The Australian Journal of
Emergency
Management

Do recovery plans benefit the livelihoods of local communities in Thailand?

What Australia can learn from Montserrat's emergency management challenges

Disaster Risk Legislation in the Solomon Islands

New Zealand's framework for disaster recovery

historical snapshot

Krakatoa has had a long history of volcanic activity being directly above the subduction zone of the Eurasian Plate and Indo-Australian Plate. This is where the plate boundaries undertake a sharp change of direction, which possibly results in an unusually weak crust in the region.

1883 saw increased activity when steam began venting from the northernmost of the island's three main cones, eruptions of ash followed, with explosions that could be heard in Jakarta (Batavia) 160km away. By mid-June, activity initiated in new vents between two cones caused a violent eruption and unusually high tides. On 26 August the volcano went into paroxysmal phase. Ships up to 20km away reported pieces of hot pumice – up to 10cm wide – landing on their decks.

On 27 August the volcano entered its final cataclysmic phase. Four enormous explosions took place at 0530, 0642, 0820 and 1002 with the last being the worst and loudest having a concussion that travelled seven times around the world and darkened the sky for days afterwards. Each of these explosions was accompanied by very large tsunamis believed to have been over 30m high in places.

Krakatoa's eruption is still believed to be the loudest sound heard by man.

Cover shot: Donated fishing boats along Kalama Beach, Phuket. Photo courtesy of Wei Choong.

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FOREWORD

Improving our regional responses to relief and recovery
By Roger Jones, former Director EMAI

In its response to urgent calls for cash-or-kind relief and recovery assistance to countries affected by natural disasters, the Australian Government has always been recognised as generous. So too have Australians, whether their response has been made as committed volunteers or through formally-organised and audited appeals.

However, there is no doubt that government and individual responses to disasters happening overseas can be more prompt, better targeted and more effectively coordinated. This is particularly the case for Australian responses to disasters occurring in our region of interest that are consistently faced with difficulties in areas such as communication, information exchange and cultural differences.

We may be taking a positive step in improving our regional response effectiveness with the proposal made in the Australian Government's 2006 White Paper *Australian Aid: Promoting Growth and Stability* that the Government create a National Emergency Protocol to coordinate Australia's response to domestic and regional events.

Inevitably, most media coverage of our response to disasters in our region – fleeting though this might be – focuses on post-disaster events. Less media coverage, because it is generally less visible and not considered particularly newsworthy, is given to the tremendous contribution that Australia makes to the more humdrum task of helping to reduce the possibility of such disasters. It is time that we gave that contribution more recognition.

At the level of the national government, much of this contribution is made through the AusAID-administered Official Development Assistance (ODA) program, which will total almost $3 billion in 2006-2007 alone.

Much of this aid is directed towards the reduction of the vulnerability of many countries, particularly those in our region, to natural and man-made disasters: by fostering better governance; by the development of needed infrastructure; by targeting particular hazards such as pandemics and other communicable diseases such as HIV/AIDS; and by assisting in the development of programs to address developing threats such as those associated with climate change.

In the longer term, as forecast in the 10-year program set out in the 2006 AusAID White Paper, we can hope to see Australia adopt a more comprehensive and integrated approach to assisting in disaster risk reduction in our region, with the proposal to apply Australian science, engineering and innovation to prepare for and mitigate disasters. The paper proposes technical assistance could play an important role in such areas as strengthening national health systems; tackling major diseases such as HIV/AIDS, malaria and pandemics; and preparing for and responding to outbreaks of emerging infectious diseases.

To enhance civilian emergency response capacity, the White Paper's proposals include:

• building up additional stores of relief and humanitarian items in Australia, the Pacific and South-East Asia;

• developing stand-by operations agreements with commercial entities, relevant international agencies and selected professional non-government organisations;

• building human and resource capacity for rapid humanitarian deployment assessment, response coordination, and specific sector teams, and

• refining and exercising interoperability protocols and procedures in humanitarian action.

The White Paper notes that such enhancements are an important priority and some activities are to be implemented immediately. As one who has spent much of the last decade in disaster risk reduction and disaster management activities in the Pacific, I look forward to the implementation of these proposals, given their potential to reduce our region's vulnerability to disasters and to help individual nations to cope more effectively with their impacts.

Thailand's tsunami: disaster management lessons for Australia

Mr Bill Paterson PSM, Australian Ambassador to Thailand reports on the Asian Tsunami

The 26 December tsunami across wide areas of the Indian Ocean presented new and unexpected challenges in disaster management and the response to mass casualty incidents.

It occurred in an area not prone to seismic events of this magnitude; it was not a flood, a cyclone, a bushfire, a volcanic eruption, a pandemic or a famine. It was not brought about by civil strife, war or unexpected violence, nor by an aircraft crash or train accident. There was no advance warning and no systems in place in regional countries to communicate one. Seismology, meteorology or intelligence were unable to predict the event.

Some of that is almost by definition true of many mass casualty incidents, for if we knew they were coming we would take steps to mitigate their effect or to prevent them, and prepare to respond. It was true of the 9/11 attacks on the World Trade Centre and the Bali bombings. It is true of any number of unanticipated events – and it is the job of emergency management professionals to set in place the skills and capacity to deal with them.

But it is relatively new for us, as foreign service professionals, to be closely involved in disaster consequence management on a fairly regular basis, and to have to factor this in to our planning as an integral part of our work and our skill set. In Canberra, our crisis centre was activated five times in 2005 and is again in operation over East Timor. We deployed emergency response teams overseas four times last year.

Why? For two broad reasons. Over one million Australians travel overseas or live overseas in any year. Almost inevitably, if there is a major disaster anywhere around the globe, Australians will have been affected. They will need support and assistance in coping with situations that go beyond those where we might reasonably expect individuals to cope on their own.

And secondly, but equally important, people in many countries important to us may have been affected, and our humanitarian impulses – as well as our national interests – demand a supportive response.

For Australians, the Indian Ocean tsunami invoked both these factors. It was largely a foreign event, although I understand the waves were measurable here in Western Australia. Unlike many incidents, it was also a multinational event, affecting a number of Indian Ocean littoral countries. It was largely a coastal event, with a disproportionate impact on two population groups: fishing settlements and foreign tourists. And, as seems so often the way, it caught us and others during a holiday period, when police, defence, emergency services and our own foreign service personnel were operating at minimum staffing levels.

I want to explain a little of what we did, largely in Thailand for that was my direct experience, in responding, and to draw out some lessons from that which I hope may serve to further refine our contingency planning. But the first, perhaps obvious, lesson is this: that no two disasters are the same – they occur in different locations, in different geography, with widely differing infrastructure and access, different local capabilities, in different weather conditions. Religion, foreign language and local customs may also be relevant. War or peace can make a big difference. As does a natural event compared with a criminal act, such as a terrorist incident. In the latter, the scene is also a crime zone, with a need to preserve forensic evidence and to ensure those who respond do not themselves become targets.

So the lesson is that contingency planning needs to encompass multiple scenarios and indeed completely unforeseen situations, and flexibility must be the by-word of any response. And it has to be said, we were lucky indeed, if I may use that word in describing a highly distressing situation, that we had to operate in southern Thailand.

We firstly were operating in a capable and welcoming environment, used to foreigners and where English was often understood. Secondly, infrastructure was overall good: Phuket airport, where the runway and aprons were initially flooded by the tsunami, was returned to service within hours and was capable of sustaining a high level of air movements, from 747s to helicopter operations. Another airport at Krabi, although smaller, was similarly capable. The road system was very good, and useable except for coastal strips affected by the waves. Earthmoving and other debris removal equipment was in good supply and quickly made available. Phuket has excellent hospitals which quickly moved into emergency mode. Power disruptions were quickly rectified. Many large tourist hotels were little damaged, and hence could support emergency

crews arriving from around the world. A capable and supportive private sector in Thailand donated large quantities of bottled water and food, vehicles and other supplies and got it there quickly.

At the command and administration level, police and military units were available to both ensure law and order and to support some rescue operations and to distribute relief supplies. The Thai government quickly established a coordination centre at the Phuket provincial government headquarters and dispatched the Interior Minister – with wide authority – to lead its response.

In some disaster situations, almost none of these positive factors might be present.

Set against these positive factors, was the sheer scale of the disaster – spread over some hundreds of kilometres of populated coastline – and the fact that it hit two very different sets of people. It came at the peak of Thailand's tourist season, with hotels full in particular of Europeans escaping the northern winter. Concerned relatives all around the world often had no idea where in Thailand their parents or children were – and this resulted in the overloading of the mobile phone system. Cellular networks can be a huge aid to disaster management – but as in New York on 9/11 or Thailand on 26 December – they can fail when most needed. The main immediate requirements for the many foreign tourists who survived were for immediate rescue in a small number of cases, help to find missing family members, emergency medical care for injuries in a large number of cases, for establishing contact with families, replacement travel documents and as rapid evacuation as possible. Many people were traumatized by their experience, and getting them out of the affected area made great sense, both for their own well-being and to reduce pressure on local hospitals and other services.

The other set of physically affected people were Thais – often quite poor Thais – from fishing villages along the coast north of Phuket island. Many of these communities were extremely hard hit, with housing largely destroyed, water supplies contaminated, infrastructure badly damaged, and large numbers of people dead or missing. The initial foreign government response, including our own, was focused unsurprisingly on locating and supporting our own citizens, so these people were largely assisted in the first phase by Thai government agencies and Thai and international NGOs.

What was the Australian government's response and why did it work?

When it became evident on 26 December that a major – if as yet undefined – disaster had occurred, consular officers from the Australian Embassy in Bangkok travelled to Phuket on the first plane following re-opening of the airport. They were supported by embassy AFP officers, Thai staff who provided linguistic

The Tsunami hit at the peak of Thailand's tourist season

skill and local knowledge. Taking advantage of the fact that hotels continued to operate, they immediately set up an office in an hotel and began systematic searches of hospitals and mortuaries to locate injured and dead Australians, and hence to relay back to Australia information which could be used to respond to enquiries by anxious relatives in friends in Australia. This initial team also set up a 24-hour post at the Phuket provincial government centre to assist relatives and build our data on missing persons. Here, boards carrying pictures of the deceased were displayed to assist visual identification, and officials and a growing army of volunteers assisted survivors and arriving relatives.

At the Australian end, DFAT's crisis centre and consular operations centres in Canberra were activated, and rostered staff quickly recalled from holidays. This has become a fairly well-honed operation given the number of mass casualty incidents we have faced in recent years. 1-800 numbers were activated and publicized throughout the media, and banks of trained but volunteer DFAT officials began taking thousands of enquiry calls. Over 85,000 calls were logged in the immediate aftermath of the tsunami and more than 15,000 Australians were initially reported as missing. Computer systems logged these into an existing consular management database, and data began to be matched with that coming in from the field. The co-located crisis centre began the inter-agency process of looking at the wider need for a government response as the scale of the disaster became evident.

Several lessons learnt from previous incidents – in particular the first Bali terrorist bombing in 2002 – came in to play at this point, and were, in my view, key to the success of the Australian response.

The first was not to underestimate the potential scale of the disaster, but to ramp up quickly our response capability, even if in the end it may prove to be more than required. The second was to have a dedicated media response unit, that could service not only media demand for detail but serve to inform a worried population back in Australia. The third was that this response should be multi-disciplinary, able to operate essentially independently and have with it necessary skills and supplies. And the fourth was to activate a commercial disaster management support company, Kenyon International, to provide specialist mortuary and related services.

So by 28 December, two days after the tsunami, a team left Canberra for Phuket by dedicated aircraft. On it were DFAT consular officers, DFAT and Centrelink trauma counsellors, a surgery team from the Canberra hospital, a media specialist and officers with computer and other skills to manage communications and databases. Most importantly, it included an Australian Federal Police disaster victim identification (DVI) team, including a range of forensic specialists, which was

augmented over the following days as the scale of the disaster emerged. Australian Defence Force linguists and logistics specialists were assigned to the team, and a chaplain and DFAT doctor subsequently added.

With the office and preliminary logistics set up by the initial Bangkok embassy team, the arriving specialists swung into action within minutes of arrival in Phuket. Although other countries had dispatched consular officials from their embassies in Bangkok, Australia was the first to have in place a fully integrated capability. This was both a focus of subsequent criticism in Europe of the slow and inadequate response by some governments, and the reason Australia moved into a leadership role, with Thailand, in managing the overall international response. It has to be said that the close relationship between the two countries, and in particular the longstanding close engagement between our two police forces, the RTP and the AFP, was a key factor.

The AFP team included specialists who had led the disaster victim identification (DVI) process following the first Bali bombing. They were able to provide guidance to the Thai authorities on the application of international-standard identification procedures and, as the scale of the disaster became evident, took the lead in building an international response team together with DVI teams arriving from other affected countries.

More than 33 countries eventually joined this group, which in due course was named the Thai Tsunami Victim Identification (TTVI) centre. It still exists, for the work is not yet complete. Although a mini-United Nations, with all the potential to descend into acrimony and indecision, it in fact proved to be remarkably harmonious and effective – indeed a model of international cooperation.

In my view, there were four reasons for this. DVI specialists work to an agreed international standard, set by Interpol, so there was fairly broad consensus on operating procedures. Secondly, the AFP proved to be excellent managers and diplomats, adept at getting others to cooperate. Thirdly, I was given the authority to commit Kenyon International to support not just Australia, but the entire operation, allowing for a major supply chain to swing into action, including for the sourcing of refrigerated containers, mortuary supplies and computer equipment. And finally, the Thai authorities made things happen: a well-equipped building was provided for the TTVI, power supplies were delivered to refrigerated containers and limited helicopter support (Thai and international) made available to DVI teams. Given the widely dispersed nature of the crisis, the limited availability of helicopter support was a limiting factor – but most was quite naturally drawn off to support the critical relief operation in Aceh.

In the days following the tsunami, thousands of bodies were located and moved to improvised mortuary sites in a series of geographically-dispersed Thai Buddhist temples. This was a sensible approach, but raised a number of urgent issues and challenges. The bodies were rapidly decomposing in the oppressive heat, setting a limit not least on the period when visual identification might be possible and certain. Hence the urgency of locating refrigerated containers. Secondly, pressures from relatives for release of bodies had to be set against the agreed need to work to international forensic identification standards. In a climate of high emotion, this is a difficult position to sustain. It is important in this context that DVI specialists be separated from relatives – it is emotionally draining work without dealing with this aspect and the risks within it for compromises to be made. This is the job of consular officers and local officials, but many countries had insufficient consular officers to meet demand. Well-intentioned but unskilled volunteers moved into the gap, but this did not always make for a smooth process, as expectations often outpaced reality.

With makeshift conditions in temples unsuited for the purpose, the risk of a disease outbreak brought about by body fluid leakage and decomposition became a major concern. Good practice by the international DVI teams, the Kenyon supply line, specialist advice from the US Centre for Disease Control and sound Thai practices meant that this did not happen. But it needs to be factored in to contingency planning.

All of the above happened under the intense scrutiny of a news hungry international media. A disaster generates an enormous thirst for accurate information. There was enormous scope for erroneous and unfounded reporting, which could raise anxiety levels of the thousands of relatives who still did not know the fate of loved ones. Alone amongst affected countries, Australia arrived with a media strategy and the capability to implement it. An experienced DFAT diplomat and media specialist fielded all media enquiries and we immediately established a daily media conference to meet both Australian electronic and print media deadlines.

In the absence of other spokesmen, we widened this to include availability to Thai and foreign media. For a period, the team leader was accompanied by the AFP DVI head, to answer pressing questions about DVI processes to relatives and families who otherwise may have seen this process as a bureaucratic obstacle to the return of loved ones. Explaining these processes to the foreign media made a major contribution to improving knowledge of the situation, of DVI processes, of what relatives could do to assist by assembling ante-mortem data, and hence to lessening anxiety and emotion levels. In short, a media strategy is indispensable to management of any crisis.

A multi-disciplinary team operated over a wide area.

With a multi-disciplinary team operating over a wide area, a management strategy and good communications are also critical, without interfering with operational effectiveness and the need for flexibility. Our approach was to begin each day, at 0700, with an 'all agencies' coordination and tasking meeting, with staff deploying to the field by 0800. This enabled *sitreps* to be provided to Canberra each day to assist the DFAT crisis centre in monitoring overall strategy and resources. Throughout the day, the office fielded enquiries, channeled communication from officers in dispersed locations, input data into the consular database and dealt with logistics, such as transport. An extended and emotionally draining crisis, with long hours of intense engagement, takes its toll, and after a week or so we needed to ensure some time off for staff, or rotated staff from Australia or regional posts. Staff welfare and the sustainability of an extended operation are important management responsibilities, and we were supported in this task by a DFAT and AFP counsellor, a chaplain and a doctor, who could also be tasked to other support duties.

For consular staff, crises can be both physically and emotionally taxing. In this case, consular specialists spent long hours trawling through mortuaries, abandoned hotels and other sites seeking to identify missing Australians or assisting injured Australians with documentation, advice and other forms of support. The sight of hundreds of decomposing bodies, and the stench, will never be forgotten. Many survivors were in an emotionally-charged state, which cannot but affect the consular officer. Arriving relatives, too, could often be abusive and unreasonably demanding, but that comes with the turf – it is a fairly normal human reaction – and points to the need, well-recognised by DFAT, for comprehensive consular skills training. Consular officers spent many hours negotiating with local officials on death certificates and release arrangements, seeking at the same time to meet the wishes of relatives.

Consular officers were often at the front line, too, in managing the role of volunteers. In Phuket, Australian residents and visitors provided enormous support to the government's operation, manning airport and other enquiry desks, providing transport to survivors and relatives, visiting hospitals and manning identification desks at mortuary sites. They were an invaluable resource multiplier, but as untrained volunteers, needed guidance on processes to ensure their actions met Thai government and international DVI requirements. While volunteer management was a somewhat haphazard process (in the end, we had no authority over volunteers), it worked remarkably well through a combination of commonsense and goodwill, and commitment on the part of individuals.

Finally, I should underline that technology provides ever new and useful ways to improve communication and data management and transmission in disaster situations. But the proliferation of systems, even within our own government, raises real issues of compatibility and interoperability. Common platforms and data exchange is, for now, probably an ambit claim, but it should be a medium-term objective. In consular and DVI work, this is further complicated by issues of privacy, and of course in terrorist incidents further complicated by issues of both evidence tenable in court and national security-related classified information.

Conclusion

The CEO of Kenyon International, Bob Jensen, describes three common goals in responding to a mass casualty incident:

- to preserve the dignity of the deceased; and

- to meet the rights and needs of the living – that includes families, of course, but also survivors and affected communities

- observe the requirements of government investigations

Mr Jensen has in mind incidents like aircraft or train crashes, but it applies, particularly, to the collection of evidence in terrorist incidents and the observance of DVI requirements in victim identification. As we have seen recently, mistakes are distressing and costly and must be avoided, hence the importance of training and preparation.

Managing these three goals in a highly-charged environment, under pressure from governments, the media and families, is difficult. Balancing flexibility, empathy and adherence to regulatory requirements is similarly challenging.

Following the tsunami, both the UK and Swedish governments held formal inquiries into their responses. The UK concluded there was a need for preparation of concise, useable plans, clearer definition of the respective roles and responsibilities of relevant government agencies, and better handling and recording of inquiry calls in London. The Swedish government, too, found inadequacies in registration procedures and that, overall, the government did not have an effective organisation or leadership structure for handling crises. While systems developed in Australia largely avoided these pitfalls, each new crisis presents new challenges and there is no room for complacency.

Since the tsunami, we've seen disaster handling in situations such as the earthquake in Pakistan and Hurricane Katrina in the United States. These incidents point to the difficulties in developing widely applicable approaches to what are very different situations, and the complications that can arise in operating in a multinational context in a remote and inhospitable location, on the one hand, and a complex domestic inter-agency structure on the other, where infrastructure, skill and resource advantages were negated by shortcomings and rigidities in management and leadership.

Australia enjoys the luxury of having a substantial body of relevant skills – and, by now, experience – of disaster response internationally. Our advantages lie in an ability flexibly to set aside agency allegiances and to work cooperatively together, particularly in adversity. It's something of a national characteristic, and one that is highly valuable, and seen each year domestically in the way emergency services and communities respond to bushfires, cyclones and other emergency situations.

But as I hope my account of our tsunami response in Thailand shows, we need a solid basis of planning, training and equipping across a range of government agencies, the further development of contingency plans and of IT systems. In the end, though, disasters involve distressed people, and we should never lose sight of their individual needs. That is at the heart of our consular role overseas and is one, I'm proud to say, we do exceptionally well.

Disaster resilience through local economic activity in Phuket

Handmer and Choong examine the importance of Phuket's informal economy to local livelihoods after the Tsunami

Abstract

Local economic activity is key to disaster resilience in much of the world. Without the flows of money generated by such activity, the ability to continue living, let alone recover, is limited. The long-term reality for the survivors of local communities is the struggle to rebuild their lives and livelihoods. In Phuket and the surrounding region most money is generated by tourism. However, the bulk of this money leaks out of the local and Thai economies benefiting people overseas rather than in Phuket. We suggest that this is a characteristic of the formal or documented economy, while the informal or undocumented economy keeps money in local hands. The recovery of the informal economy in Phuket has been largely ignored by tsunami recovery plans. Despite an acknowledgement that the informal economy supports about 30 per cent of workers in the tsunami affected area, most of the post-impact initiatives to lure the tourist dollar back have focused on the formal sector.

This paper examines the dynamics of the local economy both formal and informal, and suggests that maximum benefit would be gained by putting more effort into the informal. The implications for Australia are that disaster recovery should concentrate on restoring local economic activity— and in many areas, especially rural areas, should consider the importance of the informal sector for local livelihoods.

The tsunami, tourism and local economic activity

At the 2006 Annual Hazards Workshop in Boulder, Colorado, a researcher hailed the re-opening of a Starbucks coffee shop in Phuket as a positive sign of recovery following the 2004 Boxing Day tsunami. Others queried this interpretation. The re-opening shows investor confidence in the future, but as with many franchises a significant part of the profit goes from a poor country to shareholders in a rich one—and in the process contributes to the leakage of the tourist dollar from the Thai economy. It also highlights that the recovery priority lies, by default if not intent, with large scale organized capital rather than with local livelihoods—the opposite to the stated objectives of the main recovery plan. The re-construction and expansion of large tourist resorts raise similar issues, as well as problems concerning land tenure.

The Indian Ocean tsunami of 26 December 2004 devastated many tourism areas including some in southern Thailand. Resorts and natural attractions were destroyed, many local people and international tourists were killed and the region suffered something approaching the worst possible publicity as countless people searched for their missing friends and relatives against a backdrop of devastation. Although much of Phuket escaped serious damage, the scenic west coast of the island and some adjacent island resorts, were badly damaged by the tsunami.

Many people lost their lives, but our concern here is with the survivors and specifically how their livelihoods were, and continue to be, affected by the tsunami. Some governments issued travel warnings, urging their citizens to leave the area immediately after the tsunami and return home, thereby depriving the area and country of desperately needed foreign exchange and employment. But the coastal resorts of southern Thailand have been working to restore their facilities and welcome tourists back as soon as possible.

The paper is based on two fundamental assumptions which are examined in detail elsewhere:

- Firstly, that devastated communities and households need income for survival and recovery, and local governments and commerce are dependent on local economic activity (see also Handmer and Hillman, 2004). Where there is little or no public welfare this need becomes more acute. In this context, the economy is not simply that reported in official statistics. It includes the unofficial or informal activities which are often more important for local livelihoods.

- Secondly, that tourism is a key industry for the Thai economy. It dominates the economy and is the primary source of livelihood in Phuket and the surrounding region. The six main affected provinces

of Phang Nga, Krabi, Phuket, Ranong, Trang and Satun earned around 25% of Thailand's recorded tourism revenue for the period (Tourism Authority of Thailand (TAT)). For many of those in the Thai tourism sector, tourism is not about pleasure, cultural exchange or learning; it is about survival. Some analysts argue that ideally, post-disaster recovery in tourist dependent areas should be about making the local economy (and community) more sustainable through diversification (Monday, 2002; Gurtner, 2004). We believe that this is problematic for those whose priority is survival.

This paper is not concerned with the tsunami as such. Rather the question examined is the role of the local economy in resilience after a major disaster. Particular attention is given to the recovery of those engaged in the informal or undocumented sector of the economy, especially those who have been involved in the tourism industry and other industries that are often connected with tourism including fishing, agriculture and construction.

The impact of the tsunami on the tourism industry

The impacts of a major disaster on a tourist area will generally be the obvious physical damage to the built and natural environments, and the immediate drop in tourist numbers. Less obvious but often more important is the sense of insecurity which may act as a deterrent to tourists long after the physical damage is repaired. The critical issue for any tourist area is rapid restoration of the money flow generated by visitors.

The scene immediately after the tsunami was one of devastation with some beachfront areas all but wiped out. Nevertheless, overall, Phuket was not seriously damaged. Major infrastructure was left largely intact as the tsunami did not reach far enough inland with enough force to destroy roads, bridges, the airport etc (Dalrymple and Krieble 2005), and within three weeks of the tsunami 90 percent of the pre-impact hotel rooms were available (Birkland et al 2005). So lack of accommodation has not been the issue. The death toll in Phuket itself was about 250, quite small given that in Southern Thailand over 5000 lost their lives with an additional 8000 injured as of 21 February 2005 (WHO (2005) (originally from Department of Disaster Prevention and Mitigation (DDPM), Ministry of Interior). These figures include both Thai nationals and foreign tourists.

The real impact was not physical: the impact has been to the flows of people and money that make up the local economy. Immediately after the tsunami foreign visits all but ceased, while visits by Thai tourists fell but recovered quickly. In 2004 there were over 800,000 foreign visitors to Phuket, while in 2005, the year after the tsunami there were about 90,000. By early 2006 it was clear that visitor numbers were steadily increasing for both Thais (up by 60%) and foreigners (up by 78%) over the period from March 2005 to March 2006 (TAT 2006). However, the total visitor numbers are still just over half the pre tsunami figures. Spending by visitors is down, and importantly the area's total revenue is down by 67% indicating limited cash would be circulating in the informal economy.

The majority of tourists to the region are long haul international travellers—a sensitive and highly competitive market. Media reports and foreign perceptions about a region have the potential to cause further devastation to a disaster-affected destination because of the discretionary nature of travel: "the quest for paradise (can) suddenly transform into a dangerous journey that most travellers would rather avoid" (Cassedy, 1991: 4). An area can become stigmatised by a major disaster. Tourists have to see that the cleanup is complete and that the areas are safe. In reassuring tourists, the Thai authorities have had to counter travel advisories that exaggerate health and safety risks beyond what the World Health Organization believes

to be present (WTO, 2005; Morison, 2005). Further contributing to the slump has been the escalating insurgency in the south of Thailand.

This highlights the importance of perceptions which may last for years—something that the post tsunami marketing by the TAT, the Association of Thai Travel Agents, and the Thai Hotels Association has worked hard on with limited success (Tourism Concern 2005; Birkmann et al 2005). Even if the specially targeted, cheap package deals had been successful at luring the tourists back, the discounted nature of this travel would mean that the revenue generated would remain low—as borne out by the steady increase in visitor numbers but weak recovery of revenue (UNRC 2005).

The local economy, tourism and revenue leakage in southern Thailand

Tourism revenue is typically expressed in terms of the average amount spent per person per visit—with analysis of different types of visitors and so, for example, the tourism sector may decide to target high spending wealthy golf players, or concentrate on backpackers and the relatively low up-front investment this sector requires. However, the total spend is only part of the story. Where the money goes is also important. If most of the tourist dollar leaks straight out of the local economy to pay for imports purchased by tourists (such as foreign owned tour operators, hotels etc) and the remittance of profits to outsiders (UNEP, 2002), then local benefits will be limited (see also Handmer and Hillman 2004; IFRCRC 2001).

The average amount spent per international tourist visiting Thailand in 2003 was US$726, which is high compared with other Asia-Pacific destinations such as Malaysia where the average amount spent by foreign tourists is US$510 (WTO, 2003). In Thailand, leakage of this money from the national economy may be as high as 70%, which indicates that the average amount injected into the national economy per international tourist could be as low as US$218 (UNEP 2002), with even less remaining in the Phuket local economy (see Figure 1). This raises questions for the recovery of the post-tsunami tourism industry and how it can be planned to best contribute to the livelihoods of those in the affected areas. These livelihoods are not simply what is captured in official statistics; many people derive their income through the informal or undocumented economy.

The Informal Sector in Thailand and Phuket

Global economic activity can be thought of as falling into four general categories: formal; informal; household; and criminal. Only the formal is properly

Figure 1. The fate of dollars spent by overseas visitors to Phuket

Locally organised activities

> Locally owned Accommodation
> Using local transport
> Eating and drinking at local restaurants/bars
> Renting Beach Chairs
> Local services (eg: massage, beauty therapy).
> Local tours
> Buying local products

Expenditure leakage of International Tourist US$

Phuket Economy 6%

Thai Economy 24%

Global Economy 70%

Globally and Nationally organised activities

> Airline Ticket (for non-Thai airlines)
> Pre-packaged and organised tours
> Enclave/Resort Accommodation
> Expatriate Staff
> Imported food and beverages
> Duty Free Goods
> Imported equipment, furniture, vehicles, technologies, expertise.

Source: UNEP 2002, WTO 2003

* Net gain does not include multiplier.

documented, and is the sole basis of most economic analysis. However, for much of the world including some sectors within rich countries, understanding the informal economy (which may overlap with the household sector) is the key to understanding the livelihoods of some three quarters of the world's population (Shanin, 2002). There is little consensus around the definition and measurement of the informal sector (Allal 1999, NESDB & NSO 2004), so for simplicity we have defined the sector in terms of commercial activity that takes place outside the framework of corporate, public and registered private sector establishments. Such enterprises usually do not comply with regulations governing labour practices, taxes and licensing requirements. As a result informal economic activity is often seen as representing lost revenue by tax collectors, who work hard to formalise it. In addition to the tax issue, informal activity may be seen to be competing "unfairly" with formal activity, selling fakes, and posing a health risk (Cross, 1995). The World Bank sees the informal sector as something to be eliminated (World Bank, 2005), arguing that it is primarily a tax dodge and connected with over-regulation.

Informal sector traders often argue that they do not earn enough to enable them to participate in the formal sector (eg see Edgcomb and Thetford 2004). However, there are instances where informal sector traders such as Thai taxi services, can manipulate market prices by monopolising services (*Phuket Gazette*, 2005a).

A common misperception about the informal economy is that it represents the criminal economy (ILO, 1993). Some activities may be technically illegal but generally tolerated such as the sex industry. We include this sector in our analysis. Households are treated following the ILO definition whereby paid informal sector domestic workers are included in "households" rather than the rest of the economy (ILO 1993).

According to the ILO (1993) the informal sector has the following features or characteristics:

- small size of operations (in southern Thailand 5 or fewer)
- reliance on family labour and local resources
- low capital endowments
- labour-intensive technology
- limited barriers to entry (although may be controlled by local "mafias"
- high degree of competition
- unskilled work force and acquisition of skills outside the formal education system

This list is generally applicable to the informal sector in coastal Southern Thailand. Although skills in the workforce may include the passing on of cultural

traditions and knowledge and language skills, workers in the formal sector have a higher level of educational attainment than those in the informal sector (Allal, 1999). Although informal sector workers pay no tax, their formal sector counterparts are generally paid more, enjoy a higher degree of job security than those employed in the informal sector (Allal, 1999), and may have supplementary benefits such as overtime payments and bonuses. Where these exist at all for informal workers, supplementary benefits tend to be in the form of food supplies or housing. Migrant workers are the worst off in both sectors (Mobile Assistance Centre for Affected Worker, 2005). But this may not be a universal picture, and the size of the informal sector in parts of the US may indicate also that there are few advantages to being formalised—in addition to the very large illegal or undocumented workforce in that country.

Many occupations occur both within the formal and informal sectors. For instance, a subsistence fisherman from a coastal village—who may occasionally take tourists out fishing for cash—would be classified as informal. However, if he was employed by a resort to do the same thing, he would be classified as part of the formal sector and would appear in Thailand's GDP.

Size and importance of the informal sector

In Thailand, the informal sector is very important in terms of employment with just under three quarters of the Thai workforce depending on the informal sector (NESDB and NSO, 2004). Its contribution to GDP stands at about 44% (52% according to Schneider 2002). By way of comparison, in Los Angeles County it is estimated that some 29 percent of the population work informally (Losby et al, 2003). In Australia the informal sector is estimated to be worth about 15 percent of the total economy (calculated by the currency demand method which excludes barter) (Schneider 2002).

In the six Southern tsunami affected provinces of Phang Nga, Krabi, Phuket, Ranong, Trang and Satun that are largely dependent on the tourism industry, the informal sector accounts for about 56% of employment, with the province of Phuket at 31% (NSO, 2005). A likely reason for the lower figure for Phuket may be the success of Phuket as an international coastal tourist destination that has attracted major investment from overseas and from Bangkok—driving small informal sector operators out of the market and formalising the workforce.

A related issue concerns the importance of traditional informal land tenure in southern Thailand. Many fishing villages, for example, are located on prime beachfront land, and even though they may have occupied the land for generations, they often do not have formal legal title. The tsunami provided an opportunity for some development interests to seize such land, displace

the traditional occupants (CNRACNR & CNACCS 2005)—thus transforming public beaches into private goods that fence out the local community. It is argued that this violates the international law concerning the right of return. It may also undermine local livelihoods especially in the informal fishing sector—and will lead to increased value of assets at risk from coastal hazards. We do not examine this issue further here.

Recovery and adaptation strategies

Financial and economic recovery depend on making up the disrupted flows of goods, services and ultimately money that provide the affected people and enterprises with livelihoods. Insurance and aid are important mechanisms which act to spread the risk and costs of disaster. For major events, government sponsored plans and strategies will typically also play important roles.

Insurance has favoured large scale commercial enterprises, although insurance payouts have been limited given the extent of devastation (McNaughton, 2005). Many small businesses affected by the tsunami were either not insured, or did not have appropriate coverage (The Economist Intelligence Unit, 2005). The informal sector rarely has access to formal financial recovery mechanisms such as insurance and national compensation packages. At the time of fieldwork, it appeared that few, if any, informal or small formal businesses had received post-tsunami assistance.

The major strategic recovery plan for the tourism sector in Southern Thailand is the Phuket Action Plan. This plan was developed by the World Tourism Organisation with input from regional tourism bodies including the Pacific Asia Travel Association (PATA) and the Tourism Authority of Thailand (TAT). The Phuket Action Plan has received widespread support and endorsement at an international and regional level.

The formal sector

Formal sector recovery is guided by the Phuket Action Plan. The Plan focuses on restoring the tourist flows which generate income for the sector and those whom it employs, rather than simply rebuilding assets (see also Handmer and Hillman, 2004). It concentrates on saving local tourism jobs, relaunching small tourism-related businesses, and recovering the visitor flows that underpin the local economy. It specifically mentions as an aim more tourist revenue remaining in the local community—although it is not clear how this will be achieved. Associated marketing aims to restore confidence in the coastal region as a tourist destination (also see Faulkner, 2001). The holding of the Miss Universe contest in Phuket in May 2005—with US$6.5 million in support from the Thai government—was a high profile opportunity to show how the area is rebounding.

A majority of the businesses affected by the tsunami are family micro and small enterprises. Many are struggling with the loss of family members as well as the collapse in tourism. However, micro enterprises and the informal sector are not specifically mentioned in the Plan, even though these groups appear to have little access to recovery funds. Instead, the Plan is centred on assistance to small and medium sized enterprises (SMEs). Some local residents, who are now unemployed, have been unable to satisfy the bureaucratic requirements involving the provision of documentation to be able to be classified as 'tsunami affected' and so have effectively been denied access to much assistance. In contrast, US officials were able to provide assistance to the families of the 500 undocumented workers killed on 9 September 2001 (Wisner 2003), as were the Dutch in the 1992 El Al cargo plane crash into an apartment block in Bijlmer. Many residents believe they have missed out because of where they lived in relation to the tsunami's path with the focus being on immediate impact rather than long-term capacity to recover. There is concern that if the tsunami highlighted the acute vulnerability that accompanies financial dependence on the tourism industry, then the tsunami reconstruction plans may exacerbate this even further.

Part of the Phuket Action Plan aims to make coastal tourism destinations more secure from natural disaster by limiting beachfront construction. However, this emphasis prevents many locals from re-establishing their homes where they were before, while hotels are being constructed on beachfronts.

Informal sector

Although the Phuket Action Plan emphasises, on paper, local level engagement via the tourism sector, it appears that there has been little official involvement of local communities. There is also the question of addressing the issue of 'leakage' of tourism revenue out of Phuket. While the plan aims to revitalise the tourist industry, the lack of recognition of out-movement of desperately needed tourist dollars may significantly slow the local recovery process. Some aid groups have been concerned that lower income groups in both formal and informal sectors, of local or immigrant backgrounds, are unable to receive compensation and assistance—'they should have their voices heard in any related rehabilitation programme' (Friedrich Ebert Foundation 2005). There is an assumption by those in the informal sector that the recovery of the tourism industry will directly influence their livelihood security. In the meantime, recovery strategies are diverse as people seek new economic activities, move to new areas in search of employment and expand their income sources to survive.

Many people move between formal and informal employment. Some asset reconstruction in Phuket is contributing to the livelihoods of those economically displaced in the informal sector. For instance, the

The Miss Universe contest in Phuket in May 2005.

building and construction industry has provided a source of employment to many previously employed in the tourism industry. So while building materials are predominately imported into the region from mainland Thailand, the labour used in reconstruction has been provided from local informal workers who previously worked in the tourism business. Although they are paid less than they earned in their previous occupations, it is still a significant proportion of household income. The construction of large up-market resorts—which in themselves will have long term ramifications for the informal sector—is providing work that local people hope will last until the tourism industry recovers and they can return to their usual occupations.

When asked about their recovery in August 2005, interview participants felt that no attention was being given to long term issues. Those involved in the informal sector were aware that they would not be part of the government scheme, but they were becoming increasingly concerned that tourists had not returned to the area. No participants will rely upon the government to assist in their direct recovery, but many feel that it is the government's responsibility to boost tourism again. Yet they know that survival and the immediate livelihood security for their families is their responsibility.

In light of the lack of recovery assistance, the linkages and networks of strong kinship ties become a source of support both financially and emotionally. Many people in the informal economy with family residing in other provinces in Thailand have opportunities to seek employment outside Phuket either on family farms and business, or are able to rely on relatives sending money. However, those with a family base within Phuket are less likely to receive much support as more family members

were affected. Participants spoke of sharing food, work and other resources during the first few months after the Tsunami. Yet despite the resilience of the informal sector community, they remain worried about the future.

It is clear that the informal sector is largely ignored in practice by government agencies, in spite of being acknowledged in documents and the occasional high profile political visit. This leaves a third of the Phuket workforce to cope through their personal networks and in some cases informal assistance from networks overseas. This is particularly pertinent in light of the land tenure issues mentioned earlier.

Conclusion – recovery and adaptation as resilience

Following a major impact a key element of managing vulnerability is the adaptation and recovery of local economic activities underpinning local livelihoods. Recovery is not restoration—full restoration is not possible after such wholesale destruction, hence the emphasis on resilience; on flexibility and adapting to new circumstances and new livelihood opportunities. We have concentrated on the often ignored informal economy which supports a substantial proportion of the people in Phuket. For Thailand as a whole the informal economy helps support nearly three quarters of the population, and should not be overlooked if we are really interested in reducing vulnerability. The affected people have shown flexibility and resilience through shifting sectors to take advantage of short-term employment opportunities in the building and reconstruction boom, by sharing resources and work, and by harnessing their kinship networks within the immediate disaster area, within Thailand and abroad.

The Phuket Action Plan provides a good framework on paper for the recovery process, with its emphasis on the money flows that employ people and sustain local enterprises, rather than on asset construction—which may give the appearance of a building boom and local economic resilience even though benefits for local people may be limited to short term construction employment. What is needed most is a revitalisation of the local economy and increased retention of the tourist dollar locally. Instead it appears that the opposite may be happening. This highlights the gap between government and bureaucratic rhetoric and the reality of needing secure livelihoods to underpin the rebuilding of people's lives.

What is emerging is the question of how and whether recovery plans will benefit the livelihoods of local communities. If recovery of the tourism sector is structured in a way that puts the interest of large scale business ventures—including the acquisition of land held by informal tenure—ahead of those of the local communities, then the benefits may be limited for local people. We already know that many 'packaged' holidays and more exclusive luxury resorts, where tourists scarcely venture outside the resort, do little to provide revenue flows back into the local communities—in the absence of redistribution policies (UNEP, 2005; see above). If local livelihood restoration is ignored, it is difficult to see what future the people have.

One issue for other countries to ponder is the focus on the maintenance of business activity in Phuket, with cleanup and rebuilding commencing immediately after the disaster. Another is the question of how much emphasis should be placed on the needs of local people and their livelihoods—the local economy—versus larger economic forces. The informal economy is relatively small in Australia, but still important in some areas, for example aspects of the fruit and vegetable backpacker workforce, which is seasonally essential in many areas.

Acknowledgements

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Informal sector workers shift to construction to secure a short-term income. Photo by Wei Choong.

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New Zealand's holistic framework for disaster recovery

Sarah Norman of the NZ Ministry of Civil Defence & Emergency Management overviews their holistic framework for recovery

Abstract

In 2003 the New Zealand Ministry of Civil Defence & Emergency Management began developing a framework for disaster recovery. The six month consultation of the draft version of this document provided a precursor to the New Zealand Recovery Symposium held in Napier in July 2004. The Symposium provided a unique opportunity for Civil Defence & Emergency Management stakeholders to question and debate the multifaceted aspects of recovery but most significantly, it provided an opportunity for delegates to contribute to the development of a recovery framework for New Zealand. Following the consultation period, the document was been revised and has now published. This paper provides an overview of New Zealand's holistic framework for recovery.

Introduction

Following the enactment of the Civil Defence Emergency Management (CDEM) Act in 2002, the Ministry along with government agencies, emergency services, local and regional authorities and non governmental organisations have been working towards the vision outlined in the National CDEM Strategy: *"Resilient New Zealand – Communities understanding and managing their hazards"* (MCDEM, 2003). Focus on Recovery links directly to the National CDEM Strategy, building on its principles and its four Goals. Goal 4 of the National CDEM Strategy relates directly to recovery, which seeks to *"enhance New Zealand's capability to recover from disasters"* (ibid.). It is Goal 4 which provided the basis to develop a holistic framework for recovery.

Focus on Recovery was the culmination of eighteen months of consultation and development of a holistic framework for recovery for New Zealand. It provides a framework for recovery planning and management in New Zealand for local authorities, Civil Defence Emergency Management (CDEM) Groups[1] and government agencies. "Work on recovery is being undertaken to promote the participation of CDEM stakeholders in all aspects of recovery. The aim is to increase the capability of organisations to undertake short, medium and long-term recovery activities, enabling a timely and effective response to the recovery of affected communities" (MCDEM 2005).

In addition to *Focus on Recovery*, MCDEM published *Recovery Management: Director's Guideline for CDEM Groups* [DGL4/05] in May 2005, which uses the principles within Focus on Recovery to provide a coordinated framework for recovery planning and management in New Zealand.

The remainder of this paper has been reproduced directly from Focus on Recovery published by MCDEM in February 2005.

Focus on recovery

Disaster events result in consequences that affect individuals, communities, regions and nations depending on the scale and seriousness of the event. This document provides general principles and concepts of recovery management, which can be applied to all scales of disaster.

Recovery is defined as: 'The coordinated efforts and processes to effect the immediate, medium and long term holistic regeneration of a community following a disaster'. Recovery is a developmental and a remedial process encompassing the following activities:

- Minimising the escalation of the consequences of the disaster;
- Regeneration of the social, emotional, economic and physical wellbeing of individuals and communities;
- Taking opportunities to adapt to meet the social, economic, natural and built environments future needs; and
- Reducing future exposure to hazards and their associated risks.

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1 CDEM Groups may be considered a consortia of local authorities working in partnership with emergency services, major utilities and others to ensure that emergency management principles are applied at the local level.

The Components of Recovery

Following disasters, the very fabric of society and the relationships within the affected communities depend on an effective and efficient process of recovery. It is a complex social process and is best achieved when the affected community exercises a high degree of self-determination (MCDEM, 2002 and EMA, 2004). Recovery extends beyond just restoring physical assets or providing welfare services. Successful recovery recognises that both communities and individuals have a wide and variable range of recovery needs and that recovery is only successful where all are addressed in a coordinated way. Recovery is a process that will certainly last weeks and months but may extend for years and possibly decades. Organisations involved in recovery will need to recognise the commitment required to resource (both human and material) and the provision of business as usual services during medium and long term recovery.

A holistic and integrated framework is needed to consider the multi-faceted aspects of recovery which, when combined, support the foundations of community sustainability. The framework encompasses the community and four environments: social, economic, natural and built environments. Recovery activity (the central oval in black) demonstrates the integration between the community and the four environments.

Figure 1. Integrated & holistic recovery

Social Environment

Natural Environment

Community

Built Environment

Economic Environment
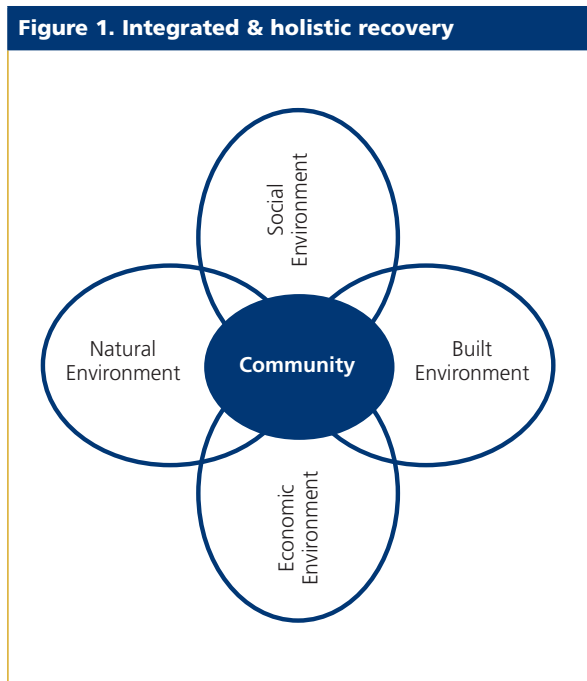
Community

Successful recovery needs to recognise that both communities and individuals have a wide and varying range of recovery needs. Recovery can only be successful

where all needs are addressed in a coordinated way (including the implications on other communities). Community recovery involves regeneration of a community's functions, social structures and systems following a disaster. The ability of a community to achieve this will involve the holistic interaction between the community and the social, economic, natural and built environments. This interaction must involve members of the community and be supported by the local, regional and national structures.

Social Environment

The Social Environment component is comprised of three distinct elements: Safety & Well-being, Health and Welfare (refer to Figure 2).

Figure 2: Elements of the Social Environment

Safety and Wellbeing

Health

Welfare
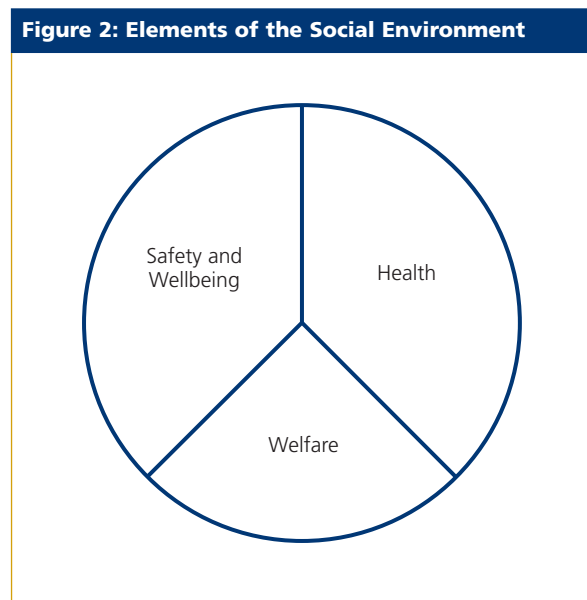
Safety & Well-being

The first priority in any recovery activity is to ensure the safety of those people remaining in the disaster area. Much will have been done during the initial phase of response to the disaster but in some cases danger to life may continue while the recovery operation is underway. Recovery plans may include the demolition of, or barring of access to, damaged buildings, repair of sanitation and hygiene facilities or the provision of temporary facilities, emergency feeding and housing, emergency medical facilities, or the evacuation of inhabitants from the area.

Health

Health provision during recovery includes a broad range of services from those individuals affected/injured from the event and the follow up care they require, through to the case management of individuals/groups who may have been exposed to hazards (e.g. chemicals, dust etc)

or traumatised by their experiences. It is also important to recognise that vulnerable groups such as children or the elderly may require specialist care post-event. Additionally, existing health clients may need access to extra resources to ensure the continuity of their care due to access or service limitation following an event e.g. pharmaceutical supplies.

Welfare

Welfare or Psychosocial Support[2] ensures an individual's emotional, spiritual, cultural, psychological and social needs are addressed in the immediate, medium and long term recovery following a disaster. These needs are addressed through the provision of feeding, housing, financial assistance, counselling and other services. It also addresses the wider community social structure and mechanisms for supporting the community as a whole, such as the culture and heritage, sports and leisure, education and spiritual groups within the community.

It should also be recognised that all those people involved in an event, including rescue workers, support staff and relatives will have been affected by their experiences. The wellbeing of all must be considered during recovery.

Built Environment

The Built Environment component is comprised of five elements, namely: Residential, Commercial/ Industrial, Rural, State-owned Public Buildings & Assets and Lifeline Utilities (refer to Figure 3). Planning for recovery of the Built Environment addresses infrastructure recovery, including the repair, reconstruction or relocation of:

Figure 3: Elements of the Built Environment
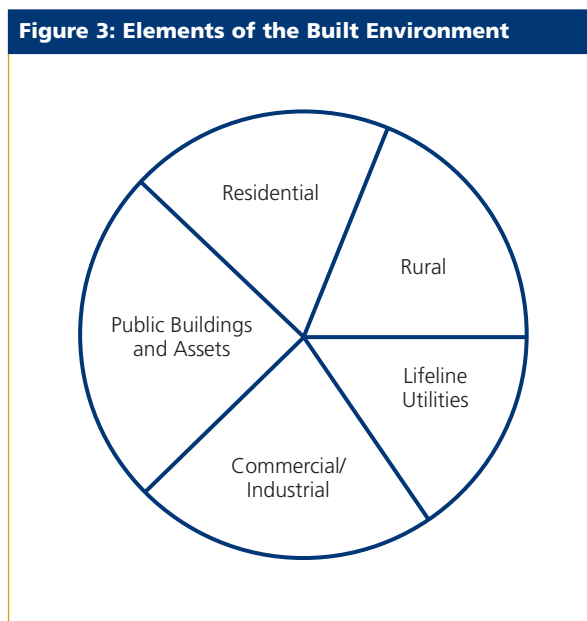
Residential Housing

Assessment and repair of peoples' homes, to expedite the return of people to normal life functioning is a critical priority.

Commercial/Industrial Property

Reinstatement and continuation of business is vital for the economic viability and sustainability of an affected area.

Rural Farmland

Rural physical infrastructure needs are different from urban needs and must be planned for accordingly.

Public Buildings & Assets

Critical public buildings and facilities need to be pre-identified as priorities. Elements of the Built Environment that have social value, such as landmark sites and significant community sites, may be symbolically and functionally important to recovery.

Lifeline Utilities

The recovery of these elements, along with their supporting structures and systems is underpinned by restoration of essential utility services and transport and communication links (including the management of stopbanks, drainage networks etc).

Physical recovery of the built environment must be based on long-term strategies of sustainability, such as adopting mitigation measures that prevent or reduce the effects of future hazard events. In order to contribute to recovery, plans need to be developed in advance (Schwarb et al, 1998) for both the physical elements and activities in the following areas:

• urban planning, so that opportunities presented by destroyed infrastructure can be taken up;

• rivers management and protection works in rural communities as well as urban communities;

• skills and resources required (e.g., tradespeople and professional services); and

• mechanisms for organisations, special interest groups and individuals to work and plan together.

Additionally a process for addressing the needs of the built environment during recovery should include:

• impact assessment;

• restoration proposals (for example, decisions regarding repair, replace, abandon);

• funding arrangements (insurance, capital investment);

• design, regulatory approvals and consultation; and

• physical construction, including logistics support for infrastructure recovery.

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2 Psychosocial refers to the psychological and social needs of individuals as part of a community.

Natural Environment

The Natural Environment component is comprised of four distinct elements; Biodiversity & Ecosystems, Amenity Values, Waste & Pollution and Natural Resources (refer to Figure 4).

Figure 4: Elements of the Natural Environment
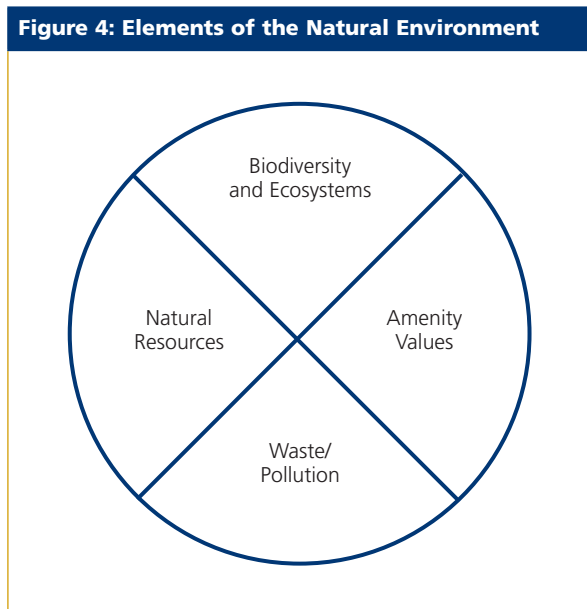
Amenity Value – also see Social Environment

Amenity value describes aspects of our physical environment that have some form of recreational, cultural or social importance. In local government terms, amenities may include physical structures such as libraries and community centres, swimming pools and sports fields. Other amenities may include things like scenic lookouts, riverside walkways, conservation estate, and culturally significant sites such as Wahi-tapu. Pre-identification of the importance of such amenities to peoples' social and emotional recovery, will help prioritise recovery activities

Waste & Pollution Management

In the early stages of recovery, the adverse effects of the disaster in respect of waste and pollution must be addressed. Where physical devastation has occurred and debris removal is underway, access to and sites for waste dumps must be identified and consent processes may be fast-tracked. The very nature of the event may dictate the scale and type of waste—for example, pre-planning for volcanic ash disposal is critical to recovery in areas subject to volcanic activity. Society continues to function after any disaster, so both human waste (sewage) and garbage must continue to be disposed of. Systems and access to disposal sites/plants may be impaired by the event.

Biodiversity & Ecosystems

By virtue of its isolated island location, New Zealand has flora and fauna unique in the world, but these can be placed at risk by disasters. For example, severe storms or droughts may result in the loss of habitat and foodstuffs for species. Pollution events may damage local ecosystems or target specific species. Sound recovery practices can lessen the impacts on biodiversity. Biodiversity recovery activity should be a cooperative process led by the specialist agencies supported by local authorities and involving the wider community. A 'holistic' suite of measures should be employed such as:

- enhanced emergency feeding programmes for birds by departments and the community;
- enhanced pest control in the affected areas;
- temporary bans on public access to fragile areas;
- temporary hunting bans and kai moana (Rāhui) restrictions;
- active relocation programmes for threatened species;
- community involvement in re-planting activities; and
- use of specialist expertise from around the country and overseas.

Natural Resources

At the same time as recovery action restores and improves access to the environment, its amenities, the biodiversity, and lessens waste and pollution impacts—it also must allow use of the environment for economic recovery.

Natural disasters may alter the landscape, infrastructure and transport routes to such an extent as to restrict or destroy access to resources that form part of the economic and social 'lifeblood' of the area. Whole areas of productive land may be rendered useless for farming, forestry or cropping by severe floods, tsunami or volcanic activity. Crops, trees and stock may need immediate processing via resources outside of the impacted area in order to recoup some of the financial loss. Loss of a quarry, mine or water-source for industry may result in economic downturn and unemployment, with long-term social consequences.

Economic Environment

The Economic Environment component is comprised of four distinct elements, namely Individuals, Firms, Infrastructure and Government (refer to Figure 5).

Figure 5: Elements of the Economic Environment

Figure 5: Elements of the Economic Environment
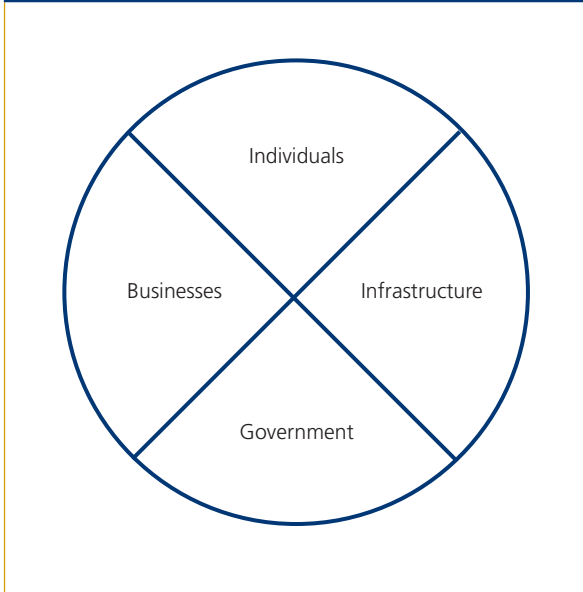
Individual Needs (Microeconomic Level)

The individual simultaneously represents the demand and supply side of economic management during disaster recovery. Individual needs (Microeconomic Level) include maintaining livelihoods such as employment security, payment of salaries and wages, debt servicing, access to bank accounts and insurance payouts. Equally, on the demand side the individual is an important contributor to local economic sustainability through their purchasing behaviours and general consumption.

Businesses

The impact of disasters upon firms, both large and small, may produce partial or complete incapacitation. In any event the window of survival for affected firms will vary and the goal of disaster recovery should be prompt restoration of necessary trading conditions. Aside from infrastructural aspects, recovery action may include direct assistance to individual businesses. For example, asset protection and salvage is important, as is the availability of information to assist decision-making and planning. Reliance on 'just-in-time' deliveries, an available workforce and customer confidence are further issues requiring consideration for recovery processes.

Infrastructure

Restoration of damaged infrastructure is a crucial requirement for normalising business activity. When firms lose the ability to function, the negative impacts are both short term, in lost productivity and longer term, with business closures and related domino effect consequences. The infrastructural demands of business activity are diverse, including for example, basic utilities, telecommunications, and access to transport. Prioritising the restoration of infrastructure may depend on the economic characteristics and dependencies of disaster affected areas. This may include clearance of major arterial routes and restoration of key utilities.

Central Government (Macroeconomic Level)

Central government will have a role of monitoring the economic impacts of disasters and intervening when economic recovery is seriously impeded. Typically, delivery of assistance should be via appropriate local agencies to secure necessary support and ensure coordination with other relief efforts. Central government assistance should adopt a form that optimises the rate of recovery, or prevents serious negative spillover effects, such as the collapse of affected regional economies.

Additionally, central government (Macroeconomic Level) activities include securing the confidence of stakeholders, including overseas markets and governments and the private sector, all of which may affect New Zealand's ability to recover at a national level.

Electronic copies of Focus on Recovery [IS5/05] and Recovery Management: Director's Guideline for CDEM Groups [DGL4/05] can be downloaded from www.civildefence.govt.nz

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Volcanic island in crisis: investigating environmental uncertainty and the complexities it brings

Katharine Haynes explores the complex socio-political relations that have developed on this volcanically uncertain island and which continue to create difficult emergency management challenges

Abstract

Just as a volcanic eruption brings molten material to the surface, enabling volcanologists to glimpse the workings of the internal earth, an environmental crisis can expose underlying problems and weaknesses in emergency planning and governance; Montserrat is such an example. This paper explores the complex socio-political relations which developed on this volcanically uncertain island and which continue to create difficult emergency management challenges. Identifying the social and political barriers to effective implementation of emergency response efforts could be of help in developing Australia's response plans and the evaluation of humanitarian and emergency aid efforts on nearby islands.

Introduction

Many natural hazards pass though a crisis point into a process of recovery very rapidly. Earthquakes, floods and hurricanes involve one damaging event; the affected society and its people are forced to 'cope' with the impacts, entering a phase of crisis and then recovery (Clay *et al.* 1999; Gregg *et al.* 2004). In comparison, volcanoes may have a more prolonged impact with precursory and eruptive activity which can last from days to years and thus deserve special consideration.

The Emerald Isle of the Caribbean

At a superficial level, Montserrat's pre-crisis image of an easy going, friendly and charming island (*the way the Caribbean used to be!*) is an apt description for tourists who rarely stay long enough to delve deeper. However, this atmosphere can also provoke petty argument, the personalisation and easy corruption of politics and the undermining of authority (Pattullo, 2000). This paper will explore the complex socio-political relations

which were exacerbated by the volcanic crisis on this volcanically uncertain island and which continue to create new emergency management challenges.

Known as the Emerald Isle of the Caribbean – a reference to its Irish heritage and its lush vegetation – Montserrat (16.5 km north to south by 10 km east to west) lies in the Caribbean Sea (see Figure 1). The island's Soufrière Hills volcano, which lies in the south central portion of the island, awoke from approximately 350 years of dormancy in mid-1995 and volcanic activity shows no signs of abating.

Figure 1: Map of the island and location within the Caribbean. Reproduced with kind permission of the Montserrat Tourist Board (www.visitmontserrat.com p16).

Prior to the start of the eruption in 1995 health, education and living standards on Montserrat were among the highest in the Caribbean (Clay *et al.*, 1999). The population dropped dramatically during the crisis with the 2001 census identifying a population of 4491, a decrease of 42 per cent since the last census in 1991[1] which reported a population of 10,625. For more information on the history of the island see Fergus, (2001).

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1   Data from the 2001 population and housing census May, 2001, Statistics Department, Montserrat.

The Soufriére Hills volcano, taken in March 2003. Copyright Montserrat Volcano Oberservatory (www.mvo.ms)

Political structure

Montserrat is now one of six UK overseas territories[2] in the Caribbean and one of twelve worldwide. As a British Overseas Territory, Montserrat is administrated by a complex set of economic and political relationships (Pattullo, 2000). Power is triangular with the democratically elected local government, the British Governor (who is the representative of the Queen) and the British Government in Whitehall, London. The Governor is responsible for external affairs, defence, judiciary, security, administration of the public sector and the offshore financial sector.

Volcanic impacts[3]

During the latter half of 1994, seismic activity within the Soufrière Hills system began to escalate, physically manifesting itself in June 1995 as ash and steam began to vent from within the crater. Confirmation of volcanic dome growth on the 30th of November, 1995 led to the evacuation of the high risk settlements on the south east coast. Continued escalation of volcanic activity during early 1996 led to the permanent evacuation of the south of the island. Residents were relocated to the north, many living with friends or family or residing in emergency shelters. Voluntary evacuation schemes were also implemented to remove islanders from Montserrat as space and resources were stretched and conditions for evacuees in the north of the island quickly deteriorated[4].

On the 25th of June, 1997, a dome collapse triggered a large pyroclastic flow. The resulting hot ash, gas and debris flow spilled out of the valley it was being channelled down, killing 19 and injuring 8 people[5].

The majority of those caught in the path of the flow were farmers who had entered the evacuation zone, against advice, to tend to their crops and livestock (for more details see Loughlin *et al.*, (2002)).

By August 1997, the volcano was experiencing repetitive explosions with pyroclastic flows occurring in a radial direction, making warnings very difficult. A wider zone was evacuated, placing overwhelming pressure on the shelters and forcing many more residents to leave the island. A pause in activity in early 1998[6] stimulated a period of re-habitation and reconstruction to begin. However, in November 1999 new dome growth began, heralding the start of a new eruptive phase of slow steady dome growth and collapse which continues at the time of writing. This more moderate growth rate allows the dome to grow larger in size, threatening a wider area than during previous phases.

Why the natural disaster became a human crisis

Montserrat has been an extreme example of the complexity involved in the management of a volcanic crisis; activity has slowly increased in severity becoming cyclic and uncertain. There have been points of extremely high risk but little visible cues and numerous crisis points with difficult decision-making conundrums. The management of this frustratingly uncertain natural phenomenon has been compounded by the complex socio-political factors often typical of a small colonial island. The small size of the island also made emergency management problematic; any smaller, and total evacuation would have been the only reasonable option, any bigger and there would have been an adequate buffer zone between safety and danger (Pattullo, 2000).

This paper will now go on to identify and discuss some examples of the management challenges faced amidst the complex social and political relations of the uncertain natural environment on Montserrat.

Pre-crisis planning – uncertain beginnings

The majority of the housing and key infrastructure on Montserrat was built on the gentler slopes of eroded pyroclastic flow and lahar deposits from previous eruptions of the Soufrière Hills volcano. Thus, the capital town, Plymouth (only 4km from the summit), the airport on the east coast (5km) and numerous communities on the northern slopes were in highly

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2 Early in 1998 the term 'dependent' territory was abolished as it reflected dependence rather than partnership.

3 This précis is adapted from Kokelaar (2002); Pattullo, (2000); Clay, *et al*., (1999); Possekel, (1999) and the Montserrat Volcano Observatory web page (www.mvo.ms).

4 The majority of evacuees went to nearby Caribbean Islands, the USA and the UK.

5 Previous pyroclastic flows generated had been smaller and remained within the river valleys.

6 New magma stoped moving in the conduit, however degradation of the dome and reworking of the volcanic material in the form of lahars continued.

vulnerable positions (Kokelaar, 2002). However, there was no long-term development or emergency response plan to reduce this vulnerability (Shepherd *et al.*, 2002). Opportunities for disaster management and increased volcanic resilience in the reconstruction and development following Hurricane Hugo[7] in 1989 were not taken and the important infrastructure was replaced and renovated within easy striking distance of the volcano. When serious volcanic activity materialised in 1995, the relevant governmental authorities stated that they were ignorant of the island's volcanic status and the risks posed to the settlements in the southern third of the island (Shepherd *et al.*, 2002).

However, scientists as early as the mid 1930s had recognised that the volcano was in a pre-eruptive stage with seismic swarms occurring every 30 years. Increasingly obvious signs of impending volcanic unrest were noticed by a number of volcanologists who mapped the hazards and areas at risk (very accurately as it turned out) less than 9 years before the crisis. A report (Wadge and Isaacs, 1987) was submitted to the relevant emergency management and government authorities detailing the areas at risk from a range of eruption scenarios with reference to likelihoods, advice for emergency evacuations and longer-term development recommendations. However, the report apparently made no impression on those responsible for disaster preparedness (Clay *et al.*, 1999). Scientists involved in communications with officials prior to the crisis complained of a culture of denial and a dogmatic focus on the prosperity of the island (Shepherd *et al.*, 2002).

The lack of preparedness plans and volcanic risk reduction activities on Montserrat can be largely be attributed to the following causes:

- *Limited corporate learning.* The rotation of the Governor every 3–4 years with limited support staff reduced the capacity for retention of corporate knowledge of scientific activities and disaster preparedness. The Caribbean Disaster Preparedness and Prevention Project (CDPPP), which had originally funded the Wadge and Isaacs (1987) report, was found deficient in its handling of the aftermaths of hurricanes George and Hugo and was replaced by the Caribbean Disaster Emergency Response Agency (CDERA), again with no apparent corporate knowledge of volcanic risk being passed on (Kokelaar, 2002).

- *Difficulty in communicating a low probability high consequence event.* The British government's review into the handling of the crisis (Clay *et al.*, 1999) blamed the nonexistent volcanic preparedness on an inability or unwillingness to comprehend the disastrous potential of a volcanic eruption. However,

the report did not communicate well the short-term risks in a format accessible to emergency managers. Decision-makers who read the scientific reports would have seen likelihoods of between 1 and 2 per cent per century and were reassuringly told that it could be centuries before an eruption requiring mass evacuations would be necessary (Kokelaar, 2002). Also, no follow-up was carried out by those who had commissioned the report to investigate how the information had been interpreted or integrated into disaster preparedness. Even if volcanic risks were considered in the re-development phase following Hurricane Hugo, the conclusions would have been the same. A judgment to make economically unviable changes to the island's infrastructural layout based on a highly improbable and uncertain event would have been unpopular and unfeasible.

Volcano politics: Waiting for certainty

The slow and uncertain escalation of activity had allowed the British and Montserratian authorities to delay decision-making over the location of new infrastructural development on the island. The local Government wanted to promote a 'business as usual' atmosphere, a situation the British government were equally happy to maintain as significant spending on new infrastructure could become redundant if the volcano returned to dormancy. As a result of this 'wait and see' policy, conditions for those evacuated became increasingly squalid. The International Development Committee (1997), which had its first sitting in October 1997, was shocked at the condition of the shelters and the mismanagement of the crisis, criticising both Her Majesty's Government (HMG) for its complex bureaucracy and the Montserratian Government for its failure to seek long-term aid.

Even after the third and final evacuations of Plymouth in April, 1996, leading to terrible overcrowding in the make-shift shelters and limited properties in the
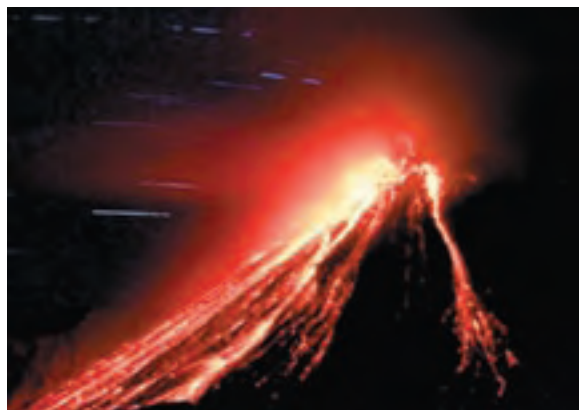
The volcano at night. Copyright Sun Smith (sunsand@candw.ms).

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7 Hurricane Hugo devastated the Island on the evening of Saturday the 16th of September 1989 leaving 11 dead, 40 injured, and 3,000 homeless. (Possekel, 1999).

northern zones, the local authorities were still hopeful of a rapid return, thus causing a significant delay in their application for housing aid. It was not until the volcanic events on the 25th of June 1997 and those throughout August, which devastated the capital and much of the housing on the northern slopes, that a real change of impetus occurred (Possekel, 1999; Clay *et al.*, 1999).

Complex management

The crisis was originally managed within the many complex layers of normal colonial administration, causing immense communication problems between the decision-makers and delays in decision-making and financial matters (see Figure 2).

In London, at the top of the '*tortuous management hierarchy*' (Pattullo, 2000, p136), sat the Foreign and Commonwealth Office (FCO) and the Department for International Development (DFID, formerly the Overseas Development Agency, ODA). Although the FCO held constitutional responsibility for Montserrat, DFID controlled spending. Thus, the logistical and financial responsibility for Montserrat during the crisis was transferred to DFID (Aspinall *et al.*, 2002). Furthermore, the responsibility for direct emergency aid lay with the Emergency Management of Aid Department (EMAD), an additional subdivision of DFID (Possekel, 1999).

The next layer, the Dependent Territories Regional Secretariat (DTRS), was a department of the British Development Division of the Caribbean (BDDC), based in Barbados. The DTRS managed the co-ordination of aid in the Caribbean dependencies, although emergency aid continued to be controlled from London. On Montserrat, the Aid Management Office (AMO) had very similar responsibilities to the BDDC. Also to be considered was the position of the British Governor. While critics questioned the experience and qualification of these distantly appointed and relatively short-term individuals, the FCO relied upon the Governor as the direct representative of the UK Government to ensure the welfare of the islanders (Pattullo, 2000). The officials in Whitehall and the Governor were also integral to working through the last layer of the island's internal political divisions. However, it was often felt by the Montserratian Government that there was not enough consultation between them and the British.

In August 1997 the management structure was simplified and the responsibilities of the AMO were moved back to London. The Montserrat Unit and Montserrat Action Group were established respectively at DFID and the FCO, cutting out the office on Barbados and enabling closer co-operation with the Governor and local Government on Montserrat (Possekel, 1999).

Figure 2. The complex management and communication structure
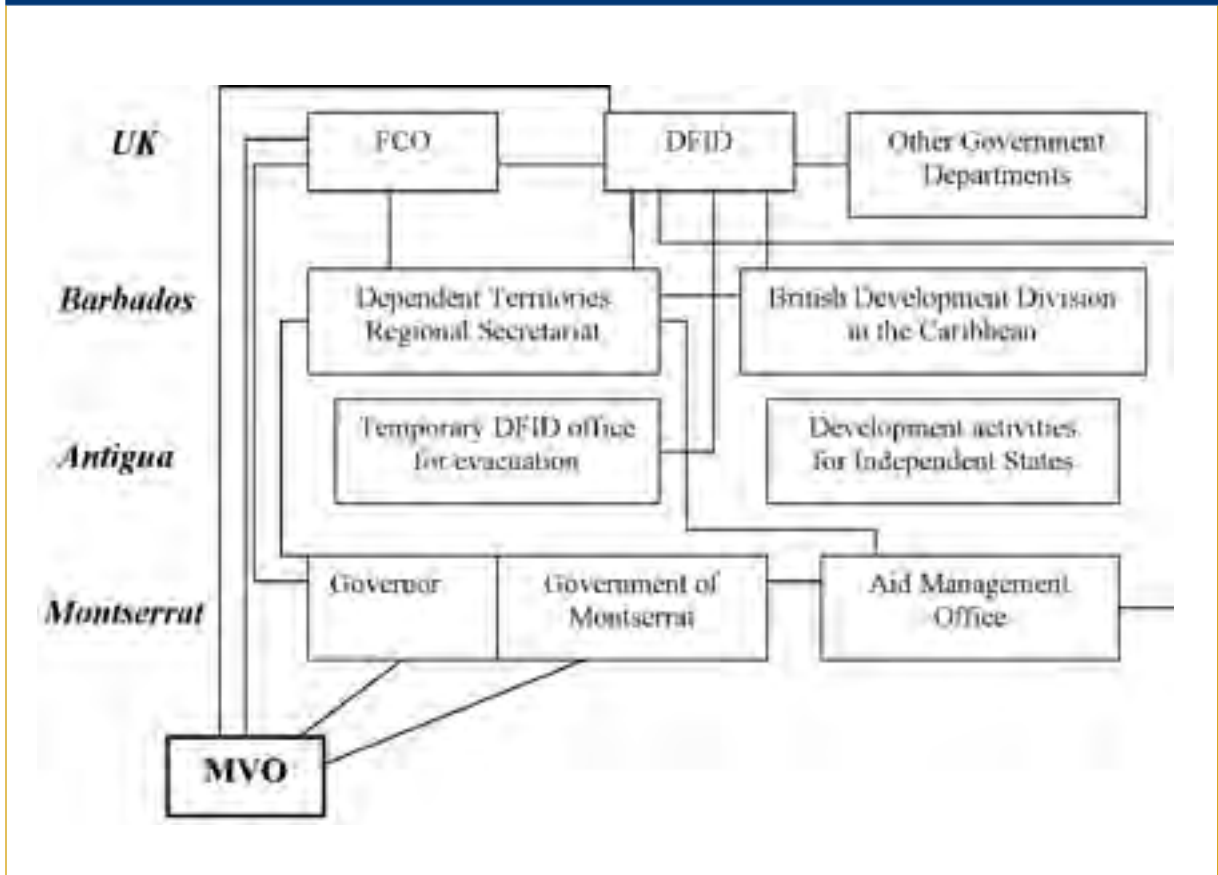
Adapted from Clay *et al.*, (1999, p18) and Possekel, (1999, p158).

Although by mid 1997 £45.8 million had been given in aid, the problems described above grossly delayed any use of this money to develop the north, especially the improvement of the housing situation or even the shelter accommodation, which was infamously described by CM Brandt in August 1997 as "not even fit for cattle" (Fergus, 2001, p27).

Communication issues – Scientists and authorities

The complex hierarchy of command, ambiguous responsibilities of the ministries, departments and organisations and the multiple reporting procedure made communication between the scientists and the authorities – especially those off-island – very difficult (Aspinall *et al.*, 2002). Ministers and civil servants were often replaced with new personnel unfamiliar with the Montserrat situation and the British elections in the spring of 1997 reduced London's focus further. Even after the events in June 1997, it was felt by the scientists and Governor that the politicians and civil servants in London still did not appreciate the situation (Kokelaar, 2002).

On-island communication between the scientists, Governor and the local authorities was more successful and largely unaffected by the complex hierarchy above (Aspinall *et al.*, 2002). However, in a similar fashion to the off-island British authorities, interactions deteriorated slightly when the local ministers and respective Governors changed over in 1997 and again in 2001 (Possekel, 1999 & Hayanes 2005). The rapid change-over of elected officials and civil servants necessitated repeated cycles of adjustment and learning and was felt to be prohibitive to volcanic comprehension and the management of the situation. Subsequently, even eight years into the crisis, scientists considered the level of volcanic knowledge grasped by the local authorities to be at a low level (Haynes, 2005).

The main compounding issue, however, was that of communicating the risk and associated uncertainties, especially during the initial two years of the crisis when the volcanic pattern was one of intense activity followed by quieter phases and much uncertainty. In August 1997, communications between the scientists and ministers in London over the risk to the central and northern zones became confused, with ministers publicly misinterpreting the Montserrat Volcano Observatory's (MVO) report as suggesting a much higher risk than was intended (Possekel, 1999).

Differing attitudes towards the risks considered tolerable and attitudes towards the management of the crisis can be explained by cultural, institutional, political and economic backgrounds and pressures. During the most recent years of the crisis the western extent of the exclusion zone boundary has drifted back and forth (depending on dome growth and the level of activity of

Plymouth destroyed. Copyright Author.

the volcano) over a small central portion of the Island which sits on the margins of safety and danger. This area has some considerable housing and infrastructure and was for a period considered a replacement for the capital Plymouth. The British authorities (motivated by their responsibility for overall safety), were considered by the Montserratian authorities (under considerable political and economic pressure) to be too risk adverse. They were seen as unsympathetic to the needs of the Montserratian public who, in turn, were perceived to be more willing to accept risk than 'typical Londoners' to maintain the prosperity of their Island.

Interviews and participant observations conducted on island in 2003 (Haynes, 2005) identified that many of the authorities and public held an inflated belief in the predictive powers of the scientists to provide accurate and timely warnings and reduce the uncertainty. At the time, an exclusion zone boundary had been extended and was being strictly controlled – to the vociferous consternation of those who were evacuated and some local politicians. The authorities were thought to have interpreted the scientific advice with too much precision. In turn the authorities felt that the uncertainties and implications had not been well deliberated or explained by the scientists who were trying to distance themselves from an emergency management role and any associated liability.

With hindsight it is easy to see that the crisis could have been handled much more effectively if there had been:

- *A shift from short-term disaster management to longer-term development planning earlier in the crisis*, with better shelter provision and the earlier development of accommodation in the north (Kokelaar, 2002; Clay *et al.*, 1999; Possekel, 1999).

- *The establishment earlier in the crisis of an inter-departmental crisis team* with the authority to fast-track decisions and finances (Kokelaar, 2002; Clay *et al.*, 1999).

- *More responsibility for decision-making on island.* Long distance communication of uncertain but high consequence risks can be very problematic. Sensitive decision making is difficult for those who do not understand the situation intimately.

- *A more qualitative or 'blurred' element to the communication and implementation of uncertain science*, especially in terms of delineating marginal exclusion zone boundaries.

Uncertain roles and public communication

The emergency management and, most specifically, communication role that scientists should play during a volcanic crisis is not well defined. Whilst some scientists maintain that during a volcanic crisis they become an important link in the chain of risk management; others feel that outreach and management activities take place at the detriment of the monitoring and are a litigious nightmare to be avoided at all costs (Peterson, 1988, 1996; Peterson and Tilling, 1993). In 1999, the International Association of Volcanology and Chemistry of the Earths Interior (IAVCEI) produced a publication of professional conduct guidelines for volcanologists during a crisis (Newhall *et al.*, 1999). It examines past problems and makes suggestions for future crises under the premise that: "During volcanic crisis, volcanologists' highest duty is to public safety and welfare" (ibid, p324). The requirements to achieve this aim include efficient teamwork among the scientists and public and a balance of science research and communication. The scientists on Montserrat are the most trusted source for risk communication as they are the most knowledgeable, impartial group. The public and authorities expect that the scientists will take on this role and the majority of the scientists agree that on Montserrat their role as chief communicators is paramount (Haynes, 2005).

The predominantly British scientists deployed to Montserrat interpreted their role as advisory. However, the exceptionality of the volcanic crisis created occasions when they had to become more involved with emergency management (Aspinall *et al.*, 2002; Kokelaar, 2002; Clay *et al.*, 1999). In Voight, (1998) a scientist closely involved with monitoring on the island describes how these roles had to be flexible and the scientists worked above and beyond their usual roles in order to mitigate risk and the continued viability of the island.

Montserrat Masqueraders. Copyright Sun Smith (sunsand@candw.ms).

Throughout the crisis there has been considerable pressure from the on-island authorities for the scientists to take on further emergency management roles such as initiating emergency evacuations and taking the public lead on longer term evacuation policy. This was partly due to the inexperience of the authorities and a need for their scientific expertise but also considerable political manoeuvring by the authorities to distance themselves from difficult and unpleasant decision making (Haynes, 2005).

The information below comes from detailed fieldwork involving in-depth interviews, participant observations and a questionnaire-based survey carried out on the Island in 2003 and 2004. For more information see Haynes (2005).

Empirical evidence suggests that preferred channels or styles of communication will vary within a community or population (Sorensen and Mileti, 1991). This was true of Montserrat as some interested individuals relied heavily upon the one-way communication style of daily radio reports, whilst others preferred the more interactive approaches of radio phone-ins and formal and informal meetings. A small minority chose not to listen to the official communications, placing a greater trust in unofficial sources. The interactive formal and informal methods of communication were considered by the scientists and authorities as the most effective and trusted. These, however, have declined during the latter half of the crisis; mainly because public meetings and phone-inns became too politicised and were considered too difficult in the 'emotional' climate of the most recent 2002–2003 evacuations. Early on in the crisis, certain individuals, including radio presenters, local personalities and community leaders had been used by the scientists and authorities as 'translators'. These individuals were thought to be trusted and influential among large sections of the Montserratian population, often bridging cultural and technical gaps in the volcanic communication, particularly during difficult periods. However, the use of this method has declined in the latter years of the crisis. In some ways, the scientists believed that their educational role was complete,

having engaged the public in meetings, school visits and seminars from the early stages of activity. Many now considered the public's knowledge to be sufficient to allow them to comprehend the scientific information. The importance of feedback and deliberation was recognised among many of the scientists, authorities and public on the island, however, little had been done to enhance the capacity for gathering and acting upon public feedback.

The survey results and qualitative interview data highlighted a division amongst the public relating to the adequacy and need for increased public deliberation from the scientists and authorities. The split appears to correlate with cultural divisions on the island with some groups more likely to be happy with the level of interaction and information detail, perceiving the scientists to be doing as much as they could. In contrast, the research identified that others (predominantly those born in the USA, Europe and some highly educated more affluent Montserratians) felt they should be more involved with the risk management preferring to make their own decisions on what actions to take.

The differences in the perceived need for deliberation and interactive decision-making among groups presents a challenge for those aiming to improve risk communication. While contemporary empirical evidence and theoretical literature point towards the advantages of deliberation and community involvement in risk preparedness, a prerequisite for such involvement is recognition among individuals and groups that involvement is necessary. In addition, the authorities walk a fine line between arousal and reassurance with some members of the authorities stating that proactive communication could alter the status quo by amplifying the risks (through the deliberation of potential scenarios) in the eyes of a majority who were, in general, happy to receive commands. The authorities also felt that deliberating with certain groups of the public could lead to a relaxation in control and a pressure to tolerate greater risks, thus pushing them towards a situation in which false alarms[8] are less frequent but the risks of death and injury are increased.

The identification of variations in the communication needs of certain groups on the island highlights important cultural differences in attitudes towards the management of risk. The researcher noted that the small group making complaints about the level of interaction were, in fact, not among those most likely to be placed at risk. Instead, those most likely to quietly enter the exclusion zone illegally did not feel they had the power to fight the authorities' decisions. Thus, different attitudes towards feedback and interaction were observed among identifiable groups, the outcomes

of which could not have been easily predicted based upon the signs and signals received by the scientists and authorities. For example, many of the scientists and authorities interviewed stated that the expatriates or wealthier Montserratian community were more vociferous and opinionated and less likely to do as they were told. However, these opinions are very much based on the unofficial feedback received from this more confident group. These individuals are in the same social groups as the scientists and many members of the authorities and are much more likely to contact the observatory. This reflects a cultural difference in the power and ability of these groups to complain, fight authority and admit to dissatisfaction.

Lessons learnt

- *Volcanologists need to be equipped for the social demands they may encounter in a volcanic crisis and be prepared to adapt their role.* For example, on Montserrat the scientists are the most trusted source and thus should take the primary responsibility for communication. However, governments and emergency managers also need to be aware of the more defined scientific role that volcanologists will play in a crisis.

- *During a long-running crisis it is important to continually update and renew education and outreach activities with innovative techniques.* A change or reduction in communication activities will send a signal to the population of reduced risk and/or culpability.

- *Risk communicators need to mix and match communication methods to suit the audience and must have confidence to relinquish some responsibility for decision-making to those at risk.* With the use of appropriate methods (e.g. Citizen Jurys) input into the risk management decision making can be made by a balanced and representative sample of the population.

The Montserratian crisis has been a frustrating and drawn-out eruption with multiple layers of natural and social uncertainty amplified by tensions inherent in the governance of a small colonial outpost. Lessons can be learned from the lack of preparedness, limited corporate learning, uncertain roles, bureaucratic delay and the lack of long-term disaster planning with the foresight to plan for multiple risks and future changes. The majority of these issues occurred despite the best efforts of all those involved and are examples of institutional relations which exist in all social systems. The difference here, however, is that the situation was exacerbated by the introduction of a highly unpredictable natural hazard.

Learning lessons from the analysis of previous crises is very important if we are to promote resilience and respond to emergencies effectively. Many of the

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8   The use of the term 'false alarm' is not intended to indicate a negative consequence but rather precautionary steps taken in the face of uncertainty.

problems which occurred on Montserrat are issues that Australian emergency managers and bureaucrats are highly likely to come across in their dealings both at home and aboard. Perhaps the most important lesson from Montserrat is that science cannot be relied upon to provide all of the answers. In highly uncertain situations a mutual understanding of acceptable risk is required by both the community and the authorities. Resilience can be encouraged by tackling the root cause of vulnerability. Thus, emergency managers should consider the 'nuts and bolts' of people's day to day survival; helping to promote diverse and sustainable livelihoods rather than only reducing exposure to hazards.

Glossary

Phreatic explosions: When ground water becomes heated by rising magma the rapid change from liquid to steam can cause explosions.

Dome: These volcanoes erupt viscous or semi-solid magma. As it cannot flow away it piles up thickly around the vent forming a dome.

Dome collapse: The steep-sided dome can easily become unstable and collapse producing pyroclastic flows.

Pyroclastic flow: A highly mobile avalanche of high-temperature volcanic debris (ash to large rocks) and superheated volcanic gases. They have high temperatures between 100-800 degrees and can travel up to 150 km/h.

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Tsunami risk mitigation and the issue of public awareness

Bird and Dominey-Howes present research findings into public awareness of Tsunami risk and consider how the results validate the preparedness strategy of Emergency Management Australia

Abstract

Selected results from a pilot investigation into public awareness of tsunami risk in the Sydney region are presented. This is fundamentally necessary for developing appropriate risk mitigation and preparedness strategies. The questionnaire survey of members of the public and coastal council officer's indicates that little has been learned since the December 2004 Indian Ocean tsunami disaster. The findings show that the strategy of Emergency Management Australia for developing awareness and building capacity are both timely and appropriate.

Bondi Beach, Australia vulnerable to the effect of Tsunami inundation?

Introduction and aim

In 2005, the Australian Federal Treasurer announced a comprehensive end-to-end Australian Tsunami Warning System (ATWS) would be developed and implemented by Geoscience Australia (GA), the Bureau of Meteorology (BoM) and Emergency Management Australia (EMA) (Geoscience Australia, 2005). GA and the BoM would co-ordinate the detection of tsunamigenic events, monitor tsunami as they approached Australia and undertake forecast assessments of probable tsunami impacts. These agencies would evaluate what type (if any) of information and/or warning messages should be issued. When required, the BoM would issue initial warning messages to State or Territory emergency service organisations and the media through the Bureau's regional offices. Messages would also be passed to EMA's National Emergency Management Coordination Centre (NEMCC) (Sullivan, 2006). Where required, the BoM Regional Offices would issue detailed warning messages to the SES and the public.

Emergency Management Australia (EMA) is working with State and Territory emergency management officers to effect tsunami preparedness through programmes of awareness raising and community capacity building including training, exercises and planning (Sullivan, 2006). EMA aims to engage the community by assisting them to learn to recognise the signs of approaching tsunami, thus increasing their inherent level of awareness and also tailor and focus awareness raising and capacity building in specific sectors and with particular community groups (Sullivan, 2006).

Meaningful public response to evacuation orders is partly dependent on:

- the clarity and accuracy of those orders;
- the time available prior to tsunami arrival;
- the efficiency of the co-ordinating emergency services etc, and significantly,
- on the public's understanding and perception of [tsunami] hazard and risk (Hurnen and McClure, 1997; Johnston and Benton, 1998; Dominey-Howes and Minos-Minopoulos, 2004; Johnston *et al.*, 2005).

Therefore, having a clear understanding of the public's perception of tsunami is a vital element in developing risk assessment and risk management procedures (Hurnen and McClure, 1997; Johnston and Benton, 1998; Gough and Hooper, 2003). The aim of this study was to use a questionnaire survey to gain an insight into the public's awareness levels of a tsunami hazard in Sydney – research that has never been done in Australia. It is hoped that the findings will be useful to EMA, State Emergency Services and others in developing risk mitigation strategies and may be used to determine whether the preparedness strategy of EMA as detailed by Sullivan (2006) is appropriate.

In order to provide context for this research, the authors briefly review the risk Sydney is exposed to in terms of those regions where tsunami may originate, noting frequency-return periods. The research method is outlined and followed by a presentation of selected results and a discussion of their significance in regard to tsunami risk mitigation and the EMA preparedness strategy.

Is Sydney at risk from tsunami flooding and if so, from where?

Approximately 330,000 people in New South Wales live within 1km of the ocean or a coastal river and at an elevation of no more than +10 metres above sea level (Molino Stewart, 2005). These people, their homes, businesses and all infrastructure are vulnerable to the effects of tsunami inundation. Research has been published that suggests the New South Wales coast (including Sydney) has been repeatedly impacted by tsunami (Bryant *et al.*, 1992a and b; Bryant, 2001; Bryant and Young, 1996; Bryant and Nott, 2001). The sources of these (mostly prehistoric) tsunami are unknown, however, work by Gusiakov (2005) is useful in defining regions that may generate tsunami damaging to Australia. Gusiakov examined the total number of earthquakes above a given threshold within the Pacific from 1901 to 2000. He compared these events with those that generated a tsunami. This allowed him to calculate a Tsunami Efficiency ratio (TE %) for each tsunamigenic region. The tsunamigenic regions are shown in Figure 1.

The TE ratios are shown in Table 1.

South America is the region most efficient at generating tsunami (followed by Indonesia and the Philippines). New Zealand/Tonga region, and the Kuril/Kamchatka region are least efficient at generating tsunami. However, these data do not adequately reflect the *total tsunami risk* because they do not include other tsunamigenic types/events such as volcano tsunami (Dominey-Howes and Keating, 2005). Table 2 presents return periods of tsunami for selected regions around the Pacific.

From Figure 1 and Tables 1 and 2, it is apparent that Sydney is at risk from tsunami generated in many of these regions – particularly those across the Pacific. Indeed, the 1960 Chile tsunami and the 1964 Alaska tsunami both affected the NSW coast including Sydney.

Figure 1: Boundaries of the main tsunamigenic regions of the Pacific (shown in black). The epicentres of tsunamigenic earthquakes that occurred in the Pacific between 1981 and 1997 are shown. The size of the circle indicates the magnitude of the earthquake and colour variation denotes intensity of the tsunami. The regions are: Alaska – Aleutians (A-A), Central America (CAM), South America (SAM), New Zealand-Tonga (NZT), New Guinea-Solomon Islands (NGS), Indonesia (IND), Philippines (PHI), Japan (JAP), Kuril-Kamchatka (K-K) and Hawai'i (HAW) (after Gusiakov, 2005).
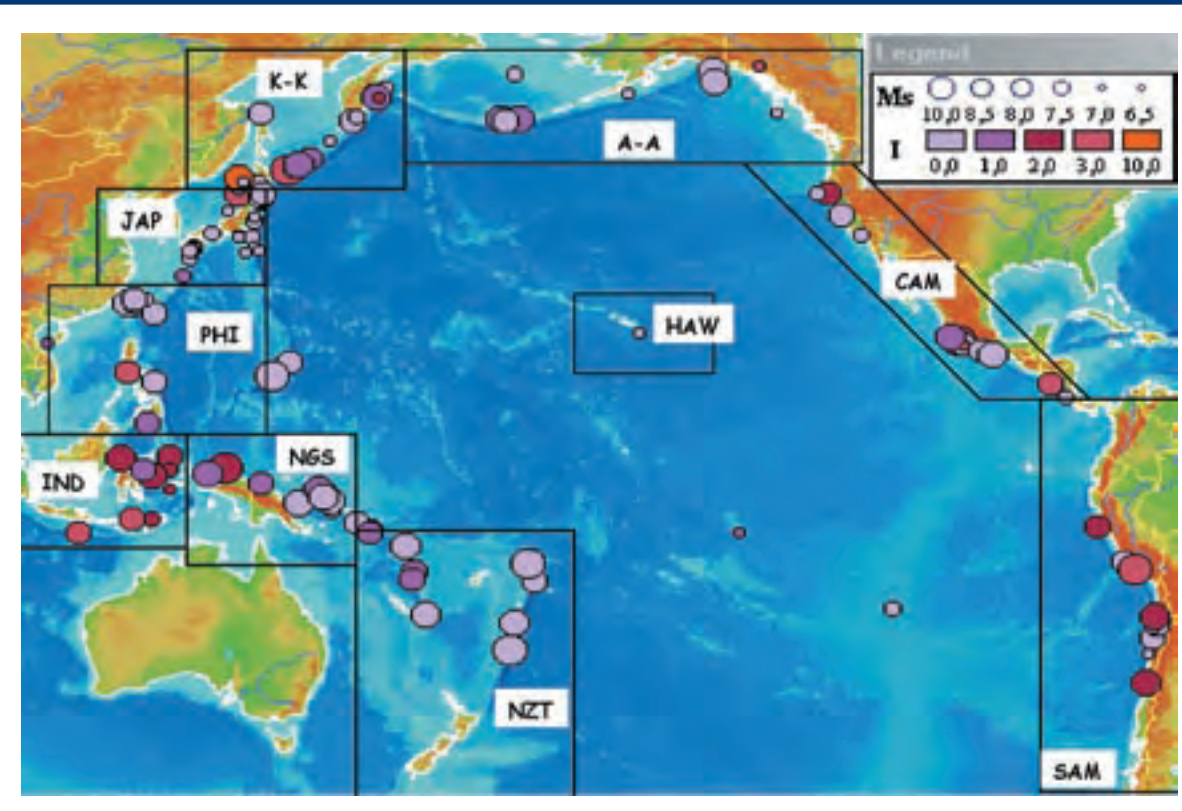
Table 1. Total number of earthquakes (EQ) and tsunami (TS) in each region, and the tsunami generating efficiency (TE %) of these earthquakes (after Gusiakov, 2005).

Region	Earthquake (EQ)	Tsunami (TS)	Tsunami Efficiency (TE)%
South America	122	102	84
Indonesia	86	68	79
Philippines	73	55	75
New Guinea – Solomon Islands	130	86	64
Central America	112	62	55
Japan	255	123	48
Alaska – Aleutians	108	49	46
Kuril – Kamchatka	150	68	45
New Zealand-Tonga	162	62	38
Hawaii*	3	13	433

* Hawaii has experienced many locally generated tsunamis but only three far-field tsunami of earthquake origin, which skews the data: the TE is 100% which says little about the efficiency of earthquake generating tsunami in the Hawaii region.

Table 2. Tsunami frequency/recurrence intervals for selected geographic regions based upon the published literature.

Region	Tsunami frequency	Reference
Kamchatka	1 large event per 1,000 years or 1 event every 30 years	Pinegina et al., (2003)
Chile	1 large event every 200 years	Salgado et al., (2003)
Cairns, Australia	1 event every 600 years	Nott (1997)
Japan	1 major event every 500 years	Nanayama et al., (2003)
Hawaii	1 event every 30 years	Dudley and Lee (1998)
Cascadia, NW USA	6 major events in 3000 years	Hutchinson and McMillan (1997)

Note: For Kamchatka, Chile, Australia and Japan, the frequency is calculated from the records of near-field (local) tsunami only. For Hawaii, the frequency is calculated from the records of both near-field and far-field tsunami.

Method

Questionnaire surveys are a useful method for determining perceptions and knowledge of hazards (Dibben and Chester, 1999; Rohrmann, 1999; Dominey-Howes and Minos-Minopoulos, 2004; Johnston et al., 2005; Spittal et al., 2005). A face-to-face structured questionnaire with a range of closed and open-ended questions was used to investigate perceptions. To avoid restricting or guiding responses to closed questions with an ordinal selection, the option *'other, please specify'* was offered where applicable.

Seventeen Sydney residents (57 per cent of the participant group) were recruited together with 13 professional officers (43 per cent of the participant group) working for member councils of the Sydney Coastal Councils Group (SCCG). All participants were recruited and interviewed during October 2005. Members of the public were recruited by direct approach and all participants were permanent residents of Sydney, aged 18 years or older. Equal numbers of males and females were targeted. The only other constraint to the recruitment of participants was that they needed to be fluent in English (not necessarily people whose first language is English) in order to effectively complete the survey.

The SCCG comprises 15 councils adjacent to Sydney marine and estuarine environments and associated waterways and represents over 1.2 million Sydneysiders. The 13 council participants hold positions such as Environmental Educator, Coastal Manager, Coastal Projects Officer, Environmental Planner, Environmental Scientist, Manager of Engineering and Regulatory Services, Risk and Insurance Manager and Sustainability Consultant. The perceptions of this 'captive group' were sought for several reasons:

1. they should have a high level of awareness;

2. they are a litmus test – if they get it wrong, this bodes poorly for the wider public; and

3. to identify if they had a consensus view about warning and emergency response.

Table 3. Quick look summary of key findings from this research.		
Question	**Response**	
	YES	**NO**
% of participants who had heard of a tsunami prior to the December 2004 tsunami disaster.	83%	17%
% of participants who correctly identified earthquakes as a tsunamigenic mechanism.	100%	0%
% of participants who correctly identified subaqueous volcanic eruptions as a tsunamigenic mechanism.	87%	13%
% of participants who correctly identified subaqueous sediment slides as a tsunamigenic mechanism.	67%	33%
% of participants who correctly identified meteorite / asteroid strikes as a tsunamigenic mechanism.	60%	40%
% of participants who correctly identified subaerial volcanic eruptions as a tsunamigenic mechanism.	50%	50%
% of participants who correctly identified subaerial sediment slides as a tsunamigenic mechanism.	40%	60%
% of participants who think that Sydney is at risk from tsunami inundation.	83%	13% Don't know = 4%
The region that participants think poses the greatest risk of generating a tsunami capable of affecting Sydney	New Zealand – Tonga (90% of participants)	
% of participants who thought they knew when the last Sydney tsunami was.	20%	
% of participants who correctly identified the date of the last Sydney tsunami.	17% (of the 20%)	

All participants were asked the same questions however, two additional questions were asked of the council officers.

Results

Analyses of all the data from the survey is beyond the scope of this paper. However, selected results are provided that ought to be of interest to organisations responsible for developing tsunami risk mitigation strategies and for assisting EMA to determine the appropriateness of its preparedness strategy.

Table 3 provides a 'quick-look reference' to the key findings of this research.

In addition to the results presented in Table 3, 62 per cent of the council officers and 35 per cent of the public indicated that 'death and injury of people' were likely to be the greatest impact of a tsunami in Sydney. They gave reasons such as, *'based on the Indian Ocean tsunami there was a mass loss of life which was very disturbing'; 'can't replace people'; 'human life is more important than anything else and the coastal area is densely populated so more people could be killed'; 'loss of life is a stronger measure of danger than bricks and mortar';*
'can't put a price on human life' and, 'I doubt if the government could respond fast enough to evacuate the many people that live in low lying areas along the coast and harbour zone'.

Participants were asked to indicate whether or not they believed a tsunami warning system exists for Sydney.

Response	Result
Yes	8% of the council officers and 29% of the public
No	44% of the council officers and 18% of the public
Not Sure	38% of the council officers and 53% of the public

If participants answered 'no' they were asked, 'do you believe Sydney needs a tsunami warning system?'

Response	Result
Yes	76% of council officers and 83% of the public
No	25% of the council officers and 8% of the public
Not Sure	8% of both groups

When council officers were asked whom they think is responsible for issuing tsunami warnings they replied *'the Bureau of Meteorology'; 'State Government'; 'Federal Government'; 'the SES'; 'EMA'; and, 'don't know!'*

When council officers were asked who they think is responsible for evacuation procedures if a tsunami was imminent they replied, *'local government'; 'the police, fire and ambulance services'; 'the SES'; 'SMEC'; and, 'all of the above!'*

Discussion, recommendations and summary

The sample size is small but it is considered that the data generated are significant for two reasons. These are:

1. this is the first time in Australia that public perception of tsunami has been investigated and reported; and

2. the *'pattern'* of findings is similar to other studies of public perception of hazards (Dominey-Howes and Minos-Minopoulos, 2004; Johnston *et al.*, 2005). This increases confidence in the findings and helps shed light on the development of risk mitigation strategies.

The percentage of participants (83 per cent) that stated they had heard of tsunami prior to the Indian Ocean event of December 2004 is considered high. People may have forgotten they had not heard of tsunami prior to this event because the media coverage following the disaster may have entered their subconscious resulting in a perception of previous knowledge. Evidence to support this comes from the fact that, in spite of the widespread media reporting and subsequent scientific discussion in the public domain, participants consistently incorrectly defined what a tsunami is. Participants commonly used the generic media term *'tidal wave'*. While the term *tsunami* has been given considerable public attention the scientific facts do not seem to have registered in the participants' collective minds. This lack of understanding of the basic science is further illustrated by the mixed and poor understanding of tsunamigenic mechanisms. The high recognition of earthquakes as a tsunamigenic mechanism is not thought to be significant as the tsunami was widely quoted as being the result of the world's second most powerful earthquake. Furthermore, all possible

tsunamigenic mechanisms for the participants were listed and they were asked if they thought these processes might generate tsunami. Perhaps if participants were asked, *'what mechanisms generate tsunami?'*, they would have scored much lower.

When provided with a map that *included* tsunamigenic zones of the Pacific, the vast majority (90 per cent) of participants incorrectly identified New Zealand/Tonga as the most likely region to generate a damaging tsunami in Sydney. Only one participant correctly identified when the last tsunami affected Sydney. This is significant as the public clearly has a low 'perceived risk' of tsunami. It is believed that this is merely a reflection of the public's belief that proximity to source controls tsunami magnitude and intensity.

It is clear that the Australian public has not learnt the lesson that tsunami may be transoceanic and that Australia is at risk from far-field (distant) tsunami that may be generated in the South American region. This is a significant issue to overcome since the public may be less likely to respond to an evacuation notice given for a tsunami generated off the South American coast than they might a tsunami generated in New Zealand/Tonga.

The high percentage (62 per cent) of the council officers (compared with 35 per cent of the public) who indicated that 'death and injury of people' were likely to be the greatest impact of a tsunami in Sydney may reflect their respective professional responsibilities (or liability). Similar findings were made by Dominey-Howes and Minos-Minopoulos (2004). This suggests that future risk mitigation strategies might need to include some focus on the potential effects of tsunami

Tsunamis occur in many geographic regions all over the world.

Tsunamis can have devastating effects on communities.

on human life. Such a focus will help to increase the effectiveness of the risk mitigation message since the public may be more receptive to such a message.

Knowledge of the tsunami warning system operating for the Pacific (and Sydney region) was very limited. Astonishingly, only 8 per cent of the council officers knew about the tsunami warning system whereas, 29 per cent of the public did. Surprisingly, some participants believed that Sydney does not need such a system even though most participants believed Sydney is at risk.

Responses from the council officers in terms of who they believe is responsible for issuing tsunami warnings provides startling evidence for a lack of awareness. Fifty-four percent believed that State *and* Federal governments are responsible for issuing a tsunami warning. Thirty-one per cent thought that the BoM issue warnings and a few participants believed EMA and the SES are responsible. This confusion and lack of awareness is rather alarming. There was a better understanding of the responsible agency involved in evacuation procedures with 46 per cent of council officers indicating the SES. The responses provided by the council officers were interesting in that they have (against the assumptions) a low level of awareness and a high degree of confusion about official warnings and procedures.

Public awareness of hazard can be improved through communication activities through television, radio and internet campaigns; via the distribution of information leaflets, brochures, posters and videos; and information sessions at public information meetings. Such activities are important since Schütz and Wiedemann (2000) found that providing risk information to the public resulted in an increase of public trust in risk mitigation and planning competence. This may be particularly

important in the Sydney context given the view that some members of the public do not believe that the 'authorities' could successfully evacuate coastal communities in time. Public levels of ignorance and complacency can increase in relation to long intervals between hazardous events. Schütz and Wiedemann (2000) suggest that risk information should be provided to a community within a timeframe of less than once every three years to ensure risk knowledge does not decrease. However, a study conducted by Johnston *et al.*, (2005) on tsunami preparedness in coastal Washington revealed that despite distributing tsunami information through several media, erecting tsunami warning and evacuation signs, and providing maps and public displays illustrating tsunami inundation zones, levels of preparedness were still rather low. Therefore, the challenges for achieving successful community tsunami risk mitigation are numerous and complex.

In light of the results of this study and the preceding discussion, it seems that:

- further research should be conducted with a much larger sample group and a wider range of questions;

- interviews should be conducted with members from the SES, police, fire and ambulance services in order to investigate their level of tsunami awareness since they will be on the front line of dealing with an emergency;

- follow-up surveys could be undertaken at yearly intervals in order to determine how tsunami perception changes with time;

- local community tsunami vulnerability assessments should be conducted to properly identify and quantify risk;

- flood zones need to be identified and clearly signed within at risk communities;

- safe areas and evacuation shelters need to be identified and evacuation routes determined and signed;

- EMA, the SES and local councils need to develop and implement a program of public awareness building aimed at reaching multiple stakeholders (children, residents of coastal areas, visitors and tourists, boating and marine related personnel and operations);

- the public education message should include some focus on death and injury in order to communicate the seriousness of tsunami (without being alarmist);

- practice emergencies and evacuations should be staged on a regular basis; and

- it may be necessary to enshrine yearly evacuation drills in a national 'Tsunami Action Day' with fun activities to engage the public and raise awareness.

The discussion paper by Sullivan (2006) identifies a series of activities and actions that EMA in its official role within the development and implementation of the Australian Tsunami Warning System is involved with. Most of these actions tackle the issues identified in this study. Our study thus shows that the strategic plans of the EMA in terms of addressing public awareness and community capacity building are both timely, and appropriate.

Summary

Since it is not possible to prevent tsunami from occurring, effective tsunami risk mitigation will depend (to some degree) on public participation in emergency response. The public perception was investigated of tsunami in Sydney – something which has never been done in Australia. It was demonstrated that, in spite of the tragic Indian Ocean tsunami disaster of 2004, the Australian public has a limited and often confused understanding of tsunami. Careful tsunami disaster planning will need to incorporate strategies to raise public awareness of this major hazard type. The strategy of Emergency Management Australia is considered to be appropriate and timely.

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Disaster memorials as government communication

Susan Nicholls examines the capacity of disaster memorials to express relationships between communities and government

Abstract

This paper discusses disaster memorials in terms of their capacity to foster dialogic communication between affected communities and government. Offering definitions of community and memorial in the context of disasters and disaster recovery, it argues that governments tread a risky path in acknowledging disaster by participating in disaster memorial creation, and that they have a triple motive in this participation: to respond appropriately to perceived community needs, to contribute to recovery, and to communicate their involvement in both the memorial process, and in the disaster itself, in a positive light. Extensive community consultation is seen as the strategy by which this can be achieved. The World Trade Center memorial site in New York, and the Port Arthur massacre memorial are used as examples of the great difficulty involved in the development of disaster memorials. The paper concludes with a detailed review of the Canberra Bushfire Memorial consultative processes which serves as a case study for a community consultation strategy in the successful development of a disaster memorial.

Introduction

This paper argues that formal disaster memorials – in the context of this paper, disaster memorials funded by government authorities – are a unique form of government communication. Governments use memorials to send specific, complex and subtle messages to the communities they govern. Governments responding to a community's expressed or perceived need seek to 'do the right thing', especially after a disaster, for a range of reasons including 'doing the right thing' because it *is* the right thing: that is, a genuine response to grief and the desire for formal remembrance. The issue of genuineness is complicated, however, by the fact that solid electoral dividends are the prize for 'doing it right'. It is very easy to get it wrong.

Eyre (1999) refers to memorials as one of a number of 'post-disaster rituals and symbols', and notes that there are a 'range of psychological, social and political issues associated with these aspects of the immediate post-impact and longer term rehabilitative stages of disaster.' (Eyre, 1999: 23) The link between memorials, political concerns and recovery is clearly identified. This paper focuses primarily on the communication aspect of disaster memorials with respect to government participation in their creation, and looks at their contribution to community recovery after a catastrophic event. It seeks to explore how governments utilise community consultation, and to discuss issues arising from such consultation and other processes leading to the creation of disaster memorials.

The paper will look briefly at disaster memorials generally. It will contextualise the social processes and hazards of memorialisation by using the New York World Trade Center memorial as an exemplar. It will briefly discuss relevant aspects of the Port Arthur massacre memorial development. Looking at the processes undergone by the ACT Government in its participation in the creation of a memorial for the losses suffered in the 2003 ACT bushfires, the paper will focus on the practices of government communication in relation to disaster memorials. (It should be noted that this paper mentions war memorials only in passing. Although commemorating large-scale, grievous human loss, this kind of memorial is not the focus here.)

First, the terms 'disaster memorial', 'community' and 'recovery' need to be defined in the context of this paper.

Disaster Memorials

Carden-Coyne (2005), referring to war memorials, says that they 'enact a form of rehabilitation. In quite an embodied sense, they can provide a vision of wholeness and restoration' (Carden-Coyne, 2005). Eyre (1999) notes: 'Just as war sites and those killed by armed conflict are commemorated at permanent memorials, so physical reminders have been constructed as a way of remembering forever particular disasters and their legacy' (Eyre, 1999:28). Eyre says disaster memorials take many forms, but all are 'collective symbols commemorating the event and its significance' (Eyre, 1999:28). Other writers question the capacity

The Canberra Bushfire Memorial, ACT, Australia.

of memorials to do this work of remembering and reminding: Ware (2005) argues that memorials do not necessarily educate future generations not to repeat the past, or to respect those lost. Instead, she suggests that memorials do the opposite: 'They ameliorate the situation and alleviate our guilt so we can let go of the past. They promote collective amnesia' (Ware, 2005:12). Ware also questions who is commemorated and who is forgotten: 'Memorials also help us to mourn victims of tragic circumstances, both natural and human induced. But how we choose which victims, which circumstances and which events are worthy of memorials is quite significant' (Ware, 2005:12). Bowring (2005) is also critical of memorials, saying they are 'characterised by a deadening symbolic precision' (Bowring, 2005:8). She is critical of the use of 'the symbolic potency of *information*' (author's italics) in memorial design, 'as though the more we know about a tragedy, the more we are saved from having to deal with things that are unknowable. Everything is spelled out … creating datascapes of death' (Bowring, 2005:8). She also criticises how symbols 'are served up in an unquestioned and unproblematic way … symbols are … insufficient, and when deployed in a way where easy reading dislocates the beholder from any real appreciation of the tragic, they shield our selves from ourselves' (Bowring, 2005:8). Bowring, Ware and others subscribe to the notion of the anti-memorial, in which estrangement, the unknowable, acquiescence to transitoriness and a multiplicity of possible interpretations are foregrounded (see Bull, 2005:48).

In *Traumascapes*, a study of sites of catastrophic loss, Tumarkin (2005) also suggests 'that, instead of compelling remembering, memorials might just do the opposite and encourage forgetting; that, instead of representing the past, they may in fact mystify and displace it.' However, she notes: 'Ever since the unveiling of the Vietnam Veterans Memorial in Washington DC in the early 1980s, a culture of memorialisation has

shifted profoundly and a new generation of memorials has shown itself more than capable of providing a genuine focus for the acts of individual and collective remembering and mourning' (Tumarkin, 2005: 205-6).

The purpose of a disaster memorial is manifold, but principally it is to speak meaningfully to those affected by the memorialised event, and to those who come after, about the shared experience of the disaster. Eyre refers to disaster memorials as 'the sacred sites of contemporary culture' (Eyre, 1999:24). As Tasmanian artist Peter Adams stated in his design brief for the Port Arthur massacre memorial, a memorial should be 'a vehicle of deep healing for all people' (Tumarkin, 2005:209-10) underlining the recovery aspect of memorials.

Acknowledging the vexed aesthetics and interpretations of memorials, a disaster memorial is defined in this paper as

– *some combination of site, structure, building, planting, landscaping, artefact and/or monument specifically designed and deliberately positioned to commemorate eloquently a disaster that has catastrophically affected some combination of people, other living things and/or places. Disaster memorials are explicit messages, from the authority that sanctions and funds the creation of the memorial, to those for whom the reason for the memorial is important.*

What is 'community'?

Marsh and Buckle (2001) emphasise that community as a term is misleading and unhelpful in terms of emergency management. They also point out that individuals in communities defined by location may have little else of importance in common (Marsh & Buckle, 2001:5). Similarly, communities defined by a shared experience of disaster may have little else

of importance (apart from that shared experience) in common. Gordon (2004) describes community thus: 'Community is not a static entity, but a combination of open ended groupings defined by organising cultural beliefs and practices, constantly open to change (Masolo 2002)' (Gordon, 2004:20). He further suggests:

'A community is a large, relatively stable collection of groups and individuals, organised with coherent relationships on multiple dimensions… A community occupies a common locality with a relatively stable social structure of authority, power and prestige and with a common culture (Alperson 2002). Its members are interdependent, with networks enabling them to meet each other's needs and provide security. … In this model, a community can be likened to a crystalline structure with social units and subsystems bonded to each other in patterns of varying strength and distance…' (Gordon, 2004:21).

Sullivan (2003) discusses the complexities of community at some length, and finally settles conditionally on the idea that community is 'a group of people who interact, but who may do so within and between a number of sub-communities … 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' (Sullivan, 2003:19).

Following both Gordon and Sullivan, this paper understands 'community' in the context of disaster memorials to be:

– *a social grouping which interacts, albeit inconsistently, on a number of levels; often but not necessarily bounded by a geographic commonality but bounded by the effects of the disaster; and characterised by a self-recognised and self-defined commonality of experience which changes over time.*

Recovery

Recovery is probably the most vexed definition of all in the context of this paper. Emergency Management Australia defines recovery as 'the coordinated process of supporting disaster affected communities in the reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical well-being' (EMA, 2004:3). In New Zealand, recovery is defined as 'the coordinated efforts and processes to effect the immediate, medium and long-term holistic rehabilitation of a community following disaster' (Norman, 2004:35). But as journalist Megan Doherty pointed out in an article in a special recovery magazine published by *The Canberra Times* in August 2003 (following the ACT bushfires of January 2003), 'Who's to say who has recovered? Who hasn't? Who is recovering? Who isn't? The January bushfires were a monumental community event but also an intensely personal one that has affected each and every individual differently' (Doherty, 2004:6). It is the duality of the 'intensely personal' alongside the wider affected community that makes disaster memorialisation so complex for dialogic communication between communities and governments seeking to assist with recovery through memorialisation. However, as later sections of this paper indicate, disaster memorials can play an important part in the recovery process.

Memorials as Message

Disaster memorials carry messages of complex components: acknowledgement and naming; compassion; recognition of courage and loss; description and enumeration; a call to remember and a call never to forget (not the same thing). There is also sometimes an element of education: learn and do not let this happen again. These are the overt components of the message. Beneath the surface there is acknowledgement

World Trade Centre Site.

of involvement by the sponsor of the memorial: involvement in the wider community's response to disaster, involvement in shared suffering and perhaps, most problematically, involvement in the cause or causes of the disaster. By taking responsibility for the creation of a memorial, governments may tacitly recognise (if not acknowledge) to a greater or lesser extent, their 'implicatedness' in, and even responsibility for, the ills that befall their communities.

It is this latter characteristic that presents interesting possibilities for governments negotiating their reputation with affected communities, and opens up a range of questions about the public relations aspects of memorial building. Nicholls and Glenny (2005) discuss the organisational structures put in place by the Australian Capital Territory Government to consult, communicate with and hear the views of a traumatised community in the year following the ACT bushfires (Nicholls & Glenny, 2005:55). Similarly, because everything about the conceptualising, development, siting, design and construction of memorials is so risky, governments need to go to great lengths to ensure thorough community consultation, both to 'do the right thing' as mentioned above, but also in order to minimise criticism from disaffected, angry, grieving communities. In this they demonstrate the Grunig communication model of two-way symmetrical communication, taking a dialogic approach in which each party has equal say and agency in processes and outcomes (J. Grunig & L. Grunig, 1992:286).

WTC, New York

Tumarkin writes: '… the World Trade Center site has been transformed into a traumascape right in front of our eyes. As its contemporaries, we are privy to the depth and reach of its power. We are able to feel in our bones its enduring allure, to observe the reactions and meanings it continues to elicit at their most unmediated and raw' (Tumarkin, 2005:23-4) When I visited The World Trade Center (WTC) site on a cold, grey, showery day in May 2005, this huge lower Manhattan site at the engine room of US power was all but silent. Puddles on the cleared concrete wasteland reflected grey skies. The monochromatic quietness, in a city so renowned for its noisy, brash brilliance, was uncanny. The amount of sky that could be seen, unlike the uptown perspectives of narrow strips between canyons of buildings, was unnerving. At this 'sixteen-acre wound in the heart of one of the world's foremost cities', in Tumarkin's words, shock and loss were still able to be sensed, as they are at Culloden in Scotland, and on the old, vast battlefields of Europe. Nothing was happening. The site was utterly deserted. Around the steel mesh barriers, visitors like myself were slowly walking and looking, reading the

temporary information plaques that give an account of the attack and list the names of those killed. The words 'hero', and 'freedom', are frequently used on signage around the site. Other passers-by were going hurriedly about their downtown business. The souvenir circus that so appalled Tumarkin and others had, thankfully, disappeared.

The World Financial Center (WFC) faces the emptiness of the site, its glass frontage reflecting nothing but sky. A large banner behind the glass states: 'From recovery to renewal'. Inside the foyer there is an extensive public display about the WTC and its restoration, including models and artist's impressions of the new buildings planned for the site, and the winning memorial design[1]. Tumarkin comments that the memorial competition 'attracted endless controversy and publicity' (Tumarkin, 2005:202-3). The design of winning architects Michael Arad and Peter Walker, one of more than five thousand submissions from sixty-three countries, is stark, simple but very moving. It involves water falling around the perimeters of two vast square pools that mark the footprints of the twin towers. The pools reflect sky and surrounding trees; light wells built in the centre of the two pools shine down through a number of accessible levels into the footings of the original towers; and at the bottom of each, two massive, tomb-like, black stone boxes, containing unidentified human remains, are lit by the light wells above.

The success of the Arad–Walker design followed an immense public consultation period in which literally thousands of New Yorkers and others had their say in the preliminary planning and concept stage. Affected publics being able to have their say is now seen to be an integral part of contemporary disaster memorial processes. Eyre (2004), quotes Judith Herman on the politics of trauma: '"Recovery requires remembrance and mourning. … Restoring a sense of social community requires a public forum where victims can speak their truth and their suffering can be formally acknowledged." (Herman 1997:242)'. Eyre notes that 'recovery requires a sense of social community in which people feel supported in looking back and looking forward … It is only when this kind of support exists that survivors from disasters are really able to talk about recovery' (Eyre, 2004:27). A disaster memorial that evolves out of a shared, consultative process is such a 'kind of support'.

The WTC post-11 September is an extraordinarily vexed and conundrum-ridden site. My overwhelming impression of the WTC restoration process was a sense of cross-purposes – the impulse to claim 'business as usual' in the face of the attack; the sheer, paralysing, impotent rage that such a thing could have happened; the imperative to staunch the haemorrhage of lost

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1 Since this paper was written, the designs for both WTC buildings and the memorial have undergone significant changes following widely reported and acrimonious debate, further indicating the difficulties surrounding memorial creation.

income from the most expensive vacant real estate in the world; the unwillingness or unreadiness of people to go back to their former workplaces at the site; and the profound grief still being worked through. Ongoing controversy surrounding redevelopment confirms this impression. The banners shout: 'From recovery to renewal'. But recovery is not so easily or speedily achieved.

Whatever is finally decided for the WTC site and, more particularly, the memorial for the losses of 11 September, in my view nothing could be more eloquent or affecting than the damaged sculpture presently serving as a temporary memorial at nearby Battery Park. In the World Financial Center (WFC) display, a plaque states the following:

> The artistic centerpiece of the World Trade Center was a 45,000 pound, 12 foot-high bronze and steel sculpture that sat atop a granite fountain in the Austin J. Tobin Plaza between the Twin Towers. Commissioned by the Port Authority and forged by sculptor Fritz Koenig, it was a monument to fostering world peace through world trade. It was one of the few public art treasures recovered after September 11, 2001. The sculpture was structurally intact but had a large gash through its center.

> On March 11, 2002, the six month anniversary of the September 11th attacks, … [the sculpture was] unveiled … in a new and nearby setting. Now called 'The Sphere', it is an interim memorial to those lost at the World Trade Center.

> "It now has a different beauty, one I could never imagine," said Fritz Koenig of his sculpture and the resilience it expresses through its pierced and dented skin. "It now has its own life, different from the one I gave it" (WFC plaque, noted May 2005).

This paper has diverged momentarily from the distanced, dispassionate voice usually employed in academic writing for a reason: that is, to demonstrate the profound emotional impact that disaster and disaster memorials can have on the individual (see Hobart *Mercury*, 29 April 2000:7). This has implications for the creation of messages. Response to disaster memorials and their significance is both an individual and a community response. Therefore, the processes utilised to consult over the creation of disaster memorials need to address both individuals as such, as well as various communities, from the immediately affected to more removed but still interested communities – in Hallahan's (2000) terms, active, aroused and aware publics (Hallahan, 2000:504). The series of consultations that took place in the lead-up to the commencement of the Canberra Bushfire Memorial is an example of how this might be done.

Australian experiences

To go from the WTC attacks to the Canberra bushfire disaster requires a massive change of focus and scale. And yet, to the extent that we seek to know how to communicate with human beings dealing with disaster and loss, to discover how they go about their recovery, and how they remember and mourn, we can usefully look at the two side by side. Before the Canberra experience is examined, however, it is worthwhile broadening the perspective by taking a brief look at some of the difficulties that arose in planning the memorial at Port Arthur in Tasmania.

In April 1996, Martin Bryant shot and killed 35 men, women and children, and seriously wounded another 29 people at and in the vicinity of the Port Arthur historical site. The shootings began at the Broad Arrow café. Hollow (2002) discusses in detail not only the positioning and significance of a huon pine cross that was initially erected on the waterfront near the café, and controversially moved later on, but also the lengthy and difficult debates about how to memorialise the event. Tumarkin writes: 'Created by local artists, including Peter Adams, in a spontaneous response to the tragedy, [the cross] served as a memorial to the victims of the massacre … With the unveiling of the official memorial on the fourth anniversary of the massacre in April 2000, the cross was moved from the foreshore and relegated to the back of the official memorial, where it is expected to silently rot away and fade into oblivion' (Tumarkin, 2005:211). Tumarkin implies that this was a disgraceful interference by nameless authorities imposing their will and crushing a spontaneous memorial process. However, Hollow's research reveals rifts between a number of stakeholders, including the bereaved and the historical site staff, relating to this issue. Information made available to me by a government official who participated in memorial consultations suggests that some of the families of victims where deeply angered by the cross (a Christian symbol) and its plaque naming those killed. In March 2000, the Hobart Mercury cautiously reported:

> A poetic tribute – rather than the names of the 35 massacre victims – will be the focus of the Port Arthur memorial garden, which opens next month. It is dedicated to the dead, the wounded and those who assisted at the massacre site…

> The Huon pine and stringy-bark cross that names the victims will stay at the edge of Carnarvon Bay for the time being – at the request of some families involved in the tragedy.

> It is understood that the Port Arthur Historic Site Management Authority is under considerable pressure to move the cross into the garden.

Port Arthur Memorial, Tasmania, Australia.

To avoid controversy on the issue, the authority has concentrated on the poetic tribute.' (Lovibond, J., 2000:2)

The cross was not the only problem. The Rev. Sydney Smale, Central Coordinator Disaster Recovery, Victorian Council of Churches, writes: ' … the very thing that could have led to a unifying of the Port Arthur community contributed to an extended controversy. The crux of the problem was what to do with the Broad Arrow café … Many in the community wanted it to be razed to the ground. But many of those who lost loved ones in the café felt a sense of attachment and wanted it retained' (Smale, 2000:3; see also Hollow, 2002:58-9) It was not until January 1999 that agreement was reached. The formal memorial includes the remaining walls of the café, a fountain and reflection pool. (Smale, 2000:3; see also Hollow, 2002:58-9)

This account indicates once again how difficult it is to get memorials right, so that they meet the needs and desires of the affected community but serve wider purposes as well. As the following study of the Canberra Bushfire Memorial consultation suggests, consultation is a key strategy to achieve this.

CASE STUDY

The Canberra Bushfire Memorial consultation

On 11 June 2004, almost 18 months after the bushfires, a 34-page document called *A Bushfire Memorial for the ACT: Community Consultation Discussion Paper* was published and distributed for public comment. It was the outcome of an initial community consultation that

had taken place between January and March of that year, guided by a Bushfire Consultation Advisory Committee which comprised community and government representatives. This initial stage involved an invitation to interested people to provide their views by phone, email or letter; participation in five focus groups; providing input at four special interest meetings; and participation in interviews. These consultative efforts were the first indications that the ACT Government was very interested in an ongoing two-way communicative process.

The document arising out of these inputs, written by consultants for artsACT and the ACT Department of Urban Services, was addressed to those directly affected by the bushfires, but it also aimed at a wider readership, and invited responses from anyone who cared to do so.

In its introduction, the question of the purpose of a community memorial is addressed. Acknowledging the personal, private memorials that people spontaneously create, the discussion paper comments that a more formal memorial does not seek to replace these. It states: 'Over time, the question of a permanent memorial takes more precedence [over personal memorials] as a way of acknowledging a significant event in the history of the region and marking a milestones [sic] in people's lives. … The most effective communal memorials reflect a *shared* meaning of the disaster held by the community in which it occurred. The critical first step in developing a memorial is establishing what that shared meaning is. This is not necessarily straightforward as there may be many tensions and diverging views' (authors' italics) (RPR, 2004a:3).

The discussion paper goes on to describe exactly how the consultation would be run, who the decision-makers would be, and how people could contribute their ideas to the process.[2] The paper includes numerous quotes from material already received from the public, showing how these fed into the process.

The consultation and decision-making process in the creation of the permanent memorial had four stages. The first stage was setting the four components of the guiding framework which had arisen out of initial discussions. These were: the purposes of the memorial; how the memorial's meanings should be expressed; elements which should be included in the memorial; and the kind of site which would best suit the memorial. These components as ultimately defined would feed into the next stage, the brief 'for design of a memorial written by government using the design framework developed by the community as a base.' The third stage was

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2 Members of the Bushfire Memorial Community Consultation Advisory Committee included five citizens who had been directly affected by the fires. They represented those who had lost a family member, houses, pets and businesses; the rural community; firefighters; and the Bushfire Community and Expert Reference Group which continues to advise the ACT Government throughout the recovery period; and three representatives from the ACT Government.

'Various designers invited to submit design concepts' based on the Government's brief. The final stage was the selection by the Advisory Committee of the winning design (RPR, 2004a:7).

In the consultation documents, it is striking how often the affected community is invited to participate in the process by communicating with the consultants, via email, phone or other form of contact, quite separate from the formal feedback questionnaire that formed part of the consultative document. As well, interested people were invited to attend a community workshop to share their views. The final report quotes one participant commenting on the 11 June Discussion Paper: 'This paper has clearly and fairly presented the various views of our community about this memorial. If the bureaucratic process can remain faithful to this process it will be a worthy memorial' (RPR, 2004b:7). In a nutshell, this comment reveals how governments are on notice to pay attention to the wishes of the community.

A ten-page commission brief was prepared on the basis of this third stage of consultation, closely reflecting the outcomes of the community consultations. In November 2004, a design put forward by a team of three Canberra community artists was selected as the proposal most appropriate to the community's wishes and which met all other criteria. In April and again in May 2005, they presented their plan to the community at Orana School, which had been partially destroyed by the fire. Around 250 people came to the two days of the presentation. They were invited to contribute to the memorial in the form of contributing photographs, and writing inscriptions on bricks which would be included in a wall as part of the memorial structure. This participation was available to the whole Canberra community, and many did so. Hundreds of photographs, and more than 150 brick inscriptions were received.

The memorial has now been completed and was dedicated by the ACT Chief Minister, Jon Stanhope, on the third anniversary of the bushfire. A month later, a group of fire-affected people who remain deeply angry with the failure of government authorities to either prevent the bushfire, or to adequately warn the community about its threat on the day, held a dedication ceremony of their own. (They were also disaffected by the Chief Minister's intervention in the coronial inquiry and, subsequently, by his role in the dedication of the memorial.) Tellingly, however, comments from members of this group indicated satisfaction with the memorial itself, alongside profound criticism of the ACT Government over these other matters. One of the most vocal critics of the ACT Government's overall handling of the bushfire described it as 'a beautifully designed memorial' (Doherty, 2006:16).

Whether or not these issues are resolved, this memorial, deeply embedded in the landscape of the disaster and the product of the wishes of those most affected, will take decades to reach its full potential. In this it reflects the nature of Canberra itself, the so-called 'bush capital', still becoming what it will one day be.

Conclusion

Memorials for disasters are difficult to develop for a number of reasons, some of which concern purpose, emotional significance, 'ownership', recognition of and agreement among stakeholders, political response, and effective communication between communities and governments. The profound feelings of involvement of affected individuals and communities guarantee that controversy will probably accompany most if not all efforts to conduct any process designed to come up with an appropriate and acceptable disaster memorial. Conflict surrounding the WTC memorial and the Port Arthur memorial exemplify this. The ACT experience, involving community consultation conducted at the behest of the ACT Government, which allowed both government and community input at each stage of the memorial process, and was key to decision-making, created the ground for mutual understanding – the holy grail of communication. The staged processes evolved by the ACT Government for consultation in the creation of the memorial were deliberately formulated to foster two-way communication, and were dependent on community input. Both these processes indicate awareness of best-practice government-community communication involving extensive input from affected people, and of the nature of recovery (to paraphrase Gordon [2004]), evolving in meaning over time.

Although the ACT Government has been criticised, not only over the events of January 18, 2003, but also over delays in the coronial inquest, the memorial itself and the processes that led to its construction appear to have been received well by the Canberra community. The Government conducted the development of the memorial with some finesse, observing communication methods regarded as best practice by theorists such as Grunig. It was assiduous in both consultation and transparency. The indications so far, this paper suggests, are that, while the bushfire wreaked havoc on the ACT community, and despite many issues arising from the disaster remaining unresolved, the ACT Government fully embraced its role as facilitator of the processes of recovery via its support of the memorial, and acknowledged its duty to provide the means to create it, both financially, and by conducting enabling processes. The Government's message, through the memorial development process, attempted to convey trustworthiness, reliability and, above all, receptiveness to the community's will. It remains to be seen whether the ACT community as a whole will accept that message at the ballot box.

In terms of best practice for authorities involved in disaster memorial creation, the following recommendations can be made:

– Allow the call for a memorial to come from the affected community

– Establish a steering committee composed of key stakeholders including community opinion leaders

– Establish transparent processes for extensive and inclusive community consultation employing people skilled in such consultation

– Utilise as many forums for input as practicable (e.g. surveys, interviews, focus groups, Internet and email mechanisms)

– Conduct consultation in stages to allow wide-ranging and developing conversations between community members, and community and government

– Act on responses received and report back to community members at each stage of consultation showing how responses have been acted upon

– Minimise government over-ride of community requests and, when necessary, explain reasons in order to achieve understanding

– Disseminate reports on decisions and outcomes widely

Research implications

In the wider context, further research needs to be pursued to clarify connections between memorials and recovery: that is, between the establishment of a community-approved memorial following a disaster, and how both individuals and the community perceive their recovery process. Another line of inquiry with regard to the position of government authorities in facilitating the development of a disaster memorial is whether there is a difference for people affected by disaster when the disaster was from natural or criminal causes, and notions of blame predicating recovery. Finally, given the fraught nature of disaster memorial development processes, media representation of the opening or dedication of disaster memorials as a media event (see Dayan & Katz: 1992) could be usefully explored, tying in with other research into media reporting of disasters and disaster recovery.

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Moving Beyond the Quagmire: Solomon Islands DRM Legislation Project

Nina Kessler, reports on the new Disaster Risk Management Mandate in the Solomon Islands

Abstract

The Solomon Islands drafted its first National Disaster legislation in 1989. Since then, disaster risk management has transformed in theory and focus, expanding beyond a relief and recovery orientation to include government and non government planning and strategizing to reduce overall vulnerability. For the Solomon Islands this shift has not been reflected in the legislations until now. This paper documents the process the National Disaster Council and National Disaster Management Office is undertaking to incorporate the new Disaster Risk Management (DRM) Mandate into Solomon Islands governance.

Balasuna, river flood, July 2006.

Phase One: Assessment of Current System

Public perception often views disasters as events external to human organisation and with impacts that happen to society. This view has led much disaster policy to focus on the processes of relief and recovery. However, recent study indicates that the impact of disasters can be mitigated by human action, and in fact, systems can intervene on the most devastating effects on social and physical infrastructure and loss of life caused by disasters. New disaster discourse places impacts at an intersection between identified risks and hazards and their management in terms of education, assessment, training, information sharing and cooperation in social organisation. The UK Department for International Development (DFID) study, *Disaster risk reduction: a development concern*, states: "Disaster risk results from a combination of hazards (potentially damaging events or processes) and people's vulnerability to those hazards. Both hazards and vulnerability are to varying extents products of the development process."(White et.al., 2004, p.11) This implies a shift in focus necessary for disaster policy to include ongoing management in the planning of social institutions and their action through assessments of vulnerability and total government coordination. New Disaster Management discourses unite different sectors of society in the common goal of sustainability and thus stress the interconnectivity

of the wellbeing of such diverse sectors as business, government, non-government, community and the individual. That this same interconnectivity extends beyond the national into regional and international welfare is undisputed in our globalised environment. The high degree of responsibility implied in Disaster Risk Management (DRM) means the there needs to be strong national backing and commitment. By enshrining the idea of risks and hazards in legislation, government, leading by example, demonstrates its contractual dedication to social safety and stability. It is, therefore, with the intent of exemplifying its commitment to the development of the Solomon Islands, that the Government is pursuing a review of its national arrangements. Under the **Solomon Islands Institutional Disaster Risk Management Strengthening Project**, DRM commitments included a multi-step program to review disaster legislation and plans. This paper documents the first stage of the legislation review.

2. DRM as Total Government Objective and Hazard Specific Action

As noted, DRM occurs at the intersection of a particular hazard and its interactions with a human population understood against social disintegration in the loss of life, property and infrastructure. DRM is comprised

of multiple parts and because its basis is society at large DRM requires total government involvement and commitment. A World Bank Report *Not if but when: Adapting to natural hazards in the Pacific Island Region* supports this by noting: "As risk management of natural disasters is so closely linked to macro-economic planning and it involves multiple sectors – finance, environment, fisheries, agriculture, public works, health – it requires a long term, programmatic, whole of government approach." (Bettencourt et. al., 2006, p.ix) This means multi sector awareness and incorporation of risk and hazard assessment in general policy planning and on a continuous basis as context changes. This ongoing, general orientation is to be complimented by establishing roles and responsibilities for disaster specific events. To ensure the two fold process of DRM forms a cohesive and complementing system addressing all necessary variables, legislation works as a sound social reference point for organisation and action. This allows for clear and efficient management of disasters through formalising roles and responsibilities and establishing an enabling environment in which DRM processes take place.

3. International and Regional DRM Mandates

According to the Hyogo Framework for Action and the Pacific Island Forum Secretariat this action is necessary in national development for efficient regional and international coordination. At the regional level, the Pacific Plan designed by the Pacific Islands Forum Secretariat presents safety as a "Specific Priority". Complementing this is the strategic objective of s.13: Improved political and social conditions for stability and safety, to be implemented under s.14 with "increased national ownership and commitment to regional approaches, plans, policies and programs." This is to be done through s.14.1 by [developing and implementing] national policies and strategies on regionalism that include clear statements of national interest, and the establishment of appropriate national mechanisms and approaches"(PIFS, 2005, p.20). Similarly, the Hyogo Framework for Action, arising from an international conference in Kobe, Japan in 2005, stipulates a key activity for disaster reduction is to: "Support the creation and strengthening of national integrated disaster risk reduction mechanisms, such as multi-sectoral national platforms, with designated responsibilities at the national through to the local levels to facilitate coordination across sectors"(UNISDR, 2005, p.6). This is facilitated by another 'Key Activity' of the Hyogo Framework, to: "adopt or modify where necessary, legislation to support disaster risk reduction, including regulations and mechanisms that encourage compliance and that promote incentives for undertaking risk reduction and mitigation activities" (UNISDR, 2005, p.6). The SOPAC Strategic Plan 2005-2009 also strongly promotes the mainstreaming of DRM, integrating this

process with international agendas of Millennium Development Goals (MDGs), the Johannesburg Plan of Implementation of the World Summit on Sustainable Development, the Mauritius Strategy for Small Islands Developing States and the Pacific Plan mentioned above (SOPAC, 2005).

4. Legislation can shift the Solomon Islands primary focus on Response

Hence, this process of standardization through legislation is meant to maximise all available resources for DRM. For the Solomon Islands this holds particular significance. The National Disaster Management Office (NDMO) 2005 Briefing Paper states: "traditionally disaster management activities in the Solomon Islands have focused almost exclusively on preparedness, response and recovery for national hazards, particularly cyclones. The current disaster management legislation, plans and organisational arrangements have also been set up with these activities in mind…" (NDMO, 2005, p.2). However, working off the updated definition of DRM, this focus negates the important element of risk management, which includes the essential function of risk reduction. This is especially detrimental as the reason for Solomon Islands limited focus is attributed to limited funding. Not only can legislating for risk management assist in resource management through its desired consequence of organisation and lessening disaster impacts, but the standardisation through law brings the confidence of international donors to DRM processes, perhaps providing reason to break with what DFID calls the "perverse architecture of incentives". (White et. al., 2004, p. 36)

Relief effort in Walanda, King Tide, October 2005".

5. Solomon Island Legislative Review Process

Legislative review is therefore deemed an integral part of updating and strengthening the capacity of the National Disaster Centre (NDC) and its executive arm, the NDMO, to deal with disasters. Legislation and other legally binding documents provide for clarity as to the design and operating environment of a system and function as a support to objectives set out in a nations DRM mandate. Mainstreaming DRM through legislation is an integral part of national assurance for risk management and disaster preparedness.

For the Solomon Islands the legislative review process will include multiple stages. This report documents Phase One, a comprehensive analysis of legislation in efforts to gauge the current state of Solomon Islands DRM. This is done by analyzing legislation from three DRM related angles. Activity One uses DRM specific indicators to assess the explicit presence of DM in legislation. Activity Two uses DRM components to assess the implied system of DRM within legislation. Activity Three conducts a comparative analysis of the Solomon Island *National Disaster Council Act 1989* with the *Vanuatu National Disaster Act 2000* and the Fiji *Natural Disaster Management Act 1998*.

6. Activity One: DRM Indicator Analysis

Activity One of the project was to conduct a survey of all Solomon Island legislation thought to have particular relevance to DRM. This was done to assess the extent of a direct relationship different sectors have with DRM provisions in a total government approach. Legislation was audited using four identified key DRM indicators – 'emergency', 'disaster', 'risk'

and 'hazard'. This activity presented the conclusion of limited presence of immediate indicators of Disaster Risk Management discourse. Eleven acts out of sixty six acts made mention of the indicators. These are the *Police Act, Telecommunications Act, Local Government Act, Civil Aviation Act, Health Services Act, Public Services Act, Quarantine Act, Solomon Islands Red Cross Society Act, The Financial Institutions Act, Solomon Island Visitor Bureau Act, the Emergency Powers Act, the Preservation of Public Security Act, and the National Disaster Council Act.. Three acts made explicit reference to procedures in situations categorized as national emergencies; Emergency Powers Act, National Disaster Council Act* and *Preservation of Public Security Act*. From this activity, it could be deduced that Solomon Islands has minimal legislated relationships with Disaster Risk Management across different sectors.

7. Activity Two: In Depth Review

Further substantiating the need for a Solomon Islands review, Activity One was complemented by assessment of implied DRM in the legislation. An in-depth reading a forty two pieces of legislation was conducted to gauge the presence of provisions that have an indirect relationship with DRM. Activity Two refined the list of reviewed legislation to fall within areas of DRM concern such as Development, Communication, Resource Management and Conservation. Using the consolidated list, legislation was read classifying provisions according to their fit in four DRM components. These four DRM components are: objectives and plans, reviews, information and reports, cooperation and integration, and risk orientation. As with Activity One, this was done to demonstrate the level of total government approach to DRM in Solomon Islands Legislation. The legislation reviewed and a data base of their constructed systems will be compiled for NDMO reference.

Honiara, Solomon Islands also affected by Tropical Cyclone Jim, January 2006.

Activity Two presented implied DRM within Solomon Islands legislation as being only slightly more prevalent than indicated in Activity One. Many acts contain provisions that fell within the four identified DRM components. However, the provisions that are accounted for are only implied and would require some form of legal interpretation. For the specific context of the Solomon Islands this lack of explicit reference would hinder DRM objectives because of the number of vacant positions of legal advisors in the provinces. It has been noted by the Provincial Legal Advisor in a meeting with the DRM Legislation Project (DLP researcher that legal advice for the provinces comes primarily from the central office in Honiara. In reference to the distance between provinces and islands and the lack of easy communication, this centralized advice system could be seen as adding to the inefficiency of DRM. Coupled with this issue is that DRM is not a devolved function and therefore not seen as being in the explicit mandate of provincial activity. Both these issues reduce the presence of DRM concerns in the provinces. Also, the implied system of DRM during the current capacity building period presents a highly convoluted system of DRM organization and limits the translation of the implied provisions on other administrative levels and sectors in their national, provincial and local involvement.

8. Activity Three: Comparative Analysis of National Disaster Legislation

Activity Three of the DLP was to conduct a comparative analysis of specific National Disaster Legislation. There are three pieces that were looked at; the Solomon Islands *National Disaster Council Act 1989*, the Fiji *National Disaster Management Act 1998* and the Vanuatu *National Disaster Act 2000*. This activity found the Solomon Islands National Disaster Council Act to be very restrictive for DRM purposes in its primary focus on centralising DRM. The focus on establishing national level functioning is pursued to the exclusion of other necessary DRM procedures, through the wording of the Act and the type of sections presented. Very broad terminology is used for necessary action by other sectors, and even this is done through mention of their relevance to national level functions. The Act fluctuates between vague mention of different agencies and offices attributed with disaster responsibility and detailed provisions for national level involvement. This same fluctuation can be seen in provisions for difference phases of a disaster. Emergency provisions are given explicit procedures with other phases given limited organisation, thus organising Solomon Islands DRM around relief and recovery issues. Also, this attention to emergency procedures is not mirrored with mention of any risk management, mitigation or prevention activities. When compared with the more current Fiji and Vanuatu Act, theses issues become evident.

These limitations, combined with the limitations found in other acts, mean there is a very restricted DRM orientation for the Solomon Islands.

9. Where to Proceed

The legislation review is a jump-off point for an extensive process of consultation and evaluation. This analysis will be presented in a consultation conference to a cross section of stakeholders of Provincial Secretaries, Permanent Secretaries, Non-Government Organizations, Government Organizations and other agencies' officers. Running in tandem with the presentation of Legislation Review is analysis of the National Disaster Management Plan. From the conference two working groups will elected. Working from the information gathered in the conference, and in further consultation with a wide range of stake holders, drafting instructions for legislation and a paper of a new plan will be developed. The development of the new arrangements will happen concurrently, with regular meetings between the two working groups to coordinate their processes and strengthen DRM cohesion.

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Fire safety training: Its importance in enhancing fire safety knowledge and response to fire

Huseyin and Satyen argue that training in fire safety could lead to a reduction the rate of fire casualties

Abstract

Fire-related accidents often result in injuries and sometimes death, which can be prevented through fire safety training. To estimate the extent to which fire safety training should be provided, it is essential to assess the current level of fire safety knowledge within the general community. Thus the objectives of the present study were to explore: (a) the level of fire safety knowledge among people of different age groups and investigate its relationship to the level of fire safety training, and (b) the manner in which people from different age groups would respond to a fire based on their fire safety training. Data from 158 participants aged between 18 and 80 years showed that fire safety training increases: (a) the level of fire safety knowledge and, (b) the accuracy of response to a fire. The results also show that middle-aged individuals would respond more accurately to a fire than younger and older adults. The findings demonstrate the importance of fire safety training in enhancing people's fire safety knowledge and their response in the event of a fire which could lead to a reduction in the rate of fire casualties. There are implications for incorporating fire safety training as part of health improvement programs to reduce the number of fire-related injuries and fatalities.

Introduction

Residential fires, workplace fires, and environmental fires such as bushfires result in severe and fatal burn injuries (Mallonee *et al.*, 1996). Fires also lead to property loss, psychological distress, and sometimes loss of life (March, Amaya- Jackson, Terry, & Costanzo, 1997). Many studies (e.g., Brennan, 1999; Country Fire Authority [CFA] and Metropolitan Fire Brigade [MFB], 1999; DiGuiseppi *et al.*, 2002; Halpern & Hakel, 2003; Kennedy, 2003; National Fire Protection Association [NFPA], 2000; Proulx, 2003) have identified fire safety training as a way of increasing public fire safety knowledge and improving their response to a fire with the aim of reducing the number of fire-related casualties. In spite of fire safety training programs currently available, it is unclear why reports indicate a lack of fire safety knowledge, delayed threat recognition, and delayed evacuation among the general community, especially among younger and older persons (e.g., Brennan, 1999; CFA & MFB, 1999; Melbourne Metropolitan Fire Brigade [MMFB], 2001; Proulx, 2003). These findings warrant the need to investigate the extent to which fire safety training is provided and the level of fire safety knowledge within the community.

Importance of Fire Safety Training

Involvement in a fire can be a devastating experience and the consequences can be distressing and fatal. Several studies (Australian Bureau of Statistics, 2000; Brennan, 1999; CFA & MFB, 1999; Fire Protection Association Australia [FPAA], 2004; Istre, McCoy, Carlin, & McClain, 2002; MMFB, 2001; National Association of State Fire Marshals [NASFM], 1996; National Centre for Injury Prevention and Control [NCIPC], 1998; NFPA, 2000) have outlined the importance of fire safety knowledge in the community's role in the prevention and preparedness to deal with a fire. It is therefore essential that the community is provided with training to retain an adequate level of fire safety knowledge. It is also important that people retain an adequate level of knowledge about the importance of maintaining functional fire safety equipment (Brennan, 1999; DiGuiseppi *et al.*, 2002; Mallonee *et al.*, 1996). However, many studies (e.g., Brennan, 1999; CFA &

MFB, 1999; NASFM, 1996; NCIPC, 1998) have revealed that the general community does not retain an adequate level of fire safety knowledge and acts dangerously (e.g., leaving cooking unattended or placing flammable material too close to the heater), which puts them at greater risk of being involved in a fire. It has also been indicated that younger and older persons especially lack sufficient fire safety knowledge and act in ways which puts them at greater risk of fire-related burns and deaths (CFA & MFB, 1999). This has eventuated in these individuals having a higher fatality rate than other age groups (National Safety Council, 2002). These age groups could have a greater risk because of their reduced ability to respond accurately in the event of a fire which could be because of their limited cognitive capacity, information processing ability, and ability to conceptualise information correctly (Kose, 1999; Satyen, Sosa, & Barnett, 2003; Sternberg, 2001). This risk further accentuates the importance and effectiveness of fire safety training.

The effectiveness of different fire safety training methods has been demonstrated by previous research. For example, studies by McConnel, Leeming and Dwyer (1996) and Satyen *et al.* (2003) showed that fire safety training programs such as the 'Kid Safe' (conducted by the Oklahoma City Fire Department) and 'Fire Ed' (conducted by the MFB, in Melbourne, Australia) are effective in providing important fire safety information and skills to young children. The effectiveness of fire safety training is also evident through a dramatic decline in deaths occurring from fires in US homes as a result of increased public safety education and more wide spread use of smoke alarms (NFPA, 2000, 2002).

Response in a fire

Apart from knowledge, the behaviour of people also needs to be modified to prevent and help them prepare to deal with a fire. It is clear that fire emergencies are stressful events as they initiate suddenly, are intense, and require an immediate response (Driskell & Salas, 1996). Investigations of people's response to a fire have revealed that people determine whether to fight or flee from the fire based on their perception of the emergency (Canter, 1985). According to Proulx (2001, 2003), factors such as personality and leadership abilities, decision-making styles, and the amount of previous fire safety training are major determinants of how an individual would respond to a fire. In addition, the building's characteristics, whether it is a house or shopping centre, and the characteristics of the fire also influence an individual's response time and evacuation. Thus an adequate level of fire safety knowledge and preparedness is essential to reduce the time delay to start evacuation (Proulx, 2001) and it is necessary to inform people about the importance of immediate evacuation from the building of fire origin. Fire safety drills could be an effective and valuable method of providing a means to transfer

people's training into practice (Proulx, 2000; Robotham, 2001) so that they are able to respond more accurately during a fire.

There are a range of explanations for peoples' behaviour in a fire. According to the "naturalistic decision making" theory, during a threat situation such as a fire, people do not make decisions but instead choose the first course of action that seems to be appropriate given the seriousness of the situation (Driskell & Salas, 1996). Therefore an individual's decision is dependent upon how well the individual interprets the information present in the environment.

People could also have delayed threat recognition due to the concept of avoidance, according to which people prefer to feel protected and believe they can protect themselves psychologically by denying unpleasant situations (Cluster & Meacham, 1997). Thus, during a fire, fire cues such as smoke may not be recognised due to psychological denial, where people may find reassuring alternative explanations for the fire cues (Cluster & Meacham, 1997) resulting in a greater risk of becoming a casualty. Indeed, if individuals are provided with adequate fire safety training, they have a better chance of recognising important fire cues sooner and responding appropriately to avoid the risk (Proulx, 2001).

Research has thus established that fire-related accidents cause injuries and sometimes death, and that this can largely be prevented through the provision of fire safety training. However, the extent to which training is provided and the level of fire safety knowledge within the community is unclear. This is important to assess in order to estimate the amount of training required by the community and their level of preparedness in terms of knowledge, equipment, and response to deal with a fire. In addition, research has revealed that young adults and the elderly are at a higher risk of fire related accidents and injuries than middle aged adults. Hence specialised fire safety training programs relevant for all age groups must be developed. However, the extent to which this need is present within the community is not clear. Therefore the aims of the present study were to: (a) assess the level of fire safety knowledge based on the level of fire safety training, (b) explore the manner in which people would respond to a fire based on the level of prior fire safety training, and (c) examine any age differences in the level of fire safety knowledge and response to a fire. It was hypothesised that: a) an increased level of fire safety training is related to a greater level of fire safety knowledge, b) an increased level of fire safety training is related to a greater accuracy of response in a fire, and c) the level of fire safety knowledge and response to a fire will be different among people of different age groups.

Method

Participants

One hundred and fifty eight (46 male, 112 female) participants between the ages of 18 and 80 years were recruited from a range of organizations, including youth services, senior citizens clubs and university campuses across Melbourne, Australia. Participants were selected on the basis that they had not been previously involved in a fire. This was done as people who had previously been involved in a fire might respond differently to the questions compared to those who had previously not been involved in a fire (Brennan, 1999; Proulx, 2001, 2003).

Apparatus

The 'Fire Safety Knowledge and Response to Fire' questionnaire developed by the authors (Appendix A) was used to measure participants' level of fire safety knowledge and their probable response to a fire. The questionnaire was developed based on factors extracted from previous research (Canter, 1980; Canter, 1985; Cluster & Meacham, 1997; MMFB, 2001; Quarantelli, 1978; Sime, 1984) and from four existing surveys (Barnett & Satyen, 2003; Canter, Powell, & Booker, 1985; Curmi, Gosney, Inkret, Muntz, Nilsson, & Tempini, & Satyen, 2003; Dowd, 2002).

The questionnaire consisted of a total of 41 questions and comprised three parts: (1) Demographic information (such as age, involvement in fire safety training etc), (2) Level of Fire Safety Knowledge ('do you change batteries in your smoke alarm?', 'how often do you change the batteries?', 'do you have a fire blanket in your home?' etc), and (3) Response to Fire ('if your clothes catch fire, you should…', 'if there was a fire in the room, where can you breathe easily?, 'when you hear your smoke alarm go off, you would…..' etc). In order to test the feasibility of the questionnaire, a small-scale pilot study was conducted. Minor alterations (e.g., Q11) were made to the questionnaire to make it more applicable for all participants.

Procedure

Participants individually completed the 'Fire Safety Knowledge and Response to Fire' questionnaire. When some older persons had difficulties in reading the questionnaire clearly, the researcher read the question aloud to them and marked the appropriate option they chose. Once all the data was obtained, the questionnaires were coded and scored. The total number of correct responses was tallied and this was then converted to a percentage. The statistical program SPSS version 11.0 was used for the statistical analysis of the data.

Results

A Multivariate Analysis of Variance (MANOVA) with alpha set at 0.05 was conducted to determine any difference in (a) the level of fire safety knowledge, and (b) response to fire, based on the level of fire safety training, and also (c) to examine any age differences in the level of fire safety knowledge and accuracy of response to a fire.

Measure	Result	df	P
Fire safety knowledge	7.419	2, 157	0.001**
Response to a fire	14.945	2, 157	0.001**

** Note: Significant at the .01 level

Results in Table 1 show a statistically significant main effect of fire safety training on the level of fire safety knowledge, $F (2, 157) = 7.419$, $MSE = 1372.790$, $p = 0.001$. Specifically, people who had been involved in fire safety training presented a higher level of knowledge in relation to fire safety ($M = 76.80$, $SD = 12. 19$) than those who had not been involved in such training ($M = 68.41$, $SD = 14. 45$).

The MANOVA results in Table 1 also show a statistically significant main effect of training on people's response to a fire, $F (2, 157) = 14.945$, $MSE = 41418.578$, $p = 0.001$. Specifically, people who had been involved in fire safety training would respond more accurately to a fire ($M = 84.72$, $SD = 13.13$) compared to those people who had not been involved in any fire safety training ($M = 76.39$, $SD = 19.50$).

Fire safety equipment	Proportion
Ownership of smoke alarm	89.9
Ownership of fire blanket	13.9
Ownership of fire extinguisher	20.9

Table 2 shows the proportion of households that own different types of fire safety equipment. The table illustrates that most people own a smoke alarm while only small proportions of people own a fire blanket or a fire extinguisher.

Measure	Result	df	P
Fire safety knowledge	0.816	3, 157	0.487
Response to a fire	6.826	3, 157	0.001**

** Note: significant at the .01 level

The MANOVA results in Table 3 show that the main effect of age was not statistically significant on the level of fire safety knowledge, $F (3, 157) = 0.816$, $MSE = 163.936$, $p = 0.487$, but that it was statistically

significant on the accuracy of response in a fire, $F (3, 157) = 6.826$, $MSE = 2287.519$, $p = 0.001$. Scheffe Post hoc tests showed that people in the 35–54 years age group would respond to fire more accurately ($M = 90.33$, $SD = 10.12$) than people in the 18–24 years age group ($M = 77.62$, $SD = 16.26$) and the 55–65+ years age group ($M = 68.24$, $SD = 24.66$).

Discussion

The findings show that fire safety training is necessary for improved fire safety knowledge and accuracy of response in a fire, thus supporting the first and second hypotheses. The findings also reveal that there are age differences in relation to accuracy of response in a fire but that no such differences exist with regard to fire safety knowledge, thus showing partial support for the third hypothesis. These findings are further explained in the following sections.

In relation to the first hypothesis, the findings demonstrate that the level of fire safety knowledge is higher among individuals who had been exposed to fire safety training compared to those who had not been exposed to any fire safety training. This was the case even when individuals had been exposed to a minimal amount of training which suggests that any amount of fire safety training is beneficial to enhance the level of fire safety knowledge. This finding is similar to that of DiGuiseppi *et al.* (2002), Mallonee *et al.* (1996) and the NFPA (2000, 2002) reports that also indicated that fire safety training enables individuals to take more precautions to prevent a fire.

The present findings also demonstrate that individuals with a higher level of fire safety knowledge were more aware of fire safety precautionary measures such as the importance of smoke alarm installation and maintenance in the home. Similarly, McConnel *et al.* (1996) and Satyen *et al.* (2003) found that an increased level of fire safety knowledge enables individuals to be more cautious about unsafe behaviours and more aware of the importance of the use of fire blankets and fire extinguishers.

In relation to owning fire safety equipment, the present findings show that while almost 90 per cent of households owned a smoke alarm, only 21 per cent of households owned a fire extinguisher and 14 per cent owned a fire blanket. These findings suggest that people are not aware of the importance of possessing important life saving equipment. The study also found that people were not aware of the importance of using multiple fire safety equipment especially fire extinguishers and fire blankets. This finding elucidates the importance of making people aware of the importance of owning fire safety equipment and also training them to appropriately use them. An MMFB (2001) report also found that even when people owned multiple fire safety equipment, they were not confident in using them during a fire. Overall, the present findings suggest that provision of fire safety training would be beneficial in improving a range of fire safe behaviours.

The findings in relation to the second hypothesis showed that people who had been exposed to fire safety training would respond more accurately to a fire: that is., they would make more rational and appropriate decisions at a time of urgency and danger. This finding is similar to that of Brennan (1999) and the NCIPC (1998) report, which also demonstrated that fire safety training is necessary to respond safely to a fire. The present study also found that people who had previously been exposed to fire safety training were more likely to warn others and evacuate the burning building during a fire incident. This finding could be explained through the naturalistic decision making theory which states that being exposed to fire safety training enables individuals to better assess the situation and accurately interpret the information in the environment (Driskell & Salas, 1996). Thus exposure to fire safety training would enable individuals to accurately assess a fire situation and choose appropriate responses such as warning others or immediately evacuating from the burning building.

The findings of the present study provided partial support to the third hypothesis as they demonstrate age differences in the accuracy of response to a fire but no such differences in their level of fire safety knowledge. People from all age groups were well informed about the causes of a fire and how it could be prevented – for example, through a smoke alarm installation. Similarly, people from all age groups were aware of the emergency phone number and the safest and most efficient path to exit from the third floor of a building in a fire situation. These findings suggest that young, middle-aged, and older people have a similar level of fire safety knowledge, which are in contrast with previous research showing younger and older individuals to have a decreased knowledge about fire safety compared to their middle-aged counterparts (Brennan, 1999; CFA & MFB, 1999; NCIPC, 1998; NFPA, 2000). However, the present findings could be interpreted in light of the improved training programs that are currently conducted by the fire authorities (for example, the MMFB) to educate people of all age groups, especially the younger and older people through the 'Fire Ed' program for children and the 'Retire Ed' program for elderly individuals. The finding suggests that proactive action could be a strong influential factor in improving the community's level of fire safety knowledge.

The findings of the present study demonstrated that younger and older people were less able to respond accurately to a fire. For example, younger and older adults were less aware of the actions to be taken, that is, to stop, drop, and roll, if their clothes caught on fire. These findings are consistent with earlier studies (Brennan, 1999; NCIPC, 1998) that showed that

younger and older adults are less capable of responding appropriately as opposed to middle-aged adults. The findings suggest that in spite of having a good level of fire safety knowledge, younger and older people have a reduced ability to respond accurately in the event of a fire, which could be due to their limited cognitive capacity, information processing ability, and ability to conceptualise information correctly (Kose, 1999; Satyen *et al.*, 2003; Sternberg, 2001). Furthermore, certain characteristics of elderly individuals such as a reduction in their activity levels may impact on their ability to safely escape from a fire (Kose, 1999).

The present study was confined only to participants who had not been involved in a fire and their responses to the questions could be different to people who had actually been involved in a fire. Thus caution should be maintained in interpreting the findings as people may believe they would respond in a particular way, however, their actual response in a fire might be different. However, this limitation does not preclude the finding in relation to the importance of fire safety training to assist people to deal with a fire more accurately. Thus, any proactive action taken by the fire and other authorities could improve the community's preparedness to deal with a fire more accurately, ultimately minimising the number of fire-related injuries and deaths.

Overall, the present findings suggest that provision of fire safety training would be beneficial in improving a range of fire safe behaviours. They also indicate that exposure to fire safety training would enable individuals to accurately evaluate a fire situation and choose an appropriate course of action. The findings in relation to older age groups not being able to accurately respond during a fire imply that special fire safety training programs matched with their cognitive and physical capabilities need to be developed for this part of the population so that information can be more effectively imparted.

It is recommended that fire safety training be incorporated as part of health improvement programs. Future studies could investigate the relationship between fire safety knowledge and peoples' actual response in a fire. Furthermore, the whole area of fire safety in general and the application of such research to public safety needs to be advanced. Ultimately, the public needs to be educated about the importance of fire safety so that they could prevent a fire or respond appropriately if a fire were to occur.

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BY NO LATER THAN 28TH FEBRUARY 2007.

The preparation of volunteers for deployment in emergencies

Richard Ming Kirk Tan examines volunteer preparation for emergencies

Abstract

If volunteers are not prepared for the roles they have agreed to take on in emergencies, they might add to the problems that the relief organisation or the national or local authorities will face. In addition, they will also put themselves in danger or difficulties and their families at risk of the consequences that may follow. This paper looks at some of the things that can be done to prepare volunteers for emergencies, dealing with the main issues involved with the pre-deployment screening, personal preparation, proper equipping and adequate briefing of volunteers before they are deployed in emergencies. It concludes with the view that proper and sufficient preparation of volunteers is a necessary prerequisite to the deployment of volunteers in emergencies.

Introduction

The international response to emergencies and disasters in recent years, especially since the Indian Ocean earthquake and tsunami disaster in December 2005, has generally been unprecedented and heartening. This has come through in various forms including relief assistance from volunteers. While volunteers can and do have a part to play by providing much needed assistance at relatively short notice, they need to be sufficiently prepared. If volunteers are not adequately prepared for the roles they have agreed to take on, they might add to the problems that the relief organisation or the national or local authorities will face. In addition, they are also likely to put themselves in danger or difficulties and their families at risk of the unpleasant consequences that may follow. It has also been said that one of the most important challenges in ensuring the sustainability of volunteerism in disaster preparedness is the prolongation of volunteer motivation (Ozerdem & Jacoby, 2006) and properly prepared volunteers will contribute greatly to this. This paper looks at some of the things that can be done to prepare volunteers for their roles in emergencies. It will give examples from some of the recent disasters and deal briefly with the

main issues involved in the pre-deployment screening, personal preparation, proper equipping and adequate briefing of volunteers before they are deployed in emergencies.

This paper is not intended to be exhaustive on the matters raised but seeks to highlight some areas of concern that volunteers and the organisations that deploy them ought to pay attention to. In addition, it does not propose to deal with other factors that may also be critical for the well being of volunteers e.g. on-going training and other support. While there are some differences depending on whether the volunteer is being deployed in an emergency within his country or overseas, many of the points raised would be applicable to both types of situations.

Nature of emergencies

Before proceeding to deal with the main issues involved, there are three factors about emergencies that should be highlighted. Firstly, the legal and regulatory environment in an emergency situation is likely to be very different from the normal situation in the affected area. Secondly, the physical conditions and the infrastructure of the affected area are often also adversely affected. Thirdly, there is likely to be a major psychological impact caused by the disaster or calamity that resulted in the state of emergency.

Under most national laws, the government has the right to declare a state of emergency when the country or part of it is threatened. The circumstances that may lead to the declaration of a state of emergency range from international conflict, war and invasion to disturbances of peace, public order or safety to natural or public calamity or disaster (Orra, 1982). However, once a state of emergency has been declared, the legislature or government will usually have wide ranging powers that may derogate from the norms of basic human rights (Chowdhury, 1989) such as freedom from discrimination or the right to a fair trial or from other constitutional safeguards. For example, under *Article 150(5) of the Singapore Constitution*, while a proclamation of emergency is in force, subject to certain limited circumstances, no law "shall be invalid on the ground of inconsistency with any provision of this Constitution." Malaysia also has a fairly similar provision in *Article 150(6)* of its Constitution. It has been pointed out that

it is not easy to devise universal norms for regulating the conduct of the ruling elites in different states of emergency and that even in the liberal democracies of the West, suspension of basic human rights during a public crisis has received constitutional sanction. (Chowdhury, 1989, p 9).

When a state of emergency is declared, the area concerned would have usually suffered from destruction and damage from a natural or man-made disaster. This often means that the buildings and other structures there may be destroyed or unsafe. In addition, basic amenities and utilities like food, water, electricity and shelter may be non-existent or scarce. In fact, it was said that after the Indian Ocean earthquake and tsunami disaster "many government structures that were already under-resourced and, in some cases, strained by years of conflict, suffered great losses in the tsunami. At the same time, the enormous influx of international actors put pressure on local, district and national authorities …" (UNICEF, 2005). Furthermore, the usual socio-economic activities like trade and commerce are likely also to be disrupted in an emergency. All these factors contribute to a very chaotic environment and in an extreme situation, it could also lead to anarchy as it did in New Orleans after Hurricane Katrina (BBC News, 1 Sep 2005).

The psychological impact on the local population is often harder to detect and comes through the loss of lives and injuries and through substantial loss and damage to property and the environment. The unexpected and often horrifying events that lead to an emergency and their consequences are often traumatic and can affect people very deeply. These may also affect volunteers and relief workers at the same time and at least one study has indicated that humanitarian relief workers may be at high risk of developing symptoms of post traumatic stress disorder (Eriksson et al, 2001). After the Indian Ocean earthquakes and tsunamis, Malaysian Medical Relief Society (MERCY Malaysia), a non profit organisation dedicated to the delivery of medical and humanitarian aid, went to Aceh to help. According to MERCY Malaysia's Founder and President: "At the time of arrival of the initial teams in Aceh, there had not been much media coverage of the disaster there. Thus, the early images of widespread death and destruction did pose some challenges in terms of psychological stress to the volunteer teams. Despite having deployed experienced team members, we very early on recognised the need to conduct regular debriefing and psychological support to the team members" (Mahmood, 2005).

The Chairman of Palang Merah Indonesian (PMI or Indonesian Red Cross) also said in respect of the same disaster that "psychological support is essential" (Muhammad, 2005). In addition, it has been said that discounting the effects of traumatic events on the relief workers reflects disregard not only for their well-being, but more importantly, for the impact of distressed aid workers on the population they seek to serve (McCall M. & Salama P., 1999).

As a consequence of the severe and more hazardous conditions that exist in an emergency, it is important that volunteer relief workers and the organisations that send them screen and prepare them as much as possible to avoid adding to the problems that are already there.

Emergency volunteers often work in severe and hazardous conditions.

Some measures for the preparation of volunteers

Several things may be done to prepare volunteers who are deployed in an emergency and this section deals with some of them. It is suggested that the main preparation measures may be grouped into the following four categories:

(a) pre-deployment screening

(b) personal preparation

(c) proper equipment; and

(d) adequate briefing.

A list of self-explanatory items is suggested after a short discussion of each category below but they are not meant to be exhaustive in nature. The lists are adapted from information found in various sources including travel guides and emergency and survival handbooks. However, different organisations and different situations will dictate the inclusion of other relevant items or changes from the given lists.

(a) Pre-deployment screening

Pre-deployment screening is important as it will help sieve out volunteers who may not be ready or competent to take part in the current deployment because of health or other personal circumstances prevailing at the relevant time. The Singapore Armed Forces Psychiatry Team Leader in the earthquakes and Indian Ocean tsunamis relief operations said that apart from a willingness to help you also need maturity and to be able to tolerate "disturbing scenes" and "unpleasant conditions for a while" (Cheok, 2005). Psychological and personality testing has been recommended as a "powerful mechanism for screening potential candidates for employment" in high risk-exposure occupations in disaster and emergency medical organisations (Dunning, 2004) and may also be considered for volunteers before deployment in emergencies. In fact, in order to be deployed by the Green Cross Assistance program, qualified members must, among other things, complete a Federal Emergency Management Agency (FEMA) Basic Incident Command System course and a Compassion Fatigue Self-Test and obtain approved scores (Figley & Figley, 2005). With regards to the selection and training of disaster relief workers, it has been pointed out that "differentiating personnel in regard to their prior experience is also important (Paton et al, 2004). In addition, prior testing and assessment through assessments centres using, among other things, multiple exercises and simulations are also useful for selecting volunteers to be emergency managers (Paton at al, 2002). Generally, pre-deployment screening may include the following:

(i) Medical check up (to confirm health)

(ii) Psychological and personality testing (to confirm mental health)

(iii) Qualification and certification check (to confirm their currency)

(iv) Verification of prior experience and training.

(v) Testing and assessment (e.g. by exercises and simulations)

(vi) Written consent to risks involved (to confirm assumption of risks)

(b) Personal preparation

Volunteers also need to be briefed to adequately prepare themselves before any deployment. To highlight how unexpectedly a situation may eventually turn out to be, the tragic case of Mr Richard Fong, a 45-year old Singapore real estate agent is pertinent. Mr Fong organised and led a convoy of Land Rovers from Singapore taking relief supplies to tsunami survivors in Krabi, Thailand after the Indian Ocean earthquakes and tsunamis. The relief supplies consisted of clothes, surgical gloves, masks and other medical supplies. He lost control of his Land Rover and died after it flipped a number of times along the North-South Expressway in Kedah, Malaysia (The Straits Times, 2 Jan 2005). More unfortunate was the fact that he left a 10-year old son whose mother had been in a coma for more than two years (The Straits Times, 5 Jan 2005). In one study of deaths in humanitarian workers between 1985 and 1998, it was reported that there was a trend of increasing deaths among relief workers from non-governmental organisations (Sheik, M. et al, 2000). Needless to say, these are usually the organisations most likely to use volunteers. The following is a list of some of the things that may be involved in personal preparation:

(i) Vaccinations and immunizations

(ii) Physical training and preparation

(iii) Will – a legal document to distribute property after death

(iv) Advance medical directive or living will

(v) Final message to family and friends (a.k.a. ethical will)

(vi) Insurance – health, medical, travel, accident and life

(vii) Employment or business leave and cover

(viii) Power of attorney and/or appointment of agent

(ix) Appointment of guardian

(x) Finance – fund raising and bill payment arrangements

(xi) Mail handling arrangements

(xii) Newspaper and other delivery arrangements

(xiii) Reschedule of appointments – medical, dental and others

(xiv) Contingency planning in case of delay or failure to return or other contingencies

(xv) Pets and plants care

Psychological support is essential in decreasing the effects of traumatic events on volunteers.

(c) Proper equipment

It is important that volunteers bring with them the proper clothing and any necessary equipment to avoid taxing the local resources or worse, being inadequately equipped. A list of things to bring along may include the following items:

(i)   Clothing (spare clothing and inclement weather clothing)

(ii)   Toiletries

(iii)   Personal medication

(iv)   First aid kit

(v)   Insect repellent

(vi)   Identification documents (identity card or driving licence)

(vii)   Passport (with appropriate visa)

(viii) Mobile phone and charger

(ix)   Radio

(x)   Multipurpose pocket knife/tool

(xi)   Writing material

(xii)   Torchlight

(xiii) Whistle

(xiv) Food

(xv)   Water purifier/filter

(xvi) Sunscreen

(xvii) Cash

(xviii) Others – e.g. additional batteries, guidebooks and handbooks

(d) Adequate briefing

Sometimes, even proper training may not sufficiently prepare a volunteer for the actual situation. A medical doctor with previous pre-hospital emergency experience who helped out after the London terror attacks in July 2005 stressed the need to improvise and had this to say:

"I have trained for such a situation for 20 years – but on the assumption that I would be part of a rescue team, properly dressed, properly equipped, and moving with semimilitary precision. Instead, I am in shirtsleeves and a pinstripe suit, with no pen and no paper, and I am technically an injured victim. All I have is my ID card, surgical gloves, and my colleagues' expectations that I will lead them through this crisis" (Holden, 2005).

Although volunteer relief workers often have to adapt at the disaster location, pre-deployment briefings that are as comprehensive as possible would help to prepare them for that situation. One study suggested that better pre-travel health and medical briefing and preparation would minimise preventable morbidity and mortality among relief workers (Sharp et al, 1995). Among other things, they need to be briefed about the risks present and the possibility of becoming victims themselves. The Chief Officer for Muhammadiyah Committee for Aceh Recovery, a Muslim non profit and social organisation, said in respect of their experience in Aceh that many Muhammadiyah members became victims of tsunami and some also "suffered from traumatic situation" (Husein, 2005). In addition, in many current conflicts, "it is well known that civilians have become common targets, children are increasingly the solders and terror

is used as a weapon" (Smith, 2002). Volunteers should also be briefed about cultural sensitivities, including the "dos and don'ts" in a foreign culture. The Medical Team Leader of the Medical Task Force (Banda Aceh) of the Singapore Armed Forces mentioned the need to be "mindful of local differences" in respect of cultural matters (Fan, 2005).

Another important briefing topic would be the legal rights and liabilities of the volunteers and their organisations. Dunlop argues that about a decade ago in Australia, "emergency service organisations (ESOs) were rarely sued, rarely questioned and rarely thought to be affected by legislation such as Occupational Health and Safety Acts." He believes that the situation is infinitely more complicated today and that "changes in the law and in community expectations have increased the legal responsibilities, liabilities and the legal scrutiny of ESOs". He goes on to say that "these changes can be said to affect or even threaten the sustainability of ESOs, particularly those that are reliant on volunteers" (Dunlop, 2004). While there may not have been much research done about this in other countries, it is submitted that this is a likely trend in a world where people are becoming increasingly more aware of their legal rights. It has been mentioned by Kanarev (Kanarev, 2001) that there are "potential legal liabilities associated with operational decisions" and "crisis decision-making and evacuation management are examples of operational decisions". Currently, the main legal issues concerning emergency management seem to be in the areas of negligence, employment law and administrative law (Douglas, 1999). However, emergency and humanitarian workers are increasingly likely to find themselves operating in countries experiencing armed conflict and it is "essential for them and their personnel to understand the aspects of international law that may apply to them so that they can provide the greatest assistance with the

least risk of inadvertent offence" (Layton & Bannon, 2000). These aspects would include international humanitarian law, human rights, international criminal law, war crimes, genocide and crimes against humanity (Layton & Bannon, 2000).

One aspect of the legal briefing should also highlight that law in the books and law in action may be two entirely different things. It has been pointed out that one weakness of human rights and humanitarian law has been its lack of enforcement (Guest & Bouchet-Saulnier, 1997). In fact, one writer mentioned that "many people engaged in and leading the shooting have neither heard of nor can they read the Geneva conventions" (Smith, 2002).

A list of briefing topics could include the following:

(i) Packing list

(ii) Preparation checklist

(iii) Travel/transport arrangements

(iv) Food and lodging arrangements

(v) Physical and other conditions of location

(vi) Risks present

(vii) Cultural and religious sensitivities – a list of dos and don'ts

(viii) Job requirements

(ix) Legal rights and liabilities (under national law, foreign law and international law)

(x) Safety and security arrangements

(xi) Emergency evacuation procedures

(xii) Self-care

(xiii) Available assistance – e.g. Medical, psychological and legal help

The physical conditions of the subject area can be a major factor needing to be highlighted to volunteers.

Conclusion

In conclusion, it is submitted that the proper and sufficient preparation of volunteers is a necessary prerequisite to preventing or reducing the dangers and problems that might arise from the deployment of volunteers in emergency operations. While lists of a number of things that need to be done to prepare volunteers before deployment have been included in this paper, they are not meant to be comprehensive nor exhaustive. It is hoped that further work can be done in this area so that more comprehensive information may be available to address the concerns raised. More studies of past disasters and emergencies around the world would be helpful and likely to enable better preparations for the future. George Santayana's statement that those who cannot remember the past are condemned to repeat it is very apt in this regard.

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NOTES FROM THE FIELD

Dr Ian Smith in Pakistan with Medecins Sans Frontieres (Doctors Without Borders)

The unique tent hospital that Brisbane (Toowong) anaesthetist, Dr Ian Smith, helped put up in nine days soon after the Pakistan earthquake on October 9 had facilities as good as hospitals in some Australian regional cities.

The hospital, at Mansehra, 48km from Balakot (the main town affected by the earthquake) is the only hospital for more than 100,000 people whose homes the earthquake destroyed.

Just as Dr Smith was helping to finish the first tent-hospital operation (a fractured hip), he and the surgeon were called away to perform a caesarean on a woman with obstructed labour. The mother and baby survived.

Dr Smith said, "We put extraordinary effort into getting the hospital up and working as quickly as possible. After 200 operations in three weeks, we knew it was working well. "It comprises nine tents connected together, made for Medecins Sans Frontieres (MSF) in Europe: four operating theatres, a six-bed intensive care tent, an emergency tent and tents for about 100 patients on beds in general wards.

"This was the first time, to my knowledge, that a tent hospital has

The MSF Inflatable tent hospital in Mansehra, North West Frontier Province (Pakistan) for the October 2005 earthquake. © Remi Vallet / MSF.

Dr Smith with MSF nurse Francesca Pinzone from Sydney.

beenmade and used by MSF or any other aid organisation," said Dr Smith. "It replaced a hospital that the earthquake destroyed and came with all the equipment, in 150 boxes, needed for 300 different operations."

More than 20 doctors and nurses worked in the tent hospital, including Dr Smith and a Sydney nurse, Francesca Pinzone. Next door were facilities for outpatients. The hospital will stay at Mansehra for at least a year while the damaged hospital is rebuilt.

In the first three weeks after the first operation, Dr Smith was the anaesthetist at 200 more operations, from 15 to 20 a day. "We could do far more operations – and in more sterile conditions – than otherwise," he said.

"Most operations were for injuries from the earthquake, such as fractures that had set wrongly or had become infected. Some operations were complicated, such as one on an eight-year-old boy whose eye we saved after it was very badly injured."

Another boy was the only person who survived when the earthquake destroyed a concrete school and

MSF Doctors with a patient in the tent hospital.

about a thousand teachers and children were killed. The reason the boy lived: he was late for school that day.

Every few days after the earthquake, there was an earth tremor – the reason Dr Smith chose to live in a tent while he was there.

Nick Lawson, an Australian who was Medecins Sans Frontierers' head of mission two days after the earthquake, said: "We identified families who had received poor-quality tents and exchanged them for ones suited to the winter climate. We also distributed more blankets and other basic needs, such as kerosene heaters."

Dr Smith worked previously for the Northern Territory Health Department in Katherine and for MSF in Aceh after the Indian Ocean tsunami. He is now talking to the MSF Australia office in Sydney about doing another mission, in Liberia.

For information about Medecins Sans Frontieres, phone 1300 13 60 61 or visit the website, www.msf.org.au.

By Philip Luker, a journalist with MSF.

AJEM BOOK REVIEW

Encyclopedia of Bioterrorism Defense

Reviewed by: Don Patterson
Assistant Director Special
Capabilities
Emergency Management Australia

Edited by:
Richard Pilch
Raymond Zilinskas

The editors Richard Pilch and Raymond Zilinskas have done an admirable job of providing an encyclopedia covering the subjects of Bio Terrorism. The single volume of over 550 pages, 125 articles by some 100 contributors, who are recognized experts in their field, covers the wide spectrum of subject areas. The reader is provided with a concise overview of the topic with useful references to allow the user to obtain more comprehensive information. There is always the danger of trying to cover too much, which in the case of bio terrorism could fill many volumes, and the editors have achieved a nice balance. The book has a user friendly style with a table of contents arranged alphabetically, and a comprehensive index. A number of subject areas are cross referenced to other associated topics that allow the reader to follow a particular theme. There are also case studies and lessons learned. Internet references are a welcome addition which helps facilitate the reader to obtain the most current information.

Bioterrorism is a complex subject that involves many facets including not just the typical biological agents, but the public health, research, and operational response agencies that would be involved in responding to and recovering from a bio terrorist attack. For the analyst, the book also includes information on terrorist groups who have demonstrated interests in Biological weapons. The serious reader on Biological terrorism should consider adding this volume to their collection. The book provides an easy to use reference that briefly covers the key subjects areas, and would be a useful addition not only to libraries, but to a wider audience including the health professional, emergency planner, and policy makers who may be involved in Bio Terrorism planning and response.

AJEM now listed internationally

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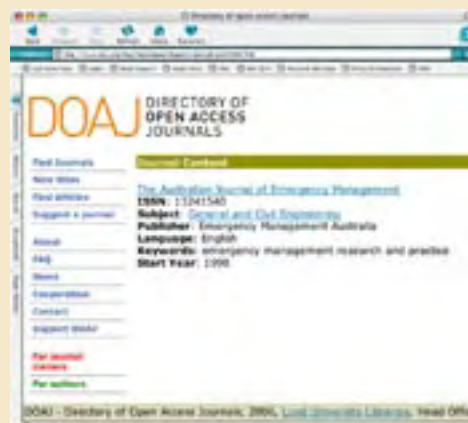
Million year old tree testament to longevity of EMA Institute

On 3 July 2006, the Emergency Management Australia Institute at Mt Macedon in Victoria celebrated 50 years of delivering emergency management services to Australia. During a ceremony to recognise the achievements of the Institute on 20 October 2006, the Attorney-General, the Hon. Philip Ruddock MP, unveiled a time capsule contained within a box frame which is scheduled for opening in 2031.

Invited guests included senior representatives from the Attorney-General's Department, the local community, and the current and former Directors-General of EMA and Directors of the Institute.

In an earlier informal ceremony to mark the anniversary, the Director General Emergency Management Australia, Mr Tony Pearce, planted a Wollemi Pine in the gardens of the Institute. The tree, which is an offshoot of the rare jurassic Australian pine discovered in 1994, was chosen as it signifies the growth and long-term survival of the Institute.

The Australian Civil Defence School at Mount Macedon, forerunner to the Australian Counter Disaster College, the Australian Emergency Management Institute and more recently the Emergency Management Australia Institute, was officially opened on 2 July 1956 by the then Minister for the Interior and Works, the Honourable Allen Fairhall, MP.

Instructional courses began in 1956 and until the late 1960s training centred on matters relating to protection of the civil population against hostile acts. After this time, the teaching focus changed to dealing with natural and man-made disasters.

Marking the 25th anniversary of the opening of the Institute (or College as it was then referred) on 3 July 1981, His Excellency, the Right Honourable Sir Zelman Cowan, Governor-General of the Commonwealth of Australia unveiled a plaque on a cairn bearing a remnant of Skylab, formerly a manned orbital research space laboratory.

The EMA Institute continues to provide training and education to emergency management personnel. Today, the Institute is a Registered Training Organisation conducting a range of activities designed to improve Australia's capabilities in managing emergencies.

The Emergency Management Australia Information Centre is also situated within the Institute and is a national resource that promotes and supports all aspects of emergency management. This facility is a national reference centre for specialist information relevant to the work of the emergency management community and is unique in Australia as it covers the entire spectrum of emergency management issues.

Attorney General, Director of EMA and Former Directors General with the time capsule at the 25th Anniversary event. L-R: Brig. Alan Hodges, Maj Gen. BW (Hori) Howard, Maj Gen. Kevin Latchford, The Hon. Philip Ruddock, MP Attorney General, Tony Pearce, Director General, Emergency Management Australia, Rear Admiral Rothesay Swan, and David Templeman.

Tony Pearce, Director General, Emergency Management Australia, planting the Wollemi Pine in the gardens of the Institute.

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 activities that assist this aim.

EDUCATION AND TRAINING

EMA Senior Executive Program

The EMA Senior Executive Program was conducted on two occasions this year. Senior Executives from State, Territory and Australian Governments' attended the programs. The scenario based program focuses on Strategic Decision making in an uncertain environment. Participants who successfully complete an optional post course assignment will achieve one subject towards an MBA at RMIT University. Participation is by invitation only.

For further information contact donovan.croucamp@ema.gov.au

Risk-Based Land Use Planning nationally accredited!

Accreditation means that, once the assessment has been successfully completed, students will receive a nationally recognised Statement of Attainment.

Accreditation information:

- The official title is 21745VIC Course in Risk-Based Land Use Planning.
- The unit of competency which describes the course is titled Facilitate natural risk-based land use planning.
- The accreditation period is from July 1, 2006 – June 30, 2011.

The first course to be delivered under the accreditation will begin on November 28 2006.

Work is currently underway to develop an RPL process for those participants who have undertaken the course in its current format, and successfully completed the assessment.

The course has been fully supported by the Planning Institute of Australia and attracts Continuing Development Points in the PIA professional development system.

Targets for the program are:

- Land use planners who work for, or with, Local Government, State / Territory Government, the Australian Government, officers from referral agencies, and
- Emergency Management officers with an interest in planning for land use.

Learning outcomes are:

- Mitigate risk through land use planning
- Apply the risk management framework to land-use planning activities
- Review policy and implementation outcomes.

The course in its current format has been extremely well received by participants. During the program they have access to quality academics, consultant planners, and hazard management specialists as well as having the opportunity to present their outcomes to practicing local government planners and decision-makers.

We encourage nominations for the program from Local Governments, State Government planning agencies, and from the appropriate division within referral agencies in your State / Territory.

For further information contact Susan Henry at susan.henry@ema.gov.au

Inclusive Emergency Management with Culturally and Linguistically Diverse (CALD) Communities

EMA has received additional funding to build on the 2005/6 pilot program to engage CALD communities in emergency management. New initiatives include:

- Development of culturally specific National School Education resources for youth on emergency management issues;

EDUCATION AND TRAINING

- Development of strategies to increase the participation of culturally diverse community members in emergency management volunteer groups; and

- Development and distribution of emergency management information in languages other than English

For further information contact Judy Parker at judy.parker@ema.gov.au

EMA Library

EMA library has a new manager. Troy Watson, who has a background in educational, public and government libraries, recently commenced with EMA in the role of library manager. Troy is keen to further develop the services offered by the library and would welcome any comments and feedback about the library service.

For further information contact Troy Watson
Phone: 03 5421 5246
email: troy.watson@ema.gov.au

Australian Emergency Manuals

EMA has arranged for the Australian Emergency Manuals (Principles and Reference series) to be available to the general public via a print-on-demand facility accessed via the website. The manuals will still be freely available electronically via the website or by CD free of charge, but if a print copy is required then the manual can be purchased through this facility.

This facility is similar to other 'shop on line' services, where the buyer can deposit their goods into a 'shopping trolley' and continue shopping.

Please visit http://www.ema.gov.au/agd/EMA/emaInternet.nsf/Page/Publications

interesting websites
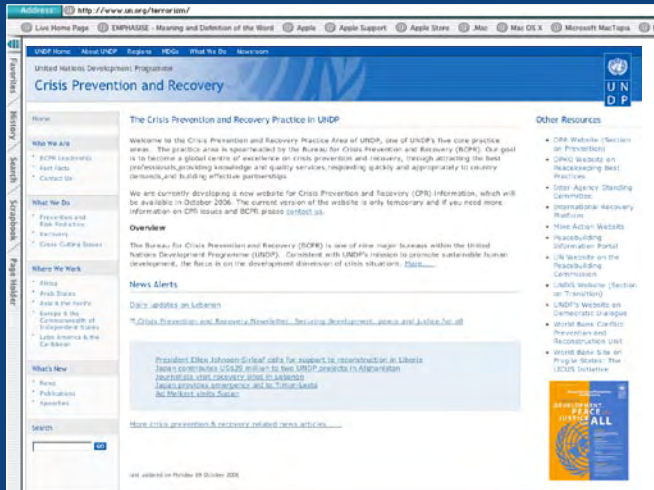
United Nations Development Programme

Crisis Prevention and Recovery Practice in UNDP Website

www.undp.org/bcpr

The Crisis Prevention and Recovery Practice Area of UNDP is one of UNDP's five core practice areas. The practice area is spearheaded by the Bureau for Crisis Prevention and Recovery (BCPR). Their goal is to become a global centre of excellence on crisis prevention and recovery, through attracting the best professionals, providing knowledge and quality services, responding quickly and appropriately to country demands, and building effective partnerships.

They have a new website for Crisis Prevention and Recovery (CPR) information, which became available in October 2006. The website outlines the roles of BCPR, what they do and the countries in which they work such as Africa, Arab States, Asia & the Pacific, Europe & the Commonwealth of Independent States and Latin America & the Carribean.

The site contains a Crisis Prevention and Recovery Newsletter, has a news alerts section and provides access to a number of publications and speeches.

For those of you with an interest in international prevention and recovery this site is a must.

Medecins Sans Frontieres Australia

www.msf.org.au

The website of Medecins Sans Frontieres (Doctors without borders) Australia provides a number of updates regarding the work this international organisation does providing independent humanitarian medical aid helping those living on the edge of human tolerance in trouble spots all over the world.

The site also gives details on how to volunteer for and donate to this important organisation.

Australian Government

Attorney-General's Department
Emergency Management Australia

'working together to manage emergencies'
EMA SEEKS APPLICATIONS FOR FUNDING

GRANTS AVAILABLE

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

LOCAL GRANTS SCHEME

Funding under this Program is available to local governments, and local governing bodies in remote communities and Indigenous communities. It is for projects that develop and promote effective community preparedness, response and recovery initiatives, identify vulnerabilities with a view to enhancing protective measures for critical infrastructure and provide emergency management and security awareness training for local government staff.

NATIONAL EMERGENCY VOLUNTEER SUPPORT FUND

Funding under this Program is available to emergency management volunteer organisations for projects that will boost recruitment, retention and training for organisations at the frontline of emergency management.

HOW TO APPLY

The application period for funding during FY2007-08 will commence from mid-December 2006. Guidelines, application forms and details on how to apply will be available at this time from the EMA website or by contacting the Working Together to Manage Emergencies team:

E-mail   cd@ema.gov.au
Phone   (02) 6256 4608
Fax   (02) 6256 4653
Website   www.ema.gov.au/communitydevelopment

Closing date for applications is Friday 2 March 2007.

GREY1-2836

EMA   *'safer sustainable communities'*