Esplin, Emergency Services Commissioner, Department of Justice, Victoria was the keynote speaker for the first day. His inspirational address proved a magnificent opening to the conference and as a result he established a benchmarking of sorts that resulted in comments throughout the conference, peppered with the phrase, "As Bruce Esplin said...."

Bruce's address entitled *Emergency Management – Time for Change?* covered future trends in Emergency Management. For emergency managers he gave a timely warning, that our success or failure in managing emergencies will increasingly be judged by how we communicate – with each other, with our political leaders, and especially, with the community.

Jonathan Abrahams, Acting Director, Development, Emergency Management Australia, was keynote speaker on day two. His address was entitled, *Strategic partnerships for managing earthquake risk.* Jonathan's address is reproduced below:

Let's not kid ourselves – the management of earthquake risk is complex. It doesn't matter who we are or what we do, we can't do it on our own. We need people who can provide information on what the risk is. We need people who will make decisions about what needs to be done and we need people who can do something about it. As with many things in life, we need a team to succeed.

1. A common goal

A defining feature of a team is that it is working towards a common goal. What are we trying to achieve collectively? It is symptomatic of our compartmentalised society that for many years different professions have shared common goals but have not been working together effectively to achieve them. This is changing as organisations and professions are becoming more global in their approaches to their business and are looking for partners with whom they can work to achieve shared and other outcomes. In the public sector, these outcomes can be expressed in terms of the impact on the status of individuals or a group or community. (SCRCSSP, p.xvi)

Emergency Management Australia's vision is *safer, sustainable communities.* This vision is not exclusive to EMA, rather it is one which we share with other emergency managers, other organisations and people working in the field of community safety, and broader still, the vision reflects the aspirations of communities across Australia. Like other emergency management organisations that have adopted similar visions or missions, EMA is stating that we want emergency management to become part of the mainstream strategic and policy agenda and that we have a contribution to make. Furthermore, partnering with organisations sharing this objective will be crucial to our future success, and the safety and sustainability of communities.

2. Teamwork

Management of the risk from earthquakes (and other hazards, for that matter) requires teamwork and a systemic capability. The capability is provided by a wide range of professions and players which includes seismologists, engineers, risk modellers, social scientists, risk communicators, insurance companies, emergency responders, health professionals, social workers, other public servants, businesses, non-government volunteers and citizens, who contribute to the safety and economic, social and environmental sustainability of communities. How do we make a team out of this *community of interest?* First, we need to respect the professions and what they bring to the management of risk. We are all contributors. Second, we need to provide opportunities for dialogue

and broader discussion where people needing information can seek it from others who are willing and able to provide it.

Integration of these contributions is also needed to effectively manage risk. Conferences and forums can help bring people together to share information and knowledge, but it would be desirable if committees and risk management study teams were multi-disciplinary and multi-sectoral to reflect not only community stakeholders but also the people who can help identify, analyse and treat the risk. For example, how does the initial data collected by seismologists become useful for policy and decision-makers, politicians in all spheres of government, business leaders, or individuals? There are some promising trends in this area.

3. A common approach – risk management

Perhaps the most significant development in recent years in emergency management has been to consider the business in terms of risk management. Some people suggest that risk management is just window dressing, changing the labels on what we have always done. Risk management does not mean throwing away the past, as there are only so many ways which risk can be managed – measures which have been implemented in the past will continue in the future. While it might look like a small step, risk management is however a paradigm shift in the approach to our business. The big difference is that risk management provides a broader and at the same time more unifying framework enabling more comprehensive and integrated approaches to be applied and helps to break down professional, philosophical and bureaucratic barriers. In principle, risk management provides a common language with which to identify common objectives, analyse problems and develop more effective solutions with a diverse range of partners than ever before.

4. Managing earthquake risk in Australia

How much is known about earthquake risk in Australia? What are we – the Australian community – doing about it? How can we do it better? As a nation, as communities, as individuals, where should we be focusing our efforts in the future? And more specifically, how can earthquake engineers and others attending the conference make a more effective contribution to managing earthquake risk? The emergency risk management process can serve as useful guide for identifying the roles of various professions and demonstrating the importance of teamwork.

4.1 Setting the context

The context for earthquake risk management has political, social, financial, environmental dimensions, as well as the paradigm in which philosophy and practice is framed eg risk management. To examine the context, we need to look at the systems, values and trends in Australian communities. The trends that are shaping emergency management philosophy and are relevant to the earthquake risk management context include:

- Increased community participation in risk management decision making
- A greater value placed on data, information, knowledge and research to assist informed decision-making
- Adoption of developments in information technology across emergency management
- Widespread adoption of risk management which values risk assessment, prevention, mitigation, response and recovery as measures to manage risk

Political and community attitudes to risk and decision-making are also important considerations. Part of the political dimension is the reaction to contemporary issues and events. This is evident in the rapid and significant Government response to the terrorist attacks in the United States in September 2001 and the New South Wales Bushfires over December 2001 and January 2002. The message here is that disasters have resulted in changed attitudes, increased funding and enhanced capability development. We need to be ready to put the case to government and the community at the time when they are most receptive to hear them. What can we learn from this? When an earthquake occurs either in Australia or overseas, there is a window of opportunity in which to act and communicate key messages about the earthquake risk in Australia.

4.2 Establishing Evaluation Criteria

In the risk management framework, the common goal can be expressed as managing risk to the safety and sustainability of communities. The earthquake risk management team aims to reduce risk, particularly to life and property, to the lowest level possible, but is also constrained by what is reasonably practicable and acceptable to the community. Constraints include the extent of our knowledge of the risk itself – what do we know about the hazard? How well do we understand the vulnerability and resilience of communities? What has worked in the past – what didn't? Another

Associate Professor Mike Griffith (left) and world-renowned seismologist Bruce Bolt, at the conference

constraint is the effectiveness of the treatment measures available. Do we have the optimum understanding and technology to make buildings safe or to find survivors from collapsed buildings in rubble piles? What are the best ways to communicate risk to different audiences? How well do we manage the mental trauma of people affected by earthquakes? The third limitation is the extent to which the community is prepared to invest in risk reduction measures. At what cost? The community does not have unlimited resources, so where can we have the most effect on managing risk – or alternatively what are the most cost-effective measures to manage risk?

4.3 Identifying and Assessing Risk

The identification and assessment of risk are the building blocks of risk management – a greater understanding will lead to better targeting of resources to areas of highest risk, and to safer and more sustainable communities. Fundamental to emergency risk management is the description of risk as the interaction between hazards and vulnerability. The current state of Australia's understanding of earthquake hazard is essentially based on the historical record of earthquakes. Geoscience Australia has embarked on a project to map Australia's earthquake hazard based on the technical analysis of geology and topography. Meanwhile social scientists are increasing their understanding of what makes people and communities vulnerable and resilient to disasters. Higher levels of individual and community vulnerability are associated with factors which include poor or declining economic circumstances, being frail aged and very young, seriously ill, poor standards of accommodation, remote location, levels of physical and mental disability, physical and social isolation, higher risk occupations and being on holiday, often living in tents or caravans. On the other hand, resilience factors include resources, knowledge and information, access to services, involvement in decision making process, personal coping capacities, shared community values, and shared community aspirations and plans. (Buckle, Marsh and Smale, pp37–38)

Clearly in earthquakes, the safety of the built infrastructure is a key risk factor for communities. There are opportunities for earthquake engineers to work with health professionals to determine what aspects of buildings causes death and injuries (for example, structural or non-structural factors such as heavy furniture falling down or sources of fire, or building materials which cause respiratory illnesses) and with emergency managers on understanding the circumstances which lead to entrapment and more effective and safe search and rescue operations.

4.4 Risk Treatment

Risk can be managed in a number of ways. Some of these incorporate the comprehensive approach to emergency management: Prevention, Preparedness, Response and Recovery. The community's risk can be reduced by enhancing capability in each of these areas.

Land use planning and development assessments. Planners play an important role in determining the suitable use of land for specific purposes. They need information about the hazard from earthquake scientists upon which to base their recommendations regarding land use for approval by the relevant local or state government authority. At the same time, working with earthquake engineers can help local government to assess the suitability of particular buildings, building types and construction standards for particular areas.

Structural/non-structural and critical infrastructure protection. Given the number of deaths and injuries in earthquakes caused by the collapse of buildings and infrastructure, the role of earthquake engineers and the building industry generally is of paramount importance in preventing structural collapse. In many respects, the standard of building design and construction could be considered the most effective measure for managing risk of earthquake, based yet again on the understanding of the underlying hazard risk. At the same time, the sustainability of communities also depends on certain buildings maintaining their functionality, so that hospitals, emergency operation centres and utilities can continue to provide services to the community, even if the structures experience damage. This has implications for further involvement of engineers in the design and construction of buildings and for the use of materials that reduce the risk of respiratory illness. There are significant opportunities for earthquake engineers to become actively involved in nascent critical infrastructure protection initiatives, because when an earthquake strikes the impact on the infrastructure will have a significant bearing on the risk to communities.

Personal protection. Recent community eduction in structural and bush fire is based on the premise that the most effective level of protection for individuals is action that they take to protect themselves. With respect to earthquake risk, a key question is how can it be taken seriously in Australia? Psychologists, behavioural and social scientists have informed our understanding about changing people's behaviours so that they take action that will protect them from risk. This is a particular challenge for earthquake risk in Australia where the lack of awareness results in limited proactive personal protection behaviour. Nonetheless, there is a need to formulate appropriately tailored messages about risk and personal protective measures which are then delivered effectively and

Courtesy: Agence France Presse

Chi Chi earthquake, Taiwan, 1999.

efficiently to, and among, the target audiences. This may include empowering people with information about the earthquake risk in the area where they live or are considering to live, about the security of non-structural elements in the house or at work, protective behaviour during the course of an earthquake and about what to do after the shaking ceases, and if it is safe to do so, where to go after a disaster strikes. It might appear that in the case of earthquake risk, the best time to inform the public will be when an earthquake occurs in the local area or on an anniversary of a significant recent event.

Warnings. The research and further development of systems enabling the short-term prediction of earthquakes is critical for the effectiveness of warning the population of an impending earthquake. If communities and businesses can be given advance notice of an impending earthquake or after-shocks then they can take precautions to reduce their risk. The issuing of warnings requires an understanding of community behaviours, a risk communication strategy, a system by which to deliver warnings and a clear message of what people and industries should do.

Evacuation. Current understanding of earthquake risk indicates that most injuries occur as people as entering or exiting buildings, so the message is that people should stay where they are during an earthquake. However, when it is safe to do so, it is recommended that people move outdoors and move as far away as possible from buildings. (Noji, p160) Structural engineers could provide further insights into determining whether different evacuation behaviours are required for particular circumstances, for example, is there different advice for the person on the 50th floor versus the ground floor of a high rise building, or someone working in a wooden farmhouse.

Response. Australia has a well-established emergency response system based on the strength of State and Territory emergency management arrangements, and cooperation between all spheres of government and with the community. The Australian emergency management arrangements are based on an all-hazards approach so that a common set of arrangements are applied to emergencies irrespective of their cause. The challenges to this framework posed by earthquakes are manifold: the potential for catastrophic losses on a community-wide scale; lack of experience with significant earthquakes unlike other hazards such as bushfire, flooding and cyclones; and unlike these hazards, without the warnings or predictions, it will be a cold start for the response system, initiated by immediate personal experience or on the basis of advice from Geoscience Australia's which monitors earthquake activity and forwards information to EMA which in turn notifies the State and Territory emergency management organisations. An event of any significance would quickly exhaust the resources of most States and Territories to respond, putting greater emphasis on the provision

of mutual aid between states, Commonwealth assistance and possibly international assistance. A better understanding of the earthquake risk in Australia would assist emergency managers in determining what further capabilities are required to manage the risk, such as deploying resources to where the most damage is most likely to have occurred and anticipating medical needs due to the number and type of injuries associated with earthquakes. One area where capability is growing is in urban search and rescue (USAR), initiated before 11 September 2001 but given significantly greater impetus as a result of the World Trade Center collapses. The national approach emphasises the interoperability of equipment, common training standards and protocols for the call-out and deployment of USAR teams. Capabilities include the identification and training of structural engineers who are an integral part of the USAR team. It is proposed that early next year specialised training, based on a package developed in New Zealand and adapted for Australian needs, will be offered to engineers who will be available to provide support in USAR operations.

Recovery. Similarly, Australia's recovery system of psychologists, community development officers, non-government organisations, social workers and engineers has enabled communities to recover effectively from disasters. A key role for engineers in an earthquake will be to assess which buildings are safe and which are not to be entered. This may be of great importance to businesses wanting to re-enter their buildings to recover vital records, utility operators maintaining or resuming services, or for householders wanting to collect treasured possessions.

Cooperation with social workers is paramount in communicating the news that homes need to be abandoned, particularly for people who have lived in the same place for all their lives. Another key challenge which involves engineers will be the provision of suitable temporary shelter for people whose places have been deemed no longer habitable, and then the effective development of permanent housing in such a way as not to repeat the circumstances which led to the first disaster.

5. Conclusion

The management of earthquake risk in Australia presents particular challenges. People around Australia in different professions are rising to these challenges, by improving the understanding of the earthquake hazards, developing our understanding of vulnerability, risk modelling, risk communication, reviewing the building code and developing urban search and rescue capabilities. In its own way and collectively, this work is making a significant contribution to improving Australia's capability to manage earthquake risk.

For the earthquake engineers there are current and emerging opportunities to increase their influence and contribution to the management of earthquake risk, by getting involved in initiatives addressing critical infrastructure protection, urban search and rescue, and the review of the building standards.

While the Australian community is not focused on earthquakes at this time, it is essentially a sleeping issue for most Australians. I should add it's not the only one. However, experience with other hazards indicates that they will be awakened, both physically and psychologically, when the next tremor or earthquakes comes along. The plan to deal with any damage arising from the event will swing into action, but also, as the earthquake risk management team, we need a plan to communicate key messages at political, business and community levels.

In the meantime, we need to continue to work together as a team to manage the complexity of earthquake and other risks to Australian communities. There should be more forums such as the Australian Earthquake Engineering Society Conference that brings people together from different disciplines and sectors to share and develop their ideas and practices, and work towards our common goal.

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Noji, E. K., *The Public Health Consequences of Disasters*, Noji, E.K. (ed), Oxford University Press 1997.

SCRCSSP (Steering Committee for the Review of Government Service Provision, Report on Government Services) 2002, *Report on Government Services 2002*, AusInfo, Canberra.

Was the conference successful? What criterion does one use to determine this? Surely its success will only be accurately assessed as the years unfold and we see emergency management agencies working in concert with seismologists and construction engineers, particularly in the mitigation arena. It is hoped that eventually, it will be true to say, "Yes this Adelaide conference did herald a genuine start to a collaborative approach to earthquakes!"

Author
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NOTES FROM THE FIELD
Baptism of a novice fire fighter

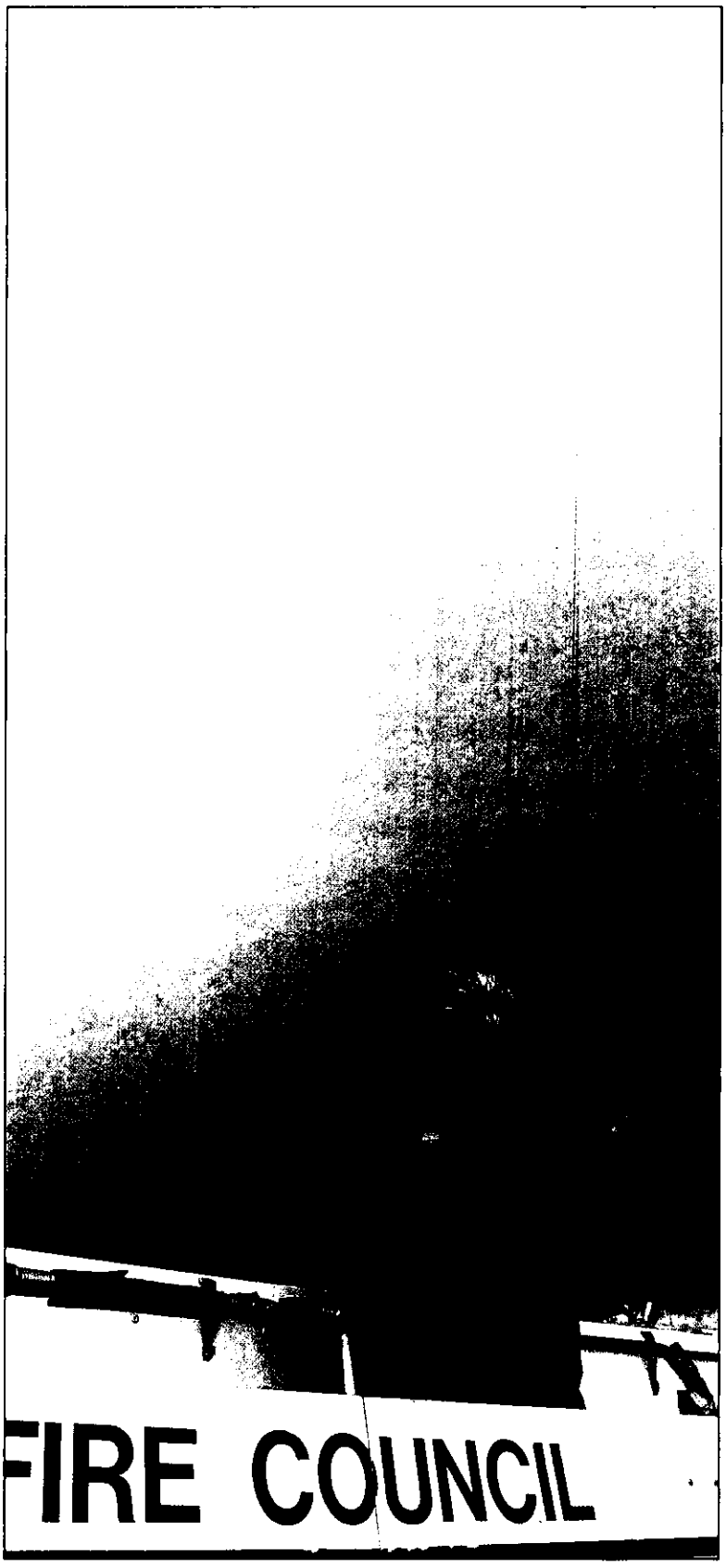
Kim Fitzgerald
Probationary Firefighter

I joined the Rivers Brigade in Canberra in September of 2002 and completed my basic training by October. I had my first real operational exposure during the week preceding the Canberra fires whilst crewing a Light Tanker on an overnight shift in the Brindabella Mountains near Canberra. That night, I participated in back burning operations and the protection of Priors Hut. At that time, after experiencing significant heat, smoke and flames and the most surreal dawn, I thought I was blooded as a fire fighter.

On joining *Rivers Tanker 1–1* at Rivers brigade depot at 6 am on Saturday, 18 January 2003 it became quickly apparent we wouldn't be going up to the mountains that day but would be involved in property protection as the weather conditions deteriorated.

We started the day patrolling the Kambah Pool road and watching with fascination as the early day turned into night. The radio traffic began to increase and we heard our brother Rivers Tanker unit *Rivers 1–0* going into action at the *Huntley* property on Uriarra Road. Shortly after we were summoned to *Huntley* to assist.

As we sped to *Huntley* with sirens and lights flashing, we put on our jackets, face masks and goggles. I felt a degree of apprehension in my stomach but was surprised at my clear-headedness. On route, we were diverted to the *Winslade* property on Cotter Road. The sky continued to darken and the wind



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Kim Fitzgerald, Probationary Firefighter before the looming backdrop of the Canberra fires.

continued to pick up. On arrival, we spoke with the property owner and then proceed to a back paddock where we first witnessed the inferno burning in the Cotter Valley. A grass fire quickly came racing over the hills and three of us jumped onto the back of the truck and manned the cannon and one of the live reels. While the truck was moving along the edge of the flames, we did our best to put it out. At some stage we were dampened from above so we can only assume we were water bombed, but I certainly couldn't hear anything. My thanks to the pilot, it reassured me that we were not alone. Shortly after, flames surrounded the truck so we scampered into the truck cabin and drove onto a burnt out area.

There was no time to regroup. As soon as we could, we headed back to the homestead and prepared our defences. The property owners were doing what they could to wet down as much as possible. We had enough time to refill our tanker with water from a hydrant on Cotter Road. We placed the truck in a safe position and spread ourselves in a line with hoses in the direction from which we knew the flames would come. At one stage, I looked over my shoulder and saw a bull standing 5 metres from me. I quickly negotiated a truce with it and we agreed that he wouldn't charge at me.

It was like an old Cowboys and Indians film; as I looked through the windstorm, I could see a line of red approaching at incredible speed. We scurried back to the truck and sheltered near its front corner with our hoses gushing. I can remember thinking "I wish I had a bigger hose!" As the flames raced by, we chased after them. I am delighted to say that we saved the place.

While we were mopping up, I heard the thump thump thump of a helicopter rotor blade. Through the swirling black clouds, the *South-Care helicopter* appeared above hovering just above the treetops. I looked up to see a couple of faces peering at me from above. I guess I should have waved at them. Again, it was such a surreal image that is burned forever into my memory.

We then heard that our Brigade depot was under attack. By the time we could get there, all but three of the cars of the members who were out fighting fires had been destroyed, including most of our crew's. The actual shed was ok but the power pole was on fire. We doused the remaining fires that might threaten the shed, filled up with water and headed of to Kambah.

The magnitude of what was happening to Canberra began to set in as we drove down the closed flame-enshrouded Parkway to Tuggeranong. On arrival at Kambah, it was just a matter of doing what we could do and where we could do it. It was heart breaking to see so many houses destroyed. We later moved to the Chapman/Duffy/Holder area. Many others with better word skills than me will no doubt describe the devastation we witnessed. There was not much left to do there.

We finally got to the staging area at Curtin around 9:00 pm, exhausted, bewildered and blackened. We found out some of our brigade members had been injured and some had suffered property losses. After several beers and several large whiskeys at home later that night, it was impossible to sleep. I had absolutely no concept of time during that day.

To the crew of Rivers 1–1: Tony Hill, Deputy Captain Rivers Brigade, crew leader and driver; crew members: Nicole King, Stephen Robey and Gerard Thrift – champions, the lot of you, you made me feel as safe as anyone could possibly feel on such a day.

To Matt Dutkiewicz, Deputy Captain and Training Officer who suffered great personal tragedy on the day; thank you for your diligence in your training of us newbies. It paid dividends for me on the Saturday. To the rest of the Rivers Brigade, it has been truly magnificent to watch the way in which you have supported one another.

Rivers Tanker 1–1 at Kambah Pool road.

EMA Update

Emergency Management Australia provides national leadership in the development of measures to reduce risk to communities and manage the consequences of disasters. EMA Update keeps AJEM readers abreast of the courses and activities that assist in this aim.

DEVELOPMENT GROUP

Safer Sustainable Communities – 2003 Australian Disaster Conference

Emergency Management Australia (EMA) is planning for the Safer Sustainable Communities – 2003 Australian Disaster Conference to be held at the National Convention Centre in Canberra from 10–12 September 2003.

The theme for the Conference is Community Safety is Everyone's Business and the Conference streams are:

- Working with Communities
- Understanding Risk and Uncertainty
- Consequence Management (Response and Recovery)
- Partnerships for Sustainability
- Business and Critical Infrastructure Protection
- Information and Communication
- Managing and Developing Our People

For further information contact: Einstein & Edison Event Management. Phone: +61 (0)2 6232 4240, Fax: +61 (0)2 6232 4245, Email: disasterconference@einsteinandedison.com.au or visit EMA's website: http://www.ema.gov.au

Australian Emergency Management Volunteer Forum (AEMVF)

The AEMVF met in Sydney on 22 January 2003 and discussed a variety of issues. Including the Charities Definition Inquiry, insurance cover, legal risks faced by volunteers and funding for protective clothing. Volunteers are advised to contact their representative on the Forum for more details. The AEMVF web site is now open to the public and can be found at www.emergencyvolunteersforum.org. The web site is still in its infancy and volunteers are encouraged to contribute information for inclusion on it.

The AEMVF now has an official logo and recently issued its first media release in support of the many volunteers who were involved in the recent bushfires.

For further information contact: David Winterburn Phone 02 6266 5009, email: david.winterburn@ema.gov.au

'Management of Cyclone Risk' Project

The aim of the project is to improve coordination between the cyclone risk management agencies and to produce Guidelines for the Management of Cyclone Risk in Australia. The report of the Darwin Workshop, held on 12–13 November 2002, has been completed and distributed to all participants. It includes the agreed project plan and the activities to be undertaken in the remainder of the financial year.

For further information contact: Peter Arnold Phone 02 6266 5496, email: peter.arnold@ema.gov.au

'Planning Safer Communities: Land Use Planning for Natural Hazards' Guidelines and Associated Training Courses

The Attorney-General will nationally launched the Guidelines in Perth on 27 February 2003. FESA and the Planning Institute of Australia's Western Australian Division (PIA-WA) supported the launch. The purpose of the Guidelines and associated training courses is to demonstrate how integrated land use planning can be used to reduce the impact of natural hazards and, where possible, avoid risk to life, property and environmental systems from natural hazards.

For further information contact: Peter Arnold Phone 02 6266 5496, email: peter.arnold@ema.gov.au

'Review of Australian Experience in Emergency Risk Management' Workshop

The purpose of the workshop is to review the Australian experience in undertaking emergency risk assessment in order to learn how to improve future work. The workshop is scheduled for 14–15 April 2003 and practitioners from a wide range of backgrounds in the application of risk assessment have been invited to participate.

For further information contact: Jonathan Abrahams Phone: 02 6266 5219, email: jonathan.abrahams@ema.gov.au

Funding for Emergency Management Capability Development Projects

Applications for funding through the 2003/04 EMA Projects Program close on 14 March 2003. In 2003/04 the Projects program is aimed at enhancing national emergency management capability and prospective applicants are encouraged to consider the themes identified in the emergency management strategic research agenda:

- understanding communities
- emergency management capability
- mitigation
- information management and modern information technology
- volunteers
- value of emergency services, and
- economic costs of disasters.

Individuals, community groups, business, NGOs and agencies at all levels of government are encouraged to apply. EMA does not fund works or acquisitions.

DEVELOPMENT GROUP *continued*

Project funding will be in the order of $5,000 to $100,000 per project. Proposals may be considered more favourably if a portion of the funds or resource requirements are provided by the originator of the proposal, stakeholders or by other sources. Corporations and State/Territory agencies are expected to contribute cash or in-kind resources to at least match the EMA contribution. Where appropriate, projects can be completed over more than one financial year.

A multi-disciplinary selection committee will assess proposals on their:

- potential to improve emergency management capabilities;
- potential for application to other areas or communities;
- suitability of the proposed method and process;
- degree of innovation;
- appropriate skills and abilities of applicants to undertake the project and to complete within the specified time frame;
- financial and other support from relevant stakeholders and partners; and
- favourable referee reports, and value for money.

Successful applicants will be required to enter into a funding agreement with the Commonwealth.

Application forms can be downloaded from the EMA website; www.ema.gov.au

For further information contact: Rheannon Nicholson or Rob Cameron, Phone: (02) 6266 5402, email: rob.cameron@ema.gov.au or rheannon.nicholson@ema.gov.au

EDUCATION & TRAINING GROUP

Emergency Management Competency Standards Review

EMA is currently working with state and territory emergency management representatives and the Public Safety Industry Training Advisory Body to revise the national emergency management competency standards to meet current and emerging needs in the industry.

For further information about this project and how you can participate, contact margery.webster@ema.gov.au

Critical Infrastructure Emergency Risk Management Handbook

The bushfires and terrorist activity have highlighted the importance of utility operators maintaining an adequate risk management regime for major service disruption. This disruption could be caused through damage to their own infrastructure and systems or that of key suppliers, and could just as easily result from the impact of a natural hazard. Stakeholders are keen to ensure the reliability of supply where utilities are critical to community or business functioning.

A workshop was conducted in early November with 48 representatives from utilities and emergency management. The objective of the activity was to:

- refine the Emergency Risk Management methodology so it readily meets the needs of the utility sector,
- develop national Emergency Risk Management Guidelines for Utilities,
- develop a benchmarking model for utility assurance based on Emergency Risk Management

The workshop outputs were compiled into a handbook and the draft was put through a thorough consultation process. The handbook will be available on the EMA website in March 2003.

Program of Activities for Financial Year 2003/2004

The timetable for the programs that are being conducted at the EMA Institute and in the States/Territories is in the process of being drawn up. It will be available on the EMA website, www.ema.gov.au. In addition, a number of the programs being offered at the Institute have been reviewed. For up to date information please refer to this website.

Prerequisites

Some of the EMA education and training programs have prerequisites. Participants should please make sure that you have the prescribed prerequisite before you nominate.

Recovery Management modules	Context of Recovery Management (new 2 day module) or the Course in Recovery Management
ERM Phase 1	Course in Introduction to Emergency Risk Management.
Exercise Management Train-the-Trainer	Certificate IV in Assessment & Workplace Training and Course in Exercise Management

EDUCATION & TRAINING GROUP *continued*

Recovery Management

The Course in Recovery Management was reviewed and further developed in 2002. This work was undertaken with the guidance of state and territory recovery co-ordinators who, together with other specialists in the field, participated in a two-day workshop at the Institute. The draft document was circulated to stakeholders for comment and amended in line with feedback. The new program consists of a core (pre-requisite) module and a range of electives, two of which were piloted in December 2002. People who have already completed the previous Course in Recovery Management will be exempt from the new core module. The new structure provides flexibility for people who wish to study in more depth the specific issues in recovery management. In 2003 the program will be refined and mapped against national competency standards to provide for national recognition.

For further information contact andrew.coghlan@ema.gov.au

Risk Based Land Use Planning

The new Risk Based Land Use Planning course was successfully piloted in December. This course trains participants in a risk management approach to dealing with the risks associated with natural hazards and land use planning. The program blends risk management, strategic planning and performance based development control with in the context of a series of practical exercises based on real-life case studies. Angus Witherby, consultant planner to both councils and developers, developed the overall course. The case studies have being developed by planners with specialist expertise in areas such as bushfires, flood plains and storm surge.

The target groups for this course are local government planners, consultant planners to local government, state planning departments and land use planners associated with emergency services. Interest in the course from the intended target group is very high.

For further information contact cathy.phelps@ema.gov.au

PLANNING & OPERATIONS

United Nations General Assembly Resolution on Strengthening International Urban Search and Rescue Assistance

In the August 2002 Edition of the Australian Journal of Emergency Management, reference was made to the significant role that EMA was playing in the development of a United Nations General Assembly Resolution on Strengthening International Urban Search and Rescue Assistance. The Resolution (No 57/150) was passed unanimously by the United Nations General Assembly on 16 December 2002.

A copy of the Resolution can be obtained by going to the United Nations website at www.un.org/Depts/dhl/resguide/r57.htm and then scrolling down the table to Resolution No 150.

For further information contact: Rod McKinnon Ph: 02 6266 5328, Email: rod.mckinnon@ema.gov.au

United Nations International Search and Rescue Advisory Group Team Leaders Meeting

EMA sponsored attendance at a United Nations International Search and Rescue Advisory Group (INSARAG) Team Leaders meeting in Johannesburg in early December 2002 of representatives from the Australasian Fire Authorities Council and the Australian Council of State Emergency Services. The purpose of the Team Leaders Group is to provide a forum to address technical and operational aspects of Urban Search and Rescue (USAR) and issues related to cooperation and coordination of international earthquake response operations involving collapsed structures.

For further information contact: Trevor Haines Ph: 02 6266 5169, email: trevor.haines@ema.gov.au

United Nations International Search and Rescue Advisory Group Asia Pacific Regional Meeting

An EMA representative participated in the annual International Search and Rescue Advisory Group (INSARAG) Asia/Pacific Regional Meeting held in Shanghai, China in November 2002. The meeting was jointly hosted by the Chinese Seismological Bureau and the United Nations Office for Coordination of Humanitarian Affairs (OCHA). It was attended by 50 participants from 18 countries representing Government coordination and emergency response agencies. The group provides a forum for the ongoing development of partnerships and interoperable procedures for the provision of Humanitarian Aid during disasters in the region.

For further information contact: Trevor Haines Ph: 02 6266 5169, email: trevor.haines@ema.gov.au

PLANNING & OPERATIONS *continued*

Pacific Cyclones

Tropical Cyclone Zoe, a Category 5 cyclone, impacted on the Solomon Islands on 30 December 2002. The cyclone impacted on the isolated islands of Tikopia and Anuta causing catastrophic damage to houses, crops and the environment. The Australian Agency for International Development (AusAID) sought EMA assistance with the provision of a reconnaissance aircraft to overfly the islands to carry out an initial damage assessment. This task was undertaken by the Australian Defence Force. EMA also deployed an officer to the Solomon Islands to assist the National Disaster Management Office in coordinating the relief effort. The Solomon Islands Government has accepted an offer by EMA to facilitate a debrief of the management of the operation. The debrief will be held in Honiara in late February 2003.

Tropical Cyclone Ami, a Category 4 cyclone, struck the islands of Vanua Levu and Taveuni in the Fiji Island Group on the morning of 14 January 2003. Following a request for international assistance from the Fiji Government, AusAID requested EMA to provide a quantity of water containers and tarpaulins from the EMA's Disaster Earmark Store. The stores were transported to Fiji by chartered aircraft.

For further information contact: Steve Banks
Ph: 02 6266 5505, email: steven.banks@ema.gov.au

Commonwealth Assistance to Summer Bushfires

During the recent Summer Australian bushfire season, New South Wales, Victoria and the Australian Capital Territory all sought assistance from the Commonwealth to combat the fires.

For New South Wales, support commenced as early as November 2002 with the provision of water and fuel tankers, helicopters, accommodation and meals for interstate personnel, and tarmac space and refuelling facilities for aircraft. Support to Victoria consisted of bulldozers, graders, fuel tankers, helicopters and personnel to clear and construct fire breaks in remote hilly terrain. The Australian Capital Territory was assisted with helicopters, bulldozers, water and fuel tankers, generators, buses, accommodation for interstate fire fighters, chainsaw operators and planning and logistics officers. The Australian Defence Force provided all support.

EMA Liaison Officers were deployed to the operations centres in each of the three locations to facilitate the timely sharing of information.

For further information contact: Joanne Laurence
Ph: 02 6266 5618, email: joanne.laurence@ema.gov.au

KNOWLEDGE MANAGEMENT & BUSINESS

Australian Disaster Information Network

The AusDIN initiative was endorsed by the Australian Emergency Management Committee (AEMC) in December 2002. Over the next few months a national steering committee will be convened to direct the ongoing development of AusDIN.

It is envisaged that AusDIN will develop into an initiative capable of maximising the benefits of information available to the emergency management sector and promoting the exchange and utilisation of knowledge from a range of disciplines.

For further information contact Rob Lee 03 5421 5245 or rob.lee@ema.gov.au

Community Awareness Program

EMA has provided support and assistance to The Royal Society for the Blind in South Australia during the conversion of a number of EMA community awareness printed materials into formats suitable for visually impaired members of the community. These formats include large print, audio, braille and E-text.

For further information on this initiative contact Christine Jenkinson 03 5421 5241 or christine.jenkinson@ema.gov.au

CONFERENCE DIARY

INTERNATIONAL

Date: **March 3–6, 2003**
Location: Rotterdam, the Netherlands
Title: International Conference on Advances in Flood Forecasting in Europe
Enquiries: Bob van Kappel; email: bob.vankappel@wldelft.nl.
Sponsor: WL/Delft Hydraulics and the Joint Research Centre of the European Commission

Date: **March 4–8, 2003**
Location: New Orelans, Louisiana
Title: Association of American Geographers (AAG) Annual Meeting, North America
Detail: Includes a session on hazards-related issues.
Enquiries: Jayajit Chakraborty, Department of Geography, University of South Florida, 4202 East Fowler Ave, SOC 107, Tampa, FL 33620 email: jchakrab@chuma1.cas.usf.edu

Date: **8–12 March, 2003**
Location: Reno, Nevada, North America
Title: 2003 National Disaster Medical System (NDMS) Conference
Enquiries: Contact NDMS. Tel: 0011/0018 1800–USA–NDMS, and press the 'star' key. email: ndms@usa.net.
Host: National Disaster Medical System

Date: **10–15 March, 2003**
Location: Puerto Rico
Title: Dissertations Initiative for the Advancement of Climate Change Research (DISCCRS) Symposium – South America
Detail: To register with DISCCRS, or for complete symposia information including eligibility, deadlines and how to apply, contact C. Susan Weiler (509) 527-5948;
Enquiries: Email: weiler@whitman.edu; or see the website: http://aslo.org/disccrs/disccresposter.pdf
Sponsor: American Geophysical Union, American Meteorological Society, American Society of Limnology and Oceanography, Ecological Society of America and Whitman College

Date: **12–21 March, 2003**
Location: Madison, Wisconsin, North America
Title: Disaster Management Workshops
Sponsor: University of Wisconsin – Madison, Department of Engineering Professional Development
Enquiries: Don Schramm, email: schramm@epd.engr.wisc.edu; or Jennifer Oster, Department of Engineering Professional Development, University of Wisconsin-Madison, 432 Lake Street, Madison, WI 53706; 1-800-462-0876 or (608 262-4468; fax: (608) 263-3160; email: oster@epd.engr.wisc.edu.

Date: **16–23 March, 2003**
Location: Kyoto, Shiga & Osaka, Japan
Title: Third World Water Forum
Sponsor: World Water Council.
Enquiries: Secretariat of the 3rd World Water Forum, 5th Floor 2-2-4 Kojimachi Chiyoda-ku, Tokyo 102-0083, Japan; tel: +81-3-5212-1645; fax: +81-3-5212 1649

Date: **2–6 April, 2003**
Location: League City, Texas
Title: The 11th Annual Conference on Traumatic Stress – North America
Detail: This year's conference will focus on self-care for the trauma work provider as well as traditional workshops that cover a variety of trauma-related topics.
Enquiries: Jo Halligan (512) 868-3677
Sponsor: Association of Traumatic Stress Specialists (ATSS)

Date: **21–23 April, 2003**
Location: San Jose, California
Title: Disaster Resistant California Conference – North America
Detail: This statewide conference will promote partnerships among public and private sectors to reduce state vulnerability to natural disasters.
Enquiries: Disaster Resistant California (916) 845-8263
Sponsor: Governor's Office of Emergency Services and the Collaborative Centre for Disaster Mitigation.

Date: **26–29 April, 2003**
Location: Moscow, Russia
Title: First World Forum on Children in Complex Emergencies – Asia
Detail: The forum will discuss and adopt a model for national and regional plans to assist children in emergencies through 2010 as requested by the 27th United National Special Session Resolution, "A World Fit for Children".
Enquiries: World Forum Organizing Committee, Children's Hospital #20B, Polyanka Str.20, Moscow, Russia 119180; email: roshal@lamport.ru

Date: **30 April – 2 May, 2003**
Location: San Juan, Puerto Rico
Title: Seismological Society of America (SSA) 98th Annual Meeting – South America
Enquiries: www: http://ce.uprm.edu/SSA-2003; email: christa@rmsismo.uprm.edu
Sponsor: University of Puerto Rico

INTERNATIONAL *continued*

Date: **5–7 April, 2003**
Location: Outrigger Reef Resort, Fiji
Title: Public Safety and Risk Management Conference, 2003 – Australasia
Detail: International Conference on "Community Safety and Sustainability in the Pacific" in conjunction with the 11th Pacific Regional Disaster Management Meeting

Date: **8–10 April, 2003**
Location: Kuala Lumpur, Malaysia
Title: Strategies for Performance in the Aftermath of the World Trade Center - Asia
Detail: This international conference will provide the opportunity for authorities and stakeholders to discuss and exchange information on performance issues and strategies for enhancing the performance of tall buildings during emergencies.
Enquiries: cibkl@cibklutm.com
Sponsor: International Council for Research and Innovation in Building and Construction (CIB) and the Council on Tall Buildings and Urban Habitat (CTBUH).

Date: **11–16 April, 2003**
Location: St Louis, Missouri
Title: Association of State Floodplain Managers (ASFPM) Annual Conference – North America
Enquiries: Trisha Nelson, ASFPM, 2809 Fish Hatchery Road, Suite 204, Madison, WI 53713; (608) 274-0123; Fax: (608) 274-0696; email: asfpm@floods.org.

Date: **12–14 April, 2003**
Location: Tehran, Iran
Title: Fourth International Conference on Seismology and Earthquake Engineering (SEE4) – Asia
Contacts: Professor Mohsen Ghafory-Ashtiany, Tel: 98-21-229-4932; Fax: 98-21-229-9479; Email: ashtiany@dena.iiees.ac.ir

Date: **12–15 April, 2003**
Location: Phoenix, Arizona
Title: Second International Conference on Irrigation and Drainage – *Water for a Sustainable World – Limited Supplies and Expanding Demand* – North America
Enquiries: U.S. Committee on Irrigation and Drainage, 1616 17 St., Suite 483, Denver, CO 80202; (303) 628-5431; email: stephens@uscid.org.

Date: **22–25 April, 2003**
Location: Berlin, Germany
Title: VIII European Conference on Traumatic Stress (ECOTS) – Europe
Enquiries: www.trauma-conference-berlin.de
Sponsor: Catholic University of Applied Sciences, Berlin and the German-speaking Society for Psychotraumatology

Date: **6–10 May, 2003**
Location: Melbourne, Australia.
Title: WADEM's 13th World Congress on Disaster and Emergency Medicine.
Enquiries: www.wcedem2003.com

Date: **29 May – 1 June, 2003**
Location: Washington, U.S.A.
Title: 2003 Structures Congress and Exhibition *Engineering Smarter* – North America
Detail: The congress will engage engineers and researchers in discussions on how to make better use of existing materials and structural concepts as well as developing new methods and materials.
Enquiries: Charles W. Roeder, Structures Congress 2003, University of Washington, 233B More Hall, Seattle, WA 98195-2700; (206) 543-6199; email: croeder@u.washington.edu

Date: **2–3 June, 2003**
Location: Lubbock, Texas
Title: Eleventh International Conference on Wind Engineering – North America
Enquiries: The Wind Engineering Research Center, Box 41023, Texas Tech University, Lubbock, TX 79409-1023; Tel: (806) 742-3479; Fax: (806) 742-3446; toll free: (888) 9463287; email: webmaster@wind.ttu.edu.

Date: **10–20 June, 2003**
Location: Montreal, Canada
Title: ICOLD 71st Annual Meeting and 21st Congress – North America
Details: Initial bulletin now available from the ANCOLD
Contacts: Lise Pinsonneault, Executive Director, Communications Centre, CIGB-ICOLD Montreal 2003. http://pinsonneault.lise@hydro.qc.ca, http://www.cigb-icold.org.
Sponsor: CIGB, ICOLD Montreal 2003

Date: **16–20 June, 2003**
Location: Montreal, Quebec, Canada
Title: International Congress on Large Dams (ICOLD) 21st Congress – North America
Enquiries: www.cigb-icold.org

Date: **Post July 2003 (rescheduled from September 16–19, 2002)**
Location: Beijing, China
Title: Third International Conference on Continental Earthquakes (ICCE) – Asia
Detail: The Conference is postponed until after the Saporro 2003 IUGG Assembly, June 30–July 11, 2003) (see http://www.jamstec.go.up/jamstec-e/iugg/) to make it more convenient for participants from outside eastern Asia.
Enquiries: Wang Ahiquiu, Organizing Secretary, III ICCE, China Seismological Bureau (CSB), No. 63, Fuxing Avenue, 100036, Beijing, China; Tel: 86-10-8801-5514; Fax: 86-10-6821-0995; email: icce@peoplemail.com.cn

Date: 7–11 July, 2003

Location: Beijing, China

Title: 36th World Congress of the International Institute of Sociology – Asia

Detail: Includes a session currently being organized on The Sociology of Disasters: Theory and Research.

Enquiries: Prof. Henry Quarantelli, Disaster Research Center, University of Delaware, Newark, DE 19716, USA; email: elqdrc@udel.edu; Fax: (302) 831-2091.

Date: 13–17 July, 2003

Location: Baltimore, Maryland

Title: Coastal Zone Management Through Time – North America

Detail: Management Responses to Coastal Hazards is one of four major conference themes.

Enquiries: Jan Kucklick, NOAA Coastal Services Centre, 2234 South Hobson Ave, Charleston, SC 29405-2413; (843) 740-1279; email: Jan.Kucklick@noaa.gov

Sponsor: National Oceanic and Atmospheric Administration (NOAA), Coastal Services Center (CSC).

Date: 14–18 July, 2003

Location: Hilo, Hawaii

Title: Cities on Volcanoes 3 Conference – Pacific (North America)

Detail: This is the third international meeting to bring together emergency managers, volcanologists, educators, sociologists, psychologists, economists and city planners to re-evaluate volcanic crisis preparedness and management in cities and densely populated areas.

Enquiries: Andrea Furuli (808) 974-7555; email cov3@hawaii.edu or www.uhh.hawaii.edu

Sponsor: County and State of Hawaii and the International Association of Vulcanology and Chemistry of the Earth's Interior

Date: 7–10 September 2003

Location: Minneapolis, Minnesota

Title: Dam Safety 2003 – North America

Enquiries: ASDSO, 450 Old Vine Street, 2nd Floor, Lexington, KY 40507; (859) 257-5140; Fax: (859) 323-1958; email: info@damsafety.org. Website: www.damsafety.org/conferences.cfm?content=annual

Sponsor: Association of State Dam Safety Officials (ASDSO).

Date: 10–12 September, 2003

Location: Davos, Switzerland

Title: Third International Conference on Debris-Flow Hazards Mitigation, Mechanics, Prediction and Assessment – Europe

Enquiries: Dieter Rickenmann, Swiss Federal Research Institute WSL, Z=Fcrcherstrasse 111, CH-8903 Birmensdorf, Switzerland; Tel: +41 17 39 24 42; Fax +41 17 39 24 88 Email: rickenmann@wsl.ch. For general conference information: email: DFC3_Inf@wsl.ch.

Date: 16–18 September, 2003

Location: Karlsruhe University, Germany

Title: International Workshop on Wind Effect on Trees – Europe

Detail: The workshop will provide a forum for physicists, foresters, engineers, physiologists and ecologists to examine new developments in the field of wind storm damage.

Enquiries: Mrs. Dipling C. Frank, Institut fur Hydromechanik, Universitat Karlsruhe, Kaiserstr.12, 76128 Kallsruhe, Germany; email: wind2003@uka.de;

Sponsor: Institut fur Hydromechanik

Date: 22–24 September, 2003

Location: Ancona, Italy

Title: ERES Fourth International Conference on Earthquake Resistant Engineering Structure – Europe

Enquiries: Conference Secretariat, ERES 2003, Wessex Institute of Technology, Ashurst Lodge, Ashurst Southampton, SO40 7AA, U.K.; Tel: 44(0) 238 029 3223; Fax: 44(0) 238 029 2853; email: gcossutta@wessex.ac.uk.

Date: 27 September, 2003

Location: London, Ontario

Title: Dealing with Disaster – North America

Details: Emphasis will be placed on the understanding of the interaction between social and environmental factors

Enquiries: Tel: 0011/0018 519 661 3234 or email: ssdoyle@uwco.ca

Date: 29 October 2003

Location: Columbus, Ohio

Title: Contingency Planners of Ohio 2002 Annual Business Survival and Recovery Seminar – North America

Details: The meeting will be preceded by an informal networking session and vendor exhibit on October 28 and followed by a Disaster Recovery Planning Review

Enquiries: Joni McLean, President, Contingency Planners of Oio; email: cpohio@geocities.com; Tel: (614) 249-0397. For information about the disaster recovery course, contact: Disaster Recovery Institute international. www.dr.org or call (703) 538-1792.

Date: 10–12 September, 2003

Location: Canberra, Australia

Title: Safer Sustainable Communities – 2003 Australian Disaster Conference

Detail: The theme for the Conference is 'Community Safety is Everyone's Business'.

Enquiries: Einstein & Edison Event Management, PO Box 42, Yarralumla ACT 2600. Tel: +61 (0)2 6232 4240, Fax: +61 (0)2 6232 4245, email: disasterconference@einsteinandedison.com.au

Host: Emergency Management Australia (EMA). Visit EMA's website: http://www.ema.gov.au

WESTERN AUSTRALIA

Date: **27–28 March, 2003**

Location: Perth, Western Australia

Title: Demystifying Emergency Management: warts and all

Enquiries: Scott-Andrew Smith, email ssmith@fesa.wa.gov.au

A.C.T.

Date: **10–12 September 2003**

Location: Canberra, Australia

Title: Safer Sustainable Communities – 2003 Australian Disaster Conference – Australasia

Detail: This year's theme is Community Safety is Everyone's Business

Enquiries: Conference Secretariat, Einstein & Edison, PO Box 42, Yarralumla ACT 2600; email: enquiry@einsteinandedison.com.au

Sponsor: Emergency Management Australia

CALL FOR PAPERS – INTERNATIONAL

Date: **4–8 March, 2003**

Location: New Orleans, Louisiana, North America

Title: Association of American Geographers (AAG) Annual Meeting

Details: Includes a session on hazards-related issues. Deadline for submisstions is September 25, 2002.

Enquiries: Jayajit Chakraborty, Department of Georgraphy, University of South Florida, 4202 East Fowler Avenue, SOC 107, Tampa, FL 33620; email: jchakrab@chuma1.cas.usf.eduDate:

Date: **10–15 March, 2003**

Location: Puerto Rico, South America

Title: Dissertations Initiative for the Advancement of Climate Change Research (DISCCRS) Symposium

Sponsors: American Geophysical Union, American Meterological Society, American Society of Limnology an Oceanography, Ecological Society of America and Whitman College

Enquiries: To register with DISCCRS, or for complete symposia information including eligivility, deadlines and how to apply contact C Susan Weiler; (509) 627-5948; email: weiler@whitman.edu; or see the following web site: http://aslo.org/disccrs/disccrsposter.pdf.

CALL FOR PAPERS – AUSTRALIA

Date: **19–20 September, 2003**

Location: Hobart, Tasmania, Australia

Title: National Pre-Hospital Conference (ACAP2003) Fresh Perspectives; Expanding Horizons

Description: Sub-themes for the conference include: Technology in the Pre-Hospital environment; Expansion of the role of the paramedic; Health care in the rural environment: What is our role? and Where does paramedic education go from here?

The Australian College of Ambulance Professionals (ACAP) Tasmanian Branch invites submissions. There are two categories of papers – major presentations (up to 30 minutes) or free papers (up to 15 minutes). The due date for major presentations is April 30th, 2003 and for free papers is May 30th, 2003. Papers that do not tie in with the theme of the conference will also be considered on their merits. Please feel free to submit more than one paper.

Enquiries: Dale Edwards, Dale.Edwards@dhhs.tas.gov.au; Phone (03) 6434 6876 (W); Mobile: (0418) 736 986.

VIDEO REVIEW

Playing It Safe
Natural Hazards Awareness and Prevention Video for Communities in the Top End of Australia. [Duration 23.5 minutes]

By Northern Territory Emergency Service, Publisher: Burrundi Pictures, Darwin 2001.

Playing It Safe is a fine example of a contemporary user-friendly counter-disaster emergency management resource that deserves widespread dissemination and utilization in applicable communities. Released in late 2001, it is characterized by a grassroots approach to proactive awareness and preparations about what to do to counteract the effects of severe natural hazards such as severe tropical cyclones, inundative floods, and bush and grass fires.

The straightforward, simple and direct, messages are delivered *in situ* by a representative sample of community emergency workers and volunteers themselves, thus much enhancing their acceptance by other community members. The principle thrust, within the overall counter-disaster ethos of saving life and protecting property, is to advance awareness of local hazards and to facilitate planning and preparations, in advance, for timely remedial actions when the need arises.

By filming in actual communities that have already experienced the kinds of disasters covered, and hearing from fellow community members, the video builds upon existing local experiences and understanding and so maximizes the effectiveness of its communicative powers. This approach is highly commended.

Cyclone risks in Top End coastal communities are becoming increasingly severe, and the video focuses on actions that need to be taken prior to each cyclone season to assure the maximum safety of these communities. With a considerable cyclone-robust domestic housing shortage in most remote communities, when a severe, say Category 5 cyclone strikes, it is necessary for many residents to take shelter in community halls or other safe government buildings. So plans need to be made, as they do for stockpiling the emergency resources necessary to tide people over in the period just after a 'big blow', before external assistance is possible.

Severe **Floods** are a periodic occurrence in many communities, and over time, well-orchestrated Counter Disaster Plans have been formulated to cope with them. *Playing It Safe* takes us into the backyards of a number of flood-prone communities and recounts some of the actions that can help to mitigate the adverse effects of 'rivers flooding and changing landscapes into inland seas'. When evacuation is needed, it is necessary to prepare well ahead, issue timely warnings as to actions required to ensure the safety of people, and to manage any movements of displaced people in the most equitable and cost-effective manner.

The dangers of uncontrolled bush and grass **Fires** are well known to most of us. So advance actions such as clearing up volatile materials, cutting clear spaces and fire breaks are paramount. In many communities, traditional methods of fire control, which have been in place for 60,000 years, are combined with new approaches, to bring about the best possible protective precautionary actions. Again the importance of learning from experience, of pro-active preparations, and dissemination of remedial action awareness and behaviours throughout the whole community is highlighted.

Unfortunately, fires are also an area of very high interest to human arsonists, so it is a hazard domain where the highest possible levels of community vigilance and precautionary behaviours is required.

Playing It Safe is an important and timely human well-being and safety resource that warrants a central place in the emergency management resources of all remote communities exposed to the hazards it covers. By raising general levels of awareness of major natural hazard threats that face many people we foster enhanced sustainable safety. 'Knowing what's going on in your community, and being prepared, is very important'.

Those that contributed to its creation are to be congratulated for their fine efforts. *Playing It Safe* is a four-star video production! It is highly commended.

Copies of the video may be obtained from NTES. Phone: (08) 8922 3630.

Reviewed by Dr Allan Skertchly, S.M.I.L.E.
Success Management International
Learning Enterprises

BOOK REVIEW

Last Man Down: The Fireman's Story

By Richard 'Pitch' Picciotto with Daniel Paisner. Publisher: 2002 by Orion Books, London

The traumatic events on September 11th 2001, when the massive towers of the World Trade Centre collapsed as the result of meticulously planned terrorist actions, are indelibly etched upon the minds of most of humankind. The catastrophic loss of these erstwhile quintessential, commercial and iconic behemoths, has caused global ructions at many levels of civilization, not least of which have been to those dedicated and highly competent officers and staff, and their families, of the New York City Fire Department, the subject of *Last Man Down: The Fireman's Story*.

Battalion Commander Richard 'Pitch' Picciotto, leading a company of firefighters up stairway B of the North Tower, was the highest-ranking Fire Department Commander in the building when it fell and 'Pitch and a handful of survivors woke to find themselves buried on a landing between the second and fourth floors'.

Last Man Down, is the personal, enthralling, detailed, and soul-searching account, of the exacting ingress and final, 'miraculous', exit, from where Picciotto and a few others, were nearly buried alive. They were initially in the dark covered in fine choking ash, entombed beneath a man-made mountain of steel and concrete and the unimaginable chaos and debris of the WTC's 100 floors. At its core is a compelling, consummate study of Pitch's personally inspired successful emergency management leadership under seemingly intractable difficulties.

But 15 people survived the final collapse. Some 343 other brave firefighters were killed or died in attempting to save the lives and property of others. "Greater love hath no man than to lay down his life for his fellow man".

On the morning of the monumental catastrophe, Pitch had just come on duty for the 9 am to 6 pm shift at the Firehouse on West 100th Street, some 130 blocks away from the World Trade Centre. He'd been a Fire Chief for about nine years of his 28 years in with NYFS and was a most capable and conscientious fireman, as well as being thoroughly experienced and acclaimed as a leader of his team of 'brothers'. Like the rest of us, he was apprised of the attack on the WTC through TV at the Firehouse. Within minutes he was speeding towards Ground Zero in a red and white Chevy Suburban with an 'old pro' mate as aide and driver at his side, lights flashing and siren shrieking. Just recently he had written an article about non-routine, high rise fires for the WNYF Journal and he had been down at the WTC for the bombing on 26th February 1993. He knew the building. Of all people 'wanting in on such as this it would have been me. At around 9:45 am here I was, finally getting to work'.

By 10 am, with an ad hoc crew, Pitch was on the 35th floor of the North Tower where 'we were all standing, there like stones, waiting for the roar to reach us. A thousand trains. A thousand rushing beasts. A thousand inconceivable terrors ... a couple of dozen firefighters, spent and anxious and filthy with sweat and smoke and adrenaline, frozen like statures in the corridors ... eyes skyward waiting for some unknowable end to burst through the ceiling and overcome us. From faint rumbling to deafening roar to fading, the entire episode was only ten seconds'. The South Tower. Tower Two of the World Trade Centre, had just fallen.

Clearing and marshalling all survivors on each floor of the North Tower, Pitch and his crew of firefighters fought the acrid particle-laden air, fatigue and congestion, as they began the tortuous, demanding descent by the narrow stairwells to evacuate the building as quickly as they could. By about 10:29, most people had got to the lobby floor where Pitch wished he was. 'But then there was more to come. Much more. As I raced through the stairwell, between the seventh floor and the sixth, I heard that noise again. That same sick, killing rumble from just 29 minutes earlier. It was loud the first time, but this time it was ear-splitting, bone-chilling, knee-trembling ... every-damn-body-part-shaking, all multiplied by about a million. There was no mistaking the roar, and as it quickly approached I knew what it meant. We all knew what it meant. In an instant, the whole of my life washed over me'.

Pitch fell four floors to find himself lying in the dark on his back covered in ash, dust and powder and not knowing exactly where he was. 'I couldn't catch up with my thoughts and the slow realization that the collapse hadn't killed me'.

In tough economic times, the NYFD, like so many similar bodies, had suffered financial stringencies, which did not allow for fireman to operate with the best available equipment. Sometimes these deficiencies were made up by individual provision of private gear. But, whatever the circumstances, the fireman themselves were never found wanting. They are men of exceptional quality.

BOOK REVIEW *continued*

The account presented here portrays an ably lead body of disciplined firemen absolutely committed to and giving of their all in their chosen profession, and willing to die in the call of duty, as we have seen too, in and on the media.

I want to fill my calling,
And give the best in me;
To guard my every neigbour,
And protect his property.

'When I am called to duty, God,
Wherever flames may rage;
Give me the strength to save some life,
Whatever be its age'.

Pitch Picciotto appreciates fully the dependence upon so many other talented people for his survival and those of the small group, including a 59-year old grandmother, whom he also brought out safely, who survived, saying finally 'that all of you in the NYFD had a hand in hauling my ass out of that stairwell and down to safety. Without you, I'm nothing'.

Successful emergency management is totally dependent, inter alia, upon the expert leadership of capable, well trained, and disciplined people, using adequate resources.

Last Man Out is a book that all concerned with emergency management and catastrophes should read. It is not just an emotional tale of human survival against great odds. It is a salutary account of NYFD fireman and their training and resources as the protective agents for a major modern conurbation. It conveys much of importance to those concerned with safer sustainable communities.

Reviewed by Dr Allan Skertchly, S.M.I.L.E.
Success Management International
Learning Enterprises

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CONFERENCE ANNOUNCEMENT

Safer Sustainable Communities – 2003 Australian Disaster Conference

Emergency Management Australia (EMA) is planning for the Safer Sustainable Communities – 2003 Australian Disaster Conference. The theme for the Conference is ***Community Safety is Everyone's Business*** and it will be held at the National Convention Centre in Canberra from 10-12 September 2003.

Conference Streams

- Working with Communities
- Understanding Risk and Uncertainty
- Consequence Management (Response and Recovery)
- Partnerships for Sustainability
- Business and Critical Infrastructure Protection
- Information and Communication
- Managing and Developing our People

Key Objectives

- Share information on recent developments and research in emergency management.
- Highlight successful initiatives in community safety and sustainability.
- Explore common issues, emerging trends and approaches to emergency management.
- Build partnerships between government, private, non-government and community sectors and expand professional networks.
- Work together on achieving safer, sustainable communities.

Who should attend?

The conference will interest anyone who deals with hazards, risk or disaster management in:

- Commonwealth, State/Territory & Local Government
- Non-Government Organisations
- Private Enterprise & Corporations
- Professional Institutes
- Research Institutions
- The General Community

Invited Keynote Speakers

- Mr Salvano Briceno, Director, United Nations International Strategy for Disaster Reduction
- General Peter Cosgrove AC MC, Chief of the Defence Force
- Mr Michael Hawker, Chief Executive Officer, Insurance Australia Group
- Mr Ken Matthews, Secretary, Department of Transport and Regional Services
- Dr Dale Spender AM, Educational and Learning Services Consultant
- Professor Peter McDonald, Research School of Social Sciences, Australian National University
- Mr John Murray, Chief Police Officer for the ACT

For more information about the Safer Sustainable Communities – 2003 Australian Disaster Conference, contact Einstein & Edison Event Management.

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